

**REVISION RECORD  
FOR THE STATE OF CALIFORNIA  
SUPPLEMENT**

**July 1, 2018**

**2016 Title 24, Part 5 California Plumbing Code**

**General Information:**

1. The date of this Supplement is for identification purposes only. See the History Note Appendix on the backside or accompanying page.
2. This supplement is issued by the California Building Standards Commission in order to provide new and/or replacement pages containing recently adopted provisions for California Code of Regulations, Title 24, Part 5, of the 2016 California Plumbing Code. Instructions are provided below.
3. Health and Safety Code Section 18938.5 establishes that only building standards in effect at the time of the application for a building permit may be applied to the project plans and construction. This rule applies to both adoptions of building standards for Title 24 by the California Building Standards Commission, and local adoptions and ordinances imposing building standards. The new building standards provided with the enclosed blue supplement pages must not be enforced before the effective date.
4. Not all code text on the enclosed blue supplement pages is a new building standard. New, amended, or repealed building standards are identified by margin symbols. An explanation of margin symbols is provided in the code before the Table of Contents.
5. You may wish to retain the superseded material with this revision record so that the prior wording of any section can be easily ascertained.

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## RELATED PUBLICATIONS AND SERVICES

*The Documents Listed are Not by this Reference Adopted by The State of California.*

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### **ANSI Z 124 Standards:**

These standards are written to specifically address a variety of plastic plumbing fixtures and components. They are available individually, or may be grouped for quantity discounts.

### **IAPMO Installation Standards:**

IAPMO standards committees have formulated installation standards for a wide variety of commonly used plumbing materials and systems. The IAPMO installation standards are included after the text of the Uniform Plumbing Code, or can be purchased separately.

### **Material and Property Standards:**

IAPMO does not generally develop material and property standards, but when a need exists the Association will take a leadership role by filling the void. They are available, are subject to amendments and are withdrawn when recognized consensus standards are formulated.

### **OFFICIAL Magazine:**

IAPMO's bimonthly publication features informative articles related to Plumbing and Mechanical HVACR installations, award winning general interest features, technical columns and industry updates. Subscriptions are available and all IAPMO members receive a free copy of every issue!

### **Membership in IAPMO:**

IAPMO membership is open to all interested persons. Membership categories include Student, Individual, Senior, Organizational and Governmental. Member benefits include discounted prices on IAPMO publications, a subscription to Official magazine, and numerous educational and training opportunities.

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**CHAPTER 13**

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**CALIFORNIA PLUMBING CODE – MATRIX ADOPTION TABLE**  
**CHAPTER 1 - ADMINISTRATION**

(Matrix Adoption Tables are non-regulatory, intended only as an aid to the code user. See Chapter 1 for state agency authority and building applications.)

Adopting Agency	BSC	BSC- CG	SFM	HCD			DSA			OSHPD				BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1-AC	AC	SS	SS/CC	1	2	3	4								
Adopt Entire Chapter																					
Adopt Entire Chapter as amended (amended sections listed below)																					
Adopt only those sections that are listed below	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Chapter/Section																					
<i>Division I – California Administration</i>																					
1.1.1	X		X	X	X	X		X	X	X	X	X	X								
1.1.2	X		X	X	X	X		X	X	X	X	X	X								
1.1.3	X		X	X	X	X		X	X	X	X	X	X								
1.1.4	X		X	X	X	X		X	X	X	X	X	X								
1.1.5	X		X	X	X	X		X	X	X	X	X	X								
1.1.6	X		X	X	X	X		X	X	X	X	X	X								
1.1.7	X		X	X	X	X		X	X	X	X	X	X								
1.1.8	X		X	X	X	X		X	X	X	X	X	X								
1.1.9	X		X	X	X	X		X	X	X	X	X	X								
1.1.10	X		X	X	X	X		X	X	X	X	X	X								
1.1.11	X		X	X	X	X		X	X	X	X	X	X								
1.1.12	X		X	X	X	X		X	X	X	X	X	X								
1.2.0	X	X																			
1.3.0														X							
1.4.0																			X		
1.6.0																	X				
1.7.0															X						
1.8.0				X	X	X															
1.9.1							X														
1.9.1.1							X														
1.9.2								X													
1.9.2.1								X													
1.9.2.2									X												
1.10.1										X											
1.10.2											X										
1.10.3												X									

**CALIFORNIA PLUMBING CODE – MATRIX ADOPTION TABLE**  
**CHAPTER 1 - ADMINISTRATION (continued)**

(Matrix Adoption Tables are non-regulatory, intended only as an aid to the code user. See Chapter 1 for state agency authority and building applications.)

Adopting Agency	BSC	BSC- CG	SFM	HCD			DSA			OSHPD				BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1-AC	AC	SS	SS/CC	1	2	3	4								
Adopt Entire Chapter																					
Adopt Entire Chapter as amended (amended sections listed below)																					
Adopt only those sections that are listed below	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>		<b>X</b>		
Chapter/Section																					
<i>Division I – California Administration</i>																					
<i>1.10.4</i>													<b>X</b>								
<i>1.11.0</i>			<b>X</b>																		
<i>1.13.0</i>																	<b>X</b>				
Division II - Administration																					
104.2 Items 1 & 2				<b>X</b>	<b>X</b>																

*This state agency does not adopt sections identified with the following symbol: †*

*The Office of the State Fire Marshal's adoption of this chapter or individual sections is applicable to structures regulated by other state agencies pursuant to Section 1.11.*

date filed. However, in no case shall the amendments, additions or deletions to this code be effective any sooner than the effective date of this code.

Local modifications shall comply with Health and Safety Code Section 18941.5 for Building Standards Law, Health and Safety Code Section 17958 for State Housing Law or Health and Safety Code Section 13869.7 for Fire Protection Districts.

#### **1.1.8.1 Findings and Filings.**

1. The city, county, or city and county shall make express findings for each amendment, addition or deletion based upon climatic, topographical, or geological conditions.

**Exception:** Hazardous building ordinances and programs mitigating unreinforced masonry buildings.

2. The city, county, or city and county shall file the amendments, additions or deletions expressly marked and identified as to the applicable findings. Cities, counties, cities and counties, and fire departments shall file the amendments, additions or deletions, and the findings with the California Building Standards Commission at 2525 Natomas Park Drive, Suite 130, Sacramento, CA 95833.
3. Findings prepared by fire protection districts shall be ratified by the local city, county, or city and county and filed with the California Department of Housing and Community Development, Division of Codes and Standards, P.O. Box 1407, Sacramento, CA 95812-1407 or 2020 W. El Camino Avenue, Suite 250, Sacramento, CA 95833-1829.

**1.1.8.2 Locally Adopted Energy Standards – California Energy Code, Part 6.** In addition to the provisions of Section 1.1.8.1 of this Part, the provisions of this section applies to cities, counties, and city and county amending adopted energy standards affecting buildings and structures subject to the California Energy Code, Part 6.

Applicable provisions of Public Resources Code Section 25402.1 and applicable provisions of Chapter 10 of the California Administrative Code, Part 1 apply to local amendment of energy standards adopted by the California Energy Commission.

**1.1.9 Effective Date of this Code.** Only those standards approved by the California Building Standards Commission that are effective at the time an application for building permit is submitted shall apply to the plans and specifications for, and to the construction performed under, that permit. For the effective dates of the provisions contained in this code, see the History Note page of this code.

**1.1.10 Availability of Codes.** At least one complete copy each of Titles 8, 19, 20, 24, and 25 with all revisions shall be maintained in the office of the building official responsible for the administration and enforcement of this code. Each state department concerned and each city, county, or city and county shall have an up-to-date copy of the code available for public inspection. See Health and Safety Code Section 18942 (e)(1) and (2).

**1.1.11 Format.** This part fundamentally adopts the Uniform Plumbing Code by reference on a chapter-by-chapter basis. When a specific chapter of the Uniform Plumbing Code is not printed in the code and is marked “Reserved”, such chapter of the Uniform Plumbing Code is not adopted as a portion of this code. When a specific chapter of the Uniform Plumbing Code is marked “Not Adopted by the State of California” but appears in the code, it may be available for adoption by local ordinance.

**Note:** Matrix Adoption Tables at the front of each chapter may aid the code user in determining which chapter or sections within a chapter are applicable to buildings under the authority of a specific state agency, but they are not to be considered regulatory.

**1.1.12 Validity.** If any chapter, section, subsection, sentence, clause or phrase of this code is for any reason held to be unconstitutional, contrary to statute, exceeding the authority of the state as stipulated by statutes or otherwise inoperative, such decision shall not affect the validity of the remaining portion of this code.

#### **1.2.0 Building Standards Commission.**

**1.2.1 BSC.** Specific scope of application of the agency responsible for enforcement, the enforcement agency, and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

##### **1. State Buildings for All Occupancies.**

**Application** – State buildings (all occupancies), including buildings constructed by the Trustees of the California State University (CSU) and the Regents of the University of California (UC) where no state agency has the authority to adopt building standards applicable to such buildings.

**Enforcing Agency** – State or local agency specified by the applicable provisions of law.

**Authority Cited** – Health and Safety Code Section 18934.5.

**Reference** – Health and Safety Code, Division 13, Part 2.5, commencing with Section 18901.

##### **2. University of California, California State Universities, and California Community Colleges.**

**Application** – Standards for lighting for parking lots and primary campus walkways at the University of California, California State Universities, and California Community Colleges.

**Enforcing Agency** – State or local agency specified by the applicable provisions of law.

**Authority Cited** – Government Code Section 14617.

**Reference** – Government Code Section 14617.

3. **Existing State-Owned Buildings, including those owned by the University of California and by the California State University** – Building seismic retrofit standards including abating falling hazards of structural and nonstructural components and strengthening of building structures. See also Division of the State Architect.

**Enforcing Agency** – State or local agency specified by the applicable provisions of law.

**Authority Cited** – Government Code Section 16600.

**References** – Government Code Sections 16600 through 16604.

**4. Unreinforced Masonry Bearing Wall Buildings.**

**Application** – Minimum seismic strengthening standards for buildings specified in the California Existing Building Code, except for buildings subject to building standards adopted pursuant to Part 1.5 (commencing with Section 17910).

**Enforcing Agency** – State or local agency specified by the applicable provisions of law.

**Authority Cited** – Health and Safety Code Section 18934.7.

**Reference** – Health and Safety Code Division 13, Part 2.5 commencing with Sections 18901.

**1.2.1.1 State Building.** For purposes of this code, a “state building” is a structure for which a state agency or state entity has authority to construct, alter, enlarge, replace, repair or demolish.

**1.2.1.2 Enforcement.** [CSU, UC, Judicial Council and California Department of Corrections and Rehabilitation] state agencies or state entities authorized to construct state buildings may appoint a building official who is responsible to the agency for enforcement of the provisions of the California Building Standards Code.

**Exception:** State buildings regulated by other sections of this code remain the enforcement responsibility of the designated entities.

**1.2.1.3 Enforcement, Reserved for DGS.**

**1.2.1.4 Adopting Agency Identification.** The provisions of this code applicable to buildings identified in this section will be identified in the Matrix Adoption Tables under the acronym BSC.

**1.2.2 BSC-CG.** Specific scope of application of the agency responsible for enforcement, the enforcement agency, and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

**1. Green Building Standards for Nonresidential Occupancies.**

**Application** – All occupancies where no other state agency has the authority to adopt green building standards applicable to those occupancies.

**Enforcing Agency** – State or local agency specified by the applicable provisions of law.

**Authority Cited** – Health and Safety Code Sections 18930.5, 18938 and 18940.5.

**Reference** – Health and Safety Code, Division 13, Part 2.5, commencing with Section 18901.

**2. Graywater Systems for Nonresidential Occupancies.**

**Application** – The construction, installation, and alteration of graywater systems for indoor and outdoor uses in nonresidential occupancies

**Enforcing Agency** – State or local agency specified by the applicable provisions of law.

**Authority Cited** – Health & Safety Code Section 18941.8.

**Reference** – Health & Safety Code Section 18941.8.

**1.2.3 Alternate Materials, Design, and Methods of Construction and Equipment.** The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material, design or method of construction shall be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability, and safety.

**1.2.3.1 Research Reports.** Supporting data, where necessary to assist in the approval of materials or assemblies not specifically provided for in this code, shall consist of valid research reports from approved sources.

**1.2.3.2 Tests.** Whenever there is insufficient evidence of compliance with the provisions of this code, or evidence that a material or method does not conform to the requirements of this code, or in order to substantiate claims for alternative materials or methods, the building official shall have the authority to require tests as evidence of compliance to be made at no expense to the jurisdiction. Test methods shall be as specified in this code or by other recognized test standards. In the absence of recognized and accepted test methods, the building official shall approve the testing procedures. Tests shall be performed by an approved agency. Reports of such tests shall be retained by the building official for the period required for retention of public records.

**1.3.0 Board of State and Community Corrections.**

**1.3.1** Specific scope of application of the agency responsible for enforcement, the enforcement agency, and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

**Application** – Local detention facilities.

**Enforcing Agency** – Board of State and Community Corrections.

**Authority Cited** – Penal Code Section 6030; Welfare and Institutions Code Sections 210 and 885.

**References** – Penal Code Section 6030; Welfare and Institutions Code Sections 210 and 885.

**1.3.2 Adopting Agency Identification.** The provisions of this code applicable to buildings identified in this section will be identified in the Matrix Adoption Tables under the acronym BSCC.

**1.4.0 Department of Consumer Affairs.**

**1.4.1** Specific scope of application of the agency responsible for enforcement, the enforcement agency, and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.



**Board of Barbering and Cosmetology.**

**Application** – Any establishment or mobile unit where barbering, cosmetology, or electrolysis is being performed.

**Enforcing Agency** – State or local agency specified by applicable provisions of law.

**Authority Cited** – Business and Professions Code Section 7312.

**References** – Business and Professions Code Sections 7303, 7303.1, 7312, and 7313.

**1.4.2 Adopting Agency Identification.** The provisions of this code applicable to buildings identified in this section will be identified in the Matrix Adoption Tables under the acronym CA.

**1.5.0 Reserved for California Energy Commission.****1.6.0 Department of Food and Agriculture.**

**1.6.1** Specific scope of application of the agency responsible for enforcement, the enforcement agency, and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

**Application** – Dairies and places of meat and poultry inspection.

**Enforcing Agency** – Department of Food and Agriculture.

**Authority Cited** – Food and Agricultural Code Sections 18735, 18960, 19384, 33481, and 33731.

**References** – Food and Agricultural Code Sections 18735, 18960, 19384, 33481, and 33731.

**1.6.2 Adopting Agency Identification.** The provisions of this code applicable to buildings identified in this section will be identified in the Matrix Adoption Tables under the acronym AGR.

**1.7.0 Department of Public Health.**

**1.7.1** Specific scope of application of the agency responsible for enforcement, the enforcement agency, and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

**Department of Public Health.**

**Application** – Commissaries serving mobile food preparation units, food establishments, and organized camps.

**Enforcing Agency** – Department of Health Services and local health agency.

**Authority Cited** – Health and Safety Code Sections 18897.2, 110065, 113710, and 131200.

**References** – Health and Safety Code Sections 18897.2, 18897.4, 18897.7, 110065, 113705, 113710, and 131200.

**1.7.2 Adopting Agency Identification.**

The provisions of this code applicable to buildings identified in this section will be identified in the Matrix Adoption Tables under the acronym DPH.

**1.8.0 Department of Housing and Community Development [HCD].**

**1.8.1 Purpose.** The purpose of this code is to establish minimum requirements to protect the health, safety, and general welfare of the occupants and the public by governing the erection, construction, reconstruction, enlargement, conversion, alteration, repair, moving, removal, demolition, sanitation, ventilation, and maintenance or use of plumbing equipment or systems.

**1.8.2 Authority and Abbreviations.**

**1.8.2.1 General.** The Department of Housing and Community Development is authorized by law to promulgate and adopt building standards and regulations for several types of building applications. The applications under the authority of the Department of Housing and Community Development are listed in Sections 1.8.2.1.1 through 1.8.2.1.3.

**1.8.2.1.1 Housing Construction.**

**Application** – Hotels, motels, lodging houses, apartments, dwellings, dormitories, condominiums, shelters for homeless persons, congregate residences, employee housing, factory built housing, and other types of dwellings containing sleeping accommodations with or without common toilet or cooking facilities including accessory buildings, facilities, and uses thereto. Sections of this code which pertain to applications listed in this section are identified using the abbreviation “HCD 1”.

**Enforcing Agency** – Local building department or the Department of Housing and Community Development.

**Authority Cited** – Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11, and 19990; and Government Code Section 12955.1.

**References** – Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

**1.8.2.1.2 Housing Accessibility.**

**Application** – Covered multifamily dwellings as defined in Chapter 2 of the California Code of Regulations, Title 24, Part 2, also known as the California Building Code including but not limited to lodging houses, dormitories, timeshares, condominiums, shelters for homeless persons, congregate residences, apartments, dwellings, employee housing, factory-built housing, and other types of dwellings containing sleeping accommodations with or without common toilet or cooking facilities.

Sections of this code identified by the abbreviation “HCD 1-AC” require specific accommodations for persons with disabilities, as defined in Chapter 2 of the California Building Code. The

application of such provisions shall be in conjunction with other requirements of this code and apply only to newly constructed covered multifamily dwellings as defined in Chapter 2 of the California Building Code. “HCD 1-AC” applications include, but are not limited to, the following:

1. All newly-constructed covered multifamily dwellings, as defined in Chapter 2 of the California Building Code.
2. New common use areas, as defined in Chapter 2 of the California Building Code serving existing covered multifamily dwellings.
3. Additions to existing buildings, where the addition alone meets the definition of covered multifamily dwellings, as defined in Chapter 2 of the California Building Code.
4. Common use areas serving covered multifamily dwellings.
5. Where any portion of a building’s exterior is preserved, but the interior of the building is removed, including all structural portions of floors and ceilings, the building is considered a new building for determining the application of CBC, Chapter 11A.

HCD 1-AC building standards generally do not apply to public use areas or public accommodations such as hotels, motels, and public housing. Public use areas, public accommodations, and housing as defined in Chapter 2 of the California Building Code are subject to the Division of the State Architect (DSA-AC) in Chapter 11B and are referenced in Section 1.9.1.

Newly constructed covered multifamily dwellings, which can also be defined as public housing, shall be subject to the requirements of Chapter 11A and Chapter 11B.

**Enforcing Agency** – Local building department or the Department of Housing and Community Development.

**Authority Cited** – Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11, and 19990; and Government Code Section 12955.1.

**References** – Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

**1.8.2.1.3 Permanent Buildings in Mobilehome Parks and Special Occupancy Parks.**

**Application** – Permanent buildings, and permanent accessory buildings or structures, constructed within mobilehome parks and special occupancy parks that are under the control and ownership of

the park operator. Sections of this code which pertain to applications listed in this section are identified using the abbreviation “HCD 2”.

**Enforcing Agency** – Local building department or other local agency responsible for the enforcement of Health and Safety Code Division 13, Part 2.1, commencing with Section 18200 for mobilehome parks and Health and Safety Code, Division 13, Part 2.3, commencing with Section 18860 for special occupancy parks; or the Department of Housing and Community Development.

**Authority Cited** – Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11, and 19990; and Government Code Section 12955.1.

**References** – Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

**1.8.3 Local Enforcing Agency.**

**1.8.3.1 Duties and Powers.** The building department of every city, county, or city and county shall enforce all the provisions of law, this code, and the other rules and regulations promulgated by the Department of Housing and Community Development pertaining to the installation, erection, construction, reconstruction, movement, enlargement, conversion, alteration, repair, removal, demolition, or arrangement of apartments, condominiums, hotels, motels, lodging houses and dwellings, including accessory buildings, facilities, and uses thereto.

The provisions regulating the erection and construction of dwellings and appurtenant structures shall not apply to existing structures as to which construction is commenced or approved prior to the effective date of these regulations. Requirements relating to use, maintenance and occupancy shall apply to all dwellings and appurtenant structures approved for construction or constructed before or after the effective date of this code.

For additional information regarding the use and occupancy of existing buildings and appurtenant structures, see California Code of Regulations, Title 25, Division 1, Chapter 1, Subchapter 1, commencing with Section 1.

**1.8.3.2 Laws, Rules, and Regulations.** Other than the building standards contained in this code, and notwithstanding other provisions of law, the statutory authority and location of the laws, rules, and regulations to be enforced by local enforcing agencies are listed by statute in Sections 1.8.3.2.1 through 1.8.3.2.5 below:

**1.8.3.2.1 State Housing Law.** Refer to the State Housing Law, California Health and Safety Code, Division 13, Part 1.5, commencing with Section

17910 and California Code of Regulations, Title 25, Division 1, Chapter 1, Subchapter 1, commencing with Section 1, for the erection, construction, reconstruction, movement, enlargement, conversion, alteration, repair, removal, demolition, or arrangement of apartments, condominiums, hotels, motels, lodging houses and dwellings, including accessory buildings, facilities, and uses thereto.

**1.8.3.2.2 Mobilehome Parks Act.** Refer to the Mobilehome Parks Act, California Health and Safety Code, Division 13, Part 2.1, commencing with Section 18200 and California Code of Regulations, Title 25, Division 1, Chapter 2, commencing with Section 1000 for mobilehome park administrative and enforcement authority, permits, plans, fees, violations, inspections, and penalties both within and outside mobilehome parks.

**Exception:** Mobilehome parks where the Department of Housing and Community Development is the enforcing agency.

**1.8.3.2.3 Special Occupancy Parks Act.** Refer to the Special Occupancy Parks Act, California Health and Safety Code, Division 13, Part 2.3, commencing with Section 18860 and California Code of Regulations, Title 25, Division 1, Chapter 2.2, commencing with Section 2000 for special occupancy park administrative and enforcement authority, permits, fees, violations, inspections, and penalties both within and outside of special occupancy parks.

**Exception:** Special occupancy parks where the Department of Housing and Community Development is the enforcing agency.

**1.8.3.2.4 Employee Housing Act.** Refer to the Employee Housing Act, California Health and Safety Code, Division 13, Part 1, commencing with Section 17000 and California Code of Regulations, Title 25, Division 1, Chapter 1, Subchapter 3, commencing with Section 600 for employee housing administrative and enforcement authority, permits, fees, violations, inspections, and penalties.

**1.8.3.2.5 Factory-Built Housing Law.** Refer to the Factory-Built Housing Law, California Health and Safety Code, Division 13, Part 6 commencing with Section 19960 and California Code of Regulations, Title 25, Division 1, Chapter 3, Subchapter 1, commencing with Section 3000 for factory-built housing administrative and enforcement authority, permits, fees, violations, inspections, and penalties.

#### **1.8.4 Permits, Fees, Applications, and Inspections.**

**1.8.4.1 Permits.** A written construction permit shall be obtained from the enforcing agency prior to the erection, construction, reconstruction, installation, relocation, or alteration of any plumbing system.

##### **Exceptions:**

1. Work exempt from permits as specified in Chapter 1, Administration, Division II, Section 104.2 items (1)-(2) of this code.

2. Changes, alterations, or repairs of a minor nature not affecting structural features, egress, sanitation, safety, or accessibility as determined by the enforcing agency.

Exemptions from permit requirements shall not be deemed to grant authorization for any work to be done in any manner in violation of other provisions of law or this code.

**1.8.4.2 Fees.** Subject to other provisions of law, the governing body of any city, county, or city and county may prescribe fees to defray the cost of enforcement of rules and regulations promulgated by the Department of Housing and Community Development. The amount of the fees shall not exceed the amount reasonably necessary to administer or process permits, certificates, forms, or other documents, or to defray the costs of enforcement. For additional information, see State Housing Law, Health and Safety Code, Division 13, Part 1.5, Section 17951 and California Code of Regulations, Title 25, Division 1, Chapter 1, Subchapter 1, Article 3, commencing with Section 6.

**1.8.4.3 Plan Review and Time Limitations.** Subject to other provisions of law, provisions related to plan checking, prohibition of excessive delays, and contracting with or employment of private parties to perform plan checking are set forth in the State Housing Law, Health and Safety Code Section 17960.1, and for employee housing, in Health and Safety Code Section 17021.

**1.8.4.3.1 Retention of Plans.** The building department of every city, county, or city and county shall maintain an official copy, microfilm, or electronic or other type of photographic copy of the plans of every building, during the life of the building, for which the department issued a building permit.

##### **Exceptions:**

1. Single or multiple dwellings not more than two stories and basement in height.
2. Garages and other structures appurtenant to buildings listed in Exception 1.
3. Farm or ranch buildings appurtenant to buildings listed in Exception 1.
4. Any one-story building where the span between bearing walls does not exceed 25 feet (7620 mm), except a steel frame or concrete building.

All plans for common interest developments as defined in Section 4100 of the California Civil Code shall be retained. For additional information regarding plan retention and reproduction of plans by an enforcing agency, see Health and Safety Code Sections 19850 through 19852.

**1.8.4.4 Inspections.** Construction or work for which a permit is required shall be subject to inspection by the building official and such construction or work shall remain accessible and exposed for inspection purposes until approved. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or other regulations of the Department of Housing and Community Development.

**1.8.5 Right of Entry for Enforcement.**

**1.8.5.1 General.** Subject to other provisions of law, officers and agents of the enforcing agency may enter and inspect public and private properties to secure compliance with the rules and regulations promulgated by the Department of Housing and Community Development. For limitations and additional information regarding enforcement, see the following:

1. For applications subject to State Housing Law as referenced in Section 1.8.3.2.1 of this code, refer to Health and Safety Code, Division 13, Part 1.5, commencing with Section 17910 and California Code of Regulations, Title 25, Division 1, Chapter 1, Subchapter 1, commencing with Section 1.
2. For applications subject to the Mobilehome Parks Act as referenced in Section 1.8.3.2.2 of this code, refer to Health and Safety Code, Division 13, Part 2.1, commencing with Section 18200 and California Code of Regulations, Title 25, Division 1, Chapter 2, commencing with Section 1000.
3. For applications subject to the Special Occupancy Parks Act as referenced in Section 1.8.3.2.3 of this code, refer to Health and Safety Code Division 13, Part 2.3, commencing with Section 18860 and California Code of Regulations, Title 25, Division 1, Chapter 2.2, commencing with Section 2000.
4. For applications subject to the Employee Housing Act as referenced in Section 1.8.3.2.4 of this code, refer to Health and Safety Code, Division 13, Part 1, commencing with Section 17000 and California Code of Regulations, Title 25, Division 1, Chapter 1, Subchapter 3, commencing with Section 600.
5. For applications subject to the Factory-Built Housing Law as referenced in Section 1.8.3.2.5 of this code, refer to Health and Safety Code, Division 13, Part 6, commencing with Section 19960 and California Code of Regulations, Title 25, Division 1, Chapter 3, Subchapter 1, commencing with Section 3000.

**1.8.6 Local Modification by Ordinance or Regulation.**

**1.8.6.1 General.** Subject to other provisions of law, a city, county, or city and county may make changes to the provisions adopted by the Department of Housing and Community Development. If any city, county, or city and county does not amend, add, or repeal by local ordinances or regulations the provisions published in this code or other regulations promulgated by the Department of Housing and Community Development, those provisions shall be applicable and shall become effective 180 days after publication by the California Building Standards Commission. Amendments, additions, and deletions to this code adopted by a city, county, or city and county pursuant to California Health and Safety Code Sections 17958.5, 17958.7, and 18941.5, together with all applicable portions of this code, shall also become effective 180 days after publication of the California Building Standards Code by the California Building Standards Commission.

**1.8.6.2 Findings, Filings, and Rejections of Local Modifications.** Prior to making any modifications or estab-

lishing more restrictive building standards, the governing body shall make express findings and filings, as required by California Health and Safety Code Section 17958.7, showing that such modifications are reasonably necessary due to local climatic, geological, or topographical conditions. No modification shall become effective or operative unless the following requirements are met:

1. The express findings shall be made available as a public record.
2. A copy of the modification and express finding, each document marked to cross-reference the other, shall be filed with the California Building Standards Commission for a city, county, or a city and county, and with the Department of Housing and Community Development for fire protection districts.
3. The California Building Standards Commission has not rejected the modification or change.

Nothing in this section shall limit the authority of fire protection districts pursuant to California Health and Safety Code Section 13869.7(a).

**1.8.7 Alternate Materials, Designs, Tests, and Methods of Construction.**

**1.8.7.1 General.** The provisions of this code as adopted by the Department of Housing and Community Development are not intended to prevent the use of any alternate material, appliance, installation, device, arrangement, design, or method of construction not specifically prescribed by this code. Consideration and approval of alternates shall comply with Section 1.8.7.2 for local building departments and Section 1.8.7.3 for the Department of Housing and Community Development.

**1.8.7.2 Local Building Departments.** The building department of any city, county, or city and county may approve alternates for use in the erection, construction, reconstruction, movement, enlargement, conversion, alteration, repair, removal, demolition, or arrangement of apartments, condominiums, hotels, motels, lodging houses, dwellings or accessory structures, except for the following:

1. Structures located in mobilehome parks as defined in California Health and Safety Code Section 18214.
2. Structures located in special occupancy parks as defined in California Health and Safety Code Section 18862.43.
3. Factory-built housing as defined in California Health and Safety Code Section 19971.

**1.8.7.2.1 Approval of Alternates.** The consideration and approval of alternates by a local building department shall comply with the following procedures and limitations:

1. The approval shall be granted on a case-by-case basis.
2. Evidence shall be submitted to substantiate claims that the proposed alternate, in performance, safety, and protection of life and health, conforms to, or is at least equivalent to, the

standards contained in this code and other rules and regulations promulgated by the Department of Housing and Community Development.

3. The local building department may require tests performed by an approved testing agency at the expense of the owner or owner's agent as proof of compliance.
4. If the proposed alternate is related to accessibility in covered multifamily dwellings or facilities serving covered multifamily dwellings, as defined in Chapter 2 of the California Building Code, the proposed alternate must also meet the threshold set for equivalent facilitation as defined in Chapter 2 of the California Building Code.

For additional information regarding approval of alternates by a local building department pursuant to the State Housing Law, see California Health and Safety Code Section 17951(e) and California Code of Regulations, Title 25, Division 1, Chapter 1, Subchapter 1.

**1.8.7.3 Department of Housing and Community Development.** The Department of Housing and Community Development may approve alternates for use in the erection, construction, reconstruction, movement, enlargement, conversion, alteration, repair, removal, or demolition of apartments, condominiums, hotels, motels, lodging houses, dwellings, or accessory structures thereto. The consideration and approval of alternates shall comply with the following:

1. The department may require tests at the expense of the owner or owner's agent to substantiate compliance with the California Building Standards Code.
2. The approved alternate shall, for its intended purpose, be at least equivalent in performance and safety to the materials, designs, tests, or methods of construction prescribed by this code.

**1.8.8 Appeals Board.**

**1.8.8.1 General.** Every city, county, or city and county shall establish a process to hear and decide appeals of orders, decisions, and determinations made by the enforcing agency relative to the application and interpretation of this code and other regulations governing construction use, maintenance and change of occupancy. The governing body of any city, county, or city and county may establish a local appeals board and a housing appeals board to serve this purpose. Members of the appeals board(s) shall not be employees of the enforcing agency and shall be knowledgeable in the applicable building codes, regulations and ordinances as determined by the governing body of the city, county, or city and county.

Where no such appeals boards or agencies have been established, the governing body of the city, county, or city and county shall serve as the local appeals board or housing appeals board as specified in California Health and Safety Code Sections 17920.5 and 17920.6.

**1.8.8.2 Definitions.** The following terms shall for the purposes of this section have the meaning shown.

**Housing Appeals Board.** The board or agency of a city, county or city and county which is authorized by the governing body of the city, county, or city and county to hear appeals regarding the requirements of the city, county, or city and county relating to the use, maintenance, and change of occupancy of buildings and structures, including requirements governing alteration, additions, repair, demolition, and moving. In any area in which there is no such board or agency, "housing appeals board" means the local appeals board having jurisdiction over the area.

**Local Appeals Board.** The board or agency of a city, county, or city and county which is authorized by the governing body of the city, county, or city and county to hear appeals regarding the building requirements of the city, county, or city and county. In any area in which there is no such board or agency, "local appeals board" means the governing body of the city, county, or city and county having jurisdiction over the area.

**1.8.8.3 Appeals.** Except as otherwise provided by law, any person, firm, or corporation adversely affected by a decision, order, or determination by a city, county, or city and county relating to the application of building standards published in the California Building Standards Code, or any other applicable rule or regulation adopted by the Department of Housing and Community Development, or any lawfully enacted ordinance by a city, county, or city and county, may appeal the issue for resolution to the local appeals board or housing appeals board as appropriate.

The local appeals board shall hear appeals relating to new building construction and the housing appeals board shall hear appeals relating to existing buildings.

**1.8.9 Unsafe Buildings or Structures.**

**1.8.9.1 Authority to Enforce.** Subject to other provisions of law, the administration, enforcement, actions, proceedings, abatement, violations, and penalties for unsafe buildings and structures are contained in the following statutes and regulations:

1. For applications subject to State Housing Law as referenced in Section 1.8.3.2.1 of this code, refer to Health and Safety Code, Division 13, Part 1.5, commencing with Section 17910 and California Code of Regulations, Title 25, Division 1, Chapter 1, Subchapter 1, commencing with Section 1.
2. For applications subject to the Mobilehome Parks Act as referenced in Section 1.8.3.2.2 of this code, refer to Health and Safety Code, Division 13, Part 2.1, commencing with Section 18200 and California Code of Regulations, Title 25, Division 1, Chapter 2, commencing with Section 1000.
3. For applications subject to the Special Occupancy Parks Act as referenced in Section 1.8.3.2.3 of this code, refer to Health and Safety Code, Division 13, Part 2.3, commencing with Section 18860 and California Code of Regulations, Title 25, Division 1, Chapter 2.2, commencing with Section 2000.
4. For applications subject to the Employee Housing Act as referenced in Section 1.8.3.2.4 of this code, refer to Health and Safety Code, Division 13, Part 1, com-

encing with Section 17000 and California Code of Regulations, Title 25, Division 1, Chapter 1, Subchapter 3, commencing with Section 600.

5. For applications subject to the Factory-Built Housing Law as referenced in Section 1.8.3.2.5 of this code, refer to Health and Safety Code, Division 13, Part 6, commencing with Section 19960 and California Code of Regulations, Title 25, Division 1, Chapter 3, Subchapter 1, commencing with Section 3000.

**1.8.9.2 Actions and Proceedings.** Subject to other provisions of law, punishments, penalties, and fines for violations of building standards are contained in the following statutes and regulations:

1. For applications subject to the State Housing Law as referenced in Section 1.8.3.2.1 of this code, refer to Health and Safety Code, Division 13, Part 1.5, commencing with Section 17910 and California Code of Regulations, Title 25, Division 1, Chapter 1, Subchapter 1, commencing with Section 1.
2. For applications subject to the Mobilehome Parks Act as referenced in Section 1.8.3.2.2 of this code, refer to Health and Safety Code, Division 13, Part 2.1, commencing with Section 18200 and California Code of Regulations, Title 25, Division 1, Chapter 2, commencing with Section 1000.
3. For applications subject to the Special Occupancy Parks Act as referenced in Section 1.8.3.2.3. of this code, refer to Health and Safety Code, Division 13, Part 2.3, commencing with Section 18860 and California Code of Regulations, Title 25, Division 1, Chapter 2.2, commencing with Section 2000.
4. For applications subject to the Employee Housing Act as referenced in Section 1.8.3.2.4 of this code, refer to Health and Safety Code, Division 13, Part 1, commencing with Section 17000 and California Code of Regulations, Title 25, Division 1, Chapter 1, Subchapter 3, commencing with Section 600.
5. For applications subject to the Factory-Built Housing Law as referenced in Section 1.8.3.2.5 of this code, refer to Health and Safety Code, Division 13, Part 6, commencing with Section 19960 and California Code of Regulations, Title 25, Division 1, Chapter 3, Subchapter 1, commencing with Section 3000.

**1.8.10 Other Building Regulations.**

**1.8.10.1 Existing Structures.** Notwithstanding other provisions of law, the replacement, retention, and extension of original materials and the use of original methods of construction for any existing building or accessory structure, or portions thereof, shall be permitted in accordance with the provisions of this code and the California Existing Building Code, as adopted by the Department of Housing and Community Development. For additional information, see California Health and Safety Code Sections 17912, 17920.3, 17922 and 17958.8.

**1.8.10.2 Moved Structures.** Subject to the requirements of California Health and Safety Code Sections 17922, 17922.3 and 17958.9, local ordinances or regulations relating to a moved residential building or accessory

structure thereto, shall permit the replacement, retention, and extension of original materials and the use of original methods of construction so long as the structure does not become or continue to be a substandard building.

**Note:**

**Authority Cited** – Health and Safety Code Sections 17040, 17050, 17920.9, 17921, 17921.3, 17921.6, 17921.10, 17922, 17922.6, 17922.12, 17927, 17928, 17959.6, 18300, 18552, 18554, 18620, 18630, 18640, 18670, 18690, 18691, 18865, 18871.3, 18871.4, 18873, 18873.1, 18873.2, 18873.3, 18873.4, 18873.5, 18938.3, 18944.11, and 19990; and Government Code Section 12955.1.

**References** – Health and Safety Code Sections 17000 through 17062.5, 17910 through 17995.5, 18200 through 18700, 18860 through 18874, and 19960 through 19997; and Government Code Sections 12955.1 and 12955.1.1.

**1.9.0 Division of the State Architect.**

**1.9.1 Division of the State Architect – Access Compliance.**

**Note:** Buildings or facilities where accessibility is required for applications listed in California Code of Regulations, Title 24, Part 2 (California Building Code), Chapter 1, Section 1.9.1 regulated by the Division of the State Architect–Access Compliance shall comply with Title 24, Part 2, Chapter 11A or 11B, as applicable under authority cited by CA Government Code Section 4450 and in reference cited by CA Government Code Sections 4450 through 4461, 12955.1(c), and CA Health and Safety Code Sections 18949.1, 19952 through 19959.

**1.9.1.1 Adopting Agency Identification.**

The provisions of this code applicable to buildings identified in this Subsection 1.9.1 will be identified in the Matrix Adoption Tables under the acronym DSA-AC.

**1.9.2 Division of the State Architect – Structural Safety.**

**1.9.2.1 DSA-SS (Division of the State Architect – Structural Safety).**

**Application** – Public elementary and secondary schools, community college buildings, and state-owned or state-leased essential services buildings.

**Enforcing Agency** – Division of the State Architect – Structural Safety (DSA-SS).

The Division of the State Architect has been delegated the responsibility and authority by the Department of General Services to review and approve the design and observe the construction of public elementary and secondary schools, community colleges, and state-owned or state-leased essential services buildings.

**Authority Cited** – Education Code Section 17310 and 81142, and Health and Safety Code Section 16022.

**References** – Education Code Sections 17280 through 17317 and 81130 through 81147, and Health and Safety Code Sections 16000 through 16023.

**1.9.2.1.1 Adopting Agency Identification.**

The provisions of this code applicable to buildings identified in this Subsection 1.9.2 will be identified in the Matrix Adoption Tables under the acronym DSA-SS.

**1.9.2.2 DSA-SS/CC (Division of the State Architect – Structural Safety/Community Colleges).**

**Application** – Community Colleges.

The Division of the State Architect has been delegated the authority by the Department of General Services to promulgate alternate building standards for application to community colleges, which a community college may elect to use in lieu of standards promulgated by DSA-SS in accordance with Section 1.9.2.1. Refer to Title 24, Part 2, Section 1.9.2.2.

**Enforcing Agency** – Division of the State Architect – Structural Safety/Community Colleges (DSA-SS/CC).

The Division of the State Architect has been delegated the authority by the Department of General Services to review and approve the design and observe construction of community colleges electing to use the alternative building standards as provided in this section.

**Authority Cited** – Education Code Section 81053.

**References** – Education Code Sections 81052, 81053, and 81130 through 81147.

**1.9.2.2.1 Adopting Agency Identification.**

The provisions of this code applicable to buildings identified in this Subsection 1.9.2.2 will be identified in the Matrix Adoption Tables under the acronym DSA-SS/CC.

**1.10.0 Office of Statewide Health Planning and Development.**

**1.10.1 OSHPD 1.** Specific scope of application of the agency responsible for enforcement, enforcement agency, specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

**OSHPD 1**

**Application** – General acute-care hospitals and acute psychiatric hospitals, excluding distinct part units or distinct part freestanding buildings providing skilled nursing or intermediate-care services. For Structural Regulations: Skilled nursing facilities and/or intermediate-care facilities except those skilled nursing facilities and intermediate-care facilities of single story, Type V, wood or light steel-frame construction.

**Enforcing Agency** – Office of Statewide Health Planning and Development (OSHPD). The office shall enforce the Division of the State Architect access compliance regulations and the regulations of the Office of the State Fire Marshal for the above stated facility types.

**1.10.1.1 Applicable Administrative Standards.**

1. Title 24, Part 1, California Code of Regulations: Chapters 6 and 7.
2. Title 24, Part 2, California Code of Regulations: Sections 1.1.0 and 1.10.0, Chapter 1, Division I and Sections 101.0 - 107.0, Chapter 1, Division II.

**1.10.1.2 Applicable Building Standards.** California Building Standards Code, Title 24, Parts 2, 3, 4, 5, 9, 10, and 11.

**Authority Cited** – Health and Safety Code Sections 127010, 127015, 1275, and 129850.

**References** – Health and Safety Code Sections 19958, 127010, 127015, 129680, 1275, and 129675 through 130070.

**1.10.1.3 Adopting Agency Identification.**

The provisions of this code applicable to buildings identified in this Subsection 1.10.1 will be identified in the Matrix Adoption Tables under the acronym OSHPD 1.

**1.10.2 OSHPD 2.** Specific scope of application of the agency responsible for enforcement, enforcement agency, specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

**OSHPD 2**

**Application** – Skilled nursing facilities and intermediate-care facilities, including distinct part skilled nursing and intermediate-care services on a general acute-care or acute psychiatric hospital license, provided either in a rate unit or a freestanding building. For Structural Regulations: Single-story, Type V skilled nursing facility and/or intermediate-care facilities utilizing wood or light steel-frame construction.

**Enforcing Agency** – Office of Statewide Health Planning and Development (OSHPD). The office shall also enforce the Division of the State Architect access compliance regulations and the regulations of the Office of the State Fire Marshal for the above stated facility type.

**1.10.2.1 Applicable Administrative Standards.**

1. Title 24, Part 1, California Code of Regulations: Chapter 7.
2. Title 24, Part 2, California Code of Regulations: Sections 1.1.0 and 1.10.0, Chapter 1, Division I and Sections 101.0 - 107.0, Chapter 1, Division II.

**1.10.2.2 Applicable Building Standards.** California Building Standards Code, Title 24, Parts 2, 3, 4, 5, 9, 10, and 11.

**Authority Cited** – Health and Safety Code Sections 127010, 127015, 1275, and 129850.

**References** – Health and Safety Code Sections 127010, 127015, 1275, and 129680.

**1.10.2.3 Adopting Agency Identification.** The provisions of this code applicable to buildings identified in this Subsection 1.10.2 will be identified in the Matrix Adoption Tables under the acronym OSHPD 2.

**1.10.3 OSHPD 3.** Specific scope of application of the agency responsible for enforcement, enforcement agency, specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

**OSHPD 3**

**Application** – Licensed clinics and any freestanding building under a hospital license where outpatient clinical services are provided.

**Enforcing Agency** – Local building department.

**1.10.3.1 Applicable Administrative Standards.**

1. Title 24, Part 1, California Code of Regulations: Chapter 7.

2. Title 24, Part 2, California Code of Regulations: Sections 1.1.0 and 1.10.0, Chapter 1, Division I and Sections 101.0 - 107.0, Chapter 1, Division II.

**1.10.3.2 Applicable Building Standards.** California Building Standards Code, Title 24, Parts 2, 3, 4, 5, 9, 10, and 11.

**Authority Cited** – Health and Safety Code Sections 127010, 127015, and 1226.

**References** – Health and Safety Code Sections 127010, 127015, 129885, and 1226, Government Code Section 54350, and State Constitution Article 11, Section 7.

**1.10.3.3 Adopting Agency Identification.**

The provisions of this code applicable to buildings identified in this Subsection 1.10.3 will be identified in the Matrix Adoption Tables under the acronym OSHPD 3.

**1.10.4 OSHPD 4.** Specific scope of application of the agency responsible for enforcement, enforcement agency, specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

**OSHPD 4**

**Application** – Correctional Treatment Centers.

**Enforcing Agency** – Office of Statewide Health Planning and Development (OSHPD). The office shall also enforce the Division of the State Architect access compliance regulations and the regulations of the Office of the State Fire Marshal for the above stated facility types.

**1.10.4.1 Applicable Administrative Standards.**

1. Title 24, Part 1, California Code of Regulations: Chapter 7.
2. Title 24, Part 2, California Code of Regulations: Sections 1.1.0 and 1.10.0, Chapter 1, Division I and Sections 101.0 - 107.0, Chapter 1, Division II.

**1.10.4.2 Applicable Building Standards.** California Building Standards Code, Title 24, Parts 2, 3, 4, 5, 9, 10 and 11.

**Authority Cited** – Health and Safety Code Sections 127010, 127015, and 129790.

**References** – Health and Safety Code Sections 127010, 127015, 1275, and 129675 through 130070.

**1.10.4.3. Adopting Agency Identification.**

The provisions of this code applicable to buildings identified in this Subsection 1.10.4 will be identified in the Matrix Adoption Tables under the acronym OSHPD 4.

**1.11.0 Office of the State Fire Marshal.**

**1.11.1 SFM-Office of the State Fire Marshal.** Specific scope of application of the agency responsible for enforcement, the enforcement agency and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.

**Application:**

**Institutional, Educational, or any Similar Occupancy.** Any building or structure used or intended for use as an asylum, jail, mental hospital, hospital, sanitarium, home for the aged, children’s nursery, children’s home, school, or any similar occupancy of any capacity.

**Authority Cited** – Health and Safety Code Section 13143.  
**Reference** – Health and Safety Code Section 13143.

**Assembly or Similar Place of Assemblage.** Any theater, dancehall, skating rink, auditorium, assembly hall, meeting hall, nightclub, fair building, or similar place of assemblage where 50 or more persons may gather together in a building, room or structure for the purpose of amusement, entertainment, instruction, deliberation, worship, drinking or dining, awaiting transportation, or education.

**Authority Cited** – Health and Safety Code Section 13143.  
**Reference** – Health and Safety Code Section 13143.

**Small Family Day-Care Homes.**

**Authority Cited** – Health and Safety Code Sections 1597.45, 1597.54, 13143, and 17921.

**Reference** – Health and Safety Code Section 13143.

**Large Family Day-Care Homes.**

**Authority Cited** – Health and Safety Code Sections 1597.46, 1597.54, and 17921.

**Reference** – Health and Safety Code Section 13143.

**Residential Facilities and Residential Facilities for the Elderly.**

**Authority Cited** – Health and Safety Code Section 13133.  
**Reference** – Health and Safety Code Section 13143.

**Any State Institution or Other State-Owned or State-Occupied Building.**

**Authority Cited** – Health and Safety Code Section 13108.  
**Reference** – Health and Safety Code Section 13143.

**High-Rise Structures.**

**Authority Cited** – Health and Safety Code Section 13211.  
**Reference** – Health and Safety Code Section 13143.

**Motion Picture Production Studios.**

**Authority Cited** – Health and Safety Code Section 13143.1.  
**Reference** – Health and Safety Code Section 13143.

**Organized Camps.**

**Authority Cited** – Health and Safety Code Section 18897.3.  
**Reference** – Health and Safety Code Section 13143.

**Residential.**

All hotels, motels, lodging houses, apartment houses and dwellings, including congregate residences and buildings and structures accessory thereto. Multiple-story structures existing on January 1, 1975, let for human habitation, including and limited to, hotels, motels, apartment houses, less than 75 feet (22 860 mm) above the lowest floor level having building



access, wherein rooms used for sleeping are let above the ground floor.

**Authority Cited** – Health and Safety Code Sections 13143.2 and 17921.

**Reference** – Health and Safety Code Section 13143.

#### **Residential Care Facilities.**

Certified family-care homes, out-of-home placement facilities, halfway houses, drug and/or alcohol rehabilitation facilities, and any building or structure used or intended for use as a home or institution for the housing of any person of any age when such person is referred to or placed within such home or institution for protective social care and supervision services by any governmental agency.

**Authority Cited** – Health and Safety Code Section 13143.6.

**Reference** – Health and Safety Code Section 13143.

#### **Tents, Awnings, or Other Fabric Enclosures Used in Connection with Any Occupancy.**

**Authority Cited** – Health and Safety Code Section 13116.

**Reference** – Health and Safety Code Section 13143.

#### **Fire Alarm Devices, Equipment, and Systems in Connection with Any Occupancy.**

**Authority Cited** – Health and Safety Code Section 13114.

**Reference** – Health and Safety Code Section 13143.

#### **Hazardous Materials.**

**Authority Cited** – Health and Safety Code Section 13143.9.

**Reference** – Health and Safety Code Section 13143.

#### **Flammable and Combustible Liquids.**

**Authority Cited** – Health and Safety Code Section 13143.6.

**Reference** – Health and Safety Code Section 13143.

#### **Public School Automatic Fire Detection, Alarm, and Sprinkler Systems.**

**Authority Cited** – Health and Safety Code Section 13143 and California Education Code Article 7.5, Sections 17074.50, 17074.52, and 17074.54.

**References** – Government Code Section 11152.5, Health and Safety Code Section 13143 and California Education Code Chapter 12.5, Leroy F. Greene School Facilities Act of 1998, Article 1.

#### **Wildland-Urban Interface Fire Area.**

**Authority Cited** – Health and Safety Code Sections 13143, 13108.5(a), and 18949.2(b) and (c); and Government Code Section 51189.

**References** – Health and Safety Code Sections 13143, Government Code Sections 51176, 51177, 51178, and 51179; and Public Resources Code Sections 4201 through 4204.

### **1.11.2 Duties and Powers of the Enforcing Agency.**

#### **1.11.2.1 Enforcement.**

**1.11.2.1.1** The responsibility for enforcement of building standards adopted by the State Fire Marshal and published in the California Building Standards Code relating to fire and panic safety and other regulations of the State Fire Marshal shall except as provided in Section 1.11.2.1.2 be as follows:

1. The city, county, or city and county, with jurisdiction in the area affected by the standard or regulation shall delegate the enforcement of the building standards relating to fire and panic safety and other regulations of the State Fire Marshal as they relate to Group R-3 occupancies, as described in Section 310.1 of Part 2 of the California Building Standards Code, to either of the following:

1.1. The chief of the fire authority of the city, county, or city and county or an authorized representative.

1.2. The chief building official of the city, county, or city and county, or an authorized representative.

2. The chief of any city or county fire department or of any fire protection district, and authorized representatives, shall enforce within the jurisdiction the building standards and other regulations of the State Fire Marshal, except those described in Item 1 or 4.
3. The State Fire Marshal shall have authority to enforce the building standards and other regulations of the State Fire Marshal in areas outside of corporate cities and districts providing fire protection services.
4. The State Fire Marshal shall have authority to enforce the building standards and other regulations of the State Fire Marshal in corporate cities and districts providing fire-protection services on request of the chief fire official or the governing body.
5. Any fee charged pursuant to the enforcement authority of this section shall not exceed the estimated reasonable cost of providing the service for which the fee is charged pursuant to Section 66014 of the Government Code.

**1.11.2.1.2** Pursuant to Health and Safety Code Section 13108, and except as otherwise provided in this section, building standards adopted by the State Fire Marshal published in the California Building Standards Code relating to fire and panic safety shall be enforced by the State Fire Marshal in all state-owned buildings, state-occupied buildings, and state institutions throughout the state. Upon the written request of the chief fire official of any city, county, or fire-protection district, the State Fire Marshal may authorize such chief fire official and his or her authorized representatives, in their geographical area of responsibility, to make fire-prevention

inspections of state-owned or state-occupied buildings, other than state institutions, for the purpose of enforcing the regulations relating to fire and panic safety adopted by the State Fire Marshal pursuant to this section and building standards relating to fire and panic safety published in the California Building Standards Code. Authorization from the State Fire Marshal shall be limited to those fire departments or fire districts which maintain a fire-prevention bureau staffed by paid personnel.

Pursuant to Health and Safety Code Section 13108, any requirement or order made by any chief fire official who is authorized by the State Fire Marshal to make fire-prevention inspections of state-owned or state-occupied buildings, other than state institutions, may be appealed to the State Fire Marshal. The State Fire Marshal shall, upon receiving an appeal and subject to the provisions of Chapter 5 (commencing with Section 18945) of Part 2.5 of Division 13 of the Health and Safety Code, determine if the requirement or order made is reasonably consistent with the fire and panic safety regulations adopted by the State Fire Marshal and building standards relating to fire and panic safety published in the California Building Code.

Any person may request a code interpretation from the State Fire Marshal relative to the intent of any regulation or provision adopted by the State Fire Marshal. When the request relates to a specific project, occupancy or building, the State Fire Marshal shall review the issue with the appropriate local enforcing agency prior to rendering such code interpretation.

**1.11.2.1.3** Pursuant to Health and Safety Code Section 13112, any person who violates any order, rule or regulation of the State Fire Marshal is guilty of a misdemeanor punishable by a fine of not less than \$100.00 or more than \$500.00, or by imprisonment for not less than six months, or by both. A person is guilty of a separate offense each day during which he or she commits, continues, or permits a violation of any provision of, or any order, rule or regulation of, the State Fire Marshal as contained in this code.

Any inspection authority who, in the exercise of his or her authority as a deputy State Fire Marshal, causes any legal complaints to be filed or any arrest to be made shall notify the State Fire Marshal immediately following such action.

**1.11.2.2 Right of Entry.** The fire chief of any city, county, or fire-protection district, or such person's authorized representative, may enter any state institution or any other state-owned or state-occupied building for the purpose of preparing a fire-suppression preplanning program or for the purpose of investigating any fire in a state-occupied building.

The State Fire Marshal, his or her deputies or salaried assistants, the chief of any city or county fire department or fire-protection district and his or her authorized representatives may enter any building or

premises not used for dwelling purposes at any reasonable hour for the purpose of enforcing this chapter. The owner, lessee, manager, or operator of any such building or premises shall permit the State Fire Marshal, his or her deputies or salaried assistants and the chief of any city or county fire department or fire-protection district and his or her authorized representatives to enter and inspect them at the time and for the purpose stated in this section.

**1.11.2.3 More Restrictive Fire and Panic Safety Building Standards.**

**1.11.2.3.1** Any fire-protection district organized pursuant to Health and Safety Code Part 2.7 (commencing with Section 13800) of Division 12 may adopt building standards relating to fire and panic safety that are more stringent than those building standards adopted by the State Fire Marshal and contained in the California Building Standards Code. For these purposes, the district board shall be deemed a legislative body and the district shall be deemed a local agency. Any changes or modifications that are more stringent than the requirements published in the California Building Standards Code relating to fire and panic safety shall be subject to Section 1.1.8.1.

**1.11.2.3.2** Any fire protection district that proposes to adopt an ordinance pursuant to this section shall, not less than 30 days prior to noticing a proposed ordinance for public hearing, provide a copy of that ordinance, together with the adopted findings made pursuant to Section 1.11.2.3.1, to the city, county, or city and county where the ordinance will apply. The city, county, or city and county may provide the district with written comments, which shall become part of the fire-protection district's public hearing record.

**1.11.2.3.3** The fire-protection district shall transmit the adopted ordinance to the city, county, or city and county where the ordinance will apply. The legislative body of the city, county, or city and county may ratify, modify or deny an adopted ordinance and transmit its determination to the district within 15 days of the determination. Any modification or denial of an adopted ordinance shall include a written statement describing the reasons for any modifications or denial. No ordinance adopted by the district shall be effective until ratification by the city, county, or city and county where the ordinance will apply. Upon ratification of an adopted ordinance, the city, county, or city and county shall file a copy of the findings of the district, and any findings of the city, county, or city and county together with the adopted ordinance expressly marked and identified to which each finding refers, in accordance with Section 1.1.8.1(3).

**1.11.2.4 Request for Alternate Means of Protection.** Requests for approval to use an alternative material, assembly or materials, equipment, method of construction, method of installation of equipment, or means of protection shall be made in writing to the enforcing

agency by the owner or the owner's authorized representative and shall be accompanied by a full statement of the conditions. Sufficient evidence or proof shall be submitted to substantiate any claim that may be made regarding its conformance. The enforcing agency may require tests and the submission of a test report from an approved testing organization as set forth in Title 19, California Code of Regulations, to substantiate the equivalency of the proposed alternative means of protection.

When a request for alternate means of protection involves hazardous materials, the Authority Having Jurisdiction may consider implementation of the findings and recommendations identified in a Risk Management Plan (RMP) developed in accordance with Title 19, Division 2, Chapter 4.5, Article 3.

Approval of a request for use of an alternative material, assembly of materials, equipment, method of construction, method of installation of equipment, or means of protection made pursuant to these provisions shall be limited to the particular case covered by request and shall not be construed as establishing any precedent for any future request.

**1.11.2.5 Appeals.** When a request for an alternate means of protection has been denied by the enforcing agency, the applicant may file a written appeal to the State Fire Marshal for consideration of the applicant's proposal. In considering such appeal, the State Fire Marshal may seek the advice of the State Board of Fire Services. The State Fire Marshal shall, after considering all of the facts presented, including any recommendations of the State Board of Fire Services, determine if the proposal is for the purposes intended, at least equivalent to that specified in these regulations in quality, strength, effectiveness, fire resistance, durability, and safety, and shall transmit such findings and any recommendations to the applicant and to the enforcing agency.

**1.11.3 Construction Documents.** In addition to the provisions of this Section, see Title 24, Part 2, California Building Code, Appendix Chapter 1, Section 106 for additional requirements.

**1.11.3.1 Public Schools.** Plans and specifications for the construction, alteration or addition to any building owned, leased or rented by any public school district shall be submitted to the Division of the State Architect.

**1.11.3.2 Movable Walls and Partitions.** Plans or diagrams shall be submitted to the enforcing agency for approval before the installation of, or rearrangement of, any movable wall or partition in any occupancy. Approval shall be granted only if there is no increase in the fire hazard.

**1.11.3.3 New Construction High-Rise Buildings.**

1. Complete plans or specifications, or both, shall be prepared covering all work required to comply with new construction high-rise buildings. Such plans and specifications shall be submitted to the enforcing agency having jurisdiction.
2. All plans and specifications shall be prepared under the responsible charge of an architect or a civil or structural engineer authorized by law to develop

construction plans and specifications, or by both such architect and engineer. Plans and specifications shall be prepared by an engineer duly qualified in that branch of engineering necessary to perform such services. Administration of the work of construction shall be under the charge of the responsible architect or engineer except that where plans and specifications involve alterations or repairs, such work of construction may be administered by an engineer duly qualified to perform such services and holding a valid certificate under Chapter 7 (commencing with Section 65700) of Division 3 of the Business and Professions Code for performance of services in that branch of engineering in which said plans, specifications and estimates and work of construction are applicable.

This section shall not be construed as preventing the design of fire-extinguishing systems by persons holding a C-16 license issued pursuant to Division 3, Chapter 9, Business and Professions Code. In such instances, however, the responsibility charge of this section shall prevail.

**1.11.3.4 Existing High-Rise Buildings.**

1. Complete plans or specifications, or both, shall be prepared covering all work required by Section 3412 for existing high-rise buildings. Such plans or specifications shall be submitted to the enforcing agency having jurisdiction.
2. When new construction is required to conform with the provisions of these regulations, complete plans or specifications, or both, shall be prepared in accordance with the provisions of this subsection. As used in this section "new construction" is not intended to include repairs, replacements or minor alterations which do not disrupt or appreciably add to or affect the structural aspects of the building.

**1.11.3.5 Retention of Plans.** Refer to Building Standards Law, Health and Safety Code Sections 19850 and 19851, for permanent retention of plans.

**1.11.4 Fees.**

**1.11.4.1 Other Fees.** Pursuant to Health and Safety Code Section 13146.2, a city, county, or district which inspects a hotel, motel, lodging house, or apartment house may charge and collect a fee for the inspection from the owner of the structure in an amount, as determined by the city, county, or district, sufficient to pay its costs of that inspection.

**1.11.4.2 Large Family Day Care.** Pursuant to Health and Safety Code Section 1597.46, Large Family Day-Care Homes, the local government shall process any required permit as economically as possible, and fees charged for review shall not exceed the costs of the review and permit process.

**1.11.4.3 High-Rise.** Pursuant to Health and Safety Code Section 13217, High-Rise Structure Inspection: Fees and Costs, a local agency which inspects a high-rise structure pursuant to Health and Safety Code Section 13217 may charge and collect a fee for the inspection from the owner

of the high-rise structure in an amount, as determined by the local agency, sufficient to pay its costs of that inspection.

**1.11.4.4 Fire Clearance Preinspection.** Pursuant to Health and Safety Code Section 13235, Fire Clearance Preinspection, Fee; upon receipt of a request from a prospective licensee of a community care facility, as defined in Section 1502, of a residential-care facility for the elderly, as defined in Section 1569.2, or of a child day-care facility, as defined in Section 1596.750, the local fire enforcing agency, as defined in Section 13244, or State Fire Marshal, whichever has primary jurisdiction, shall conduct a preinspection of the facility prior to the final fire clearance approval. At the time of the preinspection, the primary fire enforcing agency shall price consultation and interpretation of the fire safety regulations and shall notify the prospective licensee of the facility in writing of the specific fire safety regulations which shall be enforced in order to obtain fire clearance approval. A fee of not more than \$50.00 may be charged for the preinspection of a facility with a capacity to serve 25 or fewer persons. A fee of not more than \$100.00 may be charged for a preinspection of a facility with a capacity to serve 26 or more persons.

**1.11.4.5 Care Facilities.** The primary fire enforcing agency shall complete the final fire clearance inspection for a community care facility, residential-care facility for the elderly, or child day-care facility within 30 days of receipt of the request for the final inspection, or as of the date the prospective facility requests the final preclearance inspection by the State Department of Social Services, whichever is later.

Pursuant to Health and Safety Code Section 13235, a preinspection fee of not more than \$50 may be charged for a facility with a capacity to serve 25 or less clients. A fee of not more than \$100 may be charged for a preinspection of a facility with a capacity to serve 26 or more clients.

Pursuant to Health and Safety Code Section 13131.5, a reasonable final inspection fee, not to exceed the actual cost of inspection services necessary to complete a final inspection may be charged for occupancies classified as residential-care facilities for the elderly (RCFE).

Pursuant to Health and Safety Code Section 1569.84, neither the State Fire Marshal nor any local public entity shall charge any fee for enforcing fire inspection regulations pursuant to state law or regulation or local ordinance, with respect to residential-care facilities for the elderly (RCFE) which service six or fewer persons.

**1.11.4.6 Requests of the Office of the State Fire Marshal.** Whenever a local Authority Having Jurisdiction requests that the State Fire Marshal perform plan review and/or inspection services related to a building permit, the applicable fees for such shall be payable to the Office of the State Fire Marshal.

**1.11.5 Inspections.** Work performed subject to the provisions of this code shall comply with the inspection requirements of Title 24, Part 2, California Building Standards Code, Sections 109.1, 109.3, 109.3.4, 109.3.5, 109.3.6, 109.3.8, 109.3.9,

109.3.10, 109.5, and 109.6 as adopted by the Office of the State Fire Marshal.

**1.11.5.1 Existing Group I-1 or R occupancies.** Licensed 24-hour care in a Group I-1 or R occupancy in existence and originally classified under previously adopted state codes shall be reinspected under the appropriate previous code, provided there is no change in the use or character which would place the facility in a different occupancy group.

**1.11.6 Certificate of Occupancy.** A Certificate of Occupancy shall be issued as specified in Title 24, Part 2, California Building Code, Section 111.

**Exception:** Group R-3 and Group U Occupancies.

**1.11.7 Temporary Structures and Uses.** See Title 24, Part 2, California Building Code, Section 107.

**1.11.8 Service Utilities.** See Title 24, Part 2, California Building Code, Section 112.

**1.11.9 Stop Work Order.** See Title 24, Part 2, California Building Code, Section 115.

**1.11.10 Unsafe Buildings, Structures, and Equipment.** See Title 24, Part 2, California Building Code, Section 116.

**1.11.11 Adopting Agency Identification.** The provisions of this code applicable to buildings identified in this section will be identified in the Matrix Adoption Tables under the acronym SFM.

**1.12.0 Reserved for the State Librarian.**

**1.13.0 Department of Water Resources (DWR).**

**1.13.1 Application -** Installation, construction, alteration, or repair of recycled water systems for water closets, urinals, trap primers for floor drains, floor sinks and other allowed uses.

**Enforcing Agency –** State or local agency specified by the applicable provisions of law.

**Authority Cited –** Water Code Section 13557.

**References –** Water Code Section 13553.

**1.13.2 Adopting Agency Identification.** The provisions of this code applicable to buildings identified in this section will be identified in the Matrix Adoption Tables under the acronym DWR.

**1.14.0 Reserved for the State Lands Commission.**

**CALIFORNIA PLUMBING CODE. MATRIX ADOPTION TABLE  
CHAPTER 2 - DEFINITIONS**

(Matrix Adoption Tables are non-regulatory, intended only as an aid to the code user. See Chapter 1 for state agency authority and building applications.)

Adopting Agency	BSC	BSC- CG	SFM	HCD			DSA			OSHPD				BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1-AC	AC	SS	SS/CC	1	2	3	4								
Adopt Entire Chapter			X																		
Adopt Entire Chapter as amended (amended sections listed below)	X			X	X	X		X	X	X	X	X	X								
Adopt only those sections that are listed below		X													X						
Chapter/Section																					
203.0				X	X			X	X												
204.0				X	X																
205.0	X	X		X		X									X						
206.0	X	X		X	X	X															
207.0	X	X		X	X	X															
208.0															X						
209.0	X	X		X																	
210.0										X	X	X	X								
211.0	X	X		X																	
214.0				X	X																
215.0	X	X		X																	
216.0				X	X																
217.0	X	X		X																	
220.0	X	X		X																	
221.0	X	X		X						X	X	X	X								
222.0	X	X		X						X	X	X	X								
223.0	X	X		X											X						
225.0				X																	

*This state agency does not adopt sections identified with the following symbol: †*

*The Office of the State Fire Marshal's adoption of this chapter or individual sections is applicable to structures regulated by other state agencies pursuant to Section 1.11.*



205.0

– C –

**Category 1.** Facility systems in which failure of such equipment or system is likely to cause major injury or death of patients or caregivers. [NFPA 99:4.1.1]

**Category 2.** Facility systems in which failure of such equipment is likely to cause minor injury to patients or caregivers. [NFPA 99:4.1.2]

**Category 3.** Facility systems in which failure of such equipment is not likely to cause injury to patients or caregivers, but can cause patient discomfort. [NFPA 99:4.1.3]

**Category 3 Medical Vacuum System.** A medical vacuum distribution system that can be either a wet system designed to remove liquids, air-gas, or solids from the treated area; or a dry system designed to trap liquids and solids before the service inlet and to accommodate air-gas only through the service inlet. [NFPA 99:3.3.23]

**Certified Backflow Assembly Tester.** A person who has shown competence to test and maintain backflow assemblies to the satisfaction of the Authority Having Jurisdiction.

**Cesspool.** A lined excavation in the ground that receives the discharge of a drainage system or part thereof, so designed as to retain the organic matter and solids discharging therein, but permitting the liquids to seep through the bottom and sides.

**Chemical Waste.** See Special Wastes.

**Chimney.** One or more passageways, vertical or nearly so, for conveying flue or vent gases to the outdoors. [NFPA 54:3.3.18]

**Chimney, Factory-Built.** A chimney composed of listed factory-built components assembled in accordance with the manufacturer's installation instructions to form the completed chimney. [NFPA 54:3.3.18.2]

**Chimney, Masonry.** A field-constructed chimney of solid masonry units, bricks, stones, listed masonry chimney units, or reinforced portland cement concrete, lined with suitable chimney flue liners. [NFPA 54:3.3.18.3]

**Chimney, Metal.** A chimney constructed of metal with a minimum thickness not less than 0.127 inch (3.23 mm) (No. 10 manufacturer's standard gauge) steel sheet.

#### Chimney Classifications:

**Chimney, High-Heat Appliance-Type.** A factory-built, masonry, or metal chimney suitable for removing the products of combustion from fuel-burning high-heat appliances producing combustion gases in excess of 2000°F (1093°C), measured at the appliance flue outlet.

**Chimney, Low-Heat Appliance-Type.** A factory-built, masonry, or metal chimney suitable for removing the products of combustion from fuel-burning low-heat appliances producing combustion gases not in excess of 1000°F (538°C) under normal operating conditions, but capable of producing combustion gases of 1400°F (760°C) during intermittent forced firing for periods up to one hour. Temperatures are measured at the appliance flue outlet.

**Chimney, Medium-Heat Appliance-Type.** A factory-built, masonry, or metal chimney suitable for removing the products of combustion from fuel-burning medium-

heat appliances producing combustion gases not in excess of 2000°F (1093°C), measured at the appliance flue outlet.

**Chimney, Residential Appliance-Type.** A factory-built or masonry chimney suitable for removing products of combustion from residential-type appliances producing combustion gases not in excess of 1000°F (538°C), measured at the appliance flue outlet. Factory-built Type HT chimneys have high-temperature thermal shock resistance.

**Clarifier.** See Interceptor (Clarifier).

**Clear Water Waste.** Cooling water and condensate drainage from refrigeration and air-conditioning equipment; cooled condensate from steam heating systems; and cooled boiler blowdown water.

**Clinical Sink.** A fixture that has the same flushing and cleansing characteristics of a water closet that is used to receive the wastes from a bedpan. Also known as a bedpan washer.

**Clothes Washer System [HCD 1].** A gray water system utilizing only a single domestic clothes washing machine in a one- or two family dwelling.

**Coastal High Hazard Areas.** An area within the flood hazard area that is subject to high velocity wave action, and shown on a Flood Insurance Rate Map or other flood hazard map as Zone V, VO, VE or V1-30.

**Code.** A standard that is an extensive compilation of provisions covering broad subject matter or that is suitable for adoption into law independently of other codes and standards.

**Combination Temperature and Pressure-Relief Valve.** A relief valve that actuates when a set temperature, pressure, or both is reached. Also known as a T&P Valve.

**Combination Thermostatic/Pressure Balancing Valve.** A mixing valve that senses outlet temperature and incoming hot and cold water pressure and compensates for fluctuations in incoming hot and cold water temperatures, pressures, or both to stabilize outlet temperatures.

**Combination Waste and Vent System.** A specially designed system of waste piping embodying the horizontal wet venting of one or more sinks or floor drains by means of a common waste and vent pipe, adequately sized to provide free movement of air above the flow line of the drain.

**Combined Building Sewer.** See Building Sewer (Combined).

**Combustible Material.** As pertaining to materials adjacent to or in contact with heat-producing appliances, vent connectors, gas vents, chimneys, steam and hot water pipes, and warm air ducts, materials made of or surfaced with wood, compressed paper, plant fibers, or other materials that are capable of being ignited and burned. Such material shall be considered combustible even though flame-proofed, fire-retardant treated, or plastered. [NFPA 54:3.3.67.1]

**Commissaries Serving Mobile Food Preparation Units [DPH].** A food establishment in which food, containers, equipment or supplies are stored or handled for use in vehicles, mobile food preparation units, food carts or vending machines.

**Common.** That part of a plumbing system that is so designed and installed as to serve more than one appliance, fixture, building, or system.

## DEFINITIONS

**Complex System [BSC-CG, HCD 1].** *Gray water systems that discharge over 250 gallons (947 L) per day.*

**Condensate.** The liquid phase produced by condensation of a particular gas or vapor.

**Conductor.** A pipe inside the building that conveys storm water from the roof to a storm drain, combined building sewer, or other approved point of disposal.

**Confined Space.** A room or space having a volume less than 50 cubic feet per 1000 British thermal units per hour (Btu/h) (4.83 m<sup>3</sup>/kW) of the aggregate input rating of all fuel-burning appliances installed in that space.

**Construction Documents.** Plans, specifications, written, graphic, and pictorial documents prepared or assembled for describing the design, location, and physical characteristics of the elements of a project necessary for obtaining a permit.

**Construction Site [BSC-CG & HCD 1].** *A parcel of land bounded by lot line(s) or a designated portion of a public right-of-way where construction is taking place. A construction site may include, but not be limited to, buildings and accessory structures, walks, sidewalks, curbs, curb ramps, parking facilities, planting areas, pools, promenades, exterior gathering or assembly areas, raised or depressed paved areas, open spaces, golf courses, and/or landscape areas.*

**Contamination.** An impairment of the quality of the potable water that creates an actual hazard to the public health through poisoning or through the spread of disease by sewage, industrial fluids, or waste. Also defined as High Hazard.

**Continuous Vent.** A vertical vent that is a continuation of the drain to which it connects.

**Continuous Waste.** A drain connecting the compartments of a set of fixtures to a trap or connecting other permitted fixtures to a common trap.

**Covered Multifamily Dwellings [HCD 1-AC].** *See Section 1.8.2.1.2.*

**Copper Alloy.** A homogenous mixture of two or more metals in which copper is the primary component, such as brass and bronze.

**CPVC.** Chlorinated Polyvinyl Chloride.

**Critical Care Area.** *See Patient Care Room. [NFPA 99:3.3.31]*

**Critical Level.** The critical level (C-L or C/L) marking on a backflow prevention device or vacuum breaker is a point conforming to approved standards and established by the testing laboratory (usually stamped on the device by the manufacturer) that determines the minimum elevation above the flood-level rim of the fixture or receptor served at which the device may be installed. Where a backflow prevention device does not bear a critical level marking, the bottom of the vacuum breaker, combination valve, or the bottom of such approved device shall constitute the critical level.

**Cross-Connection.** A connection or arrangement, physical or otherwise, between a potable water supply system and a plumbing fixture or a tank, receptor, equipment, or device, through which it may be possible for nonpotable, used, unclean, polluted, and contaminated water, or other substances to enter into a part of such potable water system under any condition.

## 206.0

## – D –

**Debris Excluder.** A device installed on the rainwater catchment conveyance system to prevent the accumulation of leaves, needles, or other debris in the system.

**Department [HCD 1, HCD 2 and HCD 1-AC].** *“Department” means the Department of Housing and Community Development.*

**Department Having Jurisdiction.** The Authority Having Jurisdiction, including any other law enforcement agency affected by a provision of this code, whether such agency is specifically named or not.

**[HCD 1 & HCD 2]** *“Department Having Jurisdiction” shall mean “Enforcing Agency” as defined in Section 207.0 of this code.*

**Design Flood Elevation.** The elevation of the “design flood,” including wave height, relative to the datum specified on the community’s legally designated flood hazard map. In areas designated as Zone AO, the design flood elevation is the elevation of the highest existing grade of the building’s perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number is taken as being equal to 2 feet (610 mm).

**Developed Length.** The length along the center line of a pipe and fittings.

**Diameter.** Unless specifically stated, “diameter” is the nominal diameter as designated commercially.

**Direct-Vent Appliances.** Appliances that are constructed and installed so that air for combustion is derived directly from the outdoors and flue gases are discharged to the outdoors. [NFPA 54:3.3.6.3]

**Disinfected Tertiary Recycled Water [BSC-CG, HCD 1, DWR].** *Filtered and subsequently disinfected wastewater that meets the approved method of treatment and minimum level of water quality specified in California Code of Regulations, Title 22, Division 4, Chapter 3 for the purpose of direct beneficial use.*

**Disposal Field [BSC-CG & HCD 1].** *An intended destination for gray water, including but not limited to, a mulch basin or receiving landscape feature, gray water leach field, or other approved method of disposal.*

**Domestic Sewage.** The liquid and water-borne wastes derived from the ordinary living processes, free from industrial wastes, and of such character as to permit satisfactory disposal, without special treatment, into the public sewer or by means of a private sewage disposal system.

**Downspout.** The rain leader from the roof to the building storm drain, combined building sewer, or other means of disposal located outside of the building. *See Conductor and Leader.*

**Drain.** A pipe that carries waste or waterborne wastes in a building drainage system.

**Drainage System.** Includes all the piping within public or private premises that conveys sewage, storm water, or other liquid wastes to a legal point of disposal, but does not include the mains of a public sewer system or a public sewage treatment or disposal plant.



**Drinking Fountain.** A plumbing fixture connected to the potable water distribution system and sanitary drainage system that provides drinking water in a flowing stream so that the user can consume water directly from the fixture without the use of accessories. Drinking fountains should also incorporate a bottle filling station, and can incorporate a water filter and a cooling system for chilling the drinking water.

**Dry Vent.** A vent that does not receive the discharge of any sewage or waste.

**Durham System.** A soil or waste system in which all piping is threaded pipe, tubing, or other such rigid construction, using recessed drainage fittings to correspond to the types of piping.

### 207.0 – E –

**Effective Ground-Fault Current Path.** An intentionally constructed, low-impedance electrically conductive path designed and intended to carry current under ground-fault conditions from the point of a ground fault on a wiring system to the electrical supply source and that facilitates the operation of the overcurrent protective device or ground-fault detectors on high-impedance grounded systems. [NFPA 54:3.3.36]

**Effective Opening.** The minimum cross-sectional area at the point of water supply discharge measured or expressed in terms of: (1) diameter of a circle or (2) where the opening is not circular, the diameter of a circle of equivalent cross-sectional area. (This is applicable to an air gap)

**Enforcing Agency [BSC, BSC-CG, HCD 1, HCD 2, and HCD 1-AC].** “Enforcing Agency” is the designated department or agency as specified by statute or regulation.

**Essentially Nontoxic Transfer Fluid.** Essentially nontoxic at practically nontoxic, Toxicity Rating Class 1 (reference "Clinical Toxicology of Commercial Products" by Gosselin, Smith, Hodge, & Braddock).

**Exam Room Sink.** A sink used in the patient exam room of a medical or dental office with a primary purpose for the washing of hands.

**Excess Flow Valve (EFV).** A valve designed to activate where the fuel gas passing through it exceeds a prescribed flow rate. [NFPA 54:3.3.104.3]

**Existing Work.** A plumbing system or any part thereof that has been installed prior to the effective date of this code.

**Expansion Joint.** A fitting or arrangement of pipe and fittings that permits the contraction and expansion of a piping system.

### 208.0 – F –

**F Rating.** The time period that the penetration firestop system limits the spread of fire through the penetration, where tested in accordance with ASTM E814 or UL 1479.

**Fixture Branch.** A water supply pipe between the fixture supply pipe and the water distribution pipe.

**Fixture Drain.** The drain from the trap of a fixture to the junction of that drain with any other drain pipe.

**Fixture Fitting.** A device that controls and guides the flow of water.

**Fixture Supply.** A water supply pipe connecting the fixture with the fixture branch.

**Fixture Unit.** A quantity in terms of which the load-producing effects on the plumbing system of different kinds of plumbing fixtures are expressed on some arbitrarily chosen scale.

**Flammable Vapor or Fumes.** The concentration of flammable constituents in air that exceeds 25 percent of its lower flammability limit (LFL).

**Flood Hazard Area.** The greater of the following two areas:

- (1) The area within a floodplain subject to a 1 percent or greater chance of flooding in any given year.
- (2) The area designated as a flood hazard area on a community's flood hazard map, or otherwise legally designated.

**Flood Level.** See Flooded.

**Flood-Level Rim.** The top edge of a receptor from which water overflows.

**Flooded.** A fixture is flooded where the liquid therein rises to the flood-level rim.

**Flue Collar.** That portion of an appliance designed for the attachment of a draft hood, vent connector, or venting system. [NFPA 54:3.3.46]

**Flush Tank.** A tank located above or integral with water closets, urinals, or similar fixtures for the purpose of flushing the usable portion of the fixture.

**Flush Valve.** A valve located at the bottom of a tank for the purpose of flushing water closets and similar fixtures.

**Flushometer Tank.** A tank integrated within an air accumulator vessel that is designed to discharge a predetermined quantity of water to fixtures for flushing purposes.

**Flushometer Valve.** A valve that discharges a predetermined quantity of water to fixtures for flushing purposes and is actuated by direct water pressure.

**FOG Disposal System.** A grease interceptor that reduces nonpetroleum fats, oils, and grease (FOG) in effluent by separation, mass, and volume reduction.

**Food Establishment [DPH].** Any room, building, place or portion thereof, maintained, used or operated for purpose of storing, preparing, serving, packaging, transporting, salvaging or otherwise handling food at the retail level.

**Fuel Gas.** Natural, manufactured, liquefied petroleum, or a mixture of these.

**Fuel Gas Quick-Disconnect.** A hand-operated device that provides a means for connecting and disconnecting an appliance or an appliance connector to a gas supply and that is equipped with an automatic means to shut off the gas supply where the device is disconnected. [NFPA 54:3.3.29.3]

**Fuel Gas Vent.** A listed factory-made vent pipe and vent fittings for conveying flue gases to the outdoors.

**Fuel Gas Venting System.** A continuous open passageway from the flue collar or draft hood of an appliance to the outdoors for the purpose of removing flue or vent gases. [NFPA 54:3.3.99.7]

## DEFINITIONS

### 209.0 – G –

**Gang or Group Shower.** Two or more showers in a common area.

**Gas Piping.** An installation of pipe, valves, or fittings that is used to convey fuel gas, installed on a premises or in a building, but shall not include:

- (1) A portion of the service piping.
- (2) An approved piping connection 6 feet (1829 mm) or less in length between an existing gas outlet and a gas appliance in the same room with the outlet.

**Gas Piping System.** An arrangement of gas piping or regulators after the point of delivery and each arrangement of gas piping serving a building, structure, or premises, whether individually metered or not.

**General Care Areas.** See Patient Care Room. [NFPA 99:3.3.64]

**Governing Body.** The person or persons who have the overall legal responsibility for the operation of a health care facility. [NFPA 99:3.3.65]

**Grade.** The slope or fall of a line of pipe in reference to a horizontal plane. In drainage, it is usually expressed as the fall in a fraction of an inch (mm) or percentage slope per foot (meter) length of pipe.

**Gravity Grease Interceptor.** A plumbing appurtenance or appliance that is installed in a sanitary drainage system to intercept nonpetroleum fats, oils, and greases (FOG) from a wastewater discharge and is identified by volume, 30 minute retention time, baffle(s), not less than two compartments, a total volume of not less than 300 gallons (1135 L), and gravity separation. [These interceptors comply with the requirements of Chapter 10 or are designed by a registered design professional.] Gravity grease interceptors are generally installed outside.

**Graywater [BSC-CG & HCD 1].** Pursuant to Health and Safety Code Section 17922.12, "graywater" means untreated wastewater that has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated, or unhealthy bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. "Graywater" includes, but is not limited to, wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines, and laundry tubs, but does not include wastewater from kitchen sinks or dishwashers.

**Note:** For the purpose of applying the standards contained in this code, "Graywater" as defined above, has the same meaning as "gray water", "grey water", and "greywater".

**Gray Water System [BSC-CG].** A system designed to collect gray water to be treated on-site for reuse or distribution to an irrigation or disposal field. A gray water system may include, on-site treated nonpotable water devices or equipment, tanks, valves, filters, pumps or other appurtenances along with piping and receiving landscape.

**Gray Water System [HCD 1].** A system designed to collect gray water on-site for reuse or distribution to an irrigation or disposal field. A gray water system may include, on-site

treated nonpotable water devices or equipment, tanks, valves, filters, pumps or other appurtenances along with piping and receiving landscape.

**Grease Interceptor.** A plumbing appurtenance or appliance that is installed in a sanitary drainage system to intercept non-petroleum fats, oil, and greases (FOG) from a wastewater discharge.

**Grease Removal Device (GRD).** A hydromechanical grease interceptor that automatically, mechanically removes non-petroleum fats, oils and grease (FOG) from the interceptor, the control of which are either automatic or manually initiated.

**Grounding Electrode.** A conducting object through which a direct connection to earth is established. [NFPA 70:100(I)]

### 210.0 – H –

**Handwashing Fixture [OSHPD 1, 2, 3 & 4].** Handwash fixtures consist of faucet, trim and sink as described:

#### (1) Faucets and Trim

- a. Hand washing fixtures used by medical and nursing staff, patients, and food handlers shall be trimmed with valves that can be operated without the use of hands.
  - i. Wrist or elbow blades shall be permitted unless otherwise noted in Table 4-2.
  - ii. Blade handles used for this purpose shall be at least 4 inches (102 mm) in length.
- b. Sensor operated fixtures shall be capable of functioning during loss of normal power.
- c. Faucets shall not be equipped with an aerator but may be equipped with a non-aerating laminar flow device.
- d. Temperature Control(s)
  - i. When deck-mounted temperature controls are provided, they shall be equipped with wrist blades at least 4 inches (102 mm) in length or be sensor operated.
  - ii. When faucet-mounted temperature controls are provided, they shall be sensor operated.
- e. Faucets shall be equipped with gooseneck spouts. A gooseneck spout is a deck or fixture-mounted spout so the discharge point of the spout return is at least 5 inches (127 mm) above the fixture rim.

#### (2) Sinks

- a. Sinks in hand-washing fixtures shall be designed and installed to prevent splashing outside of the sink.
- b. Sinks shall have well-fitted and sealed basins to prevent water leaks onto or into the cabinetry or wall spaces.
- c. Design of sinks and cabinetry shall not permit storage beneath the sink basin.

**Hangers.** See Supports.

**Heat-Fusion Weld Joints.** A joint used in some thermoplastic systems to connect pipe to fittings or pipe lengths directly to one another (butt-fusion). This method of joining pipe to fittings includes socket-fusion, electro-fusion, and saddle-fusion. This method of welding involves the application of heat and pressure to the components, allowing them to fuse together forming a bond between the pipe and fitting.

**High Hazard.** See Contamination.

**Horizontal Branch.** A drain pipe extending laterally from a soil or waste stack or building drain with or without vertical sections or branches, which receives the discharge from one or more fixture drains and conducts it to the soil or waste stack or to the building drain.

**Horizontal Pipe.** A pipe or fitting that is installed in a horizontal position or which makes an angle of less than 45 degrees (0.79 rad) with the horizontal.

**Hot Water.** Water at a temperature exceeding or equal to 120°F (49°C).

**House Drain.** See Building Drain.

**House Sewer.** See Building Sewer.

**Hydromechanical Grease Interceptor.** A plumbing appurtenance or appliance that is installed in a sanitary drainage system to intercept nonpetroleum fats, oil, and grease (FOG) from a wastewater discharge and is identified by flow rate, and separation and retention efficiency. The design incorporates air entrainment, hydromechanical separation, interior baffling, or barriers in combination or separately, and one of the following:

- (1) External flow control, with air intake (vent), directly connected.
- (2) External flow control, without air intake (vent), directly connected.
- (3) Without external flow control, directly connected.
- (4) Without external flow control, indirectly connected.

These interceptors comply with the requirements of Table 1014.2.1. Hydromechanical grease interceptors are generally installed inside.

## 211.0 – I –

**Indirect-Fired Water Heater.** A water heater consisting of a storage tank equipped with an internal or external heat exchanger used to transfer heat from an external source to heat potable water. The storage tank either contains heated potable water or water supplied from an external source, such as a boiler.

**Indirect Waste Pipe.** A pipe that does not connect directly with the drainage system but conveys liquid wastes by discharging into a plumbing fixture, interceptor, or receptacle that is directly connected to the drainage system.

**Individual Vent.** A pipe installed to vent a fixture trap and that connects with the vent system above the fixture served or terminates in the open air.

**Industrial Waste.** Liquid or water-borne waste from industrial or commercial processes, except domestic sewage.

**Insanitary.** A condition that is contrary to sanitary principles or is injurious to health.

Conditions to which “insanitary” shall apply include the following:

- (1) A trap that does not maintain a proper trap seal.
- (2) An opening in a drainage system, except where lawful, that is not provided with an approved liquid-sealed trap.

- (3) A plumbing fixture or other waste discharging receptor or device that is not supplied with water sufficient to flush and maintain the fixture or receptor in a clean condition.
- (4) A defective fixture, trap, pipe, or fitting.
- (5) A trap, except where in this code exempted, directly connected to a drainage system, the seal of which is not protected against siphonage and backpressure by a vent pipe.
- (6) A connection, cross-connection, construction, or condition, temporary or permanent, that would permit or make possible by any means whatsoever for an unapproved foreign matter to enter a water distribution system used for domestic purposes.
- (7) The foregoing enumeration of conditions to which the term “insanitary” shall apply, shall not preclude the application of that term to conditions that are, in fact, insanitary.

**Interceptor (Clarifier).** A device designed and installed so as to separate and retain deleterious, hazardous, or undesirable matter from normal wastes and permit normal sewage or liquid wastes to discharge into the disposal terminal by gravity.

**Invert.** The lowest portion of the inside of a horizontal pipe.

**Irrigation Field [BSC-CG & HCD 1].** *An intended destination for gray water in the receiving landscape, including but not limited to, a drip irrigation system, mulch basin, or other approved method of dispersal for irrigation purposes.*

## 212.0 – J –

**Joint, Brazed.** A joint obtained by joining of metal parts with alloys that melt at temperatures exceeding 840°F (449°C), but less than the melting temperature of the parts to be joined.

**Joint, Compression.** A multipiece joint with cup-shaped threaded nuts that, when tightened, compress tapered sleeves so that they form a tight joint on the periphery of the tubing they connect.

**Joint, Flanged.** One made by bolting together a pair of flanged ends.

**Joint, Flared.** A metal-to-metal compression joint in which a conical spread is made on the end of a tube that is compressed by a flare nut against a mating flare.

**Joint, Mechanical.** General form for gastight or liquid-tight joints obtained by the joining of parts through a positive holding mechanical construction.

**Joint, Soldered.** A joint obtained by the joining of metal parts with metallic mixtures or alloys that melt at a temperature up to and including 840°F (449°C).

**Joint, Welded.** A gastight joint obtained by the joining of metal parts in the plastic molten state.

## 213.0 – K –

No definitions.

## 214.0 – L –

**Labeled.** Equipment or materials bearing a label of a listing agency (accredited conformity assessment body). See Listed (third-party certified).

## DEFINITIONS

**[HCD 1 & HCD 2]** “Labeled” means equipment or materials to which has been attached a label, symbol or other identifying mark of an organization, approved by the Department, that maintains a periodic inspection program of production of labeled products, installations, equipment, or materials and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

**Lavatories in Sets.** Two or three lavatories that are served by one trap.

**Lavatory [HCD 1 & HCD 2].** “Lavatory” shall mean a plumbing fixture used for washing the hands, arms, face and head.

**Leader.** An exterior vertical drainage pipe for conveying storm water from roof or gutter drains. See Downspout.

### Levels of Sedation.

**Deep Sedation.** A drug-induced depression of consciousness during which patients cannot be easily aroused but respond purposefully following repeated or painful stimulation. The ability to independently maintain ventilatory function may be impaired. Patients may require assistance in maintaining a patent airway, and spontaneous ventilation may be inadequate. Cardiovascular function is usually maintained. [NFPA 99:3.3.63.1]

**General Anesthesia.** A drug-induced loss of consciousness during which patients are not arousable, even by painful stimulation. The ability to independently maintain ventilatory function is often impaired. Patients often require assistance in maintaining a patent airway, and positive pressure ventilation may be required because of depressed spontaneous ventilation or drug-induced depression of neuromuscular function. Cardiovascular function may be impaired. [NFPA 99:3.3.63.2]

**Moderate Sedation.** A drug-induced depression of consciousness during which patients respond purposefully to verbal commands, either alone or accompanied by light tactile stimulation. No interventions are required to maintain a patent airway, and spontaneous ventilation is adequate. Cardiovascular function is usually maintained. [NFPA 99:3.3.63.4]

**Limited-Density Owner-Built Rural Dwelling [HCD 1].** “Limited-density owner-built rural dwelling” shall mean any structure consisting of one or more habitable rooms intended or designed to be occupied by one family with facilities for living or sleeping, with use restricted to rural areas designated by local jurisdiction in compliance with the requirements of Health and Safety Code Section 17958.2.

**Liquefied Petroleum Gas (LP-Gas) Facilities.** Liquefied petroleum gas (LP-Gas) facilities include tanks, containers, container valves, regulating equipment, meters, appurtenances, or any combination thereof for the storage and supply of liquefied petroleum gas for a building, structure, or premises.

**Liquid Waste.** The discharge from a fixture, appliance, or appurtenance in connection with a plumbing system that does not receive fecal matter.

**Listed [HCD 1 & HCD 2].** “Listed” means all products that appear in a list published by an approved testing or listing

agency. For additional information, see Health and Safety Code Section 17920(h).

**Listed (Third-party certified).** Equipment or materials included in a list published by a listing agency (accredited conformity assessment body) that maintains periodic inspection on current production of listed equipment or materials and whose listing states either that the equipment or material complies with approved standards or has been tested and found suitable for use in a specified manner.

**Listing Agency.** An agency accredited by an independent and authoritative conformity assessment body to operate a material and product listing and labeling (certification) system and that is accepted by the Authority Having Jurisdiction, which is in the business of listing or labeling. The system includes initial and ongoing product testing, a periodic inspection on current production of listed (certified) products, and that makes available a published report of such listing in which specific information is included that the material or product is in accordance with applicable standards and found safe for use in a specific manner.

**[HCD 1 & HCD 2]** “Listing Agency” means an agency approved by the department that is in the business of listing and labeling products, materials, equipment, and installations tested by an approved testing agency, and that maintains a periodic inspection program on current production of listed products, equipment, and installations, and that, at least annually, makes available a published report of these listings. For additional information, see Health and Safety Code Section 17920(i).

**Lot.** A single or individual parcel or area of land legally recorded or validated by other means acceptable to the Authority Having Jurisdiction on which is situated a building or which is the site of any work regulated by this code, together with the yards, courts, and unoccupied spaces legally required for the building or works, and that is owned by or is in the lawful possession of the owner of the building or works.

**Low Hazard.** See Pollution.

**Low VOC Cement [HCD 1 & HCD 2].** Cement with a volatile organic compound (VOC) content of less than or equal to 490 g/L for CPVC Cement, 510 g/L for PVC Cement, and 325 g/L for ABS Cement, as determined by the South Coast Air Quality Management District’s Laboratory Methods of Analysis for Enforcement Samples, Method 316A.

**Low VOC One-Step Cement [HCD 1 & HCD 2].** Listed solvent cements that do not require the use of primer with a volatile organic compound (VOC) content of less than or equal to 490 g/L for CPVC Cement, 510 g/L for PVC Cement, and 325 g/L for ABS Cement, as determined by the South Coast Air Quality Management District’s Laboratory Methods of Analysis for Enforcement Samples, Method 316A.

**Low VOC Primer [HCD 1 & HCD 2].** Primer with a volatile organic compound (VOC) content of less than or equal to 550 g/L, as determined by the South Coast Air Quality Management District’s Laboratory Methods of Analysis for Enforcement Samples, Method 316A.

**215.0** – M –

**Macerating Toilet System.** A system comprised of a sump with macerating pump and with connections for a water closet and other plumbing fixtures, which is designed to accept, grind, and pump wastes to an approved point of discharge.

**Main.** The principal artery of a system of continuous piping to which branches may be connected.

**Main Sewer.** See Public Sewer.

**Main Vent.** The principal artery of the venting system to which vent branches may be connected.

**May.** A permissive term.

**Medical Air.** Air that is supplied from cylinders, bulk containers, medical air compressors, or has been reconstituted from oxygen USP and oil-free, dry nitrogen NF [NFPA 99:3.3.104]. Medical air has the following characteristics:

- (1) Supplied from cylinders, bulk containers, medical air compressor sources, or be reconstituted from oxygen USP and oil-free dry nitrogen NF.
- (2) Meets the requirements of medical air USP.
- (3) No detectable liquid hydrocarbons.
- (4) Less than 25 parts per million (ppm) gaseous hydrocarbons.
- (5) Equal to or less than 6.85 E-07 pounds per cubic yard (lb/yd<sup>3</sup>) (4.064 E-07 kg/m<sup>3</sup>) of permanent particulates sized 1 micron (1 μm) or larger in the air at normal atmospheric pressure. [NFPA 99:5.1.3.6.1]

**Medical Gas.** A patient medical gas or medical support gas. [NFPA 99:3.3.107]

**Medical Gas Manifold.** A device for connecting the outlets of one or more gas cylinders to the central piping system for that specific gas. [NFPA 99:3.3.101]

**Medical Gas System.** An assembly of equipment and piping for the distribution of nonflammable medical gases such as oxygen, nitrous oxide, compressed air, carbon dioxide, and helium. [NFPA 99:3.3.108]

**Medical Support Gas.** Nitrogen or instrument air used for a medical support purpose (e.g. to remove excess moisture from instruments before further processing, or to operate medical-surgical tools, air-driven booms, pendants, or similar applications) and, where appropriate to the procedures, used in laboratories and are not respired as part of a treatment. Medical support gas falls under the general requirements for medical gases. [NFPA 99:3.3.109]

**Medical-Surgical Vacuum.** A method used to provide a source of drainage, aspiration, and suction in order to remove body fluids from patients. [NFPA 99:3.3.110]

**Medical-Surgical Vacuum System.** An assembly of central vacuum-producing equipment and a network of piping for patient suction in medical, medical-surgical, and waste anesthetic gas disposal (WAGD) applications. [NFPA 99:3.3.111]

**Mobile Home Park Sewer.** That part of the horizontal piping of a drainage system that begins 2 feet (610 mm) downstream from the last mobile home site and conveys it to a public sewer, private sewer, private sewage disposal system, or other point of disposal.

**Mulch.** Organic materials, such as wood chips and fines, tree bark chips, and pine needles that are used in a mulch basin to conceal gray water outlets and permit the infiltration of gray water.

**Mulch Basin [BSC-CG & HCD 1].** A subsurface type of irrigation or disposal field filled with mulch or other approved permeable material of sufficient depth, length, and width to prevent ponding or runoff. A mulch basin may include a basin around a tree, a trough along a row of plants, or other shapes necessary for irrigation or disposal.

**216.0** – N –

**Nitrogen, NF (Oil-Free, Dry).** Nitrogen complying, at a minimum, with oil-free, dry nitrogen NF. [NFPA 99:3.3.118.1]

**Nonwater Supplied Urinal [HCD 1].** A plumbing fixture which does not require water supply and is designed to receive and convey the uninhibited flow of liquid waste to the gravity drainage system.

**Nuisance.** Includes, but is not limited to:

- (1) A public nuisance known at common law or in equity jurisprudence.
- (2) Where work regulated by this code is dangerous to human life or is detrimental to health and property.
- (3) Inadequate or unsafe water supply or sewage disposal system.

**[HCD 1 & HCD 2]** “Nuisance” shall mean any nuisance as defined in Health and Safety Code Section 17920(k).

**Notes:**

1. For applications subject to the Mobilehome Parks Act as referenced in Section 1.8.3.2.2 of this code, refer to California Code of Regulations, Title 25, Division 1, Chapter 2 for the definition of “Nuisance”.
2. For applications subject to the Special Occupancy Parks Act as referenced in Section 1.8.3.2.3 of this code, refer to California Code of Regulations, Title 25, Division 1, Chapter 2.2 for the definition of “Nuisance”.

**217.0** – O –

**Offset.** A combination of elbows or bends in a line of piping that brings one section of the pipe out of line but into a line parallel with the other section.

**Oil Interceptor.** See Interceptor (Clarifier).

**On-Site Treated Nonpotable Water [BSC-CG & HCD 1].** Nonpotable water that has been collected, treated, and intended to be used on-site and is suitable for direct beneficial use. Sources for on-site treated nonpotable water include, but are not limited to, gray water; rainwater; stormwater; reclaimed (recycled) water; cooling tower blow-down water; and foundation drainage.

**218.0** – P –

**Patient Care Room.** A room of a health care facility where patients are intended to be examined or treated. [NFPA 99:3.3.138]

## DEFINITIONS

**Basic Care Room.** A room in which the failure of equipment or a system is not likely to cause injury to the patients or caregivers but can cause patient discomfort (Category 3). [NFPA 99:3.3.138.1]

**Critical Care Room.** A room in which failure of equipment or a system is likely to cause major injury or death of patients or caregivers (Category 1). [NFPA 99:3.3.138.2]

**General Care Room.** A room in which failure of equipment or a system is likely to cause minor injury to patients or caregivers (Category 2). [NFPA 99:3.3.138.3]

**Patient Medical Gas.** Piped gases such as oxygen, nitrous oxide, helium, carbon dioxide, and medical air that are used in the application of human respiration and the calibration of medical devices used for human respiration. [NFPA 99:3.3.142]

**PB.** Polybutylene.

**PE.** Polyethylene.

**PE-AL-PE.** Polyethylene-aluminum-polyethylene.

**PE-RT.** Polyethylene of raised temperature.

**Penetration Firestop System.** A specific assemblage of field-assembled materials, or a factory-made device, which has been tested to a standard test method and, when installed properly on penetrating piping materials, is capable of maintaining the fire-resistance rating of assemblies penetrated.

**Person.** A natural person, his heirs, executor, administrators, or assigns and shall also include a firm, corporation, municipal or quasi-municipal corporation, or governmental agency. Singular includes plural, male includes female.

**PEX.** Cross-linked polyethylene.

**PEX-AL-PEX.** Cross-linked polyethylene-aluminum-cross-linked polyethylene.

**Pipe.** A cylindrical conduit or conductor conforming to the particular dimensions commonly known as “pipe size.”

**Plumbing.** The business, trade, or work having to do with the installation, removal, alteration, or repair of plumbing systems or parts thereof.

**Plumbing Appliance.** A special class of device or equipment that is intended to perform a special plumbing function. Its operation, control, or both may be dependent upon one or more energized components, such as motors, controls, heating elements, or pressure- or temperature-sensing elements. Such device or equipment may operate automatically through one or more of the following actions: a time cycle, a temperature range, a pressure range, a measured volume or weight; or the device or equipment may be manually adjusted or controlled by the user or operator.

**Plumbing Appurtenance.** A manufactured device, a prefabricated assembly, or an on-the-job assembly of component parts that is an adjunct to the basic piping system and plumbing fixtures. An appurtenance demands no additional water supply, nor does it add a discharge load to a fixture or the drainage system. It performs some useful function in the operation, maintenance, servicing, economy, or safety of the plumbing system.

**Plumbing Fixture.** An approved-type installed receptacle, device, or appliance that is supplied with water or that receives liquid or liquid-borne wastes and discharges such wastes into the drainage system to which it may be directly or indirectly connected. Industrial or commercial tanks, vats, and similar processing equipment are not plumbing fixtures, but may be connected to or discharged into approved traps or plumbing fixtures where and as otherwise provided for elsewhere in this code.

**Plumbing Official.** See Authority Having Jurisdiction.

**Plumbing System.** Includes all potable water, building supply, and distribution pipes; all plumbing fixtures and traps; all drainage and vent pipes; and all building drains and building sewers, including their respective joints and connections, devices, receptors, and appurtenances within the property lines of the premises and shall include potable water piping, potable water treating or using equipment, medical gas and medical vacuum systems, liquid and fuel gas piping, and water heaters and vents for same.

**Plumbing Vent.** A pipe provided to ventilate a plumbing system, to prevent trap siphonage and backpressure, or to equalize the air pressure within the drainage system.

**Plumbing Vent System.** A pipe or pipes installed to provide a flow of air to or from a drainage system or to provide a circulation of air within such system to protect trap seals from siphonage and backpressure.

**Pollution.** An impairment of the quality of the potable water to a degree that does not create a hazard to the public health but which does adversely and unreasonably affect the aesthetic qualities of such potable water for domestic use. Also defined as “Low Hazard.”

**Potable Water.** Water that is satisfactory for drinking, culinary, and domestic purposes and that meets the requirements of the Health Authority Having Jurisdiction.

**PP.** Polypropylene.

**Pressed Fitting.** A mechanical connection for joining copper tubing that uses a crimping tool to affix the o-ring seal to copper or copper alloy fitting to the tubing. The tubing shall be inserted into the fitting, and the crimp shall be made using the tool recommended by the manufacturer.

**Pressure.** The normal force exerted by a homogeneous liquid or gas, per unit of area, on the wall of the container.

**Residual Pressure.** The pressure available at the fixture or water outlet after allowance is made for pressure drop due to friction loss, head, meter, and other losses in the system during maximum demand periods.

**Static Pressure.** The pressure existing without any flow.

**Pressure-Balancing Valve.** A mixing valve that senses incoming hot and cold water pressures and compensates for fluctuations in either to stabilize outlet temperature.

**Pressure-Lock-Type Connection.** A mechanical connection that depends on an internal retention device to prevent pipe or tubing separation. Connection is made by inserting the pipe or tubing into the fitting to a prescribed depth.

**Private or Private Use.** Applies to plumbing fixtures in residences and apartments, to private bathrooms in hotels and hospitals, and to restrooms in commercial establishments

where the fixtures are intended for the use of a family or an individual.

**Private Sewage Disposal System.** A septic tank with the effluent discharging into a subsurface disposal field, into one or more seepage pits, or into a combination of subsurface disposal field and seepage pit or of such other facilities as may be permitted under the procedures set forth elsewhere in this code.

**Private Sewer.** A building sewer that receives the discharge from more than one building drain and conveys it to a public sewer, private sewage disposal system, or other point of disposal.

**Proportioning System for Medical Air USP.** A central supply that produces medical air (USP) reconstituted from oxygen USP and nitrogen NF by means of a mixer or blender. [NFPA 99:3.3.104.1]

**Public or Public Use.** Applies to plumbing fixtures that are not defined as private or private use.

**Public Sewer.** A common sewer directly controlled by public authority.

**Push Fit Fitting.** A mechanical fitting where the connection is assembled by pushing the tube or pipe into the fitting and is sealed with an o-ring.

**PVC.** Polyvinyl Chloride.

**PVDF.** Polyvinylidene Fluoride.

219.0 – Q –

**Quick-Disconnect Device.** A hand-operated device that provides a means for connecting and disconnecting a hose to a water supply and that is equipped with a means to shut off the water supply where the device is disconnected.

220.0 – R –

**Rainwater [BSC-CG & HCD 1].** Precipitation on any public or private parcel that has not entered an offsite storm drain system or channel, a flood control channel, or any other stream channel, and has not previously been put to beneficial use.

**Rainwater Catchment System [BSC-CG & HCD 1].** A facility designed to capture, retain, and store rainwater flowing off a building, parking lot, or any other manmade impervious surface for subsequent onsite use. Rainwater catchment system is also known as “Rainwater Harvesting System” or “Rainwater Capture System.”

**Rainwater Storage Tank.** The central component of the rainwater catchment system. Also known as a cistern or rain barrel.

**Receptor.** An approved plumbing fixture or device of such material, shape, and capacity as to adequately receive the discharge from indirect waste pipes, so constructed and located as to be readily cleaned.

**Receiving Landscape [BSC-CG & HCD 1].** Includes features such as soil, basins, swales, mulch, and plants.

**Reclaimed (Recycled) Water [BSC-CG, HCD 1 & DWR].** Nonpotable water that meets California State Water Resources Control Board statewide uniform criteria for dis-

infected tertiary recycled water. Reclaimed (recycled) water is also known as “recycled water” or “reclaimed water”.

**Recycled Water Supply System. [BSC-CG, HCD 1, & DWR]** The building supply pipe, the water distribution pipes, and the necessary connecting pipes, fittings, control valves, back-flow prevention devices, and all appurtenances carrying or supplying reclaimed (recycled) water in or adjacent to the building or within the premises.

**Registered Design Professional.** An individual who is registered or licensed by the laws of the state to perform such design work in the jurisdiction.

**Regulating Equipment.** Includes valves and controls used in a plumbing system that are required to be accessible or readily accessible.

**Relief Vent.** A vent, the primary function of which is to provide circulation of air between drainage and vent systems or to act as an auxiliary vent on a specially designed system.

**Remote Outlet.** Where used for sizing water piping, it is the furthest outlet dimension, measuring from the meter, either the developed length of the cold-water piping or through the water heater to the furthest outlet on the hot-water piping.

**Rim.** See Flood-Level Rim.

**Riser.** A water supply pipe that extends vertically one full story or more to convey water to branches or fixtures.

**Roof Drain.** A drain installed to receive water collecting on the surface of a roof and to discharge it into a leader, downspout, or conductor.

**Roof Washer.** A device or method for removal of sediment and debris from a collection surface by diverting initial rainfall from entry into the cistern(s). Also known as a first flush device.

**Roughing-In.** The installation of all parts of the plumbing system that can be completed prior to the installation of fixtures. This includes drainage, water supply, gas piping, vent piping, and the necessary fixture supports.

221.0 – S –

**Sand Interceptor.** See Interceptor (Clarifier).

**Scavenging.** Evacuation of exhaled mixtures of oxygen and nitrous oxide. [NFPA 99:3.3.160]

**SCFM.** Standard cubic feet per minute. [NFPA 99:3.3.161]

**Scrub Sink [OSHPD 1, 2, 3, & 4].** Is a sink used to wash and scrub the hands and arms during the septic preparation for surgery and equipped with a supply spout and controls as required for a handwashing fixture. Sensor operated fixtures shall be capable of functioning during loss of normal power.

**SDR.** An abbreviation for “standard dimensional ratio,” which is the specific ratio of the average specified outside diameter to the minimum wall thickness for outside controlled diameter plastic pipe.

**Seam, Welded.** See Joint, Welded.

**Seepage Pit.** A lined excavation in the ground which receives the discharge of a septic tank so designed as to permit the effluent from the septic tank to seep through its bottom and sides.

## DEFINITIONS

**Septic Tank.** A watertight receptacle that receives the discharge of a drainage system or part thereof, designed and constructed so as to retain solids, digest organic matter through a period of detention, and allow the liquids to discharge into the soil outside of the tank through a system of open joint piping or a seepage pit meeting the requirements of this code.

**Service Piping.** The piping and equipment between the street gas main and the gas piping system inlet that is installed by, and is under the control and maintenance of, the serving gas supplier.

**Sewage.** Liquid waste containing animal or vegetable matter in suspension or solution and that may include liquids containing chemicals in solution.

**Sewage Ejector.** A device for lifting sewage by entraining it on a high-velocity jet stream, air, or water.

**Sewage Pump.** A permanently installed mechanical device, other than an ejector, for removing sewage or liquid waste from a sump.

**Shall.** Indicates a mandatory requirement.

**Shielded Coupling.** An approved elastomeric sealing gasket with an approved outer shield and a tightening mechanism.

**Shock Arrestor.** See Water Hammer Arrestor.

**Should.** Indicates a recommendation or that which is advised but not required.

→ **Simple System [BSC & HCD 1].** *A gray water system serving one-and two-family dwellings, townhouses, or other occupancies with a discharge of 250 gallons (947 L) per day or less. Simple systems exceed a clothes washer system.*

**Size and Type of Tubing.** See Diameter.

**Slip Joint.** An adjustable tubing connection, consisting of a compression nut, a friction ring, and a compression washer, designed to fit a threaded adapter fitting or a standard taper pipe thread.

**Slope.** See Grade.

**Soil Pipe.** A pipe that conveys the discharge of water closets, urinals, clinical sinks, or fixtures having similar functions of collection and removal of domestic sewage, with or without the discharge from other fixtures, to the building drain or building sewer.

→ **Special Wastes.** Wastes that require some special method of handling, such as the use of indirect waste piping and receptors, corrosion-resistant piping, sand, oil or grease interceptors, condensers, or other pretreatment facilities.

**Stack.** The vertical main of a system of soil, waste, or vent piping extending through one or more stories.

**Stack Vent.** The extension of a soil or waste stack above the highest horizontal drain connected to the stack.

**Standard.** A document, the main text of which contains only mandatory provisions using the word “shall” to indicate requirements and which is in a form generally suitable for mandatory reference by another standard or code or for adoption into law. Nonmandatory provisions shall be located in an

appendix, footnote, or fine print note and are not to be considered a part of the requirements of a standard.

**Station Inlet.** An inlet point in a piped medical-surgical vacuum distribution system at which the user makes connections and disconnections. [NFPA 99:3.3.169]

**Station Outlet.** An outlet point in a piped medical gas distribution system at which the user makes connections and disconnections. [NFPA 99:3.3.170]

**Sterilizer.** A piece of equipment that disinfects instruments and equipment by way of heat.

**Storm Drain.** See Building Drain (Storm).

**Storm Sewer.** A sewer used for conveying rainwater, surface water, condensate, cooling water, or similar liquid wastes.

**Subsoil Drain.** A drain that collects subsurface or seepage water and conveys it to a place of disposal.

**Subsoil Irrigation Field.** Gray water irrigation field installed in a trench within the layer of soil below the topsoil. This system is typically used for irrigation of deep rooted plants.

**Subsurface Irrigation Field.** Gray water irrigation field installed below finished grade within the topsoil.

**Sump.** An approved tank or pit that receives sewage or liquid waste and which is located below the normal grade of the gravity system and which must be emptied by mechanical means.

**Supports.** Supports, hangers, and anchors are devices for properly supporting and securing pipe, fixtures, and equipment.

**Surge Tank.** A reservoir to modify the fluctuation in flow rates to allow for uniform distribution of gray water to the points of irrigation.

## 222.0

– T –

**T Rating.** The time period that the penetration firestop system, including the penetrating item, limits the maximum temperature rise of 325°F (181°C) above its initial temperature through the penetration on the nonfire side, where tested in accordance with ASTM E814 or UL 1479.

**Tailpiece.** The pipe or tubing that connects the outlet of a plumbing fixture to a trap.

**Testing Agency [HCD 1].** See “Approved Testing Agency”.

**Thermostatic (Temperature Control) Valve.** A mixing valve that senses outlet temperature and compensates for fluctuations in incoming hot or cold water temperatures.

**Toilet [OSHPD 1, 2, 3 & 4].** *A fixture within a toilet room which is used for defecation or urination.*

**Toilet Room [OSHPD 1, 2, 3 & 4].** *A room within or on the premises containing water closets, urinals, and other required facilities.*

**Transition Gas Riser.** A listed or approved section or sections of pipe and fittings used to convey fuel gas and installed in a gas piping system for the purpose of providing a transition from belowground to aboveground.



**Trap.** A fitting or device so designed and constructed as to provide, where properly vented, a liquid seal that will prevent the back passage of air without materially affecting the flow of sewage or wastewater through it.

**Trap Arm.** That portion of a fixture drain between a trap and the vent.

**Trap Primer.** A device and system of piping that maintains a water seal in a remote trap.

**Trap Seal.** The vertical distance between the crown weir and the top dip of the trap.

**Crown Weir (Trap Weir).** The lowest point in the cross-section of the horizontal waterway at the exit of the trap.

**Top Dip (of trap).** The highest point in the internal cross-section of the trap at the lowest part of the bend (inverted siphon). By contrast, the bottom dip is the lowest point in the internal cross-section.

**Treated Gray Water [HCD 1].** *Nonpotable water meeting the definition of “gray water” collected and treated on-site suitable for direct beneficial use.*

**Type B Gas Vent.** A factory-made gas vent listed by nationally recognized testing agency for venting listed or approved appliances equipped to burn only gas.

**Type BW Gas Vent.** A factory-made gas vent listed by a nationally recognized testing agency for venting listed or approved gas-fired vented wall furnaces.

**Type L Gas Vent.** A venting system consisting of listed vent piping and fittings for use with oil-burning appliances listed for use with Type L or with listed gas appliances.

## 223.0 – U –

**Unsanitary.** See Insanitary.

**UPC [HCD 1].** *“UPC” is the latest edition of the Uniform Plumbing Code, published by the International Association of Plumbing and Mechanical Officials.*

**Urinal, Hybrid [BSC-CG].** *A urinal that conveys waste into the drainage system without the use of water for flushing and automatically performs a drain-cleansing action after a pre-determined amount of time as defined in Chapter 2 of the California Green Building Standards Code (CALGreen).*

**Urinal, Hybrid [HCD 1].** *A urinal that conveys waste into the drainage system without the use of water for flushing and automatically performs a drain-cleansing action after a pre-determined amount of time.*

**User Outlet.** See Station Outlet.

## 224.0 – V –

**Vacuum.** A pressure less than that exerted by the atmosphere.

**Vacuum Breaker.** See Backflow Preventer.

**Vacuum Relief Valve.** A device that prevents excessive vacuum in a pressure vessel.

**Vacuum System-Level 1.** A system consisting of central vacuum-producing equipment with pressure and operating controls, shutoff valves, alarm warning systems, gauges, and a

network of piping extending to and terminating with suitable station inlets at locations where patient suction could be required.

**Valve, Isolation.** A valve that isolates one piece of equipment from another.

**Valve, Pressure-Relief.** A pressure-actuated valve held closed by a spring or other means and designed to automatically relieve pressure in excess of its setting.

**Valve, Riser.** A valve at the base of a vertical riser that isolates that riser.

**Valve, Service.** A valve serving horizontal piping extending from a riser to a station outlet or inlet.

**Valve, Source.** A single valve at the source that controls a number of units that make up the source.

**Valve, Zone.** A valve that controls the gas or vacuum to a particular area.

**Vent.** See Plumbing Vent; Dry Vent; Wet Vent.

**Vent Connector, Gas.** That portion of a gas venting system that connects a listed gas appliance to a gas vent and is installed within the space or area in which the appliance is located.

**Vent Offset.** An arrangement of two or more fittings and pipe installed for the purpose of locating a vertical section of vent pipe in a different but parallel plane with respect to an adjacent section of a vertical vent pipe. [NFPA 54:3.3.108]

**Vent Pipe.** See Plumbing Vent.

**Vent Stack.** The vertical vent pipe installed primarily for the purpose of providing circulation of air to and from any part of the drainage system.

**Vent System.** See Plumbing Vent System.

**Vented Flow Control Device.** A device installed upstream from the hydromechanical grease interceptor having an orifice that controls the rate of flow through the interceptor, and an air intake (vent) downstream from the orifice, which allows air to be drawn into the flow stream.

**Vertical Pipe.** A pipe or fitting that is installed in a vertical position or that makes an angle of not more than 45 degrees (0.79 rad) with the vertical.

## 225.0 – W –

**Wall-Hung Water Closet.** A water closet installed in such a way that no part of the water closet touches the floor.

**Waste.** See Liquid Waste and Industrial Waste.

**Waste Anesthetic Gas Disposal (WAGD).** The process of capturing and carrying away gases vented from the patient breathing circuit during the normal operation of gas anesthesia or analgesia equipment. [NFPA 99:3.3.183]

**Waste Pipe.** A pipe that conveys only liquid waste, free of fecal matter.

**Water Closet [HCD 1].** *“Water Closet” is a plumbing fixture (which may be used for both solids and liquids) in which the waste matter is removed by flushing with water.*

**Water-Conditioning or Treating Device.** A device that conditions or treats a water supply so as to change its chemical content or remove suspended solids by filtration.

## DEFINITIONS

**Water Distribution Pipe.** In a building or premises, a pipe that conveys potable water from the building supply pipe to the plumbing fixtures and other water outlets.

**Water Hammer Arrester.** A device designed to provide protection against hydraulic shock in the building water supply system.

**Water Heater or Hot Water Heating Boiler.** An appliance designed primarily to supply hot water for domestic or commercial purposes and equipped with automatic controls limiting water temperature to a maximum of 210°F (99°C).

**Water Main (Street Main).** A water supply pipe for public or community use.

**Water Supply System.** The building supply pipe, the water distribution pipes, and the necessary connecting pipes, fittings, control valves, backflow prevention devices, and all appurtenances carrying or supplying potable water in or adjacent to the building or premises.

**Water/Wastewater Utility.** A public or private entity which may treat, deliver, or do both functions to reclaimed (recycled) water, potable water, or both to wholesale or retail customers.

**Welder, Pipe.** A person who specializes in the welding of pipes and holds a valid certificate of competency from a recognized testing laboratory, based on the requirements of the ASME Boiler and Pressure Vessels code, Section IX.

**Wet Procedure Locations.** The area in a patient care room where a procedure is performed that is normally subject to wet conditions while patients are present, including standing fluids on the floor or drenching of the work area, either of which condition is intimate to the patient or staff. [NFPA 99:3.3.184]

**Wet Vent.** A vent that also serves as a drain.

**Whirlpool Bathtub.** A bathtub fixture equipped and fitted with a circulating piping system designed to accept, circulate, and discharge bathtub water upon each use.

**226.0** – X –

No definitions.

**227.0** – Y –

**Yoke Vent.** A pipe connecting upward from a soil or waste stack to a vent stack for the purpose of preventing pressure changes in the stacks.

**228.0** – Z –

No definitions.

**CALIFORNIA PLUMBING CODE – MATRIX ADOPTION TABLE  
CHAPTER 3 - GENERAL REGULATIONS**

(Matrix Adoption Tables are non-regulatory, intended only as an aid to the code user. See Chapter 1 for state agency authority and building applications.)

Adopting Agency	BSC	BSC- CG	SFM	HCD			DSA			OSHPD				BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1-AC	AC	SS	SS/CC	1	2	3	4								
Adopt Entire Chapter	X																				
Adopt Entire Chapter as amended (amended sections listed below)			X	X	X			X	X	X	X	X	X								
Adopt only those sections that are listed below																					
Chapter/Section																					
301.3				X																	
301.3.1				†	†																
301.3.1.1				†	†																
301.3.1.2				†	†																
301.4.1				X	X			X	X												
301.6				X																	
303.1 <i>Exception</i>				X																	
304.1 <i>Exception</i>				X																	
310.9										X	X	X	X								
310.10										X		X	X								
310.11			X																		
310.12										X	X		X								
310.13										X			X								
312.2				X	X			X	X												
312.7			X	X	X			X	X												
312.11				X	X			X	X												
313.8										X	X	X	X								
319.0										X	X	X	X								
321.0										X	X	X	X								
322.0										X	X		X								

*This state agency does not adopt sections identified with the following symbol: †*

*The Office of the State Fire Marshal's adoption of this chapter or individual sections is applicable to structures regulated by other state agencies pursuant to Section 1.11.*



**306.0 Industrial Wastes.**

**306.1 Detrimental Wastes.** Wastes detrimental to the public sewer system or detrimental to the functioning of the sewage treatment plant shall be treated and disposed of as found necessary and directed by the Authority Having Jurisdiction.

**306.2 Safe Discharge.** Sewage or other waste from a plumbing system that is capable of being deleterious to surface or subsurface waters shall not be discharged into the ground or into a waterway unless it has first been rendered safe by some acceptable form of treatment in accordance with the Authority Having Jurisdiction.

**307.0 Location.**

**307.1 System.** Except as otherwise provided in this code, no plumbing system, drainage system, building sewer, private sewage disposal system, or parts thereof shall be located in a lot other than the lot that is the site of the building, structure, or premises served by such facilities.

**307.2 Ownership.** No subdivision, sale, or transfer of ownership of existing property shall be made in such manner that the area, clearance, and access requirements of this code are decreased.

**308.0 Improper Location.**

**308.1 General.** Piping, fixtures, or equipment shall not be so located as to interfere with the normal use thereof or with the normal operation and use of windows, doors, or other required facilities.

**309.0 Workmanship.**

**309.1 Engineering Practices.** Design, construction, and workmanship shall be in accordance with accepted engineering practices and shall be of such character as to secure the results sought to be obtained by this code.

**309.2 Concealing Imperfections.** It is unlawful to conceal cracks, holes, or other imperfections in materials by welding, brazing, or soldering or by using therein or thereon a paint, wax, tar, solvent cement, or other leak-sealing or repair agent.

**309.3 Burred Ends.** Burred ends of pipe and tubing shall be reamed to the full bore of the pipe or tube, and chips shall be removed.

**309.4 Installation Practices.** Plumbing systems shall be installed in a manner that is in accordance with this code, applicable standards, and the manufacturer's installation instructions.

**310.0 Prohibited Fittings and Practices.**

**310.1 Fittings.** No double hub fitting, single or double tee branch, single or double tapped tee branch, side inlet quarter bend, running thread, band, or saddle shall be used as a drainage fitting, except that a double hub sanitary tapped tee shall be permitted to be used on a vertical line as a fixture connection.

**310.2 Drainage and Vent Piping.** No drainage or vent piping shall be drilled and tapped for the purpose of making connections thereto, and no cast-iron soil pipe shall be threaded.

**310.3 Waste Connection.** No waste connection shall be made to a closet bend or stub of a water closet or similar fixture.

**310.4 Use of Vent and Waste Pipes.** Except as hereinafter provided in Section 908.0 through Section 911.0, no vent pipe shall be used as a soil or waste pipe, nor shall a soil or waste pipe be used as a vent. Also, single-stack drainage and venting systems with unvented branch lines are prohibited.

**310.5 Obstruction of Flow.** No fitting, fixture and piping connection, appliance, device, or method of installation that obstructs or retards the flow of water, wastes, sewage, or air in the drainage or venting systems, in an amount exceeding the normal frictional resistance to flow, shall be used unless it is indicated as acceptable in this code or is approved in accordance with Section 301.2 of this code. The enlargement of a 3 inch (76 mm) closet bend or stub to 4 inches (102 mm) shall not be considered an obstruction.

**310.6 Dissimilar Metals.** Except for necessary valves, where inter-membering or mixing of dissimilar metals occurs, the point of connection shall be confined to exposed or accessible locations.

**310.7 Direction of Flow.** Valves, pipes, and fittings shall be installed in correct relationship to the direction of flow.

**310.8 Screwed Fittings.** Screwed fittings shall be ABS, cast-iron, copper, copper alloy, malleable iron, PVC, steel, or other approved materials. Threads shall be tapped out of solid metal or molded in solid ABS or PVC.

**310.9 [OSHPD 1, 2, 3 & 4]** *Drainage piping over operating and delivery rooms, nurseries, food preparation centers, food-serving facilities, food storage areas, and other sensitive areas shall be kept to a minimum and shall not be exposed. Special precautions shall be taken to protect these areas from possible leakage from necessary overhead drainage piping systems. Piping over switchboards, panel boards, and motor control centers are subject to restrictions of the California Electrical Code where applicable.*

**310.10 [OSHPD 1, 3 & 4]** *Floor drains, waste traps and handwashing fixtures shall not be installed in operating and delivery rooms. Floor drains with self-priming traps may be installed in cystoscopic rooms.*

**310.11 [SFM]** *For applications listed in Section 111 regulated by the Office of the State Fire Marshal, plastic piping shall not be exposed as a portion of the interior room finish in a building or structure if the piping has a flame-spread rating exceeding 75 when tested in accordance with ASTM E84-77a, "Test for Surface Burning Characteristics of Building Materials."*

**310.12 [OSHPD 1, 2 & 4]** *Services/Systems and Utilities. Refer to Section 1224.4.1, California Building Code.*

**310.13 Telephone and Data Equipment Rooms [OSHPD 1 & 4].** *Where telecommunications service entrance rooms, technology equipment centers, or technology distribution rooms are provided in accordance with Section 1224.5 of the California Building Code, plumbing equipment and fixtures*

that are not directly related to the support of the room shall not be installed in or pass through the room.

### 311.0 Independent Systems.

**311.1 General.** The drainage system of each new building and of new work installed in an existing building shall be separate and independent from that of any other building, and, where available, every building shall have an independent connection with a public or private sewer.

**Exception:** Where one building stands in the rear of another building on an interior lot, and no private sewer is available or can be constructed to the rear building through an adjoining court, yard, or driveway, the building drain from the front building shall be permitted to be extended to the rear building.

### 312.0 Protection of Piping, Materials, and Structures.

**312.1 General.** Piping passing under or through walls shall be protected from breakage. Piping passing through or under cinders or other corrosive materials shall be protected from external corrosion in an approved manner. Approved provisions shall be made for expansion of hot water piping. Voids around piping passing through concrete floors on the ground shall be sealed.

**312.2 Installation.** Piping in connection with a plumbing system shall be so installed that piping or connections will not be subject to undue strains or stresses, and provisions shall be made for expansion, contraction, and structural settlement. No plumbing piping shall be directly embedded in concrete or masonry. No structural member shall be seriously weakened or impaired by cutting, notching, or otherwise, as defined in the *California Building Code* or *California Residential Code*.

**312.3 Building Sewer and Drainage Piping.** No building sewer or other drainage piping or part thereof, constructed of materials other than those approved for use under or within a building, shall be installed under or within 2 feet (610 mm) of a building or structure, or less than 1 foot (305 mm) below the surface of the ground.

**312.4 Corrosion, Erosion, and Mechanical Damage.** Piping subject to corrosion, erosion, or mechanical damage shall be protected in an approved manner.

**312.5 Protectively Coated Pipe.** Protectively coated pipe or tubing shall be inspected and tested, and a visible void, damage, or imperfection to the pipe coating shall be repaired in an approved manner.

**312.6 Freezing Protection.** No water, soil, or waste pipe shall be installed or permitted outside of a building, in attics or crawl spaces, or in an exterior wall unless, where necessary, adequate provision is made to protect such pipe from freezing.

**312.7 Fire-Resistant Construction.** Piping penetrations of fire-resistance-rated walls, partitions, floors, floor/ceiling assemblies, roof/ceiling assemblies, or shaft enclosures shall be protected in accordance with the requirements of the *California Building Code* or *California Residential Code*.

**312.8 Waterproofing of Openings.** Joints at the roof around pipes, ducts, or other appurtenances shall be made watertight by the use of lead, copper, galvanized iron, or other approved

flashings or flashing material. Exterior wall openings shall be made watertight. Counterflashing shall not restrict the required internal cross-sectional area of the vent.

**312.9 Steel Nail Plates.** Plastic and copper or copper alloy piping penetrating framing members to within 1 inch (25.4 mm) of the exposed framing shall be protected by steel nail plates not less than No. 18 gauge (0.0478 inches) (1.2 mm) in thickness. The steel nail plate shall extend along the framing member not less than 1½ inches (38 mm) beyond the outside diameter of the pipe or tubing.

**Exception:** See Section 1210.3.3.

**312.10 Sleeves.** Sleeves shall be provided to protect piping through concrete and masonry walls, and concrete floors.

**Exception:** Sleeves shall not be required where openings are drilled or bored.

**312.10.1 Building Loads.** Piping through concrete or masonry walls shall not be subject to a load from building construction.

**312.10.2 Exterior Walls.** In exterior walls, annular space between sleeves and pipes shall be sealed and made watertight, as approved by the Authority Having Jurisdiction. A penetration through fire-resistive construction shall be in accordance with Section 312.7.

**312.10.3 Firewalls.** A pipe sleeve through a firewall shall have the space around the pipe completely sealed with an approved fire-resistive material in accordance with other codes.

**312.11 Structural Members.** A structural member weakened or impaired by cutting, notching, or otherwise shall be reinforced, repaired, or replaced so as to be left in a safe structural condition in accordance with the requirements of the *California Building Code* or *California Residential Code*.

**312.12 Rodentproofing.** Strainer plates on drain inlets shall be designed and installed so that no opening exceeds ½ of an inch (12.7 mm) in the least dimension.

**312.12.1 Meter Boxes.** Meter boxes shall be constructed in such a manner as to restrict rodents or vermin from entering a building by following the service pipes from the box into the building.

**312.12.2 Metal Collars.** In or on buildings where openings have been made in walls, floors, or ceilings for the passage of pipes, such openings shall be closed and protected by the installation of approved metal collars securely fastened to the adjoining structure.

**312.12.3 Tub Waste Openings.** Tub waste openings in framed construction to crawl spaces at or below the first floor shall be protected by the installation of approved metal collars or metal screen securely fastened to the adjoining structure with no opening exceeding ½ of an inch (12.7 mm) in the least dimension.

**312.13 Exposed ABS Piping.** ABS piping shall not be exposed to direct sunlight.

**Exception:** ABS piping exposed to sunlight that is protected by water based synthetic latex paints.

**312.14 Exposed PVC Piping.** PVC piping shall not be exposed to direct sunlight.

**Exceptions:**

- (1) PVC piping exposed to sunlight that is protected by water based synthetic latex paints.
- (2) PVC piping wrapped with not less than 0.04 inch (1.02 mm) thick tape or otherwise protected from UV degradation.

**313.0 Hangers and Supports.**

- » **313.1 General.** Piping, fixtures, appliances, and appurtenances shall be supported in accordance with this code, the manufacturer’s installation instructions, and in accordance with the Authority Having Jurisdiction.
- » **313.2 Material.** Hangers and anchors shall be of sufficient strength to support the weight of the pipe and its contents. Piping shall be isolated from incompatible materials.
- » **313.3 Suspended Piping.** Suspended piping shall be supported at intervals not to exceed those shown in Table 313.3.
- » **313.4 Alignment.** Piping shall be supported in such a manner as to maintain its alignment and prevent sagging.
- » **313.5 Underground Installation.** Piping in the ground shall be laid on a firm bed for its entire length; where other support is otherwise provided, it shall be approved in accordance with Section 301.2.
- » **313.6 Hanger Rod Sizes.** Hanger rod sizes shall be not smaller than those shown in Table 313.6.

**TABLE 313.6  
HANGER ROD SIZES**

PIPE AND TUBE SIZE (inches)	ROD SIZE (inches)
1/2 – 4	3/8
5 – 8	1/2
10 – 12	5/8

For SI units: 1 inch = 25.4 mm

**313.7 Gas Piping.** Gas piping shall be supported by metal straps or hooks at intervals not to exceed those shown in Table 1210.2.4.1.

**313.8 [OSHPD 1, 2, 3 & 4]** Refer to Title 24, Part 2 of the California Building Code for seismic anchorage and bracing requirements and accommodations for building displacements.

**314.0 Trenching, Excavation, and Backfill.**

**314.1 Trenches.** Trenches deeper than the footing of a building or structure, and paralleling the same, shall be located not less than 45 degrees (0.79 rad) from the bottom exterior edge of the footing, or as approved in accordance with Section 301.2.

**314.2 Tunneling and Driving.** Tunneling and driving shall be permitted to be done in yards, courts, or driveways of a building site. Where sufficient depth is available to permit, tunnels shall be permitted to be used between open-cut trenches. Tunnels shall have a clear height of 2 feet (610 mm) above the pipe and shall be limited in length to one-half the depth of the trench, with a maximum length of 8 feet (2438 mm). Where

pipes are driven, the drive pipe shall be not less than one size larger than the pipe to be laid.

**314.3 Open Trenches.** Excavations required to be made for the installation of a building drainage system or part thereof, within the walls of a building, shall be open trench work and shall be kept open until the piping has been inspected, tested, and accepted.

**314.4 Excavations.** Excavations shall be completely backfilled as soon after inspection as practicable. Precaution shall be taken to ensure compactness of backfill around piping without damage to such piping. Trenches shall be backfilled in thin layers to 12 inches (305 mm) above the top of the piping with clean earth, which shall not contain stones, boulders, cinderfill, frozen earth, construction debris, or other materials that will damage or break the piping or cause corrosive action. Mechanical devices such as bulldozers, graders, etc., shall be permitted to then be used to complete backfill to grade. Fill shall be properly compacted. Precautions shall be taken to ensure permanent stability for pipe laid in filled or made ground.

Underground thermoplastic pipe and fittings for sewers and other gravity flow applications shall be installed in accordance with this code and Section 314.4.1.

**314.4.1 Installation of Thermoplastic Pipe and Fittings.** Trench width for thermoplastic sewer pipe shall be 1.25 times the outside diameter of the piping plus 12 inches (305 mm) or the outside diameter of the piping plus 16 inches (406 mm). Thermoplastic piping shall be bedded in not less than 4 inches (102 mm) of granular fill supporting the piping. The backfill for thermoplastic piping shall be compacted along the sides of the piping in 6 inch (152 mm) layers and continue to not less than 12 inches (305 mm) above the piping. Compaction shall be not less than a 85 percent standard proctor density.

**315.0 Joints and Connections.**

**315.1 Unions.** Approved unions shall be permitted to be used in drainage piping where accessibly located in the trap seal or between a fixture and its trap; in the vent system, except underground or in wet vents; at any point in the water supply system; and in gas piping as permitted by Section 1212.5.

**315.2 Prohibited Joints and Connections.** A fitting or connection that has an enlargement, chamber, or recess with a ledge, shoulder, or reduction of pipe area that offers an obstruction to flow through the drain shall be prohibited.

**316.0 Increases and Reducers.**

**316.1 General.** Where different sizes of pipes and fittings are to be connected, the proper size increasers or reducers or reducing fittings shall be used between the two sizes. Copper alloy or cast-iron body cleanouts shall not be used as a reducer or adapter from cast-iron drainage pipe to iron pipe size (IPS) pipe.

**317.0 Food-Handling Establishments.**

**317.1 General.** Food or drink shall not be stored, prepared, or displayed beneath soil or drain pipes, unless those areas are

## GENERAL REGULATIONS

protected against leakage or condensation from such pipes reaching the food or drink as described below. Where building design requires that soil or drain pipes be located over such areas, the installation shall be made with the least possible number of joints and shall be installed so as to connect to the nearest adequately sized vertical stack with the provisions as follows:

- (1) Openings through floors over such areas shall be sealed watertight to the floor construction.
- (2) Floor and shower drains installed above such areas shall be equipped with integral seepage pans.
- (3) Soil or drain pipes shall be of an approved material as listed in Table 1701.1 and Section 701.2. Materials shall comply with established standards. Cleanouts shall be extended through the floor construction above.
- (4) Piping subject to operation at temperatures that will form condensation on the exterior of the pipe shall be thermally insulated.
- (5) Where pipes are installed in ceilings above such areas, the ceiling shall be of the removable type, or shall be provided with access panels in order to form a ready access for inspection of piping.

### 318.0 Test Gauges.

**318.1 General.** Tests in accordance with this code, which are performed utilizing dial gauges, shall be limited to gauges having the following pressure graduations or incrementations.

**318.2 Pressure Tests (10 psi or less).** Required pressure tests of 10 pounds-force per square inch (psi) (69 kPa) or less shall be performed with gauges of 0.10 psi (0.69 kPa) incrementation or less.

**318.3 Pressure Tests (greater than 10 psi to 100 psi).** Required pressure tests exceeding 10 psi (69 kPa) but less than or equal to 100 psi (689 kPa) shall be performed with gauges of 1 psi (7 kPa) incrementation or less.

**318.4 Pressure Tests (exceeding 100 psi).** Required pressure tests exceeding 100 psi (689 kPa) shall be performed with gauges incremented for 2 percent or less of the required test pressure.

**318.5 Pressure Range.** Test gauges shall have a pressure range not exceeding twice the test pressure applied.

### 319.0 [Not permitted for OSHPD 1, 2, 3 & 4] Medical Gas and Vacuum Systems.

**319.1 General.** Such piping shall be installed, tested, and verified in accordance with the applicable standards referenced in Table 1701.1 and the requirements of Chapter 13. The Authority Having Jurisdiction shall require evidence of the competency of the installers and verifiers.

### 320.0 Rehabilitation of Piping Systems.

**320.1 General.** Where pressure piping systems are rehabilitated using an epoxy lining system it shall be in accordance with ASTM F2831.

**321.0 Essential Plumbing Provisions. [OSHPD 1, 2, 3 (surgical clinics), & 4]** During periods of power outages essential electrical power shall be provided for the following equipment:

- (1) Domestic water booster pumps.
- (2) Domestic hot water circulating pumps.
- (3) Sewage ejector pumps.
- (4) Sump pumps and drainage pumps.
- (5) Domestic water heating equipment and their controls.
- (6) Fuel pumps.
- (7) Grease removal devices requiring electrical power.

**322.0 Psychiatric Services [OSHPD 1, 2, & 4].** For projects associated with provision of psychiatric services in acute psychiatric hospitals, general acute-care hospitals, and special treatment program service units in skilled nursing facilities, special design considerations for injury and suicide prevention shall be given to shower, bath, toilet, and sink plumbing fixtures. Shower heads shall be of flush-mounted design to minimize anchor points.



**CALIFORNIA PLUMBING CODE – MATRIX ADOPTION TABLE  
CHAPTER 4 - PLUMBING FIXTURES AND FIXTURE FITTINGS**

(Matrix Adoption Tables are non-regulatory, intended only as an aid to the code user. See Chapter 1 for state agency authority and building applications.)

Adopting Agency	BSC	BSC-CG	SFM	HCD				DSA			OSHPD				BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1-AC	AC	SS	SS/CC	1	2	3	4									
Adopt Entire Chapter																						
Adopt Entire Chapter as amended (amended sections listed below)	X			X	X			X	X	X	X	X	X		X	X				X		
Adopt only those sections that are listed below		X				X	X								X							
Chapter/Section																						
Note Under Title							X															
401.3	X			X				X	X	X	X	X	X									
403.1						X																
403.2						X																
407.2.1				X																		
407.2.1.2				X																		
407.2.1.3				X	X																	
407.2.2.1		X						X	X													
408.2				X																		
408.2.1		X																				
408.2.2		X																				
408.2.3								X	X													
408.2.4								X	X													
408.5 & Exception 1				X																		
408.6 & Exception 1, 3						X																
411.2				X	X																	
411.2.2				X	X																	
411.2.3				†	†																	
411.2.3.1		X						X	X													X
411.2.4		X						X	X													X
412.1				X	X																	
412.1.1		X						X	X													
412.1.2		X						X	X													
412.1.3		X		X	X																	
412.1.3.1		X																				
413.2										X	X	X	X									
415.1				X																		
417.1.1		X						X	X													
417.1.2		X						X	X													
420.2.1		X						X	X													

**CALIFORNIA PLUMBING CODE – MATRIX ADOPTION TABLE**  
**CHAPTER 4 - PLUMBING FIXTURES AND FIXTURE FITTINGS (continued)**

(Matrix Adoption Tables are non-regulatory, intended only as an aid to the code user. See Chapter 1 for state agency authority and building applications.)

Adopting Agency	BSC	BSC- CG	SFM	HCD			DSA			OSHPD				BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1-AC	AC	SS	SS/CC	1	2	3	4								
Adopt Entire Chapter																					
Adopt Entire Chapter as amended (amended sections listed below)	X			X	X			X	X	X	X	X	X		X	X				X	
Adopt only those sections that are listed below		X				X	X							X							
Chapter/Section																					
420.2.2				X																	
422.1	X			X	X					X	X	X	X								
Table 422.1	X			X	X	X	X	X	X	X	X	X	X								
422.1.2							X														
422.1.3										X	X	X	X								
422.2				†	†																
422.3.1 & Exception										X	X	X	X								
422.4				†	†					†	†	†	†								
422.5				†	†																
422.6																					X
422.7																					X
422.8															X						
422.9															X						
Table A	X							X	X												
Table 4-2										X	X	X	X								
Table 4-3	X															X					
Table 4-4	X														X						

This state agency does not adopt sections identified with the following symbol: †

The Office of the State Fire Marshal's adoption of this chapter or individual sections is applicable to structures regulated by other state agencies pursuant to Section 1.11.

bonderized and galvanized sheet steel of not less than No. 16 U.S. gauge (0.0625 inches) (1.6 mm). Sheet-metal plumbing fixtures shall be adequately designed, constructed, and braced in an approved manner to accomplish their intended purpose.

» **406.3 Special Use Fixtures.** Special use fixtures shall be made of one of the following:

- (1) Soapstone
- (2) Chemical stoneware
- (3) Copper-based alloy
- (4) Nickel-based alloy
- (5) Corrosion-resistant steel
- (6) Other materials suited for the intended use of the fixture

» **406.4 Zinc Alloy Components.** Zinc alloy components shall comply with applicable nationally recognized standards and shall be used in accordance with their listing.

**407.0 Lavatories.**

**407.1 Application.** Lavatories shall comply with ASME A112.19.1/CSA B45.2, ASME A112.19.2/CSA B45.1, ASME A112.19.3/CSA B45.4, ASME A112.19.12, CSA B45.5/IAPMO Z124, or CSA B45.11/IAPMO Z401.

**407.2 Water Consumption.** The maximum water flow rate of faucets shall comply with Section 407.2.1 through Section 407.2.2.1.

**407.2.1 Maximum Flow Rate.** The maximum flow rate for public lavatory faucets shall not exceed 0.5 gpm at 60 psi (1.9 L/m at 414 kPa).

**407.2.1.1 Residential Lavatory Faucets [HCD 1].** The maximum flow rate of residential lavatory faucets shall not exceed 1.2 gallons (4.54 L) per minute at 60 psi. The minimum flow rate of residential lavatory faucets shall not be less than 0.8 gallons (3.03 L) per minute at 20 psi.

**407.2.1.2 Lavatory Faucets in Common and Public Use Areas [HCD 1 & HCD 2].** The maximum flow rate of lavatory faucets, installed in common and public use areas (outside of dwellings or sleeping units) in residential buildings, shall not exceed 0.5 gallons (1.89 L) per minute at 60 psi.

» **407.2.2 Metering Faucets.** Metered faucets shall deliver a maximum of 0.25 gallons (1.0 L) per metering cycle in accordance with ASME A112.18.1/CSA B125.1.

**407.2.2.1 Metering Faucets [BSC-CG, DSA-SS & DSA-SS/CC].** Metering Faucets shall not deliver more than 0.20 gallons (0.76 L) per cycle in compliance with Chapter 5, Division 5.3 of the California Green Building Standards Code (CALGreen).

» **407.3 Limitation of Hot Water Temperature for Public Lavatories.** Hot water delivered from public-use lavatories shall be limited to a maximum temperature of 120°F (49°C) by a device that is in accordance with ASSE 1070 or CSA B125.3. The water heater thermostat shall not be considered a control for meeting this provision.

**407.4 Transient Public Lavatories.** Self-closing or metering faucets shall be installed on lavatories intended to serve

the transient public, such as those in, but not limited to service stations, train stations, airports, restaurants, and convention halls.

**407.5 Waste Outlet.** Lavatories shall have a waste outlet and fixture tailpiece not less than 1¼ inches (32 mm) in diameter. Continuous wastes and fixture tailpieces shall be constructed from the materials specified in Section 701.4. Waste outlets shall be provided with an approved stopper or strainer.

**407.6 Overflow.** Overflows shall be installed in accordance with Section 404.1.

**408.0 Showers.**

**408.1 Application.** Manufactured shower receptors and shower bases shall comply with ASME A112.19.1/CSA B45.2, ASME A112.19.2/CSA B45.1, ASME A112.19.3/CSA B45.4, or CSA B45.5/IAPMO Z124.

**408.2 Water Consumption [HCD 1].** Showerheads shall have a maximum flow rate of 1.8 gallons (6.81 L) per minute measured at 80 psi and must comply with Division 4.3 of the California Green Building Standards Code (CALGreen).

**408.2.1 Single Showerhead [BSC-CG].** Showerheads shall have a maximum flow rate of not more than 1.8 gallons (6.81 L) per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads in compliance with Chapter 5, Division 5.3. of the California Green Building Standards Code (CALGreen).

**408.2.2 Multiple Showerheads Serving One Shower [BSC-CG].** When a shower is served by more than one showerhead, the combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons (6.81 L) per minute at 80 psi, or the shower shall be designed to allow only one shower outlet to be in operation at a time in compliance with Chapter 5, Division 5.3 of the California Green Building Standards Code (CALGreen).

**Note:** A hand-held shower shall be considered a showerhead.

**408.2.3 Single Showerhead [DSA-SS & DSA-SS/CC].** Showerheads shall have a maximum flow rate of not more than 1.8 gallons (6.81 L) per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads in compliance with the California Energy Commission - 2015 Appliance Efficiency Regulations (CCR Title 20, Article 4, Section 1605.3[h][5]).

**408.2.4 Multiple Showerheads Serving One Shower [DSA-SS & DSA-SS/CC].** When a shower is served by more than one showerhead, the combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons (6.81 L) per minute at 80 psi, or the shower shall be designed to allow only one shower to be in operation at a time in compliance with the California Energy Commission - 2015 Appliance Efficiency Regulations (CCR Title 20, Article 4, Section 1605.3[h][5]).

**408.3 Individual Shower and Tub-Shower Combination**

**Control Valves.** Showers and tub-shower combinations shall be provided with individual control valves of the pressure balance, thermostatic, or combination pressure balance/thermostatic mixing valve type that provide scald and thermal shock protection for the rated flow rate of the installed showerhead. These valves shall be installed at the point of use and in accordance with ASSE 1016 or ASME A112.18.1/CSA B125.1. Gang showers, where supplied with a single temperature-controlled water supply pipe, shall be controlled by a mixing valve that is in accordance with ASSE 1069. Handle position stops shall be provided on such valves and shall be adjusted per the manufacturer's instructions to deliver a maximum mixed water setting of 120°F (49°C). Water heater thermostats shall not be considered a suitable control for meeting this provision.

**408.4 Waste Outlet.** Showers shall have a waste outlet and fixture tailpiece not less than 2 inches (50 mm) in diameter. Fixture tailpieces shall be constructed from the materials specified in Section 701.2 for drainage piping. Strainers serving shower drains shall have a waterway at least equivalent to the area of the tailpiece.

**408.5 Finished Curb or Threshold.** Where a shower receptor has a finished dam, curb, or threshold it shall be not less than 1 inch (25.4 mm) lower than the sides and back of such receptor. In no case shall a dam or threshold be less than 2 inches (51 mm) or exceeding 9 inches (229 mm) in depth where measured from the top of the dam or threshold to the top of the drain. Each such receptor shall be provided with an integral nailing flange to be located where the receptor meets the vertical surface of the finished interior of the shower compartment. The flange shall be watertight and extend vertically not less than 1 inch (25.4 mm) above the top of the sides of the receptor. The finished floor of the receptor shall slope uniformly from the sides towards the drain not less than ¼ inch per foot (20.8 mm/m), nor more than ½ inch per foot (41.8 mm/m).

Thresholds shall be of sufficient width to accommodate a minimum 22 inch (559 mm) door. Shower doors shall open so as to maintain not less than a 22 inch (559 mm) unobstructed opening for egress. The immediate adjoining space to showers without thresholds shall be considered a wet location and shall comply with the requirements of the *California Building, California Residential and California Electrical Codes*.

**Exceptions:**

- (1) Showers that are designed to be in accordance with the accessibility standards in *Chapter 11A of the California Building Code*. [HCD 1-AC] *Specific requirements regarding accommodations for persons with disabilities are contained in Chapter 11A of the California Building Code.*
- (2) A cast-iron shower receptor flange shall be not less than 0.3 of an inch (7.62 mm) in height.
- (3) For flanges not used as a means of securing, the sealing flange shall be not less than 0.3 of an inch (7.62 mm) in height.

**408.6 Shower Compartments.** Shower compartments, regardless of shape, shall have a minimum finished interior of 1024 square inches (0.6606 m<sup>2</sup>) and shall also be capable of encompassing a 30 inch (762 mm) circle. The minimum required area and dimensions shall be measured at a height equal to the top of the threshold and at a point tangent to its centerline. The area and dimensions shall be maintained to a point of not less than 70 inches (1778 mm) above the shower drain outlet with no protrusions other than the fixture valve or valves, showerheads, soap dishes, shelves, and safety grab bars, or rails. Fold-down seats in accessible shower stalls shall be permitted to protrude into the 30 inch (762 mm) circle.

**Exceptions:**

- (1) Showers that are designed to comply with *Chapter 11A of the California Building Code*.
- (2) The minimum required area and dimension shall not apply for a shower receptor having overall dimensions of not less than 30 inches (762 mm) in width and 60 inches (1524 mm) in length.
- (3) [HCD 1-AC] *Specific requirements regarding accommodations for persons with disabilities are contained in Chapter 11A of the California Building Code.*

**408.7 Lining for Showers and Receptors.** Shower receptors built on-site shall be watertight and shall be constructed from approved-type dense, nonabsorbent, and noncorrosive materials. Each such receptor shall be adequately reinforced, shall be provided with an approved flanged floor drain designed to make a watertight joint in the floor, and shall have smooth, impervious, and durable surfaces.

Showers shall have the subfloor and rough side of walls to a height of not less than 3 inches (76 mm) above the top of the finished dam or threshold shall be first lined with sheet plastic, lead, or copper, or shall be lined with other durable and watertight materials. Showers that are provided with a built in place, permanent seat or seating area that is located within the shower enclosure, shall be first lined with sheet plastic, lead, copper, or shall be lined with other durable and watertight materials that extend not less than 3 inches (76 mm) above horizontal surfaces of the seat or the seating area.

Lining materials shall be pitched ¼ inch per foot (20.8 mm/m) to weep holes in the subdrain of a smooth and solidly formed subbase. Such lining materials shall extend upward on the rough jambs of the shower opening to a point not less than 3 inches (76 mm) above the horizontal surfaces of the seat or the seating area, the top of the finished dam or threshold and shall extend outward over the top of the permanent seat, permanent seating area, or rough threshold and be turned over and fastened on the outside face of both the permanent seat, permanent seating area, or rough threshold and the jambs.

Nonmetallic shower subpans or linings shall be permitted to be built up on the job site of not less than three layers of standard grade 15 pound (6.8 kg) asphalt-impregnated roofing felt. The bottom layer shall be fitted to the formed subbase and each succeeding layer thoroughly hot-mopped to that below. Corners shall be carefully fitted and shall be made strong and watertight by folding or lapping, and each corner shall be reinforced with suitable webbing hot-mopped in place.

Folds, laps, and reinforcing webbing shall extend not less than 4 inches (102 mm) in all directions from the corner, and webbing shall be of approved type and mesh, producing a tensile strength of not less than 50 pounds per square foot (lb/ft<sup>2</sup>) (244 kg/m<sup>2</sup>) in either direction. Nonmetallic shower subpans or linings shall be permitted to consist of multilayers of other approved equivalent materials suitably reinforced and carefully fitted in place on the job site as elsewhere required in this section.

Linings shall be properly recessed and fastened to approved backing so as not to occupy the space required for the wall covering, and shall not be nailed or perforated at a point that is less than 1 inch (25.4 mm) above the finished dam or threshold. An approved-type subdrain shall be installed with a shower subpan or lining. Each such subdrain shall be of the type that sets flush with the subbase and shall be equipped with a clamping ring or other device to make a tight connection between the lining and the drain. The subdrain shall have weep holes into the waste line. The weep holes located in the subdrain clamping ring shall be protected from clogging.

**408.7.1 PVC Sheets.** Plasticized polyvinyl chloride (PVC) sheets shall comply with ASTM D4551. Sheets shall be joined by solvent cementing in accordance with the manufacturer's installation instructions.

**408.7.2 Chlorinated Polyethylene (CPE) Sheets.** Nonplasticized chlorinated polyethylene sheets shall comply with ASTM D4068. The liner shall be joined in accordance with the manufacturer's installation instructions.

**408.7.3 Sheet Lead.** Sheet lead shall weigh not less than 4 lb/ft<sup>2</sup> (19 kg/m<sup>2</sup>) and shall be coated with an asphalt paint or other approved coating. The lead sheet shall be insulated from conducting substances, other than the connecting drain, by 15 pound (6.8 kg) asphalt felt or an equivalent. Sheet lead shall be joined by burning.

**408.7.4 Sheet Copper.** Sheet copper shall comply with ASTM B152 and shall weigh not less than 12 ounces per square foot (oz/ft<sup>2</sup>) (3.7 kg/m<sup>2</sup>) or No. 24 B & S Gauge (0.02 inches) (0.51 mm). The copper sheet shall be insulated from conducting substances, other than the connecting drain, by 15 pound (6.8 kg) asphalt felt or an equivalent. Sheet copper shall be joined by brazing or soldering.

**408.7.5 Tests for Shower Receptors.** Shower receptors shall be tested for watertightness by filling with water to the level of the rough threshold. The test plug shall be so placed that both upper and under sides of the subpan shall be subjected to the test at the point where it is clamped to the drain.

**408.8 Public Shower Floors.** Floors of public shower rooms shall have a nonskid surface and shall be drained in such a manner that wastewater from one bather shall not pass over areas occupied by other bathers. Gutters in public or gang shower rooms shall have rounded corners for easy cleaning and shall be sloped not less than 2 percent toward drains. Drains in gutters shall be spaced at a maximum of 8 feet (2438 mm) from sidewalls nor more than 16 feet (4877 mm) apart.

**408.9 Location of Valves and Heads.** Control valves and showerheads shall be located on the sidewall of shower compartments or otherwise arranged so that the showerhead does not discharge directly at the entrance to the compartment so that the bather can adjust the valves prior to stepping into the shower spray.

**408.10 Water Supply Riser.** A water supply riser from the shower valve to the showerhead outlet, whether exposed or not, shall be securely attached to the structure.

#### 409.0 Bathtubs and Whirlpool Bathtubs.

**409.1 Application.** Bathtubs shall comply with ASME A112.19.1/CSA B45.2, ASME A112.19.2/CSA B45.1, ASME A112.19.3/CSA B45.4, or CSA B45.5/IAPMO Z124. Whirlpool bathtubs shall comply with ASME A112.19.7/CSA B45.10. Pressure sealed doors within a bathtub or whirlpool bathtub enclosure shall comply with ASME A112.19.15.

**409.2 Waste Outlet.** Bathtubs and whirlpool bathtubs shall have a waste outlet and fixture tailpiece not less than 1/2 inches (40 mm) in diameter. Fixture tailpieces shall be constructed from the materials specified in Section 701.2 for drainage piping. Waste outlets shall be provided with an approved stopper or strainer.

**409.3 Overflow.** Overflows shall be installed in accordance with Section 404.1.

**409.4 Limitation of Hot Water in Bathtubs and Whirlpool Bathtubs.** The maximum hot water temperature discharging from the bathtub and whirlpool bathtub filler shall be limited to 120°F (49°C) by a device that is in accordance with ASSE 1070 or CSA B125.3. The water heater thermostat shall not be considered a control for meeting this provision.

**409.5 Backflow Protection.** The water supply to a bathtub and whirlpool bathtub filler valve shall be protected by an air gap or in accordance with Section 417.0.

**409.6 Installation and Access.** Bathtubs and whirlpool bathtubs shall be installed in accordance with the manufacturer's installation instructions. Access openings shall be of size and opening to permit the removal and replacement of the circulation pump.

Whirlpool pump access located in the crawl space shall be located not more than 20 feet (6096 mm) from an access door, trap door, or crawl hole.

The circulation pump shall be located above the crown weir of the trap.

The pump and the circulation piping shall be self-draining to minimize water retention. Suction fittings on whirlpool bathtubs shall be listed in accordance with ASME A112.19.7/CSA B45.10.

**409.6.1 Flexible PVC Hoses and Tubing.** Flexible PVC hoses and tubing intended to be used on whirlpool bathtub water circulation systems or pneumatic systems shall be in accordance with IAPMO Z1033.

#### 410.0 Bidets.

**410.1 Application.** Bidets shall comply with ASME A112.19.2/CSA B45.1 or ASME A112.19.3/CSA B45.4.

**410.2 Backflow Protection.** The water supply to the bidet shall be protected by an air gap or in accordance with Section 603.3.2, Section 603.3.5, or Section 603.3.6.

**410.3 Limitation of Water Temperature in Bidets.** The maximum hot water temperature discharging from a bidet shall be limited to 110°F (43°C) by a device that is in accordance with ASSE 1070 or CSA B125.3. The water heater thermostat shall not be considered a control for meeting this provision.

**411.0 Water Closets.**

**411.1 Application.** Water closets shall comply with ASME A112.19.2/CSA B45.1, ASME A112.19.3/CSA B45.4, or CSA B45.5/IAPMO Z124. Water closet bowls for public use shall be of the elongated type. In nurseries, schools, and other similar places where plumbing fixtures are provided for the use of children less than 6 years of age, water closets shall be of a size and height suitable for children’s use.

» **411.2 Water Consumption.** *The effective flush volume of all water closets shall not exceed 1.28 gallons (4.8 L) per flush when tested in accordance with ASME A112.19.2/CSA B45.1*

**411.2.1 Dual Flush Water Closets.** Dual flush water closets shall comply with ASME A112.19.14. The effective flush volume for dual flush water closets shall be defined as the composite, average flush volume of two reduced flushes and one full flush.

**411.2.2 Performance [HCD 1 & HCD 2].** *Water closets installed shall meet or exceed the minimum performance criteria developed for certification of high-efficiency toilets under the WaterSense program sponsored by the U.S. Environmental Protection Agency (EPA).*

**411.2.3 Flushometer Valve Activated Water Closets.** Flushometer valve activated water closets shall have a maximum flush volume of 1.6 gallons (6.0 Lpf) of water per flush in accordance with ASME A112.19.2/CSA B45.1.

**411.2.3.1 Flushometer Valve Activated Water Closets [BSC-CG, DSA-SS & DSA-SS/CC].** *Flushometer valve activated water closets shall have a maximum flush volume of 1.28 gallons (4.8 L) per flush in accordance with ASME A112.19.2/CSA B45.1.*

**411.2.4 Water Closets [BSC-CG, DSA-SS & DSA-SS/CC].** *The effective flush volume of all water closets shall not exceed 1.28 gallons (4.8 L) per flush. Tank-type water closets shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Tank-Type Toilets in compliance with Chapter 5, Division 5.3. of the California Green Building Standards Code (CALGreen).*

» **411.3 Water Closet Seats.** Water closet seats shall be properly sized for the water closet bowl type, and shall be of smooth, non-absorbent material. Seats, for public use, shall be of the elongated type and either of the open front type or have an automatic seat cover dispenser. Plastic seats shall comply with IAPMO Z124.5.

**412.0 Urinals.**

**412.1 Application.** Urinals shall comply with ASME A112.19.2/CSA B45.1, ASME A112.19.19, or CSA B45.5/IAPMO Z124. *Wall mounted urinals shall have an average water consumption not to exceed 0.125 gallons (0.47 L) per flush. Other urinals shall have an average water consumption not to exceed 0.5 gallons (1.89 L) per flush.*

**412.1.1 Wall Mounted Urinals [BSC-CG, DSA-SS & DSA-SS/CC].** *The effective flush volume of wall mounted urinals shall not exceed 0.125 gallons (0.47 L) per flush in compliance with Chapter 5, Division 5.3, of the California Green Building Standards Code [CALGreen].*

**412.1.2 Floor Mounted Urinals [BSC-CG, DSA-SS & DSA-SS/CC].** *The effective flush volume of floor mounted or other urinals shall not exceed 0.5 gallons (1.89 L) per flush in compliance with Chapter 5, Division 5.3, of the California Green Building Standards Code [CALGreen].*

**412.1.3 Nonwater Urinals.** Nonwater urinals shall have a barrier liquid sealant to maintain a trap seal. Nonwater urinals shall permit the uninhibited flow of waste through the urinal to the sanitary drainage system. Nonwater urinals shall be cleaned and maintained in accordance with the manufacturer’s instructions after installation. Where nonwater urinals are installed, not less than one water supplied fixture rated at not less than 1 water supply fixture unit (WSFU) shall be installed upstream on the same drain line to facilitate drain line flow and rinsing. Where nonwater urinals are installed they shall have a water distribution line rough-in to the urinal location to allow for the installation of an approved backflow prevention device in the event of a retrofit. *For additional information, see Health and Safety Code Section 17921.4.*

**412.1.3.1 Urinal, Hybrid [BSC-CG].** *Where approved, hybrid urinals shall be considered non-water urinals in compliance with Chapter 5, Division A5.3 of the California Green Building Standards Code (CALGreen).*

**412.2 Backflow Protection.** A water supply to a urinal shall be protected by an approved-type vacuum breaker or other approved backflow prevention device in accordance with Section 603.5.

**413.0 Flushing Devices.**

**413.1 Where Required.** Each water closet, urinal, clinical sink, or other plumbing fixture that depends on trap siphonage to discharge its waste contents shall be provided with a flushometer valve, flushometer tank, or flush tank designed and installed so as to supply water in sufficient quantity and rate of flow to flush the contents of the fixture to which it is connected, to cleanse the fixture, and to refill the fixture trap, without excessive water use. Flushing devices shall comply with the anti-siphon requirements in accordance with Section 603.5.

**413.2 Flushometer Valves.** Flushometer valves and tanks shall comply with ASSE 1037 or CSA B125.3, and shall be installed in accordance with Section 603.5.1. No manually controlled flushometer valve shall be used to flush more than one urinal, and each such urinal flushometer valve shall be an approved, self-closing type discharging a predetermined

quantity of water. Flushometers shall be installed so that they will be accessible for repair. Flushometer valves shall not be used where the water pressure is insufficient to properly operate them. Where the valve is operated, it shall complete the cycle of operation automatically, opening fully, and closing positively under the line water pressure. Each flushometer shall be provided with a means for regulating the flow through it. *[OSPHD 1, 2, 3 & 4] Sensor operated flush valves shall be capable of functioning during loss of normal power.*

**413.3 Flush Tanks.** Flush tanks for manual flushing shall be equipped with a flush valve in accordance with ASME A112.19.5/CSA B45.15 or CSA B125.3, and an antisiphon fill valve (ballcock) that is in accordance with ASSE 1002 or CSA B125.3 and installed in accordance with Section 603.5.2.

**413.4 Water Supply for Flush Tanks.** An adequate quantity of water shall be provided to flush and clean the fixture served. The water supply for flushing tanks and flushometer tanks equipped for manual flushing shall be controlled by a float valve or other automatic device designed to refill the tank after each discharge and to completely shut off the water flow to the tank where the tank is filled to operational capacity. Provision shall be made to automatically supply water to the fixture so as to refill the trap seal after each flushing.

**413.5 Overflows in Flush Tanks.** Flush tanks shall be provided with overflows discharging into the water closet or urinal connected thereto. Overflows supplied as original parts with the fixture shall be of sufficient size to prevent tank flooding at the maximum rate at which the tank is supplied with water under normal operating conditions and where installed in accordance with the manufacturer's installation instructions.

#### 414.0 Dishwashing Machines.

**414.1 Application.** Domestic dishwashing machines shall comply with UL 749. Commercial dishwashing machines shall comply with NSF 3 and UL 921.

**414.2 Backflow Protection.** The water supply connection to a commercial dishwashing machine shall be protected by an air gap or a backflow prevention device in accordance with Section 603.3.2, Section 603.3.5, Section 603.3.6, or ASSE 1004.

**414.3 Drainage Connection.** Domestic dishwashing machines shall discharge indirectly through an air gap fitting in accordance with Section 807.3 into a waste receptor, a wye branch fitting on the tailpiece of a kitchen sink, or dishwasher connection of a food waste disposer. Commercial dishwashing machines shall discharge indirectly through an air gap or direct connection in accordance with Section 704.3 with floor drain protection.

#### 415.0 Drinking Fountains.

**415.1 Application.** Drinking fountains shall be self-closing and comply with ASME A112.19.1/CSA B45.2, ASME A112.19.2/CSA B45.1, or ASME A112.19.3/CSA B45.4, and NSF 61. Permanently installed electric water coolers shall also comply with UL 399. *[HCD 1] Drinking fountains shall be installed and so regulated that a jet of water extending at*

*least 2 inches (51 mm) in height from the water orifice shall be constantly available. The orifice shall not be accessible to the mouth of the drinker nor subject to immersion.*

**415.2 Drinking Fountain Alternatives.** Where food is consumed indoors, water stations shall be permitted to be substituted for drinking fountains. Bottle filling stations shall be permitted to be substituted for drinking fountains up to 50 percent of the requirements for drinking fountains. Drinking fountains shall not be required for an occupant load of 30 or less.

**415.3 Drainage Connection.** Drinking fountains shall be permitted to discharge directly into the drainage system or indirectly through an air break in accordance with Section 809.1.

**415.4 Location.** Drinking fountains shall not be installed in toilet rooms.

#### 416.0 Emergency Eyewash and Shower Equipment.

**416.1 Application.** Emergency eyewash and shower equipment shall comply with ISEA Z358.1.

**416.2 Water Supply.** Emergency eyewash and shower equipment shall not be limited in the water supply flow rates. Flow rate, discharge pattern, and temperature of flushing fluids shall be provided in accordance with ISEA Z358.1 based on the hazardous material.

**416.3 Installation.** Emergency eyewash and shower equipment shall be installed in accordance with the manufacturer's installation instructions.

**416.4 Location.** Emergency eyewash and shower equipment shall be located on the same level as the hazard and accessible for immediate use. The path of travel shall be free of obstructions and shall be clearly identified with signage.

**416.5 Drain.** A drain shall not be required for emergency eyewash or shower equipment. Where a drain is provided, the discharge shall be in accordance with Section 811.0.

#### 417.0 Faucets and Fixture Fittings.

**417.1 Application.** Faucets and fixture fittings shall comply with ASME A112.18.1/CSA B125.1. Fixture fittings covered under the scope of NSF 61 shall be in accordance with the requirements of NSF 61.

*417.1.1 Wash Fountains [BSC-CG, DSA-SS & DSA-SS/CC]. Wash fountains shall have a maximum flow rate of not more than 1.8 gallons (6.81 L) per minute/20 [rim space (inches) at 60 psi] in compliance with Chapter 5, Division 5.3 of the California Green Building Standards Code (CALGreen).*

*417.1.2 Metering Faucets for Wash Fountains [BSC-CG, DSA-SS & DSA-SS/CC]. Metering faucets for wash fountains shall have a maximum flow rate of not more than 0.20 gallons (0.76 L) per cycle/20 [rim space (inches) at 60 psi] in compliance with Chapter 5, Division 5.3 of the California Green Building Standards Code (CALGreen).*

**417.2 Deck Mounted Bath/Shower Valves.** Deck mounted bath/shower transfer valves with integral backflow protection

shall comply with ASME A112.18.1/CSA B125.1. This shall include handheld showers and other bathing appliances mounted on the deck of bathtubs or other bathing appliances that incorporate a hose or pull out feature.

**417.3 Handheld Showers.** Handheld showers shall comply with ASME A112.18.1/CSA B125.1. Handheld showers with integral backflow protection shall comply with ASME A112.18.1/CSA B125.1 or shall have a backflow prevention device that is in accordance with ASME A112.18.3 or ASSE 1014.

**417.4 Faucets and Fixture Fittings with Hose Connected Outlets.** Faucets and fixture fittings with pull out spout shall comply with ASME A112.18.1/CSA B125.1. Faucets and fixture fittings with pull out spouts with integral backflow protection shall comply with ASME A112.18.1/CSA B125.1 or shall have a backflow preventer device that is in accordance with ASME A112.18.3.

**417.5 Separate Controls for Hot and Cold Water.** Where two separate handles control the hot and cold water, the left-hand control of the faucet where facing the fixture fitting outlet shall control the hot water. Faucets and diverters shall be connected to the water distribution system so that hot water corresponds to the left side of the fixture fitting.

Single-handle mixing valves installed in showers and tub-shower combinations shall have the flow of hot water correspond to the markings on the fixture fitting.

**418.0 Floor Drains.**

**418.1 Application.** Floor drains shall comply with ASME A112.3.1, ASME A112.6.3, or CSA B79.

**418.2 Strainer.** Floor drains shall be considered plumbing fixtures, and each such drain shall be provided with an approved-type strainer having a waterway equivalent to the area of the tailpiece. Floor drains shall be of an approved type and shall provide a watertight joint in the floor.

**418.3 Location of Floor Drains.** Floor drains shall be installed in the following areas:

- (1) Toilet rooms containing two or more water closets or a combination of one water closet and one urinal, except in a dwelling unit.
- (2) Commercial kitchens and in accordance with Section 704.3.
- (3) Laundry rooms in commercial buildings and common laundry facilities in multi-family dwelling buildings.
- (4) Boiler rooms.

**418.4 Food Storage Areas.** Where drains are provided in storerooms, walk-in freezers, walk-in coolers, refrigerated equipment, or other locations where food is stored, such drains shall have indirect waste piping. Separate waste pipes shall be run from each food storage area, each with an indirect connection to the building sanitary drainage system. Traps shall be provided in accordance with Section 801.3.2 of this code and shall be vented.

Indirect drains shall be permitted to be located in freezers or other spaces where freezing temperatures are maintained, provided that traps, where supplied, shall be located where the seal will not freeze. Otherwise, the floor of the

freezer shall be sloped to a floor drain located outside of the storage compartment.

**418.5 Floor Slope.** Floors shall be sloped to floor drains.

**419.0 Food Waste Disposers.**

**419.1 Application.** Food waste disposal units shall comply with UL 430. Residential food waste disposers shall also comply with ASSE 1008.

**419.2 Drainage Connection.** Approved wye or other directional-type branch fittings shall be installed in continuous wastes connecting or receiving the discharge from a food waste disposer. No dishwasher drain shall be connected to a sink tailpiece, continuous waste, or trap on the discharge side of a food waste disposer.

**419.3 Water Supply.** A cold water supply shall be provided for food waste disposers. Such connection to the water supply shall be protected by an air gap or backflow prevention device in accordance with Section 603.2.

**420.0 Sinks.**

**420.1 Application.** Sinks shall comply with ASME A112.19.1/CSA B45.2, ASME A112.19.2/CSA B45.1, ASME A112.19.3/CSA B45.4, or CSA B45.5/IAPMO Z124. Moveable sink systems shall comply with ASME A112.19.12.

**420.2 Water Consumption.** Sink faucets shall have a maximum flow rate of not more than 2.2 gpm at 60 psi (8.3 L/m at 414 kPa) in accordance with ASME A112.18.1/CSA B125.1.

**Exceptions:**

- (1) Clinical sinks
- (2) Laundry trays
- (3) Service sinks

**420.2.1 Kitchen Faucets [BSC-CG, DSA-SS & DSA-SS/CC].** Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons (6.81 L) per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons (8.3 L) per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons (6.81 L) per minute at 60 psi in compliance with Chapter 5, Division 5.3 of the California Green Building Standards Code (CALGreen).

**420.2.2 Kitchen Faucets [HCD 1].** The maximum flow rate of kitchen faucets shall not exceed 1.8 gallons (6.81 L) per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons (8.32 L) per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons (6.81 L) per minute at 60 psi in compliance with Chapter 4, Division 4.3 or Chapter 5, Division 5.3 of the California Green Building Standards Code (CALGreen), as applicable.

**Note:** Where faucets meeting the maximum flow rate of 1.8 gpm (6.81 L) are unavailable, aerators or other means may be used to achieve reduction.

**420.3 Pre-Rinse Spray Valve.** Commercial food service pre-rinse spray valves shall have a maximum flow rate of 1.6 gallons per minute (gpm) at 60 pounds-force per square inch



(psi) (6.0 L/m at 414 kPa) in accordance with ASME A112.18.1/CSAB125.1 and shall be equipped with an integral automatic shutoff.

**420.4 Waste Outlet.** Kitchen and laundry sinks shall have a waste outlet and fixture tailpiece not less than 1½ inches (40 mm) in diameter. Service sinks shall have a waste outlet and fixture tailpiece not less than 2 inches (50 mm) in diameter. Fixture tailpieces shall be constructed from the materials specified in Section 701.2 for drainage piping. Waste outlets shall be provided with an approved strainer.

#### 421.0 Floor Sinks.

**421.1 Application.** Floor sinks shall comply with ASME A112.6.7.

**421.2 Strainers.** The waste outlet of a floor sink shall be provided with an approved strainer or grate that is removable and accessible.

#### 422.0 Minimum Number of Required Fixtures.

**422.1 Fixture Count.** Plumbing fixtures shall be provided for the type of building occupancy and in the minimum number shown in Table 422.1 [OSHPD 1, 2, 3 & 4] and Tables 4-2 and Table 4-3. The total occupant load and occupancy classification shall be determined in accordance with Occupant Load Factor Table A and the *California Building Code*. Occupancy classification not shown in Table 422.1 shall be considered separately by the Authority Having Jurisdiction.

The minimum number of fixtures shall be calculated at 50 percent male and 50 percent female based on the total occupant load. Where information submitted indicates a difference in distribution of the sexes such information shall be used in order to determine the number of fixtures for each sex. Once the occupancy load and occupancy are determined, Table 422.1 shall be applied to determine the minimum number of plumbing fixtures required. Where applying the fixture ratios in Table 422.1 results in fractional numbers, such numbers shall be rounded to the next whole number. For multiple occupancies, fractional numbers shall be first summed and then rounded to the next whole number.

**422.1.1 Family or Assisted-Use Toilet and Bathing Facilities.** Where family or assisted-use toilet and bathing rooms are required, in applicable building regulations, the facilities shall be installed in accordance with those regulations.

**422.1.2 [DSA-AC] Effective January 1, 1990, in new construction and those existing facilities which occupancy type are listed in Tables 422.1 and 4-4 for public use, which apply for permit to undertake construction, structural alterations, repairs or improvement which exceed 50 percent of the square footage of the entire facility, shall install water closets, urinals, lavatories and drinking fountains as stipulated in Tables 422.1 and 4-4 for public use. Community and/or municipal parks with a bleacher capacity not exceeding 500 seats shall be exempt from the requirements of this section and Tables 422.1 and 4-4. Each bathroom shall comply with Part 2, Chapter 11A and 11B of the California Building Code.**

**422.1.3 [OSHPD 1, 2, 3 & 4] OSHPD facilities shall also comply with requirements of the California Building Code, Chapters 1224, 1225, 1226, 1227 and 1228 in addition to total occupant load and occupancy classification for determination of minimum number of fixtures.**

**422.2 Separate Facilities.** Separate toilet facilities shall be provided for each sex.

**Exceptions: [Not adopted for OSHPD 1, 2, 3 & 4]**

- (1) Residential installations.
- (2) In occupancies with a total occupant load of 10 or less, including customers and employees, one toilet facility, designed for use by no more than one person at a time, shall be permitted for use by both sexes.
- (3) In business and mercantile occupancies with a total occupant load of 50 or less including customers and employees, one toilet facility, designed for use by no more than one person at a time, shall be permitted for use by both sexes.

**422.2.1 Family or Assisted-Use Toilet Facilities.** Where a separate toilet facility is required for each sex, and each toilet facility is required to have only one water closet, two family or assisted-use toilet facilities shall be permitted in place of the required separate toilet facilities.

**422.3 Fixture Requirements for Special Occupancies.** Additional fixtures shall be permitted to be required where unusual environmental conditions or referenced activities are encountered. In food preparation areas, fixture requirements shall be permitted to be dictated by health codes.

**422.3.1 [OSHPD 1, 2, 3 & 4] Separate toilet facilities shall be provided for the use of patients, staff personnel and visitors.**

**Exception for Primary Care Clinics only: Where a facility contains no more than three examination and/or treatment rooms, the patient toilet shall be permitted to serve waiting areas.**

**422.4 Toilet Facilities Serving Employees and Customers [Not adopted for OSHPD 1, 2, 3 & 4].** Each building or structure shall be provided with toilet facilities for employees and customers. Requirements for customers and employees shall be permitted to be met with a single set of restrooms accessible to both groups.

Required toilet facilities for employees and customers located in shopping malls or centers shall be permitted to be met by providing a centrally located toilet facility accessible to several stores. The maximum travel distance from entry to any store to the toilet facility shall not exceed 300 feet (91 440 mm).

Required toilet facilities for employees and customers in other than shopping malls or centers shall have a maximum travel distance not to exceed 500 feet (152 m).

**422.4.1 Access to Toilet Facilities.** In multi-story buildings, accessibility to the required toilet facilities shall not exceed one vertical story. Access to the required toilet facilities for customers shall not pass through areas designated as for employee use only such as kitchens, food preparation areas, storage rooms, closets, or similar

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spaces. Toilet facilities accessible only to private offices shall not be counted to determine compliance with this section.

**422.5 Toilet Facilities for Workers.** Toilet facilities shall be provided and maintained in a sanitary condition for the use of workers during construction.

**422.6 [CA] Cosmetology.** *Each school shall provide public toilet rooms for each sex on the licensed premises in accordance with the California Plumbing Code, Table 422.1.*

**422.7 [CA] Cosmetology Establishments.** *Each establishment where hairdressing services are performed shall provide at least one public toilet room located on the premises in accordance with the California Plumbing Code, Table 422.1.*

**422.8 [DPH] Commissaries Serving Mobile Food Preparation Units.** *Commissaries serving mobile food preparation units shall have at least one hose bib. The hose bib shall be supplied with hot and cold water and be provided with a single spout, a backflow-preventer device and shall be located on the premises of the establishment.*

**422.9 [DPH] Employee Lavatories in Food Establishments.** *Employee lavatories installed in food establishments shall be equipped with an approved single spout capable of providing tempered (100°F - 115°F) (37.8°C - 46.1°C) running water.*

**Note:** *This requirement applies only to commissaries serving mobile food preparation units.*

**TABLE 422.1  
MINIMUM PLUMBING FACILITIES<sup>1</sup>**

Each building shall be provided with sanitary facilities, including provisions for persons with disabilities as prescribed by the Department Having Jurisdiction<sup>7</sup>. Table 422.1 applies to new buildings, additions to a building, and changes of occupancy or type in an existing building resulting in increased occupant load.

*For requirements for persons with disabilities, Chapter 11A or 11B of the California Building Code shall be used.*

*The total occupant load shall be determined in accordance with the [BSC, DSA-SS & DSA-SS/CC] Occupant Load Factor Table A.*

**Exceptions:**

- (1) **[HCD 1-AC & HCD 2]** For applications listed in Sections 1.8.2.1.2 and 1.8.2.1.3 regulated by the Department of Housing and Community Development, each building shall be provided with sanitary facilities, including provisions for persons with disabilities as prescribed by the Department. Covered multifamily dwellings required to be accessible to persons with disabilities shall comply with Chapter 11A of the California Building Code. Permanent buildings in mobilehome parks and special occupancy parks required to be accessible by persons with disabilities, shall comply with Chapter 11B of the California Building Code.
- (2) **[HCD 1]** For limited density owner-built rural dwelling sanitary facilities, the type, design and number of facilities as required and approved by the local health official shall be provided to the dwelling sites. It shall not be required that such facilities be located within the dwelling.

TYPE OF OCCUPANCY <sup>2</sup>	WATER CLOSETS (FIXTURES PER PERSON) <sup>3</sup>		URINALS (FIXTURES PER PERSON) <sup>4</sup>	LAVATORIES (FIXTURES PER PERSON) <sup>5, 6</sup>		BATHTUBS OR SHOWERS (FIXTURES PER PERSON)	DRINKING FOUNTAINS/FACILITIES (FIXTURES PER PERSON)	OTHER
	Male	Female	Male	Male	Female			
<b>A-1</b> Assembly occupancy (fixed or permanent seating)- theatres, concert halls and auditoriums	Male 1: 1-100 2: 101-200 3: 201-400	Female 1: 1-25 2: 26-50 3: 51-100 4: 101-200 6: 201-300 8: 301-400	Male 1: 1-200 2: 201-300 3: 301-400 4: 401-600	Male 1: 1-200 2: 201-400 3: 401-600 4: 601-750	Female 1: 1-100 2: 101-200 4: 201-300 5: 301-500 6: 501-750	—	1: 1-250 2: 251-500 3: 501-750	1 service sink or laundry tray
	Over 400, add 1 fixture for each additional 500 males and 1 fixture for each additional 125 females.		Over 600, add 1 fixture for each additional 300 males.	Over 750, add 1 fixture for each additional 250 males and 1 fixture for each additional 200 females.		Over 750, add 1 fixture for each additional 500 persons.		
<b>A-2</b> Assembly occupancy- restaurants, pubs, lounges, night clubs and banquet halls	Male 1: 1-50 2: 51-150 3: 151-300 4: 301-400	Female 1: 1-25 2: 26-50 3: 51-100 4: 101-200 6: 201-300 8: 301-400	Male 1: 1-200 2: 201-300 3: 301-400 4: 401-600	Male 1: 1-150 2: 151-200 3: 201-400	Female 1: 1-150 2: 151-200 4: 201-400	—	1: 1-250 2: 251-500 3: 501-750	1 service sink or laundry tray
	Over 400, add 1 fixture for each additional 250 males and 1 fixture for each 125 females.		Over 600, add 1 fixture for each additional 300 males.	Over 400, add 1 fixture for each additional 250 males and 1 fixture for each additional 200 females.		Over 750, add 1 fixture for each additional 500 persons.		
<b>A-3</b> Assembly occupancy (typical without fixed or permanent seating)- arcades, places of worship, museums, libraries, lecture halls, gymnasiums (without spectator seating), indoor pools (without spectator seating)	Male 1: 1-100 2: 101-200 3: 201-400	Female 1: 1-25 2: 26-50 3: 51-100 4: 101-200 6: 201-300 8: 301-400	Male 1: 1-100 2: 101-200 3: 201-400 4: 401-600	Male 1: 1-200 2: 201-400 3: 401-600 4: 601-750	Female 1: 1-100 2: 101-200 4: 201-300 5: 301-500 6: 501-750	—	1: 1-250 2: 251-500 3: 501-750	1 service sink or laundry tray
	Over 400, add 1 fixture for each additional 500 males and 1 fixture for each additional 125 females.		Over 600, add 1 fixture for each additional 300 males.	Over 750, add 1 fixture for each additional 250 males and 1 fixture for each additional 200 females.		Over 750, add 1 fixture for each additional 500 persons.		

**PLUMBING FIXTURES AND FIXTURE FITTINGS**

**TABLE 422.1  
MINIMUM PLUMBING FACILITIES<sup>1</sup> (continued)**

TYPE OF OCCUPANCY <sup>2</sup>	WATER CLOSETS (FIXTURES PER PERSON) <sup>3</sup>		URINALS (FIXTURES PER PERSON) <sup>4</sup>	LAVATORIES (FIXTURES PER PERSON) <sup>5,6</sup>		BATHTUBS OR SHOWERS (FIXTURES PER PERSON)	DRINKING FOUNTAINS/FACILITIES (FIXTURES PER PERSON)	OTHER
	Male	Female	Male	Male	Female			
<b>A-4</b> Assembly occupancy (indoor activities or sporting events with spectator seating)-swimming pools, skating rinks, arenas and gymnasiums	Male 1: 1-100 2: 101-200 3: 201-400	Female 1: 1-25 2: 26-50 3: 51-100 4: 101-200 6: 201-300 8: 301-400	Male 1: 1-100 2: 101-200 3: 201-400 4: 401-600	Male 1: 1-200 2: 201-400 3: 401-750	Female 1: 1-100 2: 101-200 4: 201-300 5: 301-500 6: 501-750	—	1: 1-250 2: 251-500 3: 501-750	1 service sink or laundry tray
	Over 400, add 1 fixture for each additional 500 males and 1 fixture for each additional 125 females.		Over 600, add 1 fixture for each additional 300 males.	Over 750, add 1 fixture for each additional 250 males and 1 fixture for each additional 200 females.		Over 750, add 1 fixture for each additional 500 persons.		
<b>A-5</b> Assembly occupancy (outdoor activities or sporting events)-amusement parks, grandstands and stadiums	Male 1: 1-100 2: 101-200 3: 201-400	Female 1: 1-25 2: 26-50 3: 51-100 4: 101-200 6: 201-300 8: 301-400	Male 1: 1-100 2: 101-200 3: 201-400 4: 401-600	Male 1: 1-200 2: 201-400 3: 401-750	Female 1: 1-100 2: 101-200 4: 201-300 5: 301-500 6: 501-750	—	1: 1-250 2: 251-500 3: 501-750	1 service sink or laundry tray
	Over 400, add 1 fixture for each additional 500 males and 1 fixture for each additional 125 females.		Over 600, add 1 fixture for each additional 300 males.	Over 750, add 1 fixture for each additional 250 males and 1 fixture for each additional 200 females.		Over 750, add 1 fixture for each additional 500 persons.		
<b>B</b> Business occupancy (office, professional or service type transactions)- banks, vet clinics, hospitals, car wash, banks, beauty salons, ambulatory health care facilities, laundries and dry cleaning, educational institutions (above high school), or training facilities not located within school, post offices and printing shops	Male 1: 1-50 2: 51-100 3: 101-200 4: 201-400	Female 1: 1-15 2: 16-30 3: 31-50 4: 51-100 8: 101-200 11: 201-400	Male 1: 1-100 2: 101-200 3: 201-400 4: 401-600	Male 1: 1-75 2: 76-150 3: 151-200 4: 201-300 5: 301-400	Female 1: 1-50 2: 51-100 3: 101-150 4: 151-200 5: 201-300 6: 301-400	—	1 per 150	1 service sink or laundry tray
	Over 400, add 1 fixture for each additional 500 males and 1 fixture for each additional 150 females.		Over 600, add 1 fixture for each additional 300 males.	Over 400, add 1 fixture for each additional 250 males and 1 fixture for each additional 200 females.				
<b>E</b> Educational occupancy-private or public schools	Male 1 per 50	Female 1 per 30	Male 1 per 100	Male 1 per 40	Female 1 per 40	—	1 per 150	1 service sink or laundry tray
<b>F1, F2</b> Factory or Industrial occupancy-fabricating or assembly work	Male 1: 1-50 2: 51-75 3: 76-100	Female 1: 1-50 2: 51-75 3: 76-100	—	Male 1: 1-50 2: 51-75 3: 76-100	Female 1: 1-50 2: 51-75 3: 76-100	1 shower for each 15 persons exposed to excessive heat or to skin contamination with poisonous, infectious or irritating material.	1: 1-250 2: 251-500 3: 501-750	1 service sink or laundry tray
	Over 100, add 1 fixture for each additional 40 persons.		Over 100, add 1 fixture for each additional 40 persons.	Over 750, add 1 fixture for each additional 500 persons.				

**TABLE 422.1  
MINIMUM PLUMBING FACILITIES<sup>1</sup> (continued)**

TYPE OF OCCUPANCY <sup>2</sup>	WATER CLOSETS (FIXTURES PER PERSON) <sup>3</sup>		URINALS (FIXTURES PER PERSON) <sup>4</sup>	LAVATORIES (FIXTURES PER PERSON) <sup>5,6</sup>		BATHTUBS OR SHOWERS (FIXTURES PER PERSON) <sup>5,6</sup>	DRINKING FOUNTAINS/FACILITIES (FIXTURES PER PERSON)	OTHER	
	Female	Male		Female	Male				
<b>I-1</b> Institutional occupancy (houses more than 16 persons on a 24-hour basis)- substance abuse centers, assisted living, group homes, or residential facilities.	Female 1 per 15	Male 1 per 15	—	Female 1 per 15		1 per 8	1 per 150	1 service sink or laundry tray	
<b>I-2</b> Institutional occupancy- medical, psychiatric, surgical or nursing homes	Hospitals and nursing homes-individual rooms and ward room	1 per room	—	1 per room		1 per room	1 per 150	1 service sink or laundry tray	
		1 per 8 patients		—	1 per 10 patients				1 per 20 patients
	Hospital Waiting or Visitor Rooms	1 per room		—	1 per room		—	1 per room	—
	Employee Use	Male 1: 1-15 2: 16-35 3: 36-55	Female 1: 1-15 3: 16-35 4: 36-55	—	Male 1 per 40	Female 1 per 40	—	—	—
Over 55, add 1 fixture for each additional 40 persons.									
<b>I-3</b> Institutional occupancy (houses more than 5 people)	Prisons	1 per cell		—	1 per cell		1 per 20	1 per cell block/floor	—
	Correctional facilities or juvenile center	1 per 8		—	1 per 10		1 per 8	1 per floor	1 service sink or laundry tray
	Employee Use	Male 1: 1-15 2: 16-35 3: 36-55	Female 1: 1-15 3: 16-35 4: 36-55	—	Male 1 per 40	Female 1 per 40	—	1 per 150	—
Over 55, add 1 fixture for each additional 40 persons.									
<b>I-4</b> Institutional occupancy (any age that receives care for less than 24 hours)	Male 1: 1-15 2: 16-35 3: 36-55	Female 1: 1-15 3: 16-35 4: 36-55	—	Male 1 per 40	Female 1 per 40	—	1 per 150	1 service sink or laundry tray	
	Over 55, add 1 fixture for each additional 40 persons.								

**PLUMBING FIXTURES AND FIXTURE FITTINGS**

**TABLE 422.1  
MINIMUM PLUMBING FACILITIES<sup>1</sup> (continued)**

TYPE OF OCCUPANCY <sup>2</sup>	WATER CLOSETS (FIXTURES PER PERSON) <sup>3</sup>		URINALS (FIXTURES PER PERSON) <sup>4</sup>	LAVATORIES (FIXTURES PER PERSON) <sup>5,6</sup>		BATHTUBS OR SHOWERS (FIXTURES PER PERSON)	DRINKING FOUNTAINS/FACILITIES (FIXTURES PER PERSON)	OTHER
	Male	Female	Male	Male	Female			
<b>M</b> Mercantile occupancy (the sale of merchandise and accessible to the public)	Male 1: 1-100 2: 101-200 3: 201-400	Female 1: 1-100 2: 101-200 4: 201-300 6: 301-400	Male 0: 1-200 1: 201-400	Male 1: 1-200 2: 201-400	Female 1: 1-200 2: 201-300 3: 301-400	—	1: 1-250 2: 251-500 3: 501-750	1 service sink or laundry tray
	Over 400, add 1 fixture for each additional 500 males and 1 fixture for each 200 females.		Over 400, add 1 fixture for each additional 500 males.	Over 400, add 1 fixture for each additional 500 males and 1 fixture for each 400 females.		—	Over 750, add 1 fixture for each additional 500 persons.	—
<b>R-1</b> Residential occupancy (minimal stay)-hotels, motels, bed and breakfast homes	1 per sleeping room		—	1 per sleeping room		1 per sleeping room	—	1 service sink or laundry tray
<b>R-2</b> Residential occupancy (long-term or permanent)	Dormitories	Male 1 per 10	Female 1 per 8	1 per 25	Male 1 per 12	Female 1 per 12	1 per 8	1 per 150
		Add 1 fixture for each additional 25 males and 1 fixture for each additional 20 females.		Over 150, add 1 fixture for each additional 50 males.	Add 1 fixture for each additional 20 males and 1 fixture for each additional 15 females.			
	Employee Use	Male 1: 1-15 2: 16-35 3: 36-55	Female 1: 1-15 3: 16-35 4: 36-55	—	Male 1 per 40	Female 1 per 40	—	—
Over 55, add 1 fixture for each additional 40 persons		—	—	—	—	—	—	
Apartment house/unit	1 per apartment		—	1 per apartment		1 per apartment	—	1 kitchen sink per apartment. 1 laundry tray or 1 automatic clothes washer connection per unit or 1 laundry tray or 1 automatic clothes washer connection for each 12 units
<b>R-3</b> Residential occupancy (long-term or permanent in nature) for more than 5 but does not exceed 16 occupants)	Male 1 per 10	Female 1 per 8	—	Male 1 per 12	Female 1 per 12	1 per 8	1 per 150	1 service sink or laundry tray
	Add 1 fixture for each additional 25 males and 1 fixture for each additional 20 females.			Add 1 fixture for each additional 20 males and 1 fixture for each additional 15 females.				
<b>R-3</b> Residential occupancy (one and two family dwellings)	1 per one and two family dwelling		—	1 per one and two family dwelling		1 per one and two family dwelling	—	1 kitchen sink and 1 automatic clothes washer connection per one and two family dwelling

**TABLE 422.1  
MINIMUM PLUMBING FACILITIES<sup>1</sup> (continued)**

TYPE OF OCCUPANCY <sup>2</sup>	WATER CLOSETS (FIXTURES PER PERSON) <sup>3</sup>		URINALS (FIXTURES PER PERSON) <sup>4</sup>	LAVATORIES (FIXTURES PER PERSON) <sup>5,6</sup>		BATHTUBS OR SHOWERS (FIXTURES PER PERSON)	DRINKING FOUNTAINS/FACILITIES (FIXTURES PER PERSON)	OTHER
	Male	Female		Male	Female			
<b>R-4</b> Residential occupancy (residential care or assisted living)	Male 1 per 10	Female 1 per 8	—	Male 1 per 12	Female 1 per 12	1 per 8	1 per 150	1 service sink or laundry tray
	Add 1 fixture for each additional 25 males and 1 fixture for each additional 20 females.			Add 1 fixture for each additional 20 males and 1 fixture for each additional 15 females.				
<b>S-1, S-2</b> Storage occupancy-storage of goods, warehouse, aircraft hanger, food products, appliances	Male 1: 1-100 2: 101-200 3: 201-400	Female 1: 1-100 2: 101-200 3: 201-400	—	Male 1: 1-200 2: 201-400 3: 401-750	Female 1: 1-200 2: 201-400 3: 401-750	—	1: 1-250 2: 251-500 3: 501-750	1 service sink or laundry tray
	Over 400, add 1 fixture for each additional 500 males and 1 fixture for each additional 150 females.			Over 750, add 1 fixture for each additional 500 persons.			Over 750, add 1 fixture for each additional 500 persons.	

**Notes:**

- <sup>1</sup> The figures shown are based upon one fixture being the minimum required for the number of persons indicated or any fraction thereof.
- <sup>2</sup> A restaurant is defined as a business that sells food to be consumed on the premises.
  - a. The number of occupants for a drive-in restaurant shall be considered as equal to the number of parking stalls.
  - b. Hand-washing facilities shall be available in the kitchen for employees.
- <sup>3</sup> The total number of required water closets for females shall be not less than the total number of required water closets and urinals for males. *[BSC] This requirement shall not apply when single occupancy toilet facilities are provided for each sex in an A or E occupancy with an occupant load of less than 50. Either*
  - a. *The required urinal shall be permitted to be omitted or*
  - b. *If installed, the urinal shall not require a second water closet to be provided for the female.*
- <sup>4</sup> For each urinal added in excess of the minimum required, one water closet shall be permitted to be deducted. The number of water closets shall not be reduced to less than two-thirds of the minimum requirement.
- <sup>5</sup> Group lavatories that are 24 lineal inches (610 mm) of wash sink or 18 inches (457 mm) of a circular basin, where provided with water outlets for such space, shall be considered equivalent to one lavatory.
- <sup>6</sup> Metering or self closing faucets shall be installed on lavatories intended to serve the transient public.
- <sup>7</sup> *[BSC, DSA-AC, DSA-SS, DSA-SS/CC, HCD 1 & HCD 2, OSHPD 1, 2, 3 & 4] In accordance with Sections 1.8.7 and 301.3, the Authority Having Jurisdiction may approve alternative design criteria when determining the minimum number of plumbing fixtures.*

**PLUMBING FIXTURES AND FIXTURE FITTINGS**

**TABLE A.  
OCCUPANT LOAD FACTOR:  
[BSC, DSA-SS & DSA-SS/CC]**

OCCUPANCY* **	OCCUPANT LOAD FACTOR (square feet)
<b>Group A</b> 1. Auditoriums, convention halls, dance floors, lodge rooms, stadiums, and casinos (where no fixed seating is provided) (use 1/2 "one-half" the number of fixed seating) 2. Conference rooms, dining rooms, drinking establishments, exhibit rooms, gymnasiums, lounges, stages, and similar uses, including restaurants classified as Group B occupancies 3. Worship places; principal assembly area, educational and activity unit (where no fixed seating is provided) (use 1/2 "one-half" the number of fixed seating)	15   30  30
<b>Group B</b> Office or public buildings (area accessible to the public)	200
<b>Group E</b> Schools for day care, elementary, secondary	50
<b>Educational Facilities Other than Group E</b> Colleges, universities, adult centers, etc.	50
<b>Group F</b> Workshops, foundries and similar establishments	2,000
<b>Group H</b> Hazardous materials fabrication and storage	2,000
<b>Group I</b> Hospital general use area, health care facilities	200
<b>Group M</b> Retail or wholesale stores	200
<b>Group R</b> Congregate residence, Group R-1	200
<b>Group S</b> Warehouse	5,000

\* Any uses not specifically listed shall be based on similar uses listed in this table.

\*\* For building or space with mixed occupancies, use appropriate occupancy group for each area (for example, a school may have an "A" occupancy for the gymnasium, a "B" occupancy for the office, an "E" occupancy for the classrooms, etc.) Accessory areas may be excluded (for example: hallway, restroom, stair enclosure)



**TABLE 4-2**  
**[OSHPD 1, 2, 3 & 4]<sup>24</sup> MINIMUM PLUMBING FACILITIES**

SPACE	HANDWASHING FIXTURE	SCRUB SINKS <sup>3</sup>	TOILETS	BATHTUBS OR SHOWERS	SERVICE SINKS <sup>1</sup>	CLINIC SINKS
<b>Administration Lobby</b>						
Public Toilet - Male	1		1			
Public Toilet - Female	1		1			
Airborne infection isolation room	1					
Airborne infection isolation treatment/exam room	1					
Airborne infection isolation anteroom	1 <sup>20</sup>					
Airborne infection isolation toilet room	1 <sup>2</sup>		1 <sup>5</sup>	1 <sup>5</sup>		
Cardiac Catheterization procedure room		1 <sup>4, 33</sup>				
Central Sterile Supply	1 <sup>15</sup>					
<b>Cesarean/Delivery Service Space</b>						
Labor Rooms	1 <sup>33</sup>		1 <sup>9</sup>	1 <sup>9</sup>		
Recovery Room	1 <sup>33</sup>					1
Drug distribution station	1					
Cesarean operating room		2 <sup>10, 33</sup>				
Delivery room		1 <sup>10, 33</sup>				
<b>Staff lounge</b>						
Staff Toilet - Male	1 <sup>2</sup>		1:1-15			
Staff Toilet - Female	1 <sup>2</sup>		1:1-15			
LDR or LDRP room	1 <sup>33</sup>		1	1		
<b>Waiting area/room</b>						
Public Toilet - Male	1 <sup>2</sup>		1			
Public Toilet - Female	1 <sup>2</sup>		1			
Clinical Laboratory Service Space <sup>11</sup>	1					
<b>Dietetic Service Space</b>						
Kitchen	1 <sup>33</sup>				1	
Food serving area	1 <sup>33</sup>					
Food Preparation	1 <sup>33</sup>					
Dietary Staff Toilet - Male	1 <sup>2</sup>		1:1-15			
Dietary Staff Toilet - Female	1 <sup>2</sup>		1:1-15			
<b>Emergency Service Treatment room</b>						
Open plan	1:4 cubicles					
Observation units	1:4 cubicles					
Trauma/Cardiac, Emergency surgery, Cystoscopy, Cast Room		1 <sup>4,33</sup>				
<b>Intensive Care Units<sup>7</sup></b>						
Open plan	1:3 beds <sup>33</sup>				1	1
Patient rooms <sup>28</sup>	1 <sup>33</sup>					
Newborn Intensive Care Unit (NICU)	1:4 bassinets <sup>17, 33</sup>				1	1
Control station	1 <sup>33</sup>					
<b>Staff lounge</b>						
Staff Toilet - Male	1 <sup>2</sup>		1:1-15			
Staff Toilet - Female	1 <sup>2</sup>		1:1-15			
<b>Employee dressing rooms and lockers</b>						
Staff Toilet - Male	1 <sup>2</sup>		1:1-15			

**PLUMBING FIXTURES AND FIXTURE FITTINGS**

<b>SPACE</b>	<b>HANDWASHING FIXTURE</b>	<b>SCRUB SINKS<sup>3</sup></b>	<b>TOILETS</b>	<b>BATHTUBS OR SHOWERS</b>	<b>SERVICE SINKS<sup>1</sup></b>	<b>CLINIC SINKS</b>
<i>Staff Toilet - Female</i>	<i>1<sup>2</sup></i>		<i>1:1-15</i>			
<i>Exam and treatment rooms</i>	<i>1</i>					
<i>Housekeeping room<sup>1</sup></i>					<i>1</i>	
<i>Laboratories</i>	<i>1<sup>15</sup></i>					
<i>Laundry soiled linen, receiving, holding and sorting</i>	<i>1</i>					
<i>Medicine preparation room</i>	<i>1<sup>19</sup></i>					
<b><i>Morgue and Autopsy</i></b>	<i>1</i>					
<i>Nourishment area</i>	<i>1+1<sup>2</sup></i>					
<i>Nuclear Medicine room</i>	<i>1</i>					
<i>Mold room</i>	<i>1</i>					
<i>Patient room</i>	<i>1</i>					
<i>Patient toilet and bath facilities<sup>13</sup></i>	<i>1<sup>2</sup></i>		<i>1:4 beds</i>	<i>1:12<sup>16</sup></i>		
<i>Central bathing facility<sup>16</sup></i>			<i>1</i>	<i>1</i>		
<i>Administration Center or Nurses' Stations<sup>27</sup></i>	<i>1</i>		<i>1<sup>12</sup></i>			
<i>Newborn/well baby nursery</i>	<i>1:6 bassinets<sup>33</sup></i>					
<i>Workroom</i>	<i>1<sup>33</sup></i>					
<i>Gastrointestinal endoscopy procedure room</i>	<i>1<sup>33</sup></i>					
<i>Pediatric and Adolescent Unit toilet room</i>	<i>1<sup>2,26</sup></i>		<i>1<sup>26</sup></i>			
<b><i>Pharmacy</i></b>	<i>1<sup>25</sup></i>					
<i>Staff Toilet - Male</i>	<i>1<sup>2</sup></i>		<i>1:1-15</i>			
<i>Staff Toilet - Female</i>	<i>1<sup>2</sup></i>		<i>1:1-15</i>			
<i>Compounding area for parenteral solutions</i>	<i>1</i>					
<i>Postanesthesia care units (PACU)</i>						<i>1</i>
<i>Open plan</i>	<i>1:4 gurney spaces<sup>33</sup></i>					
<i>Individual rooms</i>	<i>1<sup>33</sup></i>					
<i>Protective environment room</i>	<i>1<sup>33</sup></i>					
<i>Protective environment anteroom</i>	<i>1<sup>20,33</sup></i>					
<i>Protective environment toilet room</i>	<i>1<sup>2</sup></i>		<i>1<sup>5</sup></i>	<i>1<sup>5</sup></i>		
<i>Psychiatric unit patient room</i>	<i>1</i>		<i>1</i>			
<b><i>Radiological/Imaging Services Space</i></b>	<i>1</i>		<i>1<sup>29</sup></i>			
<i>Computerized tomography (CT)</i>						
<i>Ultrasound<sup>8</sup></i>			<i>1<sup>30</sup></i>			
<i>Angiography</i>		<i>1<sup>4, 31</sup></i>				
<i>Fluoroscopy<sup>8</sup></i>			<i>1<sup>30</sup></i>			
<i>Staff Toilet<sup>18</sup> - Male</i>	<i>1<sup>2</sup></i>		<i>1:1-15</i>			
<i>Staff Toilet<sup>18</sup> - Female</i>	<i>1<sup>2</sup></i>		<i>1:1-15</i>			
<b><i>Rehabilitation Therapy Space</i></b>						
<i>Training toilet</i>			<i>1</i>			
<i>Physical therapy service space</i>	<i>1</i>					
<i>Occupational therapy service space</i>	<i>1</i>					
<i>Speech pathology</i>	<i>1</i>					
<b><i>Renal Dialysis Service Space</i></b>	<i>1:4 stations</i>				<i>1</i>	
<i>Bloodborne Infection Isolation Room</i>	<i>1</i>					
<i>Nurses' station</i>	<i>1</i>					
<i>Medication dispensing</i>	<i>1</i>					
<i>Home training room</i>	<i>1</i>					

SPACE	HANDWASHING FIXTURE	SCRUB SINKS <sup>3</sup>	TOILETS	BATHTUBS OR SHOWERS	SERVICE SINKS <sup>1</sup>	CLINIC SINKS
Repair room <sup>11</sup>	1				1	
Dialysis patient toilet	1 <sup>2</sup>		1			
Staff lounge						
Staff Toilet - Male	1		1:1-15	1 shower		
Staff Toilet - Female	1		1:1-15	1 shower		
<b>Surgical Service Space</b>		2 <sup>33</sup>			1	
Staff clothing change areas						
Staff Toilet - Male	1 <sup>2</sup>		1	1 shower		
Staff Toilet - Female	1 <sup>2</sup>		1	1 shower		
Clean-up rooms	1					
Substerile area	1					
Anesthesia workroom	1					
Soiled workroom or soiled holding	1					1 <sup>34</sup>
Cancer treatment/infusion therapy treatment	1:4 stations					
<b>Utility/Work Room</b>						
Clean <sup>21</sup>	1					
Soiled <sup>22</sup>	1					1 <sup>14</sup>
Patient beds [Skilled Nursing/Intermediate Care Facilities][medical model]	1:8 <sup>2</sup>		1:6	1:20		
Patient toilet and bath facilities <sup>13</sup> [Correctional Treatment Center]	1:8 <sup>2</sup>		1:6	1:12		
Airborne infection isolation anteroom <sup>6</sup> [Correctional Treatment Center]	1 <sup>6</sup>		1 <sup>6</sup>	1 <sup>6</sup>		
Airborne infection isolation anteroom [Correctional Treatment Center]	1					
Protective environment room <sup>6</sup> [Correctional Treatment Center]	1 <sup>6</sup>		1 <sup>6</sup>	1 <sup>6</sup>		
Protective environment anteroom [Correctional Treatment Center]	1					

**Notes:**

- <sup>1</sup> Each department or nursing unit shall be served by a housekeeping room equipped with a service sink. Departments may share service closets provided the departmental services are compatible. A dedicated housekeeping room shall be provided for the following services: Surgical/Catherization, ICU, NICU, nursery, dietary, renal dialysis and outpatient surgery.
- <sup>2</sup> Conventional spouts and controls on hot-and cold-water supplies are acceptable. Aerators are not permitted. Non-aerating laminar flow devices are permitted. Nourishment areas shall have a handwashing fixture in or immediately accessible from the nourishment area, in addition to a nourishment sink.
- <sup>3</sup> Scrub sinks shall be located outside of sterile procedure rooms. A minimum of two scrub sinks shall be provided in a surgical unit containing one operating room. Four scrub sinks shall be provided in surgical units containing two operating rooms. One additional scrub sink shall be provided per each additional operating room.
- <sup>4</sup> The scrub sink is in addition to the required number for surgeries.
- <sup>5</sup> The following fixtures shall be provided in airborne infection or protective environment rooms of hospitals only:
  - a. Within an adjoining toilet room, a lavatory, a shower containing a seat or a space for a shower chair, and toilet equipped with bedpan flushing attachment with a vacuum breaker.
  - b. A handwashing fixture within a separate anteroom.
- <sup>6</sup> The following fixtures shall be provided in isolation rooms of correctional treatment centers only:
  - a. Within an adjoining toilet area, a handwashing fixture, a shower containing a seat or a space for a shower chair, and water closet equipped with bedpan flushing attachment with a vacuum breaker.
  - b. A handwashing fixture within a separate anteroom.
- <sup>7</sup> Includes burn center spaces, acute respiratory-care service spaces, and coronary-care service spaces.
- <sup>8</sup> A toilet room with handwashing fixture shall directly adjoin each procedure room.
- <sup>9</sup> One toilet with lavatory and one shower may serve two labor rooms.
- <sup>10</sup> One additional scrub sink for each additional cesarean or delivery operating room.
- <sup>11</sup> Provide emergency eye-wash and shower.
- <sup>12</sup> Conveniently located for staff use.
- <sup>13</sup> Fixtures serving individual patient rooms shall not be considered as meeting the required ratios for bedrooms not served by individual adjoining toilet or bath-rooms.
- <sup>14</sup> The clinic sink may be deleted if all bedrooms in the nursing unit are provided with adjoining toilets with bedpan flushing devices.
- <sup>15</sup> Conventional controls on hot-and cold-water supplies are acceptable. The water discharge points shall be 5 inches (127 millimeters) above the fixture rim. Aerators are not permitted. Non-aerating laminar flow devices are permitted.

**PLUMBING FIXTURES AND FIXTURE FITTINGS**

- <sup>16</sup> A minimum of one bathtub is required on each floor of an acute care or acute psychiatric hospital providing skilled nursing or intermediate care services. Special bathing facilities/gurney shower shall be provided at a minimum ratio of one per 100 beds for acute care facilities.
- <sup>17</sup> In a multiple-bed room, every bed position shall be within 20 feet (6 meters) of a hands-free handwashing fixture. Where an individual room concept is used, a handwashing fixture shall be provided within each infant care room.
- <sup>18</sup> When three or more procedure rooms are provided.
- <sup>19</sup> If a separate medicine room is provided, the room shall be equipped with a sink in addition to the nurses' station handwashing fixture. Hot-water supplies are optional.
- <sup>20</sup> Not required when there is a handwash fixture in the patient bed room.
- <sup>21</sup> Handwashing fixtures may be deleted if room is used for storage and holding only.
- <sup>22</sup> If room is used only for temporary holding of soiled materials, clinic sink and work counter may be omitted. If the flushing-rim clinical sink is eliminated, facilities for cleaning bedpans shall be provided elsewhere.
- <sup>23</sup> Toilet shall be equipped with a bedpan flushing attachment.
- <sup>24</sup> Optional services approved by the licensing agency shall comply with the applicable space requirements of OSHPD 1 and 2.
- <sup>25</sup> Shall be provided in each separate room where open medication is handled.
- <sup>26</sup> Conveniently accessible throughout the unit.
- <sup>27</sup> Includes rooms or areas within coronary and intensive-care units and postanesthesia recovery rooms.
- <sup>28</sup> Modular toilet/sink combination units located within a privacy curtain may be used within individual patient space or private room. The toilet fixture shall be completely contained within cabinetry when not in use, and shall be enclosed when flushed. Bedpan washers shall not be permitted in patient bedrooms.
- <sup>29</sup> In service spaces with procedure rooms that do not have dedicated patient toilets, provide a minimum of one patient toilet room with a separate handwashing fixture within the service space.
- <sup>30</sup> Toilet room shall be accessible from the procedure room.
- <sup>31</sup> Scrub sink shall be located outside the staff entrance to the procedure room.
- <sup>32</sup> Not used.
- <sup>33</sup> Handwashing and scrub sink fixtures shall not be equipped with wrist or elbow blades but shall be equipped with sensor controls, or controls that do not involve contact with the upper extremities.
- <sup>34</sup> If room is used only for temporary holding of soiled material, clinic sink and work counter may be omitted.

**TABLE 4-3**

TYPE OF BUILDING OR OCCUPANCY	WATER CLOSETS (FIXTURES PER PERSON) <sup>7</sup>		URINALS (TROUGH URINAL TO INDIVIDUAL URINAL EQUIVALENCE)		LAVATORIES (FIXTURES PER PERSON)	BATHTUBS OR SHOWERS (FIXTURES PER PERSON)	DRINKING FOUNTAINS (FIXTURES PER PERSON) <sup>3</sup>
	MALE	FEMALE	MALE				
Nonindustrial—office buildings, public buildings and similar establishments	1	1-15	1	1-15	1	1:10 persons per shift required to shower	—
	2	16-35	2	16-35	2		
	3	36-55	3	36-55	3		
	4	56-80	4	56-80	4		
	5	81-110	5	81-110	5		
	6	111-150	6	111-150	6		
	1 additional for each additional 40 employees or fraction thereof		24" (610 mm)	1	1		
			36" (914 mm)	2	2		
			48" (1219 mm)	2	3		
			60" (1524 mm)	3	4		
Industrial—factories, warehouses, loft buildings and similar establishments	1	1-15	1	1-15	1	1:10 persons per shift required to shower	—
	2	16-35	2	16-35	2		
	3	36-55	3	36-55	3		
	4	56-80	4	56-80	4		
	5	81-110	5	81-110	5		
	6	111-150	6	111-150	6		
	1 additional for each additional 40 employees or fraction thereof		24" (610 mm)	1	1 to 100 employees		
			36" (914 mm)	2	employees		
			48" (1219 mm)	2	1 per 10		
			60" (1524 mm)	3			
			72" (1829 mm)	4	Over 100 employees 1 additional for each additional 15 employees or fraction thereof		

**Notes:**

- <sup>1</sup> The figures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction thereof.
- <sup>2</sup> Each water closet shall occupy a separate compartment which shall be equipped with a door, door latch and clothes hook. The door and the walls or partitions between fixtures shall be sufficient to assure privacy.
- <sup>3</sup> Drinking fountains shall not be located in toilet rooms.
- <sup>4</sup> Washing facilities shall be reasonably accessible to all employees.
- <sup>5</sup> Toilet facilities shall be accessible to the employees at all times. Where practicable, toilet facilities should be within 200 feet (61 m) of locations at which workers are regularly employed and should not be more than one floor-to-floor flight of stairs from working areas.
- <sup>6</sup> Urinals may be installed instead of water closets in toilet rooms to be used only by men provided that the number of water closets shall not be less than two thirds of the minimum number of toilet facilities specified. The length of trough urinals to the equivalent number of individual urinals shall be based on the above table.
- <sup>7</sup> When there are less than five employees, separate toilet rooms for each sex are not required provided toilet rooms can be locked from the inside and contain at least one water closet.
- <sup>8</sup> Twenty-four linear inches of wash sink or 18 inches of circular basin, when provided with water outlets for such space, shall be considered equivalent to one lavatory.  
**Exception:** The requirements of Table 4-3 do not apply to mobile crews or to normally unattended work locations provided employees at these locations have immediately available transportation to nearby toilet facilities which meet the requirements of Table 4-3.

TABLE 4-4

TYPE OF BUILDING OR OCCUPANCY <sup>2</sup>	WATER CLOSETS (FIXTURES PER PERSON)		URINALS (FIXTURES PER MALE)	LAVATORIES (FIXTURES PER PERSON)	BATHTUBS OR SHOWERS (FIXTURES PER PERSON)	DRINKING FOUNTAINS (FIXTURES PER PERSON)
Day Use Public Beaches <sup>1,2</sup>	Male 1 1-100 No sex designated 1 1-500 Minimum of 2	Female 1 1-100	May be substituted for up to two-thirds of the water closets required			
Picnic Areas	Male 1 1-50	Female 1 1-50				
Overnight Use Public Beaches <sup>2</sup>	1 1-7.5 campsites <sup>3</sup> 1 1-7.5 campsites <sup>3</sup>		May be substituted for up to one-third of the water closets required <sup>3</sup>		1 1-12.5 campsites <sup>4</sup>	
Organized Camps	1 1-15 <sup>3</sup>			1 1-15	1 1-156	Minimum 1 per camp

**Notes:**

<sup>1</sup> Toilets shall be located in accordance with actual use patterns on the beach. The reasonable intent of the toilet requirements is that it should apply on the basis of average daily use during periods of peak use. The health officer may determine how many days the population standard may be exceeded.

<sup>2</sup> Laundry facilities are not required, but if they are provided, must be a minimum of two laundry trays or a washing machine.

<sup>3</sup> Toilet facilities shall not be farther than 400 feet from any lot or campsite.

<sup>4</sup> Showers are not required, but if provided, they shall be provided on the indicated ratio. Outdoor rinse-off showers may be cold water only.

<sup>5</sup> Toilets shall be located within 300 feet from the living accommodations they serve.

<sup>6</sup> Showers shall be provided in the living area or in a centrally located structure.

**Exception:** Intermittent short-term organized camps are not required to provide shower facilities, but if provided, they shall comply with this part.



**CALIFORNIA PLUMBING CODE – MATRIX ADOPTION TABLE**  
**CHAPTER 6 - WATER SUPPLY AND DISTRIBUTION**

(Matrix Adoption Tables are non-regulatory, intended only as an aid to the code user. See Chapter 1 for state agency authority and building applications.)

Adopting Agency	BSC	BSC- CG	SFM	HCD			DSA			OSHPD				BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1-AC	AC	SS	SS/CC	1	2	3	4								
Adopt Entire Chapter																					
Adopt Entire Chapter as amended (amended sections listed below)	X			X	X			X	X	X	X	X	X			X	X				
Adopt only those sections that are listed below		X	X												X				X		
Chapter/Section																					
601.2 Exceptions		X		X	X												X				
601.3.2				X	X																
601.3.3																	X				
601.4																			X		
601.5																	X				
601.6																	X				
601.7																	X				
601.8																	X				
603.5.11				X	X																
603.5.14, Note			X																		
604.1 Exception										X	X	X	X								
Table 604.1 Notes	X			X	X			X	X						X	X					
604.1.1				X	X																
604.1.2				X	X																
604.13	X			X	X																
605.2.2				X	X																
605.9										X	X	X	X								
605.9.1										X	X	X	X								
605.10	X			X	X			X	X												
605.10.1	X																				
605.10.1.1	X																				
605.12.2				X	X																
605.15				X	X			X	X	X	X	X	X								
606.8										X	X	X	X								
607.1				X																	
609.9										X	X	X	X								
609.10				†	†																
Table 610.3		X		X	X																

**CALIFORNIA PLUMBING CODE – MATRIX ADOPTION TABLE**  
**CHAPTER 6 - WATER SUPPLY AND DISTRIBUTION (continued)**

(Matrix Adoption Tables are non-regulatory, intended only as an aid to the code user. See Chapter 1 for state agency authority and building applications.)

Adopting Agency	BSC	BSC- CG	SFM	HCD			DSA			OSHPD				BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1-AC	AC	SS	SS/CC	1	2	3	4								
Adopt Entire Chapter																					
Adopt Entire Chapter as amended (amended sections listed below)	X			X	X			X	X	X	X	X	X			X					
Adopt only those sections that are listed below		X	X											X					X		
Chapter/Section																					
612.0			X																		
612.3.1 Exception 4																					
612.3.4																					
612.3.8																					
612.5.1.3																					
612.5.2																					
612.5.2.2																					
613.0 & Subsections										X	X	X	X								
614.0 & Subsections										X	X	X	X								
615.0 & Subsections										X	X	X	X								
615.1										X	X	X	X								
615.2										X	X	X	X								
615.3										X	X	X	X								
615.4										X											

*This state agency does not adopt sections identified with the following symbol: †  
The Office of the State Fire Marshal's adoption of this chapter or individual sections is applicable to structures regulated by other state agencies pursuant to Section 1.11.*



# CHAPTER 6

## WATER SUPPLY AND DISTRIBUTION

### 601.0 General.

**601.1 Applicability.** This chapter shall govern the materials, design, and installation of water supply systems, including methods and devices used for backflow prevention.

» **601.2 Hot and Cold Water Required.** Except where not deemed necessary for safety or sanitation by the Authority Having Jurisdiction, each plumbing fixture shall be provided with an adequate supply of potable running water piped thereto in an approved manner, so arranged as to flush and keep it in a clean and sanitary condition without danger of backflow or cross-connection. Water closets and urinals shall be flushed by means of an approved flush tank or flushometer valve.

#### Exceptions:

- (1) Listed fixtures that do not require water for their operation and are not connected to the water supply.
- (2) *[HCD 1 & HCD 2] For limited-density owner-built rural dwellings, potable water shall be available to the dwelling site, although such water need not be pressurized. Where water is not piped from a well, spring, cistern or other source, there shall be a minimum reserve of 50 gallons (189 L) of potable water available. Where water delivery is pressurized, piping shall be installed in accordance with the provisions of this chapter.*
- (3) *[HCD 1, HCD 2, DWR] For all residential occupancies, alternate water sources may be allowed as specified in Chapter 15 of this code in addition to potable water.*
- (4) *[BSC-CG, DWR] For non-residential occupancies, alternate water sources may be allowed as specified in Chapter 15 of this code.*
- (5) *[BSC-CG, DWR] Where a public agency requires a building to use recycled water to flush water closets and urinals in accordance with California Water Code 13554.*

In occupancies where plumbing fixtures are installed for private use, hot water shall be required for bathing, washing, laundry, cooking purposes, dishwashing or maintenance. In occupancies where plumbing fixtures are installed for public use, hot water shall be required for bathing and washing purposes. This requirement shall not supersede the requirements for individual temperature control limitations for public lavatories and public and private bidets, bathtubs, whirlpool bathtubs, and shower control valves.

» **601.3 Identification of a Potable and Nonpotable Water System.** In buildings where potable water and nonpotable water systems are installed, each system shall be clearly identified in accordance with Section 601.3.1 through Section 601.3.5.

» **601.3.1 Potable Water.** Green background with white lettering.

**601.3.2 Color and Information.** Each system shall be identified with a colored pipe or band and coded with paints, wraps, and materials compatible with the piping. «

Except as required in Section 601.3.3, nonpotable water systems shall have a yellow background with black uppercase lettering, with the words “CAUTION: NONPOTABLE WATER, DO NOT DRINK.” Each nonpotable system shall be identified to designate the liquid being conveyed, and the direction of normal flow shall be clearly shown. The minimum size of the letters and length of the color field shall comply with Table 601.3.2. *[HCD 1 & HCD 2] An international symbol of a glass in a circle with a slash through it shall be provided similar to that shown in Figure 601 for all nonpotable water systems.*



**FIGURE 601  
INTERNATIONAL SYMBOL**

The background color and required information shall be indicated every 20 feet (6096 mm) but not less than once per room, and shall be visible from the floor level.

**TABLE 601.3.2  
MINIMUM LENGTH OF COLOR FIELD AND SIZE OF LETTERS** «

OUTSIDE DIAMETER OF PIPE OR COVERING (inches)	MINIMUM LENGTH OF COLOR FIELD (inches)	MINIMUM SIZE OF LETTERS (inches)
½ to 1¼	8	½
1½ to 2	8	¾
2½ to 6	12	1¼
8 to 10	24	2½
Over 10	32	3½

For SI units: 1 inch = 25.4 mm

**601.3.3 Alternate Water Sources.** Alternate water source systems shall have a purple (Pantone color No. 512, 522C, or equivalent) background with uppercase lettering and shall be field or factory marked as follows: «

- (1) Gray water systems shall be marked in accordance with this section with the words “CAUTION: NONPOTABLE GRAY WATER, DO NOT DRINK” in black letters.
- (2) Reclaimed (recycled) water systems shall be marked in accordance with this section with the words:

“CAUTION: NONPOTABLE RECLAIMED (RECYCLED) WATER, DO NOT DRINK” in black letters.

- (3) On-site treated water systems shall be marked in accordance with this section with the words: “CAUTION: ON-SITE TREATED NONPOTABLE WATER, DO NOT DRINK” in black letters.
- (4) Rainwater catchment systems shall be marked in accordance with this section with the words: “CAUTION: NONPOTABLE RAINWATER, DO NOT DRINK” in black letters.

**Exception:** [DWR] For recycled water supply systems that are within or a part of a building, the provisions of Section 1503.7 shall apply.

**601.3.4 Fixtures.** Where vacuum breakers or backflow preventers are installed with fixtures listed in Table 1701.1, identification of the discharge side shall be permitted to be omitted.

**601.3.5 Outlets.** Each outlet on the nonpotable water line that is used for special purposes shall be posted with black uppercase lettering as follows: “CAUTION: NONPOTABLE WATER, DO NOT DRINK.”

**601.4 [CA] Schools of Cosmetology and Cosmetological Establishments.**

**601.4.1 Hot-and Cold running Water.** At least one sink with hot-and cold-running water shall be provided in each work area or workroom where hairdressing is performed in each school and establishment.

**601.4.2 Handwashing Facilities.** Each school and establishment shall provide adequate handwashing facilities, including hot-and cold-running water, located within or adjacent to the toilet room or rooms in accordance with Table 422.1.

**601.4.3 Drinking Water.** Each school and establishment shall supply potable drinking water convenient to students, patrons and employees. Approved sanitary drinking fountains shall be installed and so regulated that a jet of at least 2 inches (51 mm) shall be constantly available.

**601.5 [AGR] Meat and Poultry Processing Plants.** Except as provided in Section 601.5.4, the water supply shall be ample and potable, with adequate pressure and facilities for its distribution in the plant, and its protection against contamination and pollution.

**Note:** A water report, issued under the authority of the state health agency, certifying to the potability of the water supply, shall be obtained by the applicant and furnished to the administrator whenever such report is required by the administrator.

- 601.5.1** A supply of hot water shall be available.
- 601.5.2** Hose connections with steam and water-mixing valves or hot-water hose connections shall be provided at locations throughout the plant.
- 601.5.3** The refuse rooms shall be provided with facilities for washing refuse cans and other equipment in the rooms.

**601.5.4** Non-potable water is permitted only in those parts of official plants where no product is handled or prepared, and then only for limited purposes, such as on condensers not connected with the potable water supply, in vapor lines serving inedible product rendering tanks, and in sewer lines for moving heavy solids in the sewage. In all cases, non-potable water lines shall be clearly identified and shall not be cross connected with the potable water supply.

**Exception:** Cross connection is permitted if this is necessary for fire protection and such connection is of a type with a break to ensure against accidental contamination, and to be approved by local authorities and by the Department.

**601.5.5** Equipment using potable water shall be so installed as to prevent back-siphonage into the potable water system.

**601.5.6** All pipelines, reservoirs, tanks, cooling towers and like equipment employed in handling reused water shall be constructed and installed so as to facilitate their cleaning and inspection.

**601.5.7** Hot water of such temperature as to accomplish a thorough cleanup shall be delivered under pressure to outlets.

**601.5.7.1** An ample supply of water at not less than 180°F (82°C) shall be available when used for sanitizing purposes.

**601.5.8** Pens, alleys, and runways shall have hose connections for cleanup purposes.

**601.6 [AGR] Collection Centers and Facilities.**

**601.6.1** The water supply shall be ample with facilities for its distribution. An ample supply of water at not less than 180°F (82°C), or other suitable method.

**601.6.2** The vehicle cleaning and sanitizing area shall be provided with adequate line steam, producing a temperature of at least 180°F (82°C), or other suitable method.

**601.6.3** Hose connections with steam and water-mixing valves of hot-and cold-water hose connections shall be provided at locations throughout the building and at unloading and vehicle cleaning slabs.

**601.7 [AGR] Renderers.** This area shall be provided with live steam or other method of sanitizing vehicles.

**601.8 [AGR] Horse Meat and Pet Food Establishments.**

**601.8.1** The water supply shall be ample, clean and potable, with facilities for its distribution in the plant, and its protection against contamination and pollution.

**601.8.1.1** Equipment using potable water shall be so installed as to prevent back-siphonage into the potable water system.

**601.8.1.2** Non-potable water is permitted only in those parts of official plants where no edible product is handled or prepared, and then only for limited

» **605.8 PE-RT.** Polyethylene of raised temperature (PE-RT) tubing shall be marked with the appropriate standard designation(s) listed in Table 604.1 for which the tubing has been approved. PE-RT tubing shall be installed in accordance with the manufacturer’s installation instructions.

» **605.8.1 Fittings.** Metal insert fittings, metal compression fittings, and plastic fittings shall be manufactured to and marked in accordance with the standards for fittings in Table 604.1.

» **605.9 PEX Plastic Tubing and Joints.** PEX plastic tubing and fitting joining methods shall be installed in accordance with the manufacturer’s installation instructions and shall comply with Section 605.9.1 and Section 605.9.2.

*All PEX pipe installed in California must provide at least 30-day UV protection. [OSHPD 1, 2, 3, & 4] Installation and use of PEX tubing shall be in accordance with manufacturer’s standards. PEX piping shall not be used for any application that would result in noncompliance with any provisions of the California Building Standards Code.*

» **605.9.1 Fittings.** Fittings for PEX tubing shall comply with the applicable standards referenced in Table 604.1. PEX tubing in accordance with ASTM F876 shall be marked with the applicable standard designation for the fittings, specified by the tubing manufacturer for use with the tubing. *Brass fittings used with PEX tubing shall meet or exceed NSF 14-2009 standards to prevent dezincification and stress crack corrosion. [OSHPD 1, 2, 3, & 4] Installation and use of PEX tubing shall be in accordance with manufacturer’s standards. PEX piping shall not be used for any application that would result in noncompliance with any provisions of the California Building Standards Code.*

» **605.9.2 Mechanical Joints.** Mechanical joints shall be installed in accordance with the manufacturer’s installation instructions.

» **605.10 PEX-AL-PEX Plastic Tubing and Joints.** PEX-AL-PEX plastic pipe or tubing and fitting joining methods shall be installed in accordance with the manufacturer’s installation instructions and shall comply with Section 605.10.1 and Section 605.10.1.1.

|| *[DSA-SS, DSA-SS/CC, BSC, HCD 1 & HCD 2] PEX-AL-PEX is not adopted for use in potable water supply and distribution systems.*

» **605.10.1 Mechanical Joints.** Mechanical joints between PEX-AL-PEX tubing and fittings shall include mechanical and compression type fittings and insert fittings with a crimping ring. Insert fittings utilizing a crimping ring shall be in accordance with ASTM F1974 or ASTM F2434. Crimp joints for crimp insert fittings shall be joined to PEX-AL-PEX pipe by the compression of a crimp ring around the outer circumference of the pipe, forcing the pipe material into annular spaces formed by ribs on the fitting.

*[BSC] PEX-AL-PEX is not adopted for use in potable water supply and distribution systems.*

**605.10.1.1 Compression Joints.** Compression joints shall include compression insert fittings and shall be joined to PEX-AL-PEX pipe through the compression of a split ring or compression nut around the outer circumference of the pipe, forcing the pipe material into the annular space formed by the ribs on the fitting.

*[BSC] PEX-AL-PEX is not adopted for use in potable water supply and distribution systems.*

**605.11 Polypropylene (PP) Piping and Joints.** PP pipe and fittings shall be installed in accordance with the manufacturer’s installation instructions and shall comply with Section 605.11.1 through Section 605.11.3.

**605.11.1 Heat-Fusion Joints.** Heat-fusion joints for polypropylene (PP) pipe and fitting joints shall be installed with socket-type heat-fused polypropylene fittings, fusion outlets, butt-fusion polypropylene fittings or pipe, or electro-fusion polypropylene fittings. Joint surfaces shall be clean and free from moisture. The joint shall be undisturbed until cool. Joints shall be made in accordance with ASTM F2389 or CSA B137.11.

**605.11.2 Mechanical and Compression Sleeve Joints.** Mechanical and compression sleeve joints shall be installed in accordance with the manufacturer’s installation instructions.

**605.11.3 Threaded Joints.** PP pipe shall not be threaded. PP transition fittings for connection to other piping materials shall only be threaded by use of copper alloy or stainless steel inserts molded in the fitting.

**605.12 PVC Plastic Pipe and Joints.** PVC plastic pipe and fitting joining methods shall be installed in accordance with the manufacturer’s installation instructions and shall comply with Section 605.12.1 through Section 605.12.3.

**605.12.1 Mechanical Joints.** Mechanical joints shall be designed to provide a permanent seal and shall be of the mechanical or push-on joint. The mechanical joint shall include a pipe spigot that has a wall thickness to withstand without deformation or collapse; the compressive force exerted where the fitting is tightened. The push-on joint shall have a minimum wall thickness of the bell at any point between the ring and the pipe barrel. The elastomeric gasket shall comply with ASTM D3139, and be of such size and shape as to provide a compressive force against the spigot and socket after assembly to provide a positive seal.

**605.12.2 Solvent Cement Joints.** Solvent cement joints for PVC pipe and fittings shall be clean from dirt and moisture. Pipe shall be cut square and pipe shall be deburred. Where surfaces to be joined are cleaned and free of dirt, moisture, oil, and other foreign material, apply primer purple in color in accordance with ASTM F656. Primer shall be applied until the surface of the pipe and fitting is softened. Solvent cements in accordance with ASTM D2564 shall be applied to all joint surfaces. Joints shall be made while both the inside socket surface and outside surface of pipe are wet with solvent cement. Hold joint in place and undisturbed for 1 minute after assembly.

*[HCD 1 & HCD 2] Plastic pipe and fittings joined with solvent cement shall utilize Low VOC primer(s), if a primer is required, and Low VOC solvent cement(s) as defined in Section 214.0.*

- » **605.12.3 Threaded Joints.** Threads shall comply with ASME B1.20.1. A minimum of Schedule 80 shall be permitted to be threaded; however, the pressure rating shall be reduced by 50 percent. The use of molded fittings shall not result in a 50 percent reduction in the pressure rating of the pipe provided that the molded fittings shall be fabricated so that the wall thickness of the material is maintained at the threads. Thread sealant compound that is compatible with the pipe and fitting, insoluble in water, and nontoxic shall be applied to male threads. Caution shall be used during assembly to prevent over tightening of the PVC components once the thread sealant has been applied. Female PVC threaded fittings shall be used with plastic male threads only.
- » **605.13 Stainless Steel Pipe and Joints.** Joining methods for stainless steel pipe and fittings shall be installed in accordance with the manufacturer's installation instructions and shall comply with Section 605.13.1 or Section 605.13.2.
- » **605.13.1 Mechanical Joints.** Mechanical joints shall be designed for their intended use. Such joints shall include compression, flanged, grooved, pressed, and threaded.
- » **605.13.2 Welded Joints.** Welded joints shall be either fusion or resistance welded based on the selection of the base metal. Chemical composition of the filler metal shall comply with AWS A5.9 based on the alloy content of the piping material.
- » **605.14 Slip Joints.** In water piping, slip joints shall be permitted to be used only on the exposed fixture supply.
- » **605.15 Dielectric Unions.** Dielectric unions where installed at points of connection where there is a dissimilarity of metals shall be in accordance with ASSE 1079. *[DSA-SS, DSA-SS/CC, HCD 1 & HCD 2, OSHPD 1, 2, 3 & 4] Dielectric unions shall be used at all points of connection where there is a dissimilarity of metals.*
- » **605.16 Joints Between Various Materials.** Joints between various materials shall be installed in accordance with the manufacturer's installation instructions and shall comply with Section 605.16.1 through Section 605.16.3.
- » **605.16.1 Copper or Copper Alloy Pipe or Tubing to Threaded Pipe Joints.** Joints from copper or copper alloy pipe or tubing to threaded pipe shall be made by the use of copper alloy adapter, copper alloy nipple [minimum 6 inches (152 mm)], dielectric fitting, or dielectric union in accordance with ASSE 1079. The joint between the copper or copper alloy pipe or tubing and the fitting shall be a soldered, brazed, flared, or pressed joint and the connection between the threaded pipe and the fitting shall be made with a standard pipe size threaded joint.
- » **605.16.2 Plastic Pipe to Other Materials.** Where connecting plastic pipe to other types of piping, approved types of adapter or transition fittings designed for the specific transition intended shall be used.

**605.16.3 Stainless Steel to Other Materials.** Where connecting stainless steel pipe to other types of piping, mechanical joints of the compression type, dielectric fitting, or dielectric union in accordance with ASSE 1079 and designed for the specific transition intended shall be used. <<

#### 606.0 Valves.

**606.1 General.** Valves up to and including 2 inches (50 mm) in size shall be copper alloy or other approved material. Sizes exceeding 2 inches (50 mm) shall be permitted to have cast iron or copper alloy bodies. Each gate or ball valve shall be a fullway type with working parts of non-corrosive material. Valves carrying water used in potable water systems intended to supply drinking water shall be in accordance with the requirements of NSF 61 and ASME A112.4.14, ASME B16.34, ASTM F1970, ASTM F2389, AWWA C500, AWWA C504, AWWA C507, CSA B125.3, MSS SP-67, MSS SP-70, MSS SP-71, MSS SP-72, MSS SP-78, MSS SP-80, MSS SP-110, MSS SP-122, or NSF 359.

**606.2 Fullway Valve.** A fullway valve controlling outlets shall be installed on the discharge side of each water meter and on each unmetered water supply. Water piping supplying more than one building on one premises shall be equipped with a separate fullway valve to each building, so arranged that the water supply can be turned on or off to an individual or separate building provided; however, that supply piping to a single-family residence and building accessory thereto shall be permitted to be controlled on one valve. Such shutoff valves shall be accessible. A fullway valve shall be installed on the discharge piping from water supply tanks at or near the tank. A fullway valve shall be installed on the cold water supply pipe to each water heater at or near the water heater.

**606.3 Multidwelling Units.** In multidwelling units, one or more shutoff valves shall be provided in each dwelling unit so that the water supply to a plumbing fixture or group of fixtures in that dwelling unit can be shut off without stopping water supply to fixtures in other dwelling units. These valves shall be accessible in the dwelling unit that they control.

**606.4 Multiple Openings.** Valves used to control two or more openings shall be fullway gate valves, ball valves, or other approved valves designed and approved for the service intended.

**606.5 Control Valve.** A control valve shall be installed immediately ahead of each water-supplied appliance and immediately ahead of each slip joint or appliance supply.

Parallel water distribution systems shall provide a control valve either immediately ahead of each fixture being supplied or installed at the manifold, and shall be identified with the fixture being supplied. Where parallel water distribution system manifolds are located in attics, crawl spaces, or other locations not readily accessible, a separate shutoff valve shall be required immediately ahead of each individual fixture or appliance served.

(excluding a fire pump) is connected to a building supply or underground water pipe, a low-pressure cutoff switch on the inlet side of the pump shall be installed not more than 5 feet (1524 mm) of the inlet. The cutoff switch shall be set for not less than 10 psi (69 kPa). A pressure gauge shall be installed between the shutoff valve and the pump.

**609.9 Disinfection of Potable Water System.** New or repaired potable water systems shall be disinfected prior to use where required by the Authority Having Jurisdiction. *[OSHPD 1, 2, 3 & 4].* Prior to utilization of newly constructed or altered potable water piping systems, all affected potable water piping shall be disinfected using procedures prescribed in California Plumbing Code Sections 609.9(1) through 609.9(4). The method to be followed shall be that prescribed by the Health Authority or, in case no method is prescribed by it, the following:

- (1) The pipe system shall be flushed with clean, potable water until potable water appears at the points of outlet.
- (2) The system or parts thereof shall be filled with a water-chlorine solution containing not less than 50 parts per million of chlorine, and the system or part thereof shall be valved-off and allowed to stand for 24 hours; or, the system or part thereof shall be filled with a water-chlorine solution containing not less than 200 parts per million of chlorine and allowed to stand for 3 hours.
- (3) Following the allowed standing time, the system shall be flushed with clean, potable water until the chlorine residual in the water coming from the system does not exceed the chlorine residual in the flushing water.
- (4) The procedure shall be repeated where it is shown by bacteriological examination made by an approved agency that contamination persists in the system.

**609.10 Water Hammer.** *[Not adopted by HCD]* Building water supply systems where quick-acting valves are installed shall be provided with water hammer arrester(s) to absorb high pressures resulting from the quick closing of these valves. Water hammer arresters shall be approved mechanical devices in accordance with ASSE 1010 or PDI-WH 201 and shall be installed as close as possible to quick-acting valves.

**609.10.1 Mechanical Devices.** Where listed mechanical devices are used, the manufacturer's specifications as to location and method of installation shall be followed.

**609.11 Pipe Insulation.** Insulation of domestic hot water piping shall be in accordance with Section 609.11.1 and Section 609.11.2.

**609.11.1 Insulation Requirements.** Domestic hot water piping shall be insulated.

**609.11.2 Pipe Insulation Wall Thickness.** Hot water pipe insulation shall have a minimum wall thickness of not less than the diameter of the pipe for a pipe up to 2 inches (50 mm) in diameter. Insulation wall thickness shall be not less than 2 inches (51 mm) for a pipe of 2 inches (50 mm) or more in diameter.

**Exceptions:**

- (1) Piping that penetrates framing members shall not be required to have pipe insulation for the distance of the framing penetration.
- (2) Hot water piping between the fixture control valve or supply stop and the fixture or appliance shall not be required to be insulated.

**610.0 Size of Potable Water Piping.**

**610.1 Size.** The size of each water meter and each potable water supply pipe from the meter or other source of supply to the fixture supply branches, risers, fixtures, connections, outlets, or other uses shall be based on the total demand and shall be determined according to the methods and procedures outlined in this section. Water piping systems shall be designed to ensure that the maximum velocities allowed by the code and the applicable standard are not exceeded.

**610.2 Pressure Loss.** Where a water filter, water softener, backflow prevention device, tankless water heater, or similar device is installed in a water supply line, the pressure loss through such devices shall be included in the pressure loss calculations of the system, and the water supply pipe and meter shall be adequately sized to provide for such a pressure loss.

No water filter, water softener, backflow prevention device, or similar device regulated by this code shall be installed in a potable water supply piping where the installation of such device produces an excessive pressure drop in such water supply piping. In the absence of specific pressure drop information, the diameter of the inlet or outlet of such device or its connecting piping shall be not less than the diameter of such water distribution piping to the fixtures served by the device.

Such devices shall be of a type approved by the Authority Having Jurisdiction and shall be tested for flow rating and pressure loss by an approved laboratory or recognized testing agency to standards consistent with the intent of this chapter.

**610.3 Quantity of Water.** The quantity of water required to be supplied to every plumbing fixture shall be represented by fixture units, as shown in Table 610.3. Equivalent fixture values shown in Table 610.3 include both hot and cold water demand.

**610.4 Sizing Water Supply and Distribution Systems.** Systems within the range of Table 610.4 shall be permitted to be sized from that table or by the method in accordance with Section 610.5.

Listed parallel water distribution systems shall be installed in accordance with their listing, but at no time shall a portion of the system exceed the maximum velocities allowed by the code.

**610.5 Sizing per Appendices A and C.** Except as provided in Section 610.4, the size of each water piping system shall be determined in accordance with the procedure set forth in

**TABLE 610.3  
WATER SUPPLY FIXTURE UNITS (WSFU) AND MINIMUM FIXTURE BRANCH PIPE SIZES<sup>3</sup>**

APPLIANCES, APPURTENANCES OR FIXTURES <sup>2</sup>	MINIMUM FIXTURE BRANCH PIPE SIZE <sup>1,4</sup> (inches)	PRIVATE	PUBLIC	ASSEMBLY <sup>6</sup>
Bathtub or Combination Bath/Shower (fill)	½	4.0	4.0	—
¾ inch Bathtub Fill Valve	¾	10.0	10.0	—
Bidet	½	1.0	—	—
Clothes Washer	½	4.0	4.0	—
Dental Unit, cuspidor	½	—	1.0	—
Dishwasher, domestic	½	1.5	1.5	—
Drinking Fountain or Water Cooler	½	0.5	0.5	0.75
Hose Bibb	½	2.5	2.5	—
Hose Bibb, each additional <sup>8</sup>	½	1.0	1.0	—
Lavatory	½	1.0	1.0	1.0
Lawn Sprinkler, each head <sup>5</sup>	—	1.0	1.0	—
Mobilehome or Manufactured Home, each (minimum) <sup>9</sup>	—	6.0	—	—
Sinks	—	—	—	—
Bar	½	1.0	2.0	—
Clinical Faucet	½	—	3.0	—
Clinical Flushometer Valve with or without faucet	1	—	8.0	—
Kitchen, domestic with or without dishwasher	½	1.5	1.5	—
Laundry	½	1.5	1.5	—
Service or Mop Basin	½	1.5	3.0	—
Washup, each set of faucets	½	—	2.0	—
Shower, per head	½	2.0	2.0	—
Urinal, 1.0 GPF Flushometer Valve	¾	See Footnote <sup>7</sup>		—
Urinal, greater than 1.0 GPF Flushometer Valve	¾	See Footnote <sup>7</sup>		—
Urinal, flush tank	½	2.0	2.0	3.0
Urinal, hybrid	½	1.0	1.0	1.0
Wash Fountain, circular spray	¾	—	4.0	—
Water Closet, 1.6 GPF Gravity Tank	½	2.5	2.5	3.5
Water Closet, 1.6 GPF Flushometer Tank	½	2.5	2.5	3.5
Water Closet, 1.6 GPF Flushometer Valve	1	See Footnote <sup>7</sup>		—
Water Closet, greater than 1.6 GPF Gravity Tank	½	3.0	5.5	7.0
Water Closet, greater than 1.6 GPF Flushometer Valve	1	See Footnote <sup>7</sup>		—

For SI units: 1 inch = 25 mm

**Notes:**

- <sup>1</sup> Size of the cold branch pipe, or both the hot and cold branch pipes.
- <sup>2</sup> Appliances, appurtenances, or fixtures not referenced in this table shall be permitted to be sized by reference to fixtures having a similar flow rate and frequency of use.
- <sup>3</sup> The listed fixture unit values represent their load on the cold water building supply. The separate cold water and hot water fixture unit value for fixtures having both hot and cold water connections shall be permitted to be each taken as three-quarter of the listed total value of the fixture.
- <sup>4</sup> The listed minimum supply branch pipe sizes for individual fixtures are the nominal (I.D.) pipe size.
- <sup>5</sup> For fixtures or supply connections likely to impose continuous flow demands, determine the required flow in gallons per minute (gpm) (L/s), and add it separately to the demand in gpm (L/s) for the distribution system or portions thereof.
- <sup>6</sup> Assembly [Public Use (See Table 422.1)].
- <sup>7</sup> Where sizing flushometer systems, see Section 610.10.
- <sup>8</sup> Reduced fixture unit loading for additional hose bibbs is to be used where sizing total building demand and for pipe sizing where more than one hose bibb is supplied by a segment of water distribution pipe. The fixture branch to each hose bibb shall be sized on the basis of 2.5 fixture units.
- <sup>9</sup> For water supply fixture unit values related to lots within mobilehome parks in all parts of the State of California, see California Code of Regulations, Title 25, Division 1, Chapter 2, Article 5, Section 1278. For water supply fixture unit values related to lots within special occupancy parks in all parts of the State of California, see California Code of Regulations, Title 25, Division 1, Chapter 2.2, Article 5, Section 2278.

**CALIFORNIA PLUMBING CODE – MATRIX ADOPTION TABLE  
CHAPTER 7 - SANITARY DRAINAGE**

(Matrix Adoption Tables are non-regulatory, intended only as an aid to the code user. See Chapter 1 for state agency authority and building applications.)

Adopting Agency	BSC	BSC- CG	SFM	HCD			DSA			OSHDPD				BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1-AC	AC	SS	SS/CC	1	2	3	4								
Adopt Entire Chapter	<b>X</b>																				
Adopt Entire Chapter as amended (amended sections listed below)				<b>X</b>	<b>X</b>			<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>			<b>X</b>						
Adopt only those sections that are listed below		<b>X</b>																			
Chapter/Section																					
701.2(2)								<b>X</b>	<b>X</b>												
701.2(2) (a)				<b>X</b>	<b>X</b>																
701.2(2) (b)										<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>								
Table 702.1		<b>X</b>		<b>X</b>	<b>X</b>																
705.1.2				<b>X</b>	<b>X</b>																
705.5.2				<b>X</b>	<b>X</b>																
705.8.4				<b>X</b>	<b>X</b>																
710.3				<b>X</b>	<b>X</b>																
710.3.1				<b>X</b>	<b>X</b>																
713.4				<b>X</b>																	
717.2																					
724.0 - 724.2																					
725.0																					
726.0 - 726.2																					
727.0 - 727.1(a) (b)										<b>X</b>											

*This state agency does not adopt sections identified with the following symbol: †*

*The Office of the State Fire Marshal's adoption of this chapter or individual sections is applicable to structures regulated by other state agencies pursuant to Section 1.11.*





**TABLE 702.1  
DRAINAGE FIXTURE UNIT VALUES (DFU)**

PLUMBING APPLIANCES, APPURTENANCES, OR FIXTURES	MINIMUM SIZE TRAP AND TRAP ARM <sup>7</sup> (inches)	PRIVATE	PUBLIC	ASSEMBLY <sup>8</sup>
Bathtub or Combination Bath/Shower	1½	2.0	2.0	—
Bidet	1¼	1.0	—	—
Bidet	1½	2.0	—	—
Clothes Washer, domestic, standpipe <sup>5</sup>	2	3.0	3.0	3.0
Dental Unit, cuspidor	1¼	—	1.0	1.0
Dishwasher, domestic, with independent drain <sup>2</sup>	1½	2.0	2.0	2.0
Drinking Fountain or Water Cooler	1¼	0.5	0.5	1.0
Food Waste Disposer, commercial	2	—	3.0	3.0
Floor Drain, emergency	2	—	0.0	0.0
Floor Drain (for additional sizes see Section 702.0)	2	2.0	2.0	2.0
Shower, single-head trap	2	2.0	2.0	2.0
Multi-head, each additional	2	1.0	1.0	1.0
Lavatory	1¼	1.0	1.0	1.0
Lavatories in sets	1½	2.0	2.0	2.0
Washfountain	1½	—	2.0	2.0
Washfountain	2	—	3.0	3.0
<i>Mobilehome or Manufactured Home, trap<sup>9</sup></i>	3	6.0	—	—
Receptor, indirect waste <sup>1,3</sup>	1½	See footnote <sup>1,3</sup>		
Receptor, indirect waste <sup>1,4</sup>	2	See footnote <sup>1,4</sup>		
Receptor, indirect waste <sup>1</sup>	3	See footnote <sup>1</sup>		
Sinks	—	—	—	—
Bar	1½	1.0	—	—
Bar <sup>2</sup>	1½	—	2.0	2.0
Clinical	3	—	6.0	6.0
Commercial with food waste <sup>2</sup>	1½	—	3.0	3.0
Exam Room	1½	—	1.0	—
Special Purpose <sup>2</sup>	1½	2.0	3.0	3.0
Special Purpose	2	3.0	4.0	4.0
Special Purpose	3	—	6.0	6.0
Kitchen, domestic <sup>2</sup> (with or without food waste disposer, dishwasher, or both)	1½	2.0	2.0	—
Laundry <sup>2</sup> (with or without discharge from a clothes washer)	1½	2.0	2.0	2.0
Service or Mop Basin	2	—	3.0	3.0
Service or Mop Basin	3	—	3.0	3.0
Service, flushing rim	3	—	6.0	6.0
Wash, each set of faucets	—	—	2.0	2.0
<i>Urinal, hybrid</i>	2	1.0	1.0	1.0
Urinal, integral trap 1.0 GPF <sup>2</sup>	2	2.0	2.0	5.0
Urinal, integral trap greater than 1.0 GPF	2	2.0	2.0	6.0
Urinal, exposed trap <sup>2</sup>	1½	2.0	2.0	5.0
Water Closet, 1.6 GPF Gravity Tank <sup>6</sup>	3	3.0	4.0	6.0
Water Closet, 1.6 GPF Flushometer Tank <sup>6</sup>	3	3.0	4.0	6.0
Water Closet, 1.6 GPF Flushometer Valve <sup>6</sup>	3	3.0	4.0	6.0
Water Closet, greater than 1.6 GPF Gravity Tank <sup>6</sup>	3	4.0	6.0	8.0
Water Closet, greater than 1.6 GPF Flushometer Valve <sup>6</sup>	3	4.0	6.0	8.0

For SI units: 1 inch = 25 mm

**Notes:**

- <sup>1</sup> Indirect waste receptors shall be sized based on the total drainage capacity of the fixtures that drain therein to, in accordance with Table 702.2(2).
- <sup>2</sup> Provide a 2 inch (50 mm) minimum drain.
- <sup>3</sup> For refrigerators, coffee urns, water stations, and similar low demands.
- <sup>4</sup> For commercial sinks, dishwashers, and similar moderate or heavy demands.
- <sup>5</sup> Buildings having a clothes-washing area with clothes washers in a battery of three or more clothes washers shall be rated at 6 fixture units each for purposes of sizing common horizontal and vertical drainage piping.
- <sup>6</sup> Water closets shall be computed as 6 fixture units where determining septic tank sizes based on Appendix H of this code.
- <sup>7</sup> Trap sizes shall not be increased to the point where the fixture discharge is capable of being inadequate to maintain their self-scouring properties.
- <sup>8</sup> Assembly [Public Use (see Table 422.1)].
- <sup>9</sup> For drainage fixture unit values related to lots within mobilehome parks in all parts of the State of California, see California Code of Regulations, Title 25, Division 1, Chapter 2, Article 5, Section 1268. For drainage fixture unit values related to lots within special occupancy parks in all parts of the State of California, see California Code of Regulations, Title 25, Division 1, Chapter 2.2, Article 5, Section 2268.

## SANITARY DRAINAGE

Maximum drainage fixture units for a fixture trap and trap arm loadings for sizes up to 4 inches (100 mm) shall be in accordance with Table 702.2(1).

**702.2 Intermittent Flow.** Drainage fixture units for intermittent flow into the drainage system shall be computed on the rated discharge capacity in gallons per minute (gpm) (L/s) in accordance with Table 702.2(2).

**702.3 Continuous Flow.** For a continuous flow into a drainage system, such as from a pump, sump ejector, air conditioning equipment, or similar device, 2 fixture units shall be equal to each gallon per minute (gpm) (L/s) of flow.

**TABLE 702.2(1)  
MAXIMUM DRAINAGE FIXTURE UNITS FOR A  
TRAP AND TRAP ARM\***

SIZE OF TRAP AND TRAP ARM (inches)	DRAINAGE FIXTURE UNIT VALUES (DFU)
1¼	1 unit
1½	3 units
2	4 units
3	6 units
4	8 units

For SI Units: 1 inch = 25 mm

\* **Exception:** On self-service laundries.

**TABLE 702.2(2)  
DISCHARGE CAPACITY IN GALLONS PER MINUTE FOR  
INTERMITTENT FLOW ONLY\***

GPM	FIXTURE UNITS
Up to 7½	Equals 1 Fixture Unit
Greater than 7½ to 15	Equals 2 Fixture Units
Greater than 15 to 30	Equals 4 Fixture Units
Greater than 30 to 50	Equals 6 Fixture Units

For SI units: 1 gallon per minute = 0.06 L/s

\* Discharge capacity exceeding 50 gallons per minute (3.15 L/s) shall be determined by the Authority Having Jurisdiction.

### 703.0 Size of Drainage Piping.

**703.1 Minimum Size.** The minimum sizes of vertical, horizontal, or both drainage piping shall be determined from the total of fixture units connected thereto, and additionally, in the case of vertical drainage pipes, in accordance with their length.

**703.2 Maximum Number of Fixture Units.** Table 703.2 shows the maximum number of fixture units allowed on a vertical or horizontal drainage pipe, building drain, or building sewer of a given size; the maximum number of fixture units allowed on a branch interval of a given size; and the maximum length (in feet and meters) of a vertical drainage pipe of a given size.

**703.3 Sizing per Appendix C.** For alternate method of sizing drainage piping, see Appendix C.

### 704.0 Fixture Connections (Drainage).

**704.1 Inlet Fittings.** Drainage piping shall be provided with approved inlet fittings for fixture connections,

correctly located according to the size and type of fixture proposed to be connected.

**704.2 Single Vertical Drainage Pipe.** Two fixtures set back-to-back, or side-by-side, within the distance allowed between a trap and its vent shall be permitted to be served by a single vertical drainage pipe provided that each fixture wastes separately into an approved double-fixture fitting having inlet openings at the same level.

**704.3 Commercial Sinks.** Pot sinks, scullery sinks, dish-washing sinks, silverware sinks, and other similar fixtures shall be connected directly to the drainage system. A floor drain shall be provided adjacent to the fixture, and the fixture shall be connected on the sewer side of the floor drain trap, provided that no other drainage line is connected between the floor drain waste connection and the fixture drain. The fixture and floor drain shall be trapped and vented in accordance with this code.

### 705.0 Joints and Connections.

**705.1 ABS and ABS Co-Extruded Plastic Pipe and Joints.** Joining methods for ABS plastic pipe and fittings shall be installed in accordance with the manufacturer's installation instructions and shall comply with Section 705.1.1 through Section 705.1.3.

**705.1.1 Mechanical Joints.** Mechanical joints shall be designed to provide a permanent seal and shall be of the mechanical or push-on joint. The push-on joint shall include an elastomeric gasket in accordance with ASTM D3212 and shall provide a compressive force against the spigot and socket after assembly to provide a permanent seal.

**705.1.2 Solvent Cement Joints.** Solvent cement joints for ABS pipe and fittings shall be clean from dirt and moisture. Pipe shall be cut square and shall be deburred. Where surfaces to be joined are cleaned and free of dirt, moisture, oil, and other foreign material, solvent cement in accordance with ASTM D2235 shall be applied to all joint surfaces. Joints shall be made while both the inside socket surface and outside surface of pipe are wet with solvent cement. Hold joint in place and undisturbed for 1 minute after assembly. *[HCD 1 & HCD 2] Plastic pipe and fittings joined with solvent cement shall utilize Low VOC primer(s), if a primer is required, and Low VOC cement(s) as defined in Section 214.0.*

**705.1.3 Threaded Joints.** Threads shall comply with ASME B1.20.1. A minimum of Schedule 80 shall be permitted to be threaded. Molded threads on adapter fittings for transition to threaded joints shall be permitted. Thread sealant compound shall be applied to male threads, insoluble in water, and nontoxic. The joint between the pipe and transition fitting shall be of the solvent cement type. Caution shall be used during assembly to prevent over tightening of the ABS components once the thread sealant compound has been applied.

**705.2 Cast-Iron Pipe and Joints.** Joining methods for cast-iron pipe and fittings shall be installed in accordance with



**CALIFORNIA PLUMBING CODE – MATRIX ADOPTION TABLE**  
**CHAPTER 15 - ALTERNATE WATER SOURCES FOR NONPOTABLE APPLICATIONS**

(Matrix Adoption Tables are non-regulatory, intended only as an aid to the code user. See Chapter 1 for state agency authority and building applications.)

Adopting Agency	BSC	BSC- CG	SFM	HCD			DSA			OSHPD				BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1-AC	AC	SS	SS/C	1	2	3	4								
Adopt Entire Chapter											X	X	X	X							
Adopt Entire Chapter as amended (amended sections listed below)	X			X	X												X				
Adopt only those sections that are listed below		X																			
Chapter/Section																					
Intent	X			X	X												X				
1501.1	X	X		X																	
1501.1.1				X																	
1501.1.1.1		X		X																	
1501.1.1.2		X		X																	
1501.2 & Exceptions	X	X		X													X				
1501.3 & Exception	X	X		X													X				
1501.5 & Exception	X	X		X													X				
1501.5.1	X																				
1501.6	X	X		X													X				
1501.7	X	X		X													X				
1501.10		X		X	X	X											X				
1501.10.1		X		X	X	X											X				
1501.10.2		X		X	X	X											X				
1501.11																	X				
1501.11.2		X		X													X				
1501.11.2.2		X		X													X				
1501.11.2.3		X		X													X				
1501.11.2.4		†		†	†																
1501.15				X																	
1502.0		X																			
1502.1 - 1502.1.3	X			X																	
1502.2 - 1502.2.3	X			X																	
1502.3 & Exceptions	X	X		X													X				
1502.4 Exception	X			X																	
Table 1502.4	X			X																	
1502.5 Exception	X			X																	
1502.6	X			X																	
1502.7 Exceptions 2 & 3	X			X																	
1502.8 Exception	X			X																	
1502.8.1				X																	
1502.8.3				X																	

**CALIFORNIA PLUMBING CODE – MATRIX ADOPTION TABLE**  
**CHAPTER 15 - ALTERNATE WATER SOURCES FOR NONPOTABLE APPLICATIONS (continued)**

(Matrix Adoption Tables are non-regulatory, intended only as an aid to the code user. See Chapter 1 for state agency authority and building applications.)

Adopting Agency	BSC	BSC-CG	SFM	HCD			DSA			OSHPD				BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1-AC	AC	SS	SS/C	1	2	3	4								
Adopt Entire Chapter										X	X	X	X								
Adopt Entire Chapter as amended (amended sections listed below)	X			X	X												X				
Adopt only those sections that are listed below		X																			
Chapter/Section																					
1502.9	X			X																	
1502.9.1				X																	
1502.9.2.1				X																	
1502.9.2.2				X																	
1502.10.2 Exceptions 1 & 2	X			X																	
1502.10.3 Note				X																	
Table 1502.10	X			X																	
1502.11 - 1502.11.3	X	X		X																	
Table 1502.11	X			X																	
Table 1502.11.3	X			X																	
1502.12	X			X																	
1502.13				X																	
1502.13.1	X			X																	
1502.15				X																	
1503.0 - 1503.15	†	†		†						†	†	†	†				X				
1504.0				X																	
1504.1	X			X																	
1504.2	X	X		X														X			
1504.3	X			X																	
1504.4	X	X		X														X			
1504.5	X																				
1504.6	X			X																	
1504.7	X			X																	
1504.8	X			X																	
1504.10 - 1504.10.6	X			X																	
1504.11	X			X	X																
1504.12	X			X																	

*This state agency does not adopt sections identified with the following symbol: †*

*The Office of the State Fire Marshal's adoption of this chapter or individual sections is applicable to structures regulated by other state agencies pursuant to Section 1.11.*

# CHAPTER 15

## ALTERNATE WATER SOURCES FOR NONPOTABLE APPLICATIONS

### Intent

The provisions of this chapter are intended to:

1. Conserve potable water by facilitating greater reuse of laundry, shower, lavatory and similar sources of discharge, or by the use of alternate water sources, where available.
2. Reduce the number of non-compliant gray water systems by making legal compliance easily achievable.
3. Provide guidance for avoiding potentially unhealthful conditions.
4. Provide an alternative way to relieve stress on a private sewage disposal system by diverting the gray-water.

### 1501.0 General

1501.1 Applicability [BSC-CG, DWR & HCD 1]. The provisions of this chapter shall apply to the construction, alteration, discharge, use and repair of alternate water source systems for nonpotable applications.

#### 1501.1.1 Allowable Use of Alternate Water.

Where approved or required by the Authority Having Jurisdiction, alternate water sources [reclaimed (recycled) water, gray water, and on-site treated nonpotable gray water] shall be permitted to be used in lieu of potable water for the applications identified in this chapter.

**1501.1.1.1 Outdoor Recycled Water Supply Systems.** All newly constructed residential and nonresidential developments, where disinfected tertiary recycled water is available from a municipal source to a construction site, shall be provided with both a potable water supply system and a recycled water supply system. The recycled water supply system shall allow the use of reclaimed (recycled) water for aboveground and subsurface irrigation to all landscape irrigation systems.

For the purposes of Section 1501.1.1.1, when a recycled water supply pipe is located within 300 feet (91 440 mm) from a construction site boundary, it shall be considered that reclaimed (recycled) water is available from a municipal source.

#### Exceptions:

- (1) Service areas in which the only reclaimed (recycled) water is used for potable purposes, or in which net nonpotable deliveries are anticipated to remain level or decrease as a result of the potable reuse project.
- (2) Where access to disinfected tertiary recycled water is not feasible and/or cost-efficient, as determined by the Authority Having Jurisdiction in consultation with the recycled water purveyor.

**Note:** A city, county, or city and county, in consultation with the recycled water purveyor, may further reduce the area for the mandate to install recycled water supply systems if the recycled water purveyor is unable to accommodate new services or unable to provide uninterrupted service.

- (3) A potable water supply system is not required for landscape irrigation if the landscape irrigation system is supplied with recycled water at the time of final inspection.
- (4) Potable water may be used with the recycled water supply system on a temporary basis, as allowed by the Authority Having Jurisdiction in consultation with the recycled water purveyor.

**1501.1.1.2 Technical Requirements for Outdoor Recycled Water Supply Systems.** Recycled water supply systems for outdoor applications shall meet the requirements of this code, and the California Code of Regulations, Title 17, Division 1, Chapter 5, Subchapter 1; Title 22, Division 4, Chapter 3; and Title 23, Division 2, Chapter 2.7, as applicable.

**1501.2 System Design [BSC-CG, HCD 1, DWR].** Alternate water source systems shall be designed in accordance with this chapter by a registered design professional or who demonstrates competency to design the alternate water source system as required by the Authority Having Jurisdiction. Components, piping, and fittings used in any alternate water source system shall be listed.

#### Exceptions: [BSC-CG, HCD 1]

- (1) A registered design professional is not required to design gray water systems having a maximum discharge capacity of 250 gallons per day (gal/d) (0.011 L/s) for single family and multi-family dwellings.
- (2) A registered design professional is not required to design an on-site treated nonpotable water system for single family dwellings having a maximum discharge capacity of 250 gal/d (0.011 L/s).
- (3) Irrigation design plans shall meet the requirements of the California Code of Regulations, Title 23, Division 2, Chapter 2.7, Model Water Efficient Landscape Ordinance.

**1501.3 Permit [BSC-CG, HCD 1, DWR].** It shall be unlawful for a person to construct, install, alter, or cause to be constructed, installed, or altered an alternate water source system in a building or on its premises without first obtaining a permit to do such work from the Authority Having Jurisdiction. No changes or connections shall be made to either the alternate water source system or the

**TABLE 1501.5 [BSC]  
RECOMMENDED MINIMUM ALTERNATE WATER SOURCE TESTING, INSPECTION, AND MAINTENANCE FREQUENCY**

DESCRIPTION	MINIMUM FREQUENCY
Inspect and clean filters and screens, and replace (where necessary).	<i>In accordance with manufacturer’s instructions, and/or the Authority Having Jurisdiction, or every 3 months.</i>
Inspect and verify that disinfection, filters and water quality treatment devices and systems are operational and maintaining minimum water quality requirements as determined by the Authority Having Jurisdiction.	In accordance with manufacturer’s instructions, and the Authority Having Jurisdiction.
Inspect pumps and verify operation.	<i>In accordance with manufacturer’s instructions, and/or the Authority Having Jurisdiction, or after installation and every 12 months thereafter.</i>
Inspect valves and verify operation.	<i>In accordance with manufacturer’s instructions, and/or Authority Having Jurisdiction, or after installation and every 12 months thereafter.</i>
Inspect pressure tanks and verify operation.	<i>In accordance with manufacturer’s instructions, and/or the Authority Having Jurisdiction, or after installation and every 12 months thereafter.</i>
Clear debris from and inspect storage tanks, locking devices, and verify operation.	<i>In accordance with manufacturer’s instructions, and/or the Authority Having Jurisdiction, or after installation and every 12 months thereafter.</i>
Inspect caution labels and marking.	<i>In accordance with manufacturer’s instructions, and/or the Authority Having Jurisdiction, or after installation and every 12 months thereafter.</i>
Inspect and maintain mulch basins for gray water irrigation systems.	As needed to maintain mulch depth and prevent ponding and runoff.
Cross-connection inspection and test*	<i>In accordance with this chapter, and/or the Authority Having Jurisdiction, or after installation and every 12 months thereafter.</i>

\* The cross-connection test shall be performed in the presence of the Authority Having Jurisdiction in accordance with the requirements of this chapter, unless site conditions do not require it. Alternate testing requirements shall be permitted by the Authority Having Jurisdiction.

potable water system within a site containing an alternate water source system without approval by the Authority Having Jurisdiction.

**Exception: [BSC-CG, HCD 1]** A construction permit shall not be required for a clothes washer system meeting the requirements of Section 1502.1.1.

➤➤ **1501.4 Component Identification.** System components shall be properly identified as to the manufacturer.

➤➤ **1501.5 Maintenance and Inspection [BSC-CG, HCD 1, DWR].** Alternate water source systems and components shall be inspected and maintained in accordance with the manufacturer’s recommendations and/or as required by the Authority Having Jurisdiction. [BSC-CG] Where no manufacturer’s recommendations exist, additional recommendations are listed in Table 1501.5.

**Exception: [DWR]** Recycled water supply systems that are within or a part of a building shall comply with Section 1503.15.

➤➤ **1501.5.1 Maintenance Responsibility.** The required maintenance and inspection of alternate water source systems shall be the responsibility of the property owner, unless otherwise required by the Authority Having Jurisdiction.

➤➤ **1501.6 Operation and Maintenance Manual [BSC-CG, HCD 1, DWR].** An operation and maintenance manual for gray water, on-site treated nonpotable water, and recycled water supply systems required to have a permit in accordance with Section 1501.3, Section 1503.2 and Section 1504.2 shall be supplied to the building owner by the

system designer or installer. The operating and maintenance manual shall include the following:

- (1) Diagram(s) of the entire system and the location of system components.
- (2) Instructions on operating and maintaining the system.
- (3) Instructions on maintaining the required water quality for on-site treated nonpotable water systems.
- (4) Details on startup, shutdown, and deactivating the system for maintenance, repair, or other purposes.
- (5) Applicable testing, inspection, and maintenance frequencies in accordance with Section 1501.5 [DWR] or Section 1503.15 as applicable.
- (6) A method of contacting the installer and/or manufacturer(s).
- (7) Directions to the owner or occupant that the manual shall remain with the building throughout the life cycle of the structure.

**1501.7 Minimum Water Quality Requirements [BSC-CG, HCD 1, DWR].** The minimum water quality for alternate water source systems shall meet the applicable water quality requirements for the intended application as determined by the Authority Having Jurisdiction. Water quality requirements for on-site treated nonpotable graywater shall comply with Section 1504.10.2. Recycled water shall comply with the water quality requirements of Section 1503.14.

**Exception:** Water treatment is not required for gray water used in a disposal field or for subsurface or subsoil irrigation.

» **1501.8 Material Compatibility.** Alternate water source systems shall be constructed of materials that are compatible with the type of pipe and fitting materials, water treatment, and water conditions in the system.

» **1501.9 System Controls.** Controls for pumps, valves, and other devices that contain mercury that come in contact with alternate water source water supply shall not be permitted.

**1501.10 Signage [BSC-CG, HCD 1, HCD 2, HCD 1-AC, & DWR].** Signage for on-site treated nonpotable gray water shall comply with Section 1501.10.1 and Section 1501.10.2. Signage for reclaimed (recycled) water shall comply with Section 1503.12.

**1501.10.1 Commercial, Industrial, Institutional, and Residential Restroom Signs.** A sign shall be installed in restrooms in commercial, industrial, and institutional occupancies, and in residential common use areas using on-site treated nonpotable gray water for water closets, urinals, or both. Signs shall comply with all applicable requirements of the California Building Code. Each sign shall contain the following text:

TO CONSERVE WATER, THIS BUILDING USES  
ON-SITE TREATED NONPOTABLE GRAYWATER  
TO FLUSH TOILETS AND URINALS

**1501.10.2 Equipment Room Signs.** Each room containing on-site treated nonpotable gray water equipment shall have a sign posted in a location that is visible to anyone working on or near nonpotable gray water equipment with the following wording in 1 inch (25.4 mm) letters:

CAUTION: ON-SITE TREATED NONPOTABLE  
GRAYWATER, DO NOT DRINK. DO NOT  
CONNECT TO DRINKING WATER SYSTEM.  
NOTICE: CONTACT BUILDING MANAGEMENT  
BEFORE PERFORMING ANY WORK ON THIS  
WATER SYSTEM.

» **1501.11 Inspection and Testing.** Alternate water source systems shall be inspected and tested in accordance with Section 1501.11.1 and Section 1501.11.2, and/or as required by the Authority Having Jurisdiction.

**Exception: [DWR]** Recycled water supply systems that are within or a part of a building shall comply with Section 1503.13.

**1501.11.1 Supply System Inspection and Test.** Alternate water source systems shall be inspected and tested in accordance with this code for testing of potable water piping.

**1501.11.2 Cross-Connection Inspection and Testing.** An initial inspection and test shall be performed on both the potable and alternate water source systems. The potable and alternate water source system shall be isolated from each other and independently inspected and tested to ensure there is no cross-connection in accordance with Section 1501.11.2.1 through Section 1501.11.2.3.

**1501.11.2.1 Visual System Inspection.** Prior to commencing the cross-connection testing, a dual

system inspection shall be conducted by the Authority Having Jurisdiction and other authorities having jurisdiction as follows:

- (1) Meter locations of the alternate water source and potable water lines shall be checked to verify that no modifications were made, and that no cross-connections are visible.
- (2) Pumps and equipment, equipment room signs, and exposed piping in equipment room shall be checked.
- (3) Valves shall be checked to ensure that the valve lock seals are still in place and intact. Valve control door signs shall be checked to verify that no signs have been removed.

**1501.11.2.2 Cross-Connection Test.** A cross-connection test shall be performed in the presence of the Authority Having Jurisdiction or other authorities having jurisdiction to determine whether a cross-connection has occurred as follows:

- (1) The potable water system shall be activated and pressurized. The alternate water source system shall be shut down, depressurized, and drained.
- (2) The potable water system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the alternate water source system is empty. The minimum period the alternate water source system is to remain depressurized shall be determined on a case-by-case basis, taking into account the size and complexity of the potable and the alternate water source distribution systems but in no case shall that period be less than 1 hour.
- (3) The drain on the alternate water source system shall be checked for flow during the test and all fixtures, potable and alternate water source, shall be tested and inspected for flow. Flow from an alternate water source system outlet indicates a cross-connection. No flow from a potable water outlet shall indicate that it is connected to the alternate water source system.
- (4) The potable water system shall then be depressurized and drained.
- (5) The alternate water source system shall then be activated and pressurized. When an alternate water source is not available for the initial test, a temporary connection to a potable water supply shall be required. At the conclusion of the test, the temporary connection to the potable water supply shall be disconnected.
- (6) The alternate water source system shall remain pressurized for a minimum period of time specified by the Authority Having

Jurisdiction while the potable water system is empty. The minimum period the potable water system is to remain depressurized shall be determined on a case-by-case basis, but in no case shall that period be less than 1 hour.

- (7) Fixtures, potable and alternate water source, shall be tested and inspected for flow. Flow from a potable water system outlet indicates a cross-connection. No flow from an alternate water source outlet will indicate that it is connected to the potable water system.
- (8) The drain on the potable water system shall be checked for flow during the test and at the end of the test.
- (9) Where there is no flow detected in the fixtures which would indicate a cross-connection, the potable water system shall be repressurized.

**1501.11.2.3 Discovery of Cross-Connection.** In the event that a cross-connection is discovered, the following procedure shall be activated immediately:

- (1) *Notify the Authority Having Jurisdiction of the cross connection.*
- (2) The alternate water source piping to the building *and its premises* shall be shut down at the meter, and the alternate water source riser shall be drained.
- (3) Potable water piping to the building *and its premises* shall be shut down at the meter.
- (4) The cross-connection shall be uncovered and disconnected.
- (5) The building *and its premises* shall be retested in accordance with Section 1501.11.2.1 and Section 1501.11.2.2.
- (6) The potable water system shall be chlorinated with 50 parts-per-million (ppm) chlorine for 24 hours.
- (7) The potable water system shall be flushed after 24 hours, and a standard bacteriological test shall be performed. Where test results are acceptable, the potable water system shall be permitted to be recharged.

**1501.11.2.4 Annual Inspection.** An annual inspection of the alternate *gray* water source system, following the procedures listed in Section 1501.11.2.1 shall be required. Annual cross-connection testing, following the procedures listed in Section 1501.11.2.2 shall be required by the Authority Having Jurisdiction, unless site conditions do not require it. In no event shall the test occur less than once in 4 years. Alternate testing requirements shall be permitted by the Authority Having Jurisdiction.

**1501.12 Separation Requirements.** Underground alternate water source service piping other than gray water shall be

separated from the building sewer in accordance with this code. Treated nonpotable water pipes shall be permitted to be run or laid in the same trench as potable water pipes with a 12 inch (305 mm) minimum vertical and horizontal separation where both pipe materials are approved for use within a building. Where horizontal piping materials do not comply with this requirement the minimum separation shall be increased to 60 inches (1524 mm). The potable water piping shall be installed at an elevation above the treated nonpotable water piping.

**1501.13 Abandonment.** Alternate water source systems that are no longer in use or fail to be maintained in accordance with Section 1501.5 shall be abandoned. Abandonment shall comply with Section 1501.13.1 and Section 1501.13.2.

**1501.13.1 General.** An abandoned system or part thereof covered under the scope of this chapter shall be disconnected from remaining systems, drained, plugged, and capped in an approved manner.

**1501.13.2 Underground Tank.** An underground water storage tank that has been abandoned or otherwise discontinued from use in a system covered under the scope of this chapter shall be completely drained and filled with earth, sand, gravel, concrete, or other approved material or removed in a manner satisfactory to the Authority Having Jurisdiction.

**1501.14 Sizing.** Unless otherwise provided for in this chapter, alternate water source piping shall be sized in accordance with Chapter 6 for sizing potable water piping.

**1501.15 Hose Bibbs for Single-Family Dwellings [HCD 1].** *Hose bibbs shall not be allowed on reclaimed (recycled) water piping systems for single-family dwelling units.*

**1502.0 Gray Water Systems [BSC-CG].** *Gray water systems shall be verified in accordance with the California Green Building Standards Code (CALGreen), Chapter 5, Division 5.3.* ⏪

**1502.1 General.** The provisions of this section shall apply to the construction, alteration, and repair of gray water systems. *A city, county, or city and county or other local government may adopt, after a public hearing and enactment of an ordinance or resolution, building standards that are more restrictive than the gray water building standards adopted in this code. For additional information, see Health and Safety Code Section 18941.7.* ⏪

- (A) *All gray water systems shall be designed with a diverter valve to allow the user to direct the flow to the building sewer and either the irrigation field or disposal field, whichever is used. The means of changing the direction flow of the gray water shall be clearly labeled and readily accessible to the user.*
- (B) *Water used to wash diapers or similarly soiled or infectious garments or other prohibited contents shall be diverted by the user to the building sewer.*
- (C) *Gray water shall not be used in spray irrigation, allowed to pond or runoff and shall not be discharged*



directly into or reach any storm sewer system or any surface body of water.

- (D) Human contact with gray water or the soil irrigated by gray water shall be minimized and avoided, except as required to maintain the gray water system. The discharge point of any gray water subsoil irrigation or subsurface irrigation field shall be covered by at least (2) inches (51 mm) of mulch, rock, or soil, or a solid shield to minimize the possibility of human contact.
- (E) Gray water may be released above the ground surface provided at least two (2) inches (51 mm) of mulch, rock, or soil, or a solid shield covers the release point. Other methods which provide equivalent separation are also acceptable.
- (F) Gray water shall not contain hazardous chemicals derived from activities such as cleaning car parts, washing greasy or oily rags, or disposing of waste solutions.
  - (1) **[HCD 1]** The prohibition in Subsection (F) includes, but is not limited to, home photo labs or other similar hobbyist or home occupational activities.
  - (2) **[BSC]** photo labs or similar activities.
- (G) Exemption from construction permit requirements of this code shall not be deemed to grant authorization for any gray water system to be installed in a manner that violates other provisions of this code or any other laws or ordinances of the Enforcing Agency.
- (H) An operation and maintenance manual shall be provided to the owner. Directions shall indicate that the manual is to remain with the building throughout the life of the system and upon change of ownership or occupancy.
- (I) A gray water system shall not be connected to any potable water system without an air gap, reduced-pressure principle backflow preventer, or other physical device which prevents backflow and shall not cause ponding or runoff of gray water.

**1502.1.1 [HCD 1] Clothes Washer System.** A clothes washer system in compliance with all of the following is exempt from the construction permit specified in Section 1.8.4.1 and may be installed or altered without a construction permit:

- (1) If required, notification has been provided to the enforcing agency regarding the proposed location and installation of a gray water irrigation or disposal system.
- (2) The design shall allow the user to direct the flow to the irrigation or disposal field or the building sewer. The direction control of the gray water shall be clearly labeled and readily accessible to the user.
- (3) The installation, change, alteration, or repair of the system does not include a potable water connection or a pump and does not affect other building, plumbing, electrical, or mechanical components including structural features, egress, fire-life safety, sanitation, potable water supply piping, or accessibility.

**Note:** The pump in a clothes washer shall not be considered part of the gray water system.

- (4) The gray water shall be contained on the site where it is generated.
- (5) Gray water shall be directed to and contained within an irrigation or disposal field.
- (6) Ponding or runoff is prohibited and shall be considered a nuisance.
- (7) Gray water may be released above the ground surface provided at least two (2) inches (51 mm) of mulch, rock, or soil, or a solid shield covers the release point. Other methods which provide equivalent separation are also acceptable.
- (8) Gray water systems shall be designed to minimize contact with humans and domestic pets.
- (9) Water used to wash diapers or similarly soiled or infectious garments shall not be used and shall be diverted to the building sewer.
- (10) Gray water shall not contain hazardous chemicals derived from activities such as cleaning car parts, washing greasy or oily rags, or disposing of waste solutions from home photo labs or similar hobbyist or home occupational activities.
- (11) Exemption from construction permit requirements of this code shall not be deemed to grant authorization for any gray water system to be installed in a manner that violates other provisions of this code or any other laws or ordinances of the enforcing agency.
- (12) An operation and maintenance manual shall be provided to the owner. Directions shall indicate that the manual is to remain with the building throughout the life of the system and upon change of ownership or occupancy.
- (13) Gray water discharge from a clothes washer system through a standpipe shall be properly trapped in accordance with Section 1005.0

**1502.1.2 Simple System.** Simple systems exceed a clothes washer system and shall comply with the following:

- (1) The discharge capacity of a gray water system shall be determined by Section 1502.8. Simple systems have a discharge capacity of 250 gallons (947 L) per day or less.
- (2) Simple systems shall require a construction permit, unless exempted from a construction permit by the Enforcing Agency. The Enforcing Agency shall consult with the water purveyor for any public water system (as defined in Health and Safety Code Section 116275) providing drinking water to the dwelling or non-residential structure before allowing an exemption from a construction permit.
- (3) The design of simple systems shall meet generally accepted gray water system design criteria.

**ALTERNATE WATER SOURCES FOR NONPOTABLE APPLICATIONS**

**1502.1.3 Complex System.** Any gray water system that is not a clothes washer system or simple system shall comply with the following:

- (1) The discharge capacity of a gray water system shall be determined by Section 1502.8. Complex systems have a discharge capacity over 250 gallons (947 L) per day.
- (2) Complex systems shall require a construction permit, unless exempted from a construction permit by the Enforcing Agency. The Enforcing Agency shall consult with the water purveyor for any public water system (as defined in Health and Safety Code, Section 116275) providing drinking water to the dwelling or non-residential structure before allowing an exemption from a construction permit.

» **1502.2 System Requirements.** Gray water shall be permitted to be diverted away from a sewer or private sewage disposal system, and discharge to a subsurface irrigation or subsoil irrigation system, or disposal field. The gray water shall be permitted to discharge to a mulch basin for residential occupancies. Gray water shall not be used to irrigate root crops or food crops intended for human consumption that come in contact with soil.

» **1502.2.1 Surge Capacity.** Gray water systems shall be designed to have the capacity to accommodate peak flow rates and distribute the total amount of estimated gray water on a daily basis to a subsurface irrigation field, subsoil irrigation field, disposal field, or mulch

basin without surfacing, ponding, or runoff. A surge tank is required for systems that are unable to accommodate peak flow rates and distribute the total amount of gray water by gravity drainage. The water discharge for gray water systems shall be determined in accordance with Section 1502.8.1.

**Exception:** It is not the intent of this section to require that all gray water must be handled by an irrigation field or disposal field. It is acceptable for excess gray water to be diverted to the building sewer through a diverter valve or overflow drain as permitted in this chapter.

» **1502.2.2 Diversion.** The gray water system shall connect to the sanitary drainage system downstream of fixture traps and vent connections through an approved diverter valve. The diverter valve shall be installed in a readily accessible location and clearly indicate the direction of flow.

**Exception: [HCD 1]** A clothes washer system in compliance with Section 1502.1.1.

» **1502.2.3 Backwater Valves.** Gray water drains subject to backflow shall be provided with a backwater valve at the point of connection to the building sewer system, so located as to be accessible for inspection and maintenance.

» **1502.3 Connections to Potable and Reclaimed (Recycled) Water Systems.** Gray water systems shall have no direct connection to a potable water supply, on-site treated ||

**TABLE 1502.4  
LOCATION OF GRAY WATER SYSTEM**

MINIMUM HORIZONTAL DISTANCE IN CLEAR REQUIRED FROM	SURGE TANK (feet)	SUBSURFACE AND SUBSOIL IRRIGATION FIELD AND MULCH BASIN (feet)	DISPOSAL FIELD
Building structures <sup>1</sup>	5 <sup>2,3,9</sup>	2 <sup>3,8</sup>	5
Property line adjoining private property	5	5 <sup>8</sup>	5
Water supply wells <sup>4</sup>	50	100	100
Streams and lakes <sup>4</sup>	50	100 <sup>5,10</sup>	100 <sup>5</sup>
Sewage pits or cesspools	5	5	5
Sewage disposal field <sup>10</sup>	5	4 <sup>6</sup>	4 <sup>6</sup>
Septic tank	0	5	5
On-site domestic water service line	5	0	0
Pressurized public water main <sup>7</sup>	10	10	10 <sup>7</sup>

For SI units: 1 foot = 304.8 mm

**Notes:**

- <sup>1</sup> Building structures do not include porches and steps, whether covered or uncovered, breezeways, roofed carports, roofed porte cocheres, roofed patios, carports, covered walks, covered driveways, and similar structures or appurtenances.
- <sup>2</sup> The distance shall be permitted to be reduced to 0 feet for aboveground tanks where first approved by the Authority Having Jurisdiction.
- <sup>3</sup> Underground tanks shall not be located within a 45 degree angle from the bottom of the foundation, or they shall be designed to address the surcharge imposed by the structure. The distance may be reduced to six (6) inches (153 mm) for aboveground tanks when first approved by the Enforcing Agency.
- <sup>4</sup> Where special hazards are involved, the distance required shall be increased as directed by the Authority Having Jurisdiction.
- <sup>5</sup> These minimum clear horizontal distances shall apply between the irrigation or disposal field and the ocean mean higher high tide line.
- <sup>6</sup> Add 2 feet (610 mm) for each additional foot of depth in excess of 1 foot (305 mm) below the bottom of the drain line.
- <sup>7</sup> For parallel construction or for crossings, approval by the Authority Having Jurisdiction shall be required.
- <sup>8</sup> The distance shall be permitted to be reduced to 1½ feet (457 mm) for drip and mulch basin irrigation systems.
- <sup>9</sup> The distance shall be permitted to be reduced to 0 feet for surge tanks of 75 gallons (284 L) or less.
- <sup>10</sup> The minimum horizontal distance may be reduced to 50 feet (15 240 mm) for irrigation or disposal fields utilizing gray water which has been filtered prior to entering the distribution piping.

nonpotable water supply, or reclaimed (recycled) water supply systems.

**Exceptions:**

- (1) Potable water, on-site treated nonpotable water, reclaimed (recycled) water, or rainwater is permitted to be used as makeup water for a non-pressurized storage tank provided the connection is protected by an air gap in accordance with this code.
- (2) A potable water supply may be connected temporarily for initial testing of the untreated graywater system as required in Section 1501.11.2.2.

» **1502.4 Location.** No gray water system or part thereof shall be located on a lot other than the lot that is the site of the building or structure that discharges the gray water, nor shall a gray water system or part thereof be located at a point having less than the minimum distances indicated in Table 1502.4.

*Exception:* When there exists a lawfully recorded perpetual and exclusive covenant to an easement appurtenant and right-of-way between adjoining land-owners of two or more contiguous lots to discharge gray water from one lot to an adjoining lot.

» **1502.5 Plot Plan Submission.** No permit for a gray water system shall be issued until a plot plan with data satisfactory to the Authority Having Jurisdiction has been submitted and approved.

*Exception: [HCD 1]* A construction permit shall not be required for a clothes washer system in compliance with Section 1502.1.1.

» **1502.6 Prohibited Location.** Where there is insufficient lot area or inappropriate soil conditions for adequate absorption, no gray water system shall be permitted.

» **1502.7 Drawings and Specifications.** The Authority Having Jurisdiction may require the following information to be included with or in the plot plan before a permit is issued for a gray water system, or at a time during the construction thereof:

- (1) Plot plan drawn to scale and completely dimensioned, showing lot lines and structures, direction and approximate slope of surface, location of present or proposed retaining walls, drainage channels, water supply lines, wells, paved areas and structures on the plot, number of bedrooms and plumbing fixtures in each structure, location of private sewage disposal system and expansion area or building sewer connecting to the public sewer, and location of the proposed gray water system.
- (2) Details of construction necessary to ensure compliance with the requirements of this chapter, together with a full description of the complete installation, including installation methods, construction, and materials.
- (3) Details for holding tanks shall include dimensions, structural calculations, bracings, and such other pertinent data as required.
- (4) A log of soil formations and groundwater level as determined by test holes dug in proximity to proposed

irrigation and/or disposal area, together with a statement of water absorption characteristics of the soil at the proposed site as determined by approved percolation tests.

**Exceptions:**

- (1) The Authority Having Jurisdiction shall permit the use of Table 1502.10 in lieu of percolation tests.
- (2) The Enforcing Agency may waive the requirement for identification of groundwater level and/or soil absorption qualities based on knowledge of local conditions.
- (3) The absence of groundwater in a test hole three vertical feet (915 mm) below the deepest irrigation or disposal point shall be sufficient to satisfy this section unless seasonal high groundwater levels have been documented to rise to within this area.
- (5) Distance between the plot and surface waters such as lakes, ponds, rivers or streams, and the slope between the plot and the surface water, where in close proximity.

**1502.8 Procedure for Estimating Gray Water Discharge.** «

Gray water systems shall be designed to distribute the total amount of estimated gray water on a daily basis. The water discharge for gray water systems shall be determined in accordance with Section 1502.8.1 or Section 1502.8.2.

*Exception:* It is not the intent of this section to require that all gray water must be handled by an irrigation field or disposal field. It is acceptable for excess gray water to be diverted to the building sewer through a diverter valve or overflow drain as permitted in this chapter

**1502.8.1 Residential Occupancies.** «

The gray water discharge for residential occupancies shall be calculated by water use records, calculations of local daily per person interior water use, or the following procedure:

- (1) The number of occupants of each dwelling unit shall be calculated as follows:
 

First Bedroom	2 occupants
Each additional bedroom	1 occupant
- (2) The estimated gray water flows of each occupant shall be calculated as follows:
 

Showers, bathtubs, and lavatories	25 gallons (95 L) per day/occupant
Laundry	15 gallons (57 L) per day/occupant
- (3) The total number of occupants shall be multiplied by the applicable estimated gray water discharge as provided above and the type of fixtures connected to the gray water system.

**1502.8.2 Commercial, Industrial, and Institutional** «

**Occupancies.** The Authority Having Jurisdiction may utilize the gray water discharge procedures listed below, water use records, or other documentation to estimate gray water discharge.

**1502.8.2.1 Lavatories.** Daily discharge from lavatories may be determined by the following equation:

(Equation 15.1)

Occupants X lavatory flow rate X 3

Where:

The number of occupants = square footage of the building divided by the occupant load factor from the California Plumbing Code Chapter 4, Table A.

Lavatory fixture flow rate, new construction = That from the California Green Building Standards (CALGreen) Code Section 5.303.2.3

Lavatory fixture flow rate, existing fixtures = Actual flow rate for existing fixtures

3 = Average number of uses per person per day

**1502.8.2.2 Showers.** Daily gray water discharge from showers may be determined by the following equation:

(Equation 15.2)

Number of daily uses X shower flow rate X 5 minutes

**1502.8.2.3 Commercial Clothes Washers.** Daily gray water discharge from commercial clothes washers may be determined by the following equation:

(Equation 15.3)

Cubic feet of capacity X Water Factor X 6

Where:

Water Factor = Gallons per cubic foot

6 = Average number of uses per day

**Note:** Cubic feet of capacity and Water Factor are contained in product specifications or are available from the washer manufacturer.

**1502.8.3 Daily Discharge.** Gray water systems using tanks shall be designed to minimize the amount of time gray water is held in the tank and shall be sized to distribute the total amount of estimated gray water on a daily basis.

**Exception:** Approved on-site treated nonpotable gray water systems.

» **1502.9 Gray Water System Components.** Gray water system components shall comply with Section 1502.9.1 through Section 1502.9.2.2.

[HCD 1] Gray water system components shall comply with this chapter.

» **1502.9.1 Surge Tanks.** Where installed, surge tanks shall be in accordance with the following:

- (1) Surge tanks shall be constructed of solid, durable materials not subject to excessive corrosion or decay and shall be watertight. Aboveground surge tanks shall be protected from direct sunlight or shall be constructed of UV resistant materials including but

not limited to heavily tinted or opaque plastic, fiberglass, lined metal, concrete and wood. Surge tanks constructed of steel shall be approved by the Authority Having Jurisdiction, provided such tanks are in accordance with approved applicable standards.

- (2) Each surge tank shall be vented in accordance with this code. The vent size shall be determined based on the total gray water fixture units as outlined in this code.
- (3) Each surge tank shall have an access opening with lockable gasketed covers or approved equivalent to allow for inspection and cleaning.
- (4) Each surge tank shall have its rated capacity permanently marked on the unit. In addition, a sign stating *GRAY WATER SYSTEM, CAUTION – UNSAFE WATER* shall be permanently marked on the holding tank.
- (5) Each surge tank shall have an overflow drain. The overflow drains shall have permanent connections to the building drain or building sewer, upstream of septic tanks. The overflow drain shall not be equipped with a shutoff valve.
- (6) The overflow drain pipes shall not be less in size than the inlet pipe. Unions or equally effective fittings shall be provided for piping connected to the surge tank.
- (7) Surge tank shall be structurally designed to withstand anticipated earth or other loads. Surge tank covers shall be capable of supporting an earth load of not less than 300 pounds per square foot (lb/ft<sup>2</sup>) (1465 kg/m<sup>2</sup>) where the tank is designed for underground installation.
- (8) Where a surge tank is installed underground, the system shall be designed so that the tank overflow will gravity drain to the existing sewer line or septic tank. The tank shall be protected against sewer line backflow by a backwater valve installed in accordance with this code.
- (9) Surge tanks shall be installed on dry, level, well-compacted soil where underground or on a level 3 inch (76 mm) thick concrete slab or other approved method where aboveground.
- (10) Surge tanks shall be anchored to prevent against overturning where installed aboveground. Underground tanks shall be ballasted, anchored, or otherwise secured, to prevent the tank from floating out of the ground where empty. The combined weight of the tank and hold down system shall meet or exceed the buoyancy forces of the tank.

(11) [HCD 1] An overflow drain and backwater valve is not required on a clothes washer system.

**1502.9.2 Gray Water Pipe and Fitting Materials.** « Aboveground and underground building drainage and vent pipe and fittings for gray water systems shall comply with the requirements for aboveground and

underground sanitary building drainage and vent pipe and fittings in this code. These materials shall extend not less than 2 feet (610 mm) outside the building.

**1502.9.2.1 Animals and Insects.** Gray water tank openings shall be protected to prevent the entrance of insects, birds, or rodents into the tank and piping systems. Screens installed on vent pipes, inlets, and overflow pipes shall have an aperture of not greater than 1/16 of an inch (1.6 mm) and shall be close fitting.

**1502.9.2.2 Freeze Protection.** Tanks and piping installed in locations subject to freezing shall be provided with an approved means of freeze protection.

» **1502.10 Subsurface Irrigation System Zones.** Irrigation or disposal fields shall be permitted to have one or more valved zones. Each zone shall be of a size to receive the gray water anticipated in that zone.

» **TABLE 1502.10  
DESIGN OF SIX TYPICAL SOILS**

TYPE OF SOIL	MINIMUM SQUARE FEET OF IRRIGATION/LEACHING AREA PER 100 GALLONS OF ESTIMATED GRAY WATER DISCHARGE PER DAY	MAXIMUM ABSORPTION CAPACITY IN GALLONS PER SQUARE FOOT OF IRRIGATION/LEACHING AREA FOR A 24-HOUR PERIOD
Coarse sand or gravel	20	5.0
Fine sand	25	4.0
Sandy loam	40	2.5
Sandy clay	60	1.7
Clay with considerable sand or gravel	90	1.1
Clay with small amounts of sand or gravel	120	0.8

For SI units: 1 square foot = 0.0929 m<sup>2</sup>, 1 gallon per day = 0.000043 L/s

» **1502.10.1 Required Area of Subsurface Irrigation Fields, Subsoil Irrigation Fields and Mulch Basins.** The minimum effective irrigation area of subsurface irrigation fields, subsoil irrigation fields, and mulch basins shall be determined by Table 1502.10 for the type of soil found in the excavation, based upon a calculation of estimated gray water discharge pursuant to Section 1502.8. For a subsoil irrigation field, the area shall be equal to the aggregate length of the perforated pipe sections within the valved zone multiplied by the width of the proposed subsoil irrigation field.

» **1502.10.2 Determination of Maximum Absorption Capacity.** The irrigation field and mulch basin size shall be based on the maximum absorption capacity of the soil and determined using Table 1502.10. For soils not listed in Table 1502.10, the maximum absorption capacity for the proposed site shall be determined by

percolation tests or other method acceptable to the Authority Having Jurisdiction. A gray water system shall not be permitted, where the percolation test shows the absorption capacity of the soil is unable to accommodate the maximum discharge of the proposed gray water irrigation system.

**Exceptions:**

- (1) The Enforcing Agency may waive the requirement for identification of groundwater level and/or soil absorption qualities based on knowledge of local conditions.
- (2) Irrigation fields in compliance with Section 1502.11.2 which only utilize drip type emitters are exempt from percolation tests.

» **1502.10.3 Groundwater Level.** No excavation for an irrigation field, disposal field, or mulch basin shall extend within 3 feet (914 mm) vertical of the highest known seasonal groundwater level, nor to a depth where gray water contaminates the groundwater or surface water. The applicant shall supply evidence of groundwater depth to the satisfaction of the Authority Having Jurisdiction.

*Note:* The absence of groundwater in a test hole three (3) vertical feet (915 mm) below the deepest irrigation or disposal point shall be sufficient to satisfy this section unless seasonal high groundwater levels have been documented to rise to within this area.

» **1502.11 Irrigation, Disposal Field and Mulch Basin Construction.** Irrigation fields, disposal fields and mulch basins used in gray water systems shall comply with this section. Gray water systems may contain either an irrigation field or a disposal field or a combination of both. This section is not intended to prevent the use of other methods of gray water irrigation or disposal approved by the Enforcing Agency.

[BSC-CG] Irrigation design shall be verified in accordance with the California Green Building Standards Code (CALGreen), Chapter 5, Division 5.3.

» **TABLE 1502.11  
SUBSURFACE IRRIGATION DESIGN  
CRITERIA FOR SIX TYPICAL SOILS**

TYPE OF SOIL	MAXIMUM EMITTER DISCHARGE (gallons per day)	MINIMUM NUMBER OF EMITTERS PER GALLON OF ESTIMATED GRAY WATER DISCHARGE PER DAY* (gallons per day)
Sand	1.8	0.6
Sandy loam	1.4	0.7
Loam	1.2	0.9
Clay loam	0.9	1.1
Silty clay	0.6	1.6
Clay	0.5	2.0

For SI units: 1 gallon per day = 0.000043 L/s

\* The estimated gray water discharge per day shall be determined in accordance with Section 1502.8 of this code.

**1502.11.1 Mulch Basin.** A mulch basin may be used as an irrigation or disposal field. Mulch basins shall be sized in accordance with Table 1502.10 and of sufficient depth, length and width to prevent ponding or runoff during the gray water surge of a clothes washer, bathtub or shower. Mulch must be replenished as required due to decomposition of organic matter. Mulch basins will require periodic maintenance, reshaping or removal of dirt to maintain surge capacity and to accommodate plant growth and prevent ponding or runoff.

**1502.11.2 Irrigation Field.** The provisions of this section are not intended to prevent the use of any appropriate material, appliance, installation, device, design or method of construction. If an alternate design is not available, the following provisions may be used as guidance in the design of a gray water irrigation field:

- (1) Filters used in gray water irrigation systems shall be as specified by the manufacturer's installation instructions for the design flow rate and intended use. The filter backwash and flush discharge shall be contained and disposed of into the building sewer system, septic tank or, with approval of the Enforcing Agency, a separate mini-leachfield sized to accept all the backwash and flush discharge water. Filter backwash water and flush water shall not be used for any purpose. Sanitary procedures shall be followed when handling filter backwash and flush discharge or gray water.
- (2) Emitters shall be designed to resist root intrusion and shall be of a design recommended by the manufacturer for the intended gray water flow and use. For emitter ratings, refer to Irrigation Equipment Performance Report, Drip Emitters and Micro-Sprinklers, Center for Irrigation Technology, California State University, 5730 N. Chestnut Avenue, Fresno, California 93740-0018.
- (3) Each irrigation zone shall be designed to include no less than the number of emitters specified in Table 1502.11, or through a procedure designated by the Enforcing Agency. Minimum spacing between emitters in any direction shall be sufficient to prevent surfacing or runoff.
- (4) The system design shall provide user controls, such as valves, switches, timers and other controllers, as appropriate, to rotate the distribution of gray water between irrigation zones.
- (5) All drip irrigation supply lines shall be polyethylene tubing or PVC Class 200 pipe or better and Schedule 40 fittings. All joints shall be pressure tested at 40 psi (276 kPa), and shown to be drip tight for five minutes, before burial. All supply piping shall be covered to a minimum depth of two (2) inches (51 mm) of mulch or soil. Drip feeder lines can be poly or flexible PVC tubing and shall be covered to a minimum depth of two (2) inches (51 mm) of mulch or soil.
- (6) Where pressure at the discharge side of the pump exceeds 20 psi (138 kPa), a pressure-reducing valve able to maintain downstream pressure no greater than the maximum operating pressure of the installed tubing, emitters, or other components shall be installed downstream from the pump and before any emission device.
- (7) When an irrigation system utilizes a pump, and discharges water at a point higher than the pump, a backwater valve shall be installed downstream of the pump to prevent back siphonage of water and soil.

**1502.11.3 Disposal Field.** The provisions of this section are not intended to prevent the use of any appropriate material, appliance, installation, device, design or method of construction. If an alternate design is not available the following provisions may be used as guidance in the design of a gray water disposal field:

- (A) Disposal systems shall be not less than three (3) inches (80 mm) in cross sectional dimension and shall be constructed of perforated high-density polyethylene pipe, perforated ABS pipe, perforated PVC pipe, leaching chambers or other approved materials, provided that sufficient openings are available for distribution of the gray water into the trench area. Material, construction, and perforation shall be in compliance with the appropriate absorption fields drainage standards and shall be approved by the Enforcing Agency.
- (B) Filter material, clean stone, gravel, slag, or similar filter material acceptable to the Enforcing Agency, varying in size from three-quarter (<sup>3</sup>/<sub>4</sub>) inch (19.1 mm) to two and one-half (2<sup>1</sup>/<sub>2</sub>) inches (64 mm) shall be placed in the trench to the depth and grade required by this section. The perforated section shall be laid on the filter material in an approved manner. The perforated section shall then be covered with filter material to the minimum depth required by this section. The filter material shall then be covered with untreated building paper, straw, or similar porous material to prevent closure of voids with earth backfill. No earth backfill shall be placed over the filter material cover until after inspection and acceptance.  
**Exception:** Manufactured leaching chambers shall be installed in compliance with the manufacturer's installation instructions.
- (C) Disposal fields shall be constructed in accordance with Table 1502.11.3.
- (D) When necessary on sloping ground to prevent excessive line slopes, disposal lines shall be stepped or installed on the contour lines of the slope. The lines between each horizontal leaching section shall be made with approved water-tight joints and installed on natural or unfilled ground.

» **TABLE 1502.11.3  
SUBSOIL IRRIGATION FIELD CONSTRUCTION**

DESCRIPTION	MINIMUM	MAXIMUM
Number of drain lines per valved zone <sup>1</sup>	1	-
Length of each perforated line <sup>1</sup>	-	100 feet
Bottom width of trench <sup>1</sup>	12 inches	24 inches
Spacing of lines, center to center <sup>1</sup>	4 feet	-
Depth of earth cover of lines	10 inches	-
Depth of filter material cover of lines	2 inches	-
Depth of filter material beneath lines <sup>1</sup>	3 inches	-
Grade of perforated lines level	level	3 inches per 100 feet

For SI units: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 inch per foot = 83.3 mm/m

<sup>1</sup> Manufactured leaching chambers shall be installed in compliance with the manufacturer's installation instructions.

» **1502.12 Gray Water System Color and Marking Information.** Pressurized gray water distribution systems shall be identified as containing nonpotable water in accordance with Section 601.3 of this code. *Marking shall be at intervals not to exceed 5 feet (1524 mm). Gray water distribution piping upstream of any connection to an irrigation or disposal field or a distribution valve shall be identified with the words "CAUTION: NONPOTABLE GRAY WATER, DO NOT DRINK".*

» **1502.13 Other Collection and Distribution Systems.** Other collection and distribution systems shall be approved as allowed by Section 301.3 of this code.

→ **1502.13.1 Future Connections.** *Gray water stub-out plumbing may be allowed for future connection prior to the installation of irrigation lines and landscaping. Stub-out shall be permanently marked "CAUTION: NONPOTABLE GRAY WATER, DO NOT DRINK."*

» **1502.14 Testing.** Building drains and vents for gray water systems shall be tested in accordance with this code. Surge tanks shall be filled with water to the overflow line prior to and during inspection. Seams and joints shall be left exposed, and the tank shall remain watertight. A flow test shall be performed through the system to the point of gray water discharge. Lines and components shall be watertight up to the point of the irrigation perforated and drip lines.

**1502.15 Maintenance.** Gray water systems and components shall be maintained in accordance with Section 1501.5.

» **1503.0 Recycled Water Supply Systems in Buildings.**

» **1503.1 General.** *The provisions of Section 1503.0 through Section 1503.15 shall apply to safely plumb buildings with both potable and recycled water supply systems. Unless otherwise specified in this code, the general provisions applying to alternate water systems pursuant to Section 1501.0 through Section 1501.14 shall apply to recycled water supply systems. The provisions in this section encom-*

*pass the installation, construction, alteration, and repair of recycled water supply systems that are within or a part of a building and receive reclaimed (recycled) water provided by a water/wastewater utility. When dealing with recycled water supply systems, the Authority Having Jurisdiction and Enforcing Agency may include the recycled water purveyor or potable water purveyor in accordance with their respective statutory authority and responsibility as provided on their respective permits for supplying water.*

**1503.1.1 Allowed Uses.** *Allowed uses shall include water closets, urinals, trap primers for floor drains and floor sinks, industrial or commercial cooling or air conditioning and other uses as generally allowed in the California Code of Regulations, Title 22, Division 4, Chapter 3 and specifically allowed in the permit for the facility producing or supplying the reclaimed (recycled) water issued by the State Water Resources Control Board or Regional Water Quality Control Board.*

**1503.1.2 Structures Allowed for Toilet and Urinal Flushing.** *In accordance with Water Code Section 13553, reclaimed (recycled) water shall be allowed for toilet and urinal flushing in certain structures. These structures include commercial, retail, and office buildings, theaters, auditoriums, condominium projects, schools, hotels, apartments, barracks, dormitories, jails, prisons, reformatories, and other structures as determined by the State Water Resources Control Board.*

**1503.2 Permit.** It shall be unlawful for a person to construct, install, alter, or cause to be constructed, installed, or altered a recycled water supply system within a building or on its premises without first obtaining a permit to do such work from the Authority Having Jurisdiction.

*Prior to commencing the issuance of permits for recycled water supply systems pursuant to state requirements relating to recycled water, a city, county, city and county or other local agency shall seek consultation with the State Water Resources Control Board, local public health department and local recycled water purveyor to ensure that state and local public health concerns are addressed in local standards or ordinances, or in issuing permits.*

**1503.2.1 Plumbing Plan Submission.** No permit for a recycled water supply system shall be issued until complete plumbing plans, with data satisfactory to the Authority Having Jurisdiction, have been submitted and approved.

**1503.3 System Changes.** No changes or connections shall be made to either the recycled water supply system or the potable water system within a site containing a recycled water supply system without approval by the Authority Having Jurisdiction.

**1503.4 Connections to Potable or Recycled Water Supply Systems.** Recycled water supply systems shall have no direct connection to a potable water supply or alternate water source system.

**Exceptions:**

- (1) Potable water is permitted to be used as makeup water for a reclaimed (recycled) water storage tank provided the potable water supply inlet is protected by an air gap in accordance with this code.
- (2) A potable water supply may be connected temporarily for initial testing of the recycled water supply system as provided in Section 1503.13.2.2. Prior to temporarily connecting the potable line to the recycled water supply system for initial testing purposes, the potable line must have a reduced-pressure principle backflow preventer installed.
- (3) Reclaimed (recycled) water is permitted to be used as makeup water for an alternate water source system provided the recycled water supply system is protected by an air gap in accordance with this code.

» **1503.5 Initial Cross-Connection Test.** A cross-connection test is required in accordance with Section 1503.13.2.2. Before the building is occupied or the system is activated, the installer shall perform an initial cross-connection test in the presence of the Authority Having Jurisdiction or other authorities having jurisdiction. The test shall be ruled successful by the Authority Having Jurisdiction before final approval is granted.

» **1503.6 Recycled Water Supply System Materials.** Recycled water supply system materials shall comply with the requirements of this code for potable water supply and distribution systems, unless otherwise provided for in this section.

» **1503.7 Recycled Water Supply System Color and Marking Information.** All mechanical equipment, including control valves, appurtenant to recycled water supply systems shall be painted purple or composed of purple material matching Pantone color No. 512, 522C or equivalent. Recycled water supply systems shall be identified and permanently marked with clearly visible black uppercase lettering on purple background. The identification may be accomplished by labeling metallic and non-metallic piping using purple-colored (Pantone color No. 512) adhesive Mylar PVC tape affixed along the entire length of the pipe, or using non-metallic pipe manufactured with purple (Pantone color No. 512, 522C, or equivalent) integral to the material. For either material, the tape or pipe shall be installed so the wording is clearly visible and shall be field or factory marked as follows:

"CAUTION: NONPOTABLE RECYCLED WATER, DO NOT DRINK".

» **1503.8 Valves.** Valves, except fixture supply control valves, shall be equipped with a locking feature.

**1503.8.1 Valve Seals.** The master reclaimed (recycled) water shut-off valve and/or the reclaimed (recycled) water meter curb cock and each valve within a wall shall be sealed after the recycled water supply system has been approved and placed into operation. These seals shall be either crimped lead wire seal or plastic break away seal which, if broken after system approval, shall be deemed conclusive evidence that the

recycled water supply system has been accessed. The seals shall be purple, numbered, and contain the words "RECYCLED WATER", and shall be supplied by the recycled water purveyor, or by other arrangements acceptable to the Authority Having Jurisdiction.

**1503.8.2 Valve and Appurtenance Access Door Signs.** Each reclaimed (recycled) water valve within a wall shall have its access door into the wall equipped with a warning sign approximately 6 inches by 6 inches (152 mm x 152 mm) with wording in approximately 3/8 inch (9.5 mm) letters on a purple background. The wording text and format of the sign shall be substantially the same as that specified in Section 1503.12.3. The signs shall be attached inside the access door frame and shall hang in the center of the access door frame. This sign requirement shall be applicable to any and all access doors, hatches, etc., leading to reclaimed (recycled) water piping and appurtenances.

**1503.9 Hose Bibbs.** Hose bibbs shall not be allowed on reclaimed (recycled) water piping systems. Only quick couplers that differ from those installed on the potable water system shall be used on the recycled water piping system in areas subject to public access. Quick couplers supplying reclaimed (recycled) water shall be marked with the words: "CAUTION: NONPOTABLE RECYCLED WATER, DO NOT DRINK," and one of the symbols in Figure 1503.9.

**Exception:** In accordance with Health and Safety Code Sections 8117 and 8118, hose bibbs are approved for use in cemeteries supplied with reclaimed (recycled) water. A hose bibb in an area subject to access by the general public shall be equipped with a sign marked "CAUTION: NONPOTABLE RECYCLED WATER, DO NOT DRINK," and one of the symbols in Figure 1503.9.



FIGURE 1503.9

**1503.10 Required Appurtenances.** The recycled water supply system and the potable water system within the building and the premises shall be provided with the required appurtenances (e.g., valves, air/vacuum relief valves, etc.) to allow for testing as required for a cross-connection test in accordance with Section 1503.13.2.

**1503.11 Pipe Separation in Trenches.** Reclaimed (recycled) water pipes shall be permitted to be run or laid in the same trench as potable water pipes with 12 inches (305 mm) minimum vertical and horizontal separation where both pipe materials are approved for use within a building. Where piping materials do not meet this requirement the minimum horizontal separation shall be increased to 48



inches (1220 mm). The potable water piping shall be installed at an elevation above the reclaimed (recycled) water piping. Reclaimed (recycled) water pipes laid in the same trench or crossing building sewer or drainage piping shall be installed in accordance with Section 609.0 and Section 720.0 of this code for water pipes.

» **1503.12 Signage.** Signs in rooms and water closet tanks in buildings using reclaimed (recycled) water shall be in accordance with Section 1503.12.1, Section 1503.12.2, and Section 1503.12.3. Signs on access doors to valves and appurtenances shall be in accordance with Section 1503.8.2.

**1503.12.1 Commercial, Industrial, Institutional, and Residential Restroom Signs.** A sign shall be installed in each restroom of commercial, industrial, and institutional occupancies, and in residential common use areas using reclaimed (recycled) water for water closets, urinals, or both. Each sign shall contain letters of a highly visible color on a contrasting background with a character height as specified in the California Building Code (California Code of Regulations, Title 24, Part 2), Section 1143A.5 and Section 11B-703.5. The location of the sign(s) shall be such that the sign(s) are visible to users and shall be approved by the Authority Having Jurisdiction. The sign(s) shall contain the following text:

TO CONSERVE WATER, THIS BUILDING USES RECYCLED WATER TO FLUSH TOILETS AND URINALS.

**1503.12.2 Tank-Type Toilet Signs.** Where tank-type toilets (water closets) are flushed with recycled water, a permanent sign (such as plastic or stainless steel) shall be installed inside the tank to warn that the water within the tank is not a suitable emergency drinking water supply. The sign shall be labeled: "CAUTION: NONPOTABLE RECYCLED WATER – DO NOT DRINK."

**1503.12.3 Equipment Room Signs.** Each room containing reclaimed (recycled) water equipment shall have a sign posted in a location that is visible to anyone working on or near reclaimed (recycled) water equipment with the following wording in 1 inch (25.4 mm) letters on a purple background:

CAUTION: NONPOTABLE RECYCLED WATER, DO NOT DRINK. DO NOT CONNECT TO DRINKING WATER SYSTEM. NOTICE: CONTACT BUILDING MANAGEMENT BEFORE PERFORMING ANY WORK ON THIS WATER SYSTEM.

» **1503.13 Inspection and Testing.** Recycled water supply systems shall be inspected and tested in accordance with Section 1503.13.1 and Section 1503.13.2. The reclaimed (recycled) water purveyor or other designated appointee may substitute for the Authority Having Jurisdiction for the purpose of inspections and tests pursuant to this section.

**1503.13.1 Supply System Inspection and Test.** Recycled water supply systems shall be inspected and tested in accordance with this code for testing of potable water piping.

**1503.13.2 Cross-Connection Inspection and Testing.** An initial visual inspection and cross-connection test shall be performed on both the potable and recycled water supply systems before the initial operation of the reclaimed (recycled) water source system. During an initial or subsequent cross-connection test, the potable and reclaimed (recycled) water source system shall be isolated from each other and independently inspected and tested to ensure there is no cross-connection in accordance with Section 1503.13.2.2. Initial or subsequent inspections or tests shall be performed in accordance with Section 1503.13.2.1 through Section 1503.13.2.4.

- (1) Written reports of cross-connection inspections and testing shall be performed as provided in California Code of Regulations, Title 22, Section 60316.
- (2) A cross-connection test pursuant to Section 1503.13.2.2 shall be performed on the premises of a recycled water supply system when there is material reason to believe that the potable water system or recycled water supply system separation from another water supply has been compromised. A material reason to believe that the system has been compromised may be based on, but is not limited to, evidence gathered (a) during a visual inspection performed pursuant to Section 1503.13.2.1, (b) as a result of an inspection performed following complaints of water quality or flow conditions consistent with a compromised system, or (c) during a visual inspection that indicates that the reclaimed (recycled) water supply system has been modified.

**1503.13.2.1 Visual System Inspection.** A visual dual system inspection shall be conducted by the Authority Having Jurisdiction and other authorities having jurisdiction to verify that no modifications were made, and that no cross-connections are visible as follows:

- (1) Meter locations of the reclaimed (recycled) water source and potable water lines shall be checked.
- (2) All pumps and equipment, equipment room signs, and exposed piping in equipment room shall be checked.
- (3) All valves shall be checked to ensure that the valve lock seals are still in place and intact. Valve control door signs shall be checked to verify that no signs have been removed.

**1503.13.2.2 Cross-Connection Test.** A cross-connection test shall be performed pursuant to Section 1503.13.2. The test shall be conducted in the presence of the Authority Having Jurisdiction or other authorities having jurisdiction to determine whether a cross connection has occurred as follows:

- (1) *The potable water system shall be activated and pressurized. The recycled water supply system shall be shut down, depressurized, and drained.*
- (2) *The potable water system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the recycled water supply system is empty. The minimum period the recycled water supply system is to remain depressurized shall be determined on a case-by-case basis, taking into account the size and complexity of the potable and the recycled water supply systems, but in no case shall that period be less than 1 hour.*
- (3) *All fixtures, potable and reclaimed (recycled) water source, shall be tested and inspected for flow. Flow from a reclaimed (recycled) water source system outlet indicates a cross-connection. No flow from a potable water outlet shall indicate that it is connected to the recycled water supply system.*
- (4) *The drain on the recycled water supply system shall be checked for flow during the test and at the end of the test.*
- (5) *The potable water system shall then be depressurized and drained.*
- (6) *The recycled water supply system shall then be activated and pressurized. For the initial test, a temporary connection to a potable water supply shall be required to test the recycled water supply system plumbing. At the conclusion of the test, the temporary connection to the potable water supply shall be disconnected.*
- (7) *The recycled water supply system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the potable water system is empty. The minimum period the potable water system is to remain depressurized shall be determined on a case-by-case basis, but in no case shall that period be less than 1 hour.*
- (8) *All fixtures, potable and reclaimed (recycled) water, shall be tested and inspected for flow. Flow from a potable water system outlet indicates a cross-connection. No flow from a recycled water supply system outlet will indicate that it is connected to the potable water system.*
- (9) *The drain on the potable water system shall be checked for flow during the test and at the end test.*
- (10) *Where there is no flow detected in the fixtures that would indicate a cross-connection, the potable water system shall be repressurized.*

*Where shutting off the water is not practical for residential, institutional, or industrial buildings,*

*the Authority Having Jurisdiction may authorize testing procedures other than those described above.*

**1503.13.2.3 Discovery of Cross-Connection.** *In the event that a cross-connection is discovered, the following procedure shall be activated immediately:*

- (1) *Notify the Authority Having Jurisdiction of the cross-connection.*
- (2) *The reclaimed (recycled) water piping to the building and its premises shall be shut down at the meter, and the reclaimed (recycled) water riser shall be drained.*
- (3) *Potable water piping to the building and its premises shall be shut down at the meter.*
- (4) *The cross-connection shall be uncovered and disconnected.*
- (5) *The building and its premises shall be retested in accordance with Section 1503.13.2.1 and Section 1503.13.2.2.*
- (6) *The potable water system shall be chlorinated with 50 parts-per-million (ppm) chlorine for 24 hours.*
- (7) *The potable water system shall be flushed after 24 hours, and a standard bacteriological test shall be performed. Where test results are acceptable, the potable water system shall be permitted to be recharged.*

**1503.13.2.4 Periodic Inspection.** *Periodic visual inspections of recycled water supply systems shall be required by the recycled water supplier or designee following the procedures in Section 1503.13.2.1. Pursuant to California Code of Regulations, Title 22 Section 60316, annual visual inspections shall be required for recycled water supply systems that are within or a part of buildings.*

**1503.14 Minimum Water Quality Requirements for Reclaimed (Recycled) Water.** *The minimum water quality for reclaimed (recycled) water shall meet the applicable water quality requirements of California Code of Regulations, Title 22, Division 4, Chapter 3 (commencing with Section 60301) for disinfected tertiary recycled water and the applicable reclaimed (recycled) water use. The reclaimed (recycled) water supplier shall supply water in accordance with permits issued by the State Water Resources Control Board or Regional Water Quality Control Board.*

**1503.15 Maintenance and Inspection.** *Recycled water supply systems and components shall be inspected and maintained in accordance with the manufacturer's recommendations and/or as required by the Authority Having Jurisdiction. The frequency of testing, inspection, and maintenance shall be in accordance with Table 1503.15. The required inspection and maintenance shall be the responsibility of the property owner, unless otherwise required by the Authority Having Jurisdiction.*

**TABLE 1503.15  
MINIMUM RECLAIMED (RECYCLED) WATER SOURCE TESTING, INSPECTION, AND MAINTENANCE FREQUENCY**

DESCRIPTION	MINIMUM FREQUENCY*
<i>Inspect and clean filters and screens, and replace (where necessary).</i>	<i>Every 3 months.</i>
<i>Inspect pumps and verify operation.</i>	<i>After initial installation and every 12 months thereafter.</i>
<i>Inspect valves and verify operation.</i>	<i>After initial installation and every 12 months thereafter.</i>
<i>Inspect pressure tanks and verify operation.</i>	<i>After initial installation and every 12 months thereafter.</i>
<i>Clear debris from and inspect storage tanks, locking devices, and verify operation.</i>	<i>After initial installation and every 12 months thereafter.</i>
<i>Inspect caution labels and marking.</i>	<i>After initial installation and every 12 months thereafter.</i>

\*Note: Frequency is as described in this table, or more frequently as required by manufacturer’s instructions and/or the Authority Having Jurisdiction.

**1504.0 On-Site Treated Nonpotable Gray Water Systems.**

» **1504.1 General.** The provisions of this section shall apply to the installation, construction, alteration, and repair of on-site treated nonpotable gray water systems intended to supply uses such as water closets, urinals, trap primers for floor drains and floor sinks, above and belowground irrigation, and other uses approved by the Authority Having Jurisdiction.

*Other approved nonpotable water sources including swimming pool backwash operations, air conditioner condensate, rainwater, cooling tower blow-down water, foundation drainage, steam system condensate, fluid cooler discharge water, food steamer discharge water, combination oven discharge water, industrial process water, and fire pump test water may be permitted to be collected for re-use by gray water systems, as approved for the intended application.*

» **1504.2 Plumbing Plan Submission.** No permit for an on-site treated nonpotable gray water system shall be issued until complete plumbing plans, with data satisfactory to the Authority Having Jurisdiction, have been submitted and approved. **[BSC-CG, HCD 1]** *Prior to commencing the issuance of permits for indoor gray water systems pursuant to state requirements relating to graywater, a city, county, city and county or other local agency shall seek consultation with the local public health department to ensure that local public health concerns are addressed in local standards or ordinances, or in issuing permits. See California Water Code Section 14877.3.*

» **1504.3 System Changes.** No changes or connections shall be made to either the on-site treated nonpotable gray water system or the potable water system within a site containing an on-site treated nonpotable gray water system without approval by the Authority Having Jurisdiction.

» **1504.4 Connections to Potable or Reclaimed (Recycled) Water Systems.** On-site treated nonpotable gray water systems shall have no direct connection to a potable water supply or recycled water supply system.

**Exceptions:**

(1) Potable or reclaimed (recycled) water is permitted to be used as makeup water for a non-pressurized storage tank provided the makeup water supply inlet is protected by an air gap in accordance with this code.

(2) A potable water supply may be connected temporarily for initial testing of the on-site treated nonpotable gray water system as provided in Section 1501.11.2.2.

**1504.5 Initial Cross-Connection Test.** A cross-connection test is required in accordance with Section 1501.11.2. Before the building is occupied or the system is activated, the installer shall perform the initial cross-connection test in the presence of the Authority Having Jurisdiction and other authorities having jurisdiction. The test shall be ruled successful by the Authority Having Jurisdiction before final approval is granted.

**1504.6 On-Site Treated Nonpotable Gray Water System Materials.** On-site treated nonpotable gray water supply and distribution system materials shall comply with the requirements of this code for potable water supply and distribution systems, unless otherwise provided for in this section.

**1504.7 On-Site Treated Nonpotable Gray Water Devices and Systems.** Devices or equipment used to treat on-site treated nonpotable gray water in order to maintain the minimum water quality requirements determined by the Authority Having Jurisdiction shall be listed or labeled (third-party certified) by a listing agency (accredited conformity assessment body) or approved for the intended application. Devices or equipment used to treat on-site treated nonpotable gray water for use in water closet and urinal flushing, surface irrigation, and similar applications shall be listed or labeled to NSF 350 or approved by the Authority Having Jurisdiction.

**1504.8 On-Site Treated Nonpotable Gray Water System Color and Marking Information.** On-site treated nonpotable gray water systems shall have a colored background and marking information in accordance with Section 601.3 of this code.

**1504.9 Valves.** Valves, except fixture supply control valves, shall be equipped with a locking feature.

**1504.10 Design and Installation.** The design and installation of on-site treated nonpotable gray water systems shall be in accordance with Section 1504.10.1 through Section 1504.10.6.

**1504.10.1 Listing Terms and Installation Instructions.** On-site treated nonpotable gray water systems shall be installed in accordance with the terms of its listing and the manufacturer’s installation instructions.

»» || **1504.10.2 Minimum Water Quality [BSC-CG, HCD I].** On-site treated nonpotable *gray* water supplied to toilets or urinals or for other uses in which it is sprayed or exposed shall be disinfected. Acceptable disinfection methods shall include chlorination, ultraviolet sterilization, ozone, or other methods as approved by the Authority Having Jurisdiction. The minimum water quality for on-site treated nonpotable *gray* water systems shall meet the applicable water quality requirements for the intended applications as determined by the public health Authority Having Jurisdiction. *In the absence of local water quality requirements for on-site treated nonpotable gray water, the requirements of NSF 350 shall apply.*

»» || **1504.10.3 Deactivation and Drainage.** The on-site treated nonpotable *gray* water system and the potable water system within the building shall be provided with the required appurtenances (e.g., valves, air/vacuum relief valves, etc.) to allow for deactivation or drainage as required for a cross-connection test in accordance with Section 1501.11.2.

»» || **1504.10.4 Near Underground Potable Water Pipe.** On-site treated nonpotable *gray* water pipes shall be permitted to be run or laid in the same trench as potable water pipes with a 12 inch (305 mm) minimum vertical and horizontal separation where both pipe materials are approved for use within a building. Where piping materials do not meet this requirement the minimum separation shall be increased to 60 inches (1524 mm). The potable water piping shall be installed at an elevation above the on-site treated nonpotable *gray* water piping.

»» || **1504.10.5 Required Filters.** A filter permitting the passage of particulates no larger than 100 microns (100 µm) shall be provided for on-site treated nonpotable *gray* water supplied to water closets, urinals, trap primers, and drip irrigation system.

*1504.10.6 Disinfection. Where the intended use of onsite treated nonpotable gray water requires disinfection and/or other treatment, on-site treated nonpotable gray water shall be disinfected as needed to ensure the required water quality is obtained at the point of use. Where chlorine is used for disinfection or treatment, water shall be tested for residual chlorine in accordance with ASTM D1253.*

»» || **1504.11 Signs.** Signs in buildings using on-site treated nonpotable *gray* water shall comply with Section 1501.10 and Section 1501.10.1, and applicable requirements of the California Building Code.

»» || **1504.12 Inspection and Testing.** On-site treated nonpotable *gray* water systems shall be inspected and tested in accordance with Section 1501.11, and Section 1501.11.2 and/or as required by the Authority Having Jurisdiction.

## **CHAPTER 16A**

### **NON-POTABLE WATER REUSE SYSTEMS**

*This chapter has been deleted by the California Department of Water Resources. The majority of the content has migrated to Chapter 15 in General and Section 1503 in particular.*

*(Pages 329 through 332 have been deleted by the California Building Standards Commission. Text continues on Page 333.)*

# INDEX

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# HISTORY NOTE APPENDIX

## CALIFORNIA PLUMBING CODE

### (TITLE 24, PART 5, CALIFORNIA CODE OF REGULATIONS)

*For prior history, see the History Note Appendix to the California Plumbing Code, 2013 Triennial Edition, effective January 1, 2014.*

1. *(BSC 03/15, HCD 06/15, DSA-SS 05/15, OSHPD 05/15, SFM 04/15) Adoption by reference of the 2015 Uniform Plumbing Code (UPC) with necessary state amendments and repeal of the 2012 edition of the UPC; effective on January 1, 2017.*
2. *Errata to correct editorial errors within the preface as well as throughout various chapters in this code. Effective January 1, 2017.*
3. *2016 Intervening Update (BSC 02/16, HCD 02/16, DSA-SS/CC 04/16, DWR 01/16) Adopted by the California Building Standards Commission on June 20, 2017, published on January 1, 2018, effective on July 1, 2018.*
4. *2016 Intervening Update (OSHPD 05/16) Adopted by the California Building Standards Commission on August 14, 2017, published on January 1, 2018, effective on July 1, 2018.*

