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# Appliance Efficiency Regulations

California Code of Regulations Title 20, Sections 1601 Through 1609

Toilet, Urinal, Faucet and Showerhead Regulations





# California Energy Commission

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# Amendments to Appliance Efficiency Regulations

## Section 1601. Scope.

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This Article applies to the following types of new appliances, if they are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the state and those designed and sold exclusively for use in recreational vehicles, or other mobile equipment. Unless otherwise specified, each provision applies only to units manufactured on or after the effective date of the provision.

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(h) Plumbing fittings, which are showerheads, lavatory faucets, kitchen faucets, metering faucets, replacement aerators, wash fountains, tub spout diverters, public lavatory faucets, and commercial pre-rinse spray valves.

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Note: Authority cited: Sections 25213, 25218(e), 25402(a)-25402(c) and 25960, Public Resources Code. Sections 16, 26 and 30, Governor's Executive Order No. B-29-15 (April 1, 2015). Reference: Sections 25216.5(d), 25402(a)-25402(c) and 25960, Public Resources Code. Section 16, Governor's Executive Order No. B-29-15 (April 1, 2015).

## Section 1602. Definitions.

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### (h) Plumbing Fittings.

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“Plumbing fitting” means a device that controls and guides the flow of water in a supply system. Examples include showerhead, lavatory faucet, kitchen faucet, metering faucet, lavatory replacement aerator, kitchen replacement aerator, wash fountain, commercial pre-rinse spray valve, public lavatory faucet, or tub spout diverter.

“Public lavatory faucet” means a fitting intended to be installed in non-residential bathrooms that are exposed to walk-in traffic.

“Showerhead” means a device through which water is discharged for a shower bath and includes a body sprayer and handheld showerhead but does not include a safety showerhead.

“Water use” means the quantity of water flowing through a showerhead or faucet, at point of use, as determined using the test method in Section 1604(h).

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### (i) Plumbing Fixtures.

“Dual-flush effective flush volume” means the average flush volume of two reduced flushes and one full flush.

“Dual-flush water closet” is a water closet incorporating a feature that allows the user to flush the water closet with either a reduced or a full volume of water.

“Plumbing fixture” means an exchangeable device, which connects to a plumbing system to deliver and drain away water and waste. A plumbing fixture includes a water closet or a urinal.

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Note: Authority cited: Sections 25213, 25218(e), 25402(a)-25402(c) and 25960, Public Resources Code. Sections 16, 26 and 30, Governor’s Executive Order No. B-29-15 (April 1, 2015). Reference: Sections 25216.5(d), 25402(a)-25402(c) and 25960, Public Resources Code. Section 16, Governor’s Executive Order No. B-29-15 (April 1, 2015).

## Section 1604. Test Methods for Specific Appliances.

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### (h) Plumbing Fittings.

(1) The test method for commercial pre-rinse spray valves is 10 C.F.R. Sections 431.263 and 431.264.

(2) The test methods for showerheads are:

(A) **Maximum flow rate test.** The test method for determining maximum flow rate of a showerhead is 10 C.F.R. Section 430.23(t) (Appendix S to Subpart B of Part 430).

(B) **Minimum flow rate test.** The test method for determining minimum flow rate of a showerhead is ASME A112.18.1-2012 / CSA B125.1-2012, Section 5.12.

(C) **Showerheads with multiple nozzles.** Showerheads with multiple nozzles shall be tested with all nozzles in use at the same time.

(3) The test method for other plumbing fittings is 10 C.F.R. Section 430.23(s) (Appendix S to Subpart B of part 430).

(4) Showerhead-tub spout diverter combinations shall have both the showerhead and tub spout diverter tested individually.

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### (i) Plumbing Fixtures.

The test methods for plumbing fixtures are:

(1) **Water Closets.** The test method for testing gallons per flush of water closets is 10 C.F.R. Section 430.23 (u) (Appendix T to Subpart B of part 430). See Section 1604(i)(3) for the required waste extraction test.

(2) **Urinals.** The test method for testing gallons per flush of urinals is 10 C.F.R. Section 430.23(v) (Appendix T to Subpart B of part 430).

(3) Waste Extraction Test (Section 7.10) of ASME A112.19.2/CSA B45.1-2013.

The following documents are incorporated by reference in Section 1604.

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The American Society of Mechanical Engineers (ASME)

ASME A112.19.2/CSA B45.1-2013

Ceramic Plumbing Fixtures

ASME A112.18.1-2012/CSA B125.1-2012

Plumbing Supply Fittings

Copies available from:

ASME Headquarters Two Park Avenue  
New York, NY 10016-5990

[www.asme.org](http://www.asme.org)

Phone: 800-843-2762 (U.S./Canada)

001-800-843-2763 (Mexico)

973-882-1170 (outside North America)

Email: [CustomerCare@asme.org](mailto:CustomerCare@asme.org)

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Note: Authority cited: Sections 25213, 25218(e), 25402(a)-25402(c) and 25960, Public Resources Code. Sections 16, 26 and 30, Governor's Executive Order No. B-29-15 (April 1, 2015). Reference: Sections 25216.5(d), 25402(a)-25402(c) and 25960, Public Resources Code. Section 16, Governor's Executive Order No. B-29-15 (April 1, 2015).

## Section 1605.1. Federal and State Standards for Federally-Regulated Appliances.

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### (h) Plumbing Fittings.

(1) **Metering Faucets and Wash Fountains.** The flow rate of wash fountains and metering faucets shall be not greater than the applicable values shown in Table H-1.

**Table H-1: Standards for Plumbing Fittings**

Appliance	Maximum Flow Rate
Wash fountains	$2.2 \times \frac{\text{rim space (inches)}}{20} \text{ gpm at 60 psi}$
Metering faucets	0.25 gallons/cycle <sup>1,2</sup>
Metering faucets for wash fountains	$0.25 \times \frac{\text{rim space (inches)}}{20} \text{ gpm at 60 psi}^{1,2}$
<p><sup>1</sup><b>Sprayheads with independently controlled orifices and metered controls.</b> The maximum flow rate of each orifice that delivers a preset volume of water before gradually shutting itself off shall not exceed the maximum flow rate for a metering faucet.</p> <p><sup>2</sup><b>Sprayheads with collectively-controlled orifices and metered controls.</b> The maximum flow rate of a sprayhead that delivers a preset volume of water before gradually shutting itself off shall be the product of (a) the maximum flow rate for a metering faucet and (b) the number of component lavatories (rim space of the lavatory in inches [millimeters] divided by 20 inches [508 millimeters]).</p>	

(5) **Showerheads, lavatory faucets, kitchen faucets, aerators, and public lavatory faucets.** See Section 1605.3 (h) for standards for all showerheads, lavatory faucets, kitchen faucets, aerators, and public lavatory faucets sold or offered for sale in California.

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The following documents are incorporated by reference in Section 1605.1.

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### (i) Plumbing Fixtures.

See Section 1605.3(i) for water efficiency standards for plumbing fixtures.

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Note: Authority cited: Sections 25213, 25218(e), 25402(a)-25402(c) and 25960, Public Resources Code. Sections 16, 26 and 30, Governor's Executive Order No. B-29-15 (April 1, 2015). Reference: Sections 25216.5(d), 25402(a)-25402(c) and 25960, Public Resources Code. Section 16, Governor's Executive Order No. B-29-15 (April 1, 2015).

## **Section 1605.2. State Standards for Non-Federally-Regulated Appliances.**

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### **(i) Plumbing Fixtures.**

See Section 1605.3(i) for water efficiency standards for plumbing fixtures.

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Note: Authority cited: Sections 25213, 25218(e), 25402(a)-25402(c) and 25960, Public Resources Code. Sections 16, 26 and 30, Governor's Executive Order No. B-29-15 (April 1, 2015). Reference: Sections 25216.5(d), 25402(a)-25402(c) and 25960, Public Resources Code. Section 16, Governor's Executive Order No. B-29-15 (April 1, 2015).

## Section 1605.3. State Standards for Non-Federally-Regulated Appliances.

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### (h) Plumbing Fittings.

**(1) Tub Spout Diverters and Showerhead Tub Spout Diverter Combinations.** The leakage rate of tub spout diverters manufactured on or after March 1, 2003 shall be not greater than the applicable values shown in Table H-2. Showerhead tub spout diverter combinations shall meet both the standard for showerheads and the standard for tub spout diverters.

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**(2) Lavatory Faucets and Aerators.** The flow rate of lavatory faucets and lavatory replacement aerators shall be not greater than the applicable values shown in Table H-3.

**Table H-3: Standards for Lavatory Faucets and Aerators**

Appliance	Maximum Flow Rate		
	Manufactured prior to September 1, 2015	Manufactured on or after September 1, 2015, and prior to July 1, 2016	Manufactured on or after July 1, 2016
Lavatory faucets and aerators	2.2 gpm at 60psi <sup>1,2</sup>	1.5 gpm at 60 psi <sup>1,2</sup>	1.2 gpm at 60 psi <sup>1,2</sup>
<sup>1</sup> <b>Sprayheads with independently-controlled orifices and manual controls.</b> The maximum flow rate of each orifice that manually turns on or off shall not exceed the maximum flow rate for a lavatory faucet. <sup>2</sup> <b>Sprayheads with collectively-controlled orifices and manual controls.</b> The maximum flow rate of a sprayhead that manually turns on or off shall be the product of (a) the maximum flow rate for a lavatory faucet and (b) the number of component lavatories (rim space of the lavatory in inches (millimeters) divided by 20 inches (508 millimeters)).			

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**(3) Kitchen Faucets and Aerators and Public Lavatory Faucets and Aerators.** The flow rate of kitchen faucets, kitchen replacement aerators, public lavatory faucets, and public lavatory replacement aerators shall be not greater than the applicable values shown in Table H-4.

(A) For the plumbing fittings identified in Table H-4, noncompliant products may not be sold or offered for sale on or after January 1, 2016, regardless of manufactured date.

**Table H-4: Standards for Kitchen Faucets and Aerators and Public Lavatory Faucets and Aerators**

Appliance	Maximum Flow Rate	
	Sold or offered for sale prior to January 1, 2016	Sold or offered for sale on or after January 1, 2016
Kitchen faucets and aerators	2.2 gpm at 60 psi	1.8 gpm with optional temporary flow of 2.2 gpm at 60 psi
Public lavatory faucets and aerators	2.2 gpm at 60 psi	0.5 gpm at 60 psi

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**(4) Commercial Pre-rinse Spray Valves.**

(A) Commercial pre-rinse spray valves manufactured on or after January 1, 2006, shall be capable of cleaning 60 plates in an average time of not more than 30 seconds per plate.

(B) See Section 1605.1(h) for water consumption standards for commercial pre-rinse spray valves.

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(5) **Showerheads.** The flow rate of showerheads shall be not greater than the applicable values shown in Table H-5.

**Table H-5: Standards for Showerheads**

Appliance	Maximum Flow Rate		
	Manufactured on or after January 1, 1994 and prior to July 1, 2016	Manufactured on or after July 1, 2016 and prior to July 1, 2018	Manufactured on or after July 1, 2018
Showerheads	2.5 gpm at 80 psi	2.0 gpm at 80 psi <sup>1,2,3</sup>	1.8 gpm at 80 psi <sup>1,2,3</sup>
<p><sup>1</sup> The maximum flow rate shall be the highest value obtained through testing at a flowing pressure of 80 ± 1 psi and shall not exceed the maximum flow rate in Table H-5.</p> <p><sup>2</sup> <b>Minimum flow rate.</b> The minimum flow rate, determined through testing at a flowing pressure of 20 ± 1 psi, shall not be less than 60 percent of the maximum flow rate in Table H-5. The minimum flow rate determined through testing at flowing pressures of 45 and 80 ± 1 psi shall not be less than 75 percent of the maximum flow rate in Table H-5.</p> <p><sup>3</sup> Showerheads with multiple nozzles. The total flow rate of showerheads with multiple nozzles must be less than or equal to the maximum flow rate in Table H-5 when any or all nozzles are in use at the same time.</p>			

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(6) **Other Plumbing Fittings.** See Section 1605.1(h) for water efficiency standards for plumbing fittings that are federally-regulated consumer products.

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(i) Plumbing Fixtures.

(1) The water consumption of water closets, and urinals, other than those designed and marketed exclusively for use at prisons or mental health care facilities shall be no greater than the values shown in Table I-2.

**Table I-2 Standards for Plumbing Fixtures**

Appliance	Maximum Gallons per Flush or Dual-flush effective flush volume	
	Sold or offered for sale on or after January 1, 2014 <sup>1</sup>	Sold or offered for sale on or after January 1, 2016 <sup>1</sup>
All water closets	1.28	1.28
Trough-type urinals	<u>trough length (inches)</u> 16	<u>trough length (inches)</u> 16
Wall mounted urinals	0.5	0.125
Other urinals	0.5	0.5
<p><sup>1</sup>For the items identified in Table I-2, non-compliant products may not be sold or offered for sale on or after the designated date, regardless of manufacture date</p>		

(2) Water closets sold or offered for sale or after January 1, 2016 shall pass the Waste Extraction Test (Section 7.10) of ASME A112.19.2.

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Note: Authority cited: Sections 25213, 25218(e), 25402(a)-25402(c) and 25960, Public Resources Code. Sections 16, 26 and 30, Governor's Executive Order No. B-29-15 (April 1, 2015). Reference: Sections 25216.5(d), 25402(a)-25402(c) and 25960, Public Resources Code. Section 16, Governor's Executive Order No. B-29-15 (April 1, 2015).

## Section 1606. Filing by Manufacturers; Listing of Appliances in Database.

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**Table X Continued – Data Submittal Requirements**

	Appliance	Required Information	Permissible Answers
H	Plumbing Fittings	*Type	Showerhead, lavatory faucet (independent or collective), public lavatory faucet, kitchen faucet, metering faucet (independent or collective), lavatory replacement aerator, kitchen replacement aerator, wash fountain, lift- type tub spout diverter, turn-type tub spout diverter, pull-type tub spout diverter, and push-type tub spout diverter.
		Flow Rate	
		Pulsating (for showerheads only)	Yes, no
		Minimum Flow Rate at 45 psi and 80 psi (for showerheads manufactured on or after July 1, 2016)	
		Minimum Flow Rate at 20 psi (for showerheads manufactured on or after July 1, 2016)	
		Rim Space (for wash fountains only)	
		Tub Spout Leakage Rate When New	
		Tub Spout Leakage Rate After 15,000 Cycles	
	Commercial Pre-rinse Spray Valves	Flow Rate (gpm)	
Cleaning ability test		Pass, fail	

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**Table X Continued – Data Submittal Requirements**

	<b>Appliance</b>	<b>Required Information</b>	<b>Permissible Answers</b>
I	Plumbing Fixtures	*Type	Blowout water closet, gravity tank type water closet, dual-flush water closet, electromechanical hydraulic water closet, flushometer tank water closet, urinal, prison-type urinal, prison-type water closet, flushometer valve water closet, trough-type urinal, wall-mounted urinal, waterless urinal, vacuum other type urinal, vacuum type water closet
		Water Consumption (dual-flush effective flush volume for dual-flush water closet)	
		Passes waste extraction test	Yes, No
		Waste extraction value	grams
		Trough Length (trough-type urinals only)	

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**(4) Declaration.**

(A) Each statement shall include a declaration, executed under penalty of perjury of the laws of California, that

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4. the appliance was tested under the applicable test method specified in Section 1604, and, for the following appliances, was tested as follows:

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j. for kitchen faucets that utilize an optional and temporary higher flow rate than 1.8 gpm, the higher flow rate has been tested utilizing the test procedure identified for kitchen faucets in Section 1604(h) at 60 psi and verified to have a flow rate less than or equal 2.2 gpm.

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Note: Authority cited: Sections 25213, 25218(e), 25402(a)-25402(c) and 25960, Public Resources Code; and Sections 16, 26 and 30, Governor's Executive Order No. B-29-15 (April 1, 2015). Reference: Sections 25216.5(d), 25402(a)-25402(c), 25402.5.4 and 25960, Public Resources Code; and Section 16, Governor's Executive Order No. B-29-15 (April 1, 2015).