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California Energy Commission

PROPOSED AMENDMENTS TO APPLIANCE EFFICIENCY REGULATIONS

CALIFORNIA CODE OF REGULATIONS TITLE 20, SECTIONS 1601 THROUGH 1608

2015 APPLIANCE EFFICIENCY RULEMAKING FOR TOILETS, URINALS, FAUCETS, HVAC AIR FILTERS, DIMMING FLUORESCENT BALLASTS, AND HEAT PUMP WATER CHILLING PACKAGES

Docket Number: 15-AAER-1

CALIFORNIA
ENERGY COMMISSION

Edmund G. Brown Jr., Governor

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Proposed State Regulations and Federal Updates

Proposed new language appears as underline (example) and proposed deletions appear as strikeout (~~example~~). Existing language appears as plain text. Three dots or "…" represents the substance of the regulations that exists between the proposed language and current language.

Section 1601. Scope.

…

(c) Central air conditioners, which are electrically-powered unitary air conditioners and electrically-powered unitary heat pumps, except those designed to operate without a fan; and gas-fired air conditioners and gas-fired heat pumps, air filters for use in forced-air heating or cooling equipment, and heat pump water-chilling packages.

…

(d) Spot air conditioners, evaporative coolers, residential furnace fans, ceiling fans, ceiling fan light kits, whole house fans, residential exhaust fans, and dehumidifiers.

…

(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.

…

(j) Fluorescent Lamp Ballasts and deep-dimming fluorescent ballast that are designed to:

Note: Authority cited: Sections 25213, 25218(e), 25402(a)-(c) and 25960, Public Resources Code. Reference: Sections 25216.5(d), 25402(a)-(c), 25402.5.4 and 25960, Public Resources Code

Section 1602. Definitions.

…

(a) General.

"Basic model" of a federally regulated residential furnace fan, as defined in 10 C.F.R. section 430.2, means all units of a given type of residential furnace fan (or class thereof) manufactured by one manufacturer, having the same primary energy source, and which have essentially identical electrical, physical, and functional (or hydraulic) characteristics that affect energy consumption,

energy efficiency, water consumption, or water efficiency; and that are marketed and/or designed to be installed in the same type of installation.

…

(b) Refrigerators, Refrigerators-Freezers, and Freezers

"Closed solid" means commercial refrigeration equipment with doors, and in which more than 75 percent of the outer surface area of all doors on a unit are not transparent.

"Closed transparent" means commercial refrigeration equipment with doors, and in which 25 percent or more of the outer surface area of all doors on the unit are transparent.

"Commercial hybrid refrigerator, freezer, and refrigerator-freezer" means a commercial refrigerator, freezer, or refrigerator-freezer that ~~has~~ consists of two or more thermally separated refrigeration ~~chilled and/or frozen~~ compartments ~~that are~~:

(1) that are in two or more different equipment families;
(2) ~~contained in one cabinet; and~~
~~(3)~~ and that is sold as a single unit

"Display door" means a door that:

(1) Is designed for product display; or
(2) Has 75 percent or more of its surface area composed of glass or another transparent material.

"Door" means a movable panel that separates the interior volume of a unit of commercial refrigeration equipment from the ambient environment and is designed to facilitate access to the refrigerated space for the purpose of loading and unloading product. This includes hinged doors, sliding doors, and drawers. This does not include night curtains.

"Freight door" means a door that is not a display door and is equal to or larger than 4 feet wide and 8 feet tall.

"Ice-cream freezer" means a commercial freezer that is designed to operate at or below −5°F (±2°F) (−21°C ± 1.1°C) ~~5°F (21°C)~~ and that the manufacturer designs, markets, or intends for the storing, displaying, or dispensing of ice cream.

"Operating temperature" means the range of integrated average temperatures at which a self-contained commercial refrigeration unit or remote-condensing commercial refrigeration unit with a thermostat is capable of operating or, in the case of a remote-condensing commercial refrigeration unit without a thermostat, the range of integrated average temperatures at which the unit is marketed, designed, or intended to operate.

"Passage door" means a door that is not a freight or display door.

"Rating temperature" means the integrated average temperature a unit must maintain during testing (i.e., either as listed in tables A-4, A-5, or A-6 of this Article or the lowest application product temperature).

"Service over counter" means equipment that has sliding or hinged doors in the back intended for use by sales personnel, with glass or other transparent material in the front for displaying merchandise, and that has a height not greater than 66 inches and is intended to serve as a counter for transactions between sales personnel and customers. "Service over the counter, self-contained, medium temperature commercial refrigerator", also defined in this section, is one specific equipment class within the service over counter equipment family.)

"Service over the counter, self-contained, medium temperature commercial refrigerator" means a commercial refrigerator—

(1) That operates at temperatures at or above 32 °F;
(2) With a self-contained condensing unit;
(3) Equipped with sliding or hinged doors in the back intended for use by sales personnel, and with glass or other transparent material in the front for displaying merchandise; and
(4) That has a height not greater than 66 inches and is intended to serve as a counter for transactions between sales personnel and customers.

"Transparent" means greater than or equal to 45 percent light transmittance, as determined in accordance with the ASTM Standard E 1084-86 (Reapproved 2009), at normal incidence and in the intended direction of viewing.

…

(c) Air Conditioners, Air Filters and Heat Pump Water-Chilling Packages.

"Air filter" means an air-cleaning device installed in forced-air heating or cooling equipment and used for removing particulate matter from the air.

"Air filter media" means the part of the air filter that conducts the actual removal of particulates.

"Airflow rate" means the actual volume of air passing through the device per unit of time, expressed in cubic-feet-per-minute, to three significant figures.

"Dust holding capacity" means the total amount of dust captured on the air filter. Dust holding capacity shall be established at the maximum rated airflow rate, as published by the manufacturer.

"Final resistance" means the resistance of the air filter operating at its maximum rated airflow rate at which the test is terminated and results determined.

"Heat-pump water-chilling package" means a factory-made package of one or more compressors, condensers, and evaporators designed for the purpose of heating water. Where such equipment is provided in one or more than one assembly, the separate assemblies are designed to be used together. The package is specifically designed to make use of the refrigerant cycle to remove heat from an air or water source and to reject the heat to water for heating use. This unit may include valves to allow for reverse-cycle (cooling) operation.

"Initial resistance" means the resistance of the air filter operating at its rated airflow rate, as published by the manufacturer, with no dust load.

"Maximum rated airflow rate" means the highest airflow rate at which the air filter is operated, as published by the manufacturer.

"Minimum efficiency reporting value (MERV)" means the composite particle efficiency metric defined in ASHRAE 52.2-2012.

"Particle size" means the polystyrene latex (PSL) light-scattering equivalent size of particulate matter as expressed as a diameter in micrometers (μm).

"Particle size efficiency" means the fraction (percentage) of particles that are captured on the air filter. Particle size efficiency is measured in three particle size ranges: 0.3-1.0, 1.0-3.0, 3.0-10 micrometers (μm). Particle size efficiency ratings are abbreviated as "PSER" in the required labels for air filters.

"Pressure drop" means the drop in static pressure versus air flow rate across air filter media in the forced-air heating or cooling equipment.

…

(h) Plumbing Fittings.

"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 valves, or tub spout diverter.

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

…

(i) Plumbing Fixtures.

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

"Dual-flush water closet" is a water closet that allows a user to flush with either a reduced or a full volume of water.

"MaP" means maximum flushing performance.

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

...

(j) Fluorescent Lamp Ballasts and Deep-Dimming Fluorescent Ballasts.

"Arc power" means the entire output power of the ballast and delivered to all attached lamps.

"Deep-dimming fluorescent ballast" means a fluorescent ballast that is capable of operating lamps in dimmed operating modes at any number of levels at or below 50 percent of full output. The term shall only apply to ballasts designed to operate one, two, three, or four T5 or T8 four-foot linear or u-shape fluorescent lamps.

"Input power" means the power provided to the ballast, typically line alternating-current power as determined by section 2.5.1.6 of amended Appendix Q.

"Maximum arc power" means the maximum amount of power a dimming ballast will provide to lamps under normal operating conditions. It is the same power as the measured power at 100 percent arc power.

"Weighted Ballast Luminous Efficacy" means the weighted average ballast luminous efficacy as calculated in section 1604(j)(3)(D).

...

(k) Lamps.

"R20 short lamp" means a lamp that is an R20 incandescent reflector lamp that has a rated wattage of 100 watts; has a maximum overall length of 3 and 5/8, or 3.625, inches; and is designed, labeled, and marketed specifically for pool and spa applications.

...

(n) Luminaires and Torchieres.

Nonpulse-start electronic ballast means an electronic ballast with a starting method other than pulse-start.

…

(s) Electric Motors.

"Accreditation" means recognition by an accreditation body that a laboratory is competent to test the efficiency of electric motors according to the scope and procedures given in 10 C.F.R. sections 431.1 and 431.15. Test Method B of IEEE Std 112–2004 and CSA C390–10.

…

(t) Distribution Transformers.

"Mining distribution transformer" means a medium-voltage dry-type distribution transformer that is built only for installation in an underground mine or surface mine, inside equipment for use in an underground mine or surface mine, on-board equipment for use in an underground mine or surface mine, or for equipment used for digging, drilling, or tunneling underground or above ground, and that has a nameplate which identifies the transformer as being for this use only.

~~"Underground mining distribution transformer" means a medium-voltage-dry-type distribution transformer that is built only for installation in an underground mine or inside equipment for use in an underground mine, and that has a nameplate which identifies the transformer as being for this use only.~~

…

(u) Power Supplies.

"Low-voltage external power supply" means an external power supply with a nameplate output voltage less than 6 volts and nameplate output current greater than or equal to 550 milliamps.

…

The following documents are incorporated by reference in Section 1602.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM Standard E 1084-86 (Reapproved 2009) Standard Test Method for Solar Transmittance (Terrestrial) of Sheet Materials Using Sunlight

Copies available from:

ASTM
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959
www.astm.org
Phone: (610) 832-9585
FAX: (610) 832-9555

Note: Authority cited: Sections 25213, 25218(e), 25402(a)-(c) and 25960, Public Resources Code. Reference: Sections 25216.5(d), 25402(a)-(c), 25402.5.4 and 25960, Public Resources Code.

Section 1604. Test Methods for Specific Appliances.

(c) Central Air Conditioners, Air Filters and Heat Pump Water-Chilling Packages.

(4) The test methods for air filters are shown in Table C-2

Table C-2: Air Filter Test Methods

Appliance	Appliance Performance Criteria	Test Method
Air Filters	Air Filter Pressure Drop	AHRI 680-2009
	Air Filter Particle Size Efficiency and MERV	AHRI 680-2009 or ASHRAE 52.2-2012
	Dust Holding Capacity	AHRI 680-2009 or ASHRAE 52.2-2012

…

(5) Heat-pump water-chilling packages shall be tested using ANSI/AHRI 550-590 (I-P) 2011. The heating capacity tests shall be conducted at ambient temperature of each 47°F and 17°F and a leaving water temperature of 120°F. If the package is capable of cooling, it shall be tested at an ambient temperature of 95°F and a leaving water temperature of 44°F.

…

(d) Spot Air Conditioners, Evaporative Coolers, Ceiling Fans, Ceiling Fan Light Kits, Whole House Fans, Residential Exhaust Fans, and Dehumidifiers.

Table D-1
Spot Air Conditioner, Ceiling Fan, Ceiling Fan Light Kit, Evaporative Cooler, Whole House Fan, Residential Exhaust Fan, and Dehumidifier Test Methods

	Test Method
Spot Air Conditioners	ANSI/ASHRAE 128-2001
Ceiling Fans, Except Low-Profile Ceiling Fans	10 C.F.R. section 430.23(w) (Appendix U to Subpart B of part 430)
Ceiling Fan Light Kits	10 C.F.R. section 430.23(x) (Appendix V to Subpart B of part 430)
Evaporative Coolers	ANSI/ASHRAE 133-2008 for packaged direct evaporative coolers and packaged indirect/direct evaporative coolers; ANSI/ASHRAE 143-2007 for packaged indirect evaporative coolers
Whole House Fans	HVI-916, tested with manufacturer-provided louvers in place (2009)
Dehumidifiers	10 C.F.R. section 430.23(z) (Appendix X to Subpart B of part 430) ~~OR 10 C.F.R. section 430.23(z) (Appendix X1 to Subpart B of part 430) (at manufacturer's discretion) for models manufactured before April 29, 2013~~ ~~10 C.F.R. section 430.23(z) (Appendix X1 to Subpart~~

	~~B of part 430) for models manufactured on or after April 29, 2013~~
Residential Exhaust Fans	HVI-916 (2009)
Residential Furnace Fans	10 C.F.R. section 430.23(cc) (Appendix AA to Subpart B of part 430)

(i) Plumbing Fixtures.

The test method~~s~~ for plumbing fixtures ~~is~~ are:

(1) 10 C.F.R. section 430.23(t) (Appendix T to Subpart B of part 430).

(2) MaP Testing Toilet Fixture Performance Testing Protocol Version 5-March 2013.

...

(j) Fluorescent Lamp Ballasts and Deep-Dimming Fluorescent Ballasts.

(3) Deep-dimming fluorescent ballasts shall be tested using 10 C.F.R. Section 430.23(q) (Appendix Q1 to Subpart B of part 430) (referred to as the "federal test method" in the following subsections), modified as follows:

(A) The control signal to the ballast shall indicate full output. The arc power of all connected lamps shall be measured and then added together. This result will be referred to as "maximum arc power." An appropriate lighting control shall be selected to achieve the control signal used to determine the maximum arc power and to tune the ballast to the appropriate dimming levels. The controls shall be selected by using the following methodology:

(i) If the ballast manufacturer also manufactures a lighting control designed to be operated with the ballast, the test shall be conducted using the ballast manufacturer's lighting control. Or;

(ii) If the manufacturer does not manufacture a compatible lighting control, but recommends the use of specific manufacturer and/or model of lighting control, such as in its product documentation, the test shall be conducted using a lighting control from the list of manufacturer recommended lighting controls. Or;

(iii) If the manufacturer does not manufacture a compatible lighting control, and does not recommend any specific lighting controls, the lab technician shall select a lighting control that sufficiently controls the ballast to complete the test.

(iv) If multiple control options are available, use the lighting control that is capable of using all of the features of a ballast and with the minimum amount of other features. The lighting control manufacturer and model number shall appear on the test report.

(B) Three sets of input power and arc power shall be measured using the federal test procedure with the total arc power tuned to 100, 80, and 50 percent of the measured maximum arc power. If a step dimming ballast or a ballast that can only turn connected lamps on or off has dimming steps other than 80 and 50 percent, then the closest step that is between 90 and including 65 percent shall be used for 80 percent testing, and the closest step that is between 65 and including 35 percent shall be used for 50 percent testing. If no step exists in the above prescribed ranges, then no result shall be recorded for that percentage dimming test. The resulting input powers shall be recorded and referred to as P_{100}, P_{80}, and P_{50}. The measurement of power factor shall be taken during the measurement of maximum arc power and reported.

(C) Standby mode test: the ballast shall also be tested with a control input set to the lowest dimming state possible up to and including no light output. The input power to the ballast shall be measured and recorded as P_0. The measurement must be taken 90 minutes after entering this state. P_0 shall be recorded as the mean value of measurements taken at 5 second intervals over a 5-minute period.

(D) The weighted ballast luminous efficacy shall be calculated using the following formula and table:

$$Weighted\ ballast\ luminous\ efficacy = P_{100} \times w_{100} + P_{80} \times w_{80} + P_{50} \times w_{50}$$

Where power is in watts and time values (w_{100}, w_{80}, w_{50}, w_0) are taken from the appropriate tables below:

Percentage Time of Operation Table

Time Variable	Measurements taken			
	P_{80}, P_{50}	P_{80}, no P_{50}	No P_{80}, P_{50}	No P_{80}, No P_{50}
w_{100}	0.2	0.35	0.45	1
w_{80}	0.5	0.65	0	0
w_{50}	0.3	0	0.55	0

The following documents are incorporated by reference in Section 1604.

AIR-CONDITIONING, HEATING, AND REFRIGERATION INSTITUTE (AHRI)

AHRI 680-2009 2009 Standard for Performance Rating of Residential Air Filter Equipment

Copies available from: Air-Conditioning, Heating, and Refrigeration Institute (AHRI)
2111 Wilson Blvd, Suite 500
Arlington, VA 22201
Phone: (703) 524-8800

FAX: (703) 562-1942
http://www.ahrinet.org/

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)

ASHRAE 52.2-2012	Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size

…

GAULEY ASSOCIATES, LTD. KOELLER & COMPANY

Maximum performance (map) testing: MaP Testing Toilet Fixture Performance Testing Protocol Version 5 (March 2013)

Copies available from: Koeller and Company
5962 Sandra Drive,
Yorba Linda, CA., 92886-5337
Tel (714) 777-2744 Mobile (714) 757-0679
www.map-testing.com

Note: Authority cited: Sections 25213, 25218(e), 25401(d), 25402(a)-(c) and 25960, Public Resources Code. Reference: Sections 25216.5(d), 25402(a)-(c) and 25960, Public Resources Code.

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

(a)Refrigerators, Refrigerator-Freezers, and Freezers.

(2) Commercial Refrigerators, Commercial Refrigerator-Freezers, and Commercial Freezers.

(A) The daily energy consumption (in kilowatt hours per day) of each commercial refrigerator-freezer with solid doors and a self-contained condensing unit, manufactured on or after January 1, 2010 and before March 27, 2017, shall be not greater than the greater of ((0.27 × adjusted volume) – 0.71) or 0.70 kWh.

Table A-3 [change is to footnote]

[1]AV = adjusted total volume, expressed in ft^3, as determined in 10 C.F.R., part 430, Appendices A1 and B1 of Subpart B~~, which is:~~
~~[1.44 x freezer volume (ft3)] + refrigerator volume (ft3) for refrigerators;~~
~~[1.63 x freezer volume (ft3)] + refrigerator volume (ft3) for refrigerator-freezers;~~
~~[1.73 x freezer volume (ft3)] for freezers~~.

Table A-4.

Table A-4
Standards for Commercial Refrigerators and Freezers
with a Self-Contained Condensing Unit that are Not Commercial Hybrid Units

Equipment Category and Effective Date	*Condensing Unit Configuration*	*Equipment Family*	*Rating Temperature (°F)*	*Operating Temperature (°F)*	*Equipment Class Designation**	*Maximum Daily Energy Consumption (kWh)*
Refrigerators and Freezers Effective January 1, 2010 [1]Effective January 1, 2012	Self Contained (SC)	Vertical Closed Transparent (VCT)	38 (M) 0 (L)	≥ 32 < 32	VCT, SC, M VCT, SC, L	0.12 × V + 3.34 0.75 × V + 4.10
		Horizontal Closed Transparent (HCT)	38 (M) 0 (L)	≥ 32 < 32	HCT, SC, M HCT, SC, L	0.12 × V + 3.34 0.75 × V + 4.10
		Vertical Closed Solid (VCS)	38 (M) 0 (L)	≥ 32 < 32	VCS, SC, M VCS, SC, L	0.10 × V + 2.04 0.40 × V + 1.38
		Horizontal Closed Solid (HCS)	38 (M) 0 (L)	≥ 32 < 32	HCS, SC, M HCS, SC, L	0.10 × V + 2.04 0.40 × V + 1.38
		Service Over Counter (SOC)	38 (M) 0 (L)	≥ 32 < 32	SOC, SC, M SOC, SC, L	0.12 × V + 3.34 0.6 × TDA + 1.0[1] 0.75 × V + 4.10

(4) Walk-In Coolers and Walk-In Freezers.

1. A walk-in cooler or walk-in freezer component if the component manufacturer has demonstrated to the satisfaction of the Secretary in a manner consistent with applicable requirements that the component reduces energy consumption at least as much as if such insulation requirements of Section 1605.1(a)(4)(C) of this Article were to apply.

…

(b) Room Air Conditioners, Room Air-Conditioning Heat Pumps, Packaged Terminal Air Conditioners, and Packaged Terminal Heat Pumps.

(2) Packaged Terminal Air Conditioners and Packaged Terminal Heat Pumps.

~~(A) The EER and COP, as applicable, of non-standard size packaged terminal air conditioners and non-standard size packaged terminal heat pumps manufactured before October 7, 2010 and standard size packaged terminal air conditioners and standard size packaged terminal heat pumps manufactured before October 8, 2012 shall be not less than the applicable values shown in Table B-4.~~

~~Table B-4~~
~~Standards for Non-Standard Size Packaged Terminal Air Conditioners and Packaged Terminal Heat Pumps Manufactured Before October 7, 2010 and Standard Size Packaged Terminal Air Conditioners and Packaged Terminal Heat Pumps Manufactured Before October 8, 2012~~

~~*Appliance*~~	~~*Mode*~~	~~*Cooling Capacity (Btu/hr)*~~	~~*Minimum EER or COP*~~
~~Packaged terminal air conditioners and packaged terminal heat pumps~~	~~Cooling~~	~~≤ 7,000~~	~~8.88 EER~~
		~~> 7,000 and < 15,000~~	~~10.0 – (0.00016 x Cap.) EER~~
		~~≥ 15,000~~	~~7.6 EER~~
~~Packaged terminal heat pumps~~	~~Heating~~	~~≤ 7,000~~	~~2.72~~
		~~> 7,000 and < 15,000~~	~~1.3 + [0.16 (10.0 – 0.00016 x Cap.)] COP~~
		~~≥ 15,000~~	~~2.52~~
~~Cap. = cooling capacity (Btu/hr)~~			

~~(B)~~(A) The EER and COP, as applicable, of non-standard size packaged terminal air conditioners and non standard size packaged terminal heat pumps manufactured on or after October 7, 2010, and of standard size packaged terminal air conditioners and standard size packaged terminal heat pumps manufactured on or after October 8, 2012 shall be not less than the applicable values shown in Tables ~~B-5 and B-6~~ B-4 and B-5.

~~Table B-5~~ Table B-4

~~Table B-6~~ Table B-5

…

(c) Central Air Conditioners.

(1) **Central Air Conditioners.** The EER, SEER, COP, HSPF, and SCOP, as applicable, of all central air conditioners, including computer room air conditioners, shall be not less than the applicable values shown in Tables C-2, C-3, C-4, C-5, ~~and~~ C-6, and C-7.

Table C-7
Standards for Variable Refrigerant Flow Multi-Split Air Conditioners and Heat Pumps

Equipment type	Cooling capacity	Heating type[1]	Efficiency level	Compliance date: Products manufactured on and after . . .
VRF Multi-Split Air Conditioners (Air-Cooled)	<65,000 Btu/h	All	13.0 SEER	June 16, 2008
	≥65,000 Btu/h and <135,000 Btu/h	No Heating or Electric Resistance Heating	11.2 EER	January 1, 2010
		All Other Types of Heating	11.0 EER	January 1, 2010
	≥135,000 Btu/h and <240,000 Btu/h	No Heating or Electric Resistance Heating	11.0 EER	January 1, 2010
		All Other Types of Heating	10.8 EER	January 1, 2010
	≥240,000 Btu/h and <760,000 Btu/h	No Heating or Electric Resistance Heating	10.0 EER	January 1, 2010
		All Other Types of Heating	9.8 EER	January 1, 2010
VRF Multi-Split Heat Pumps (Air-Cooled)	<65,000 Btu/h	All	13.0 SEER 7.7 HSPF	June 16, 2008
	≥65,000 Btu/h and <135,000 Btu/h	No Heating or Electric Resistance Heating	11.0 EER 3.3 COP	January 1, 2010
		All Other Types of Heating	10.8 EER 3.3 COP	January 1, 2010
	≥135,000 Btu/h and <240,000 Btu/h	No Heating or Electric Resistance Heating	10.6 EER 3.2 COP	January 1, 2010
		All Other Types of Heating	10.4 EER 3.2 COP	January 1, 2010
	≥240,000 Btu/h and <760,000 Btu/h	No Heating or Electric Resistance Heating	9.5 EER 3.2 COP	January 1, 2010
		All Other Types of Heating	9.3 EER 3.2 COP	January 1, 2010

VRF Multi-Split Heat Pumps (Water-Source)	<17,000 Btu/h	Without heat recovery	12.0 EER 4.2 COP	October 29, 2012 October 29, 2003
		With heat recovery	11.8 EER 4.2 COP	October 29, 2012 October 29, 2003
	≥17,000 Btu/h and <65,000 Btu/h	All	12.0 EER 4.2 COP	October 29, 2003
	≥65,000 Btu/h and <135,000 Btu/h	All	12.0 EER 4.2 COP	October 29, 2003
	≥135,000 Btu/h and <760,000 Btu/h	Without heat recovery	10.0 EER 3.9 COP	October 29, 2013
		With heat recovery	9.8 EER 3.9 COP	October 29, 2013
[1]VRF Multi-Split Heat Pumps (Air-Cooled) with heat recovery fall under the category of "All Other Types of Heating" unless they also have electric resistance heating, in which case it falls under the category for "No Heating or Electric Resistance Heating."				

(c) (4) Heat Pump Water Chilling Packages.

There is no energy efficiency standard or energy design standard for heat-pump, water-chilling packages

…

(e) Gas and Oil Space Heaters and Electric Residential Boilers.

Table E-6
Standards for Gas- and Oil-Fired Central Furnaces Less Than 225,000 Btu/hour Input and Residential Electric Furnaces

~~Appliance~~	~~Fuel~~	~~Type~~	~~Minimum AFUE~~	~~Effective Date~~
~~Mobile Home Furnace~~	~~Gas, Oil~~	~~—~~	~~75~~	~~September 1, 1990~~
	~~Gas~~	~~Weatherized~~	~~80~~	~~January 1, 2015~~
		~~Non-Weatherized~~		~~May 1, 2013~~
	~~Oil~~	~~Weatherized~~	~~75~~	~~January 1, 2015~~
		~~Non-Weatherized~~		~~May 1, 2013~~
~~Non Mobile Home Furnace~~	~~Gas, Oil~~	~~—~~	~~78~~	~~January 1, 1992~~

	~~Gas~~	~~Weatherized~~	~~81~~	~~January 1, 2015~~
		~~Non-Weatherized~~	~~80~~	~~May 1, 2013~~
	~~Oil~~	~~Weatherized~~	~~78~~	~~January 1, 2015~~
		~~Non-Weatherized~~	~~83~~	~~May 1, 2013~~
~~Residential Furnace~~	~~Electricity~~	~~Weatherized~~	~~78~~	~~January 1, 2015~~
		~~Non-Weatherized~~	~~78~~	~~May 1, 2013~~

Product class	AFUE (percent)	Compliance date
(A) Non-weatherized gas furnaces (not including mobile home furnaces)	80	November 19, 2015.
(B) Mobile Home gas furnaces	80	November 19, 2015.
(C) Non-weatherized oil-fired furnaces (not including mobile home furnaces)	83	May 1, 2013.
(D) Mobile Home oil-fired furnaces	75	September 1, 1990.
(E) Weatherized gas furnaces	81	January 1, 2015.
(F) Weatherized oil-fired furnaces	78	January 1, 1992.
(G) Electric furnaces	78	January 1, 1992.

…

(h) Plumbing Fittings.

(1) **Showerheads, Faucets, ~~Aerators,~~ and Wash Fountains.** The flow rate of showerheads, ~~lavatory faucets, kitchen faucets, lavatory replacement aerators, kitchen replacement aerators,~~ wash fountains, and metering faucets shall be not greater than the applicable values shown in Table H-1. Showerheads shall also meet the requirements of ASME/ANSI Standard A112.18.1M-1996, 7.4.4(a).

Table H-1 Standards for Plumbing Fittings

Appliance	Maximum Flow Rate
Showerheads	2.5 gpm at 80 psi
~~Lavatory faucets~~	~~2.2 gpm at 60 psi[1,2]~~
~~Kitchen faucets~~	~~2.2 gpm at 60 psi~~
Replacement aerators	2.2 gpm at 60 psi

Wash fountains	$2.2 \times \frac{\text{rim space (inches)}}{20}$ gpm at 60 psi
Metering faucets	0.25 gallons/cycle [3.4]
Metering faucets for wash fountains	$0.25 \times \frac{\text{rim space (inches)}}{20}$ gpm at 60 psi [1.2 3.4]

[1] **~~Sprayheads with independently-controlled orifices and manual controls.~~** ~~The maximum flow rate of each orifice that manually turns on or off shall not exceed the maximum flow rate for a lavatory faucet.~~

[2] **~~Sprayheads with collectively controlled orifices and manual controls.~~** ~~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)).~~

[1] **Sprayheads with independently controlled orifices and metered controls.** The maximum flow rate of each orifice that delivers a pre-set volume of water before gradually shutting itself off shall not exceed the maximum flow rate for a metering faucet.

[2] **Sprayheads with collectively-controlled orifices and metered controls.** The maximum flow rate of a sprayhead that delivers a pre-set 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)).

(5) **Lavatory faucets, kitchen faucets, and public lavatory faucets**. See Section 1605.3 (h)(2) for standards for all lavatory faucets, kitchen faucets, and public lavatory faucets sold or offered for sale in California.

…

(l) Plumbing Fixtures.

~~The water consumption of water closets and urinals shall be not greater than the values shown in Table I.~~

~~Table I-1~~ Standards for Plumbing Fixtures

Appliance	Maximum Gallons per Flush
~~Gravity tank-type water closets~~	~~1.6~~
~~Flushometer tank water closets~~	~~1.6~~
~~Electromechanical hydraulic water closets~~	~~1.6~~
~~Blowout water closets~~	~~3.5~~
~~Trough-type urinals~~	$\frac{\text{trough length (inches)}}{16}$
~~Other urinals~~	~~1.0~~

Water closets and urinals. See Section 1605.3(i) for standards for all water closets and urinals sold or offered for sale in California.

…

(j) Fluorescent Lamp Ballasts and Deep-Dimming Fluorescent Ballasts.

…

(k) Lamps.

(2) Federally-Regulated Incandescent Reflector Lamps.

2. The standards specified in Table K-3 shall not apply to the following types of incandescent reflector lamps:

a. Lamps rated at 50 watts or less that are ER30, BR30, BR40, or ER40;
b. Lamps rated at 65 watts that are BR30, BR40, or ER40 lamps; and
c. R20 incandescent reflector lamps rated 45 watts or less;
d. R20 short lamps.

…

(n) Luminaires and Torchieres.

~~(2) **Metal Halide Lamp Fixtures.** Metal halide lamp fixtures designed to be operated with lamps rated greater than or equal to 150 watts but less than or equal to 500 watts, manufactured on or after January 1, 2009, shall contain:~~

~~(A) A pulse-start metal halide ballast with a minimum ballast efficiency of 88 percent;~~

~~(B) A magnetic probe-start ballast with a minimum ballast efficiency of 94 percent; or~~

~~(C) A nonpulse-start electronic ballast with either:~~

~~1. a minimum ballast efficiency of 92 percent for wattages greater than 250 watts; or~~

~~2. a minimum ballast efficiency of 90 percent for wattages less than or equal to 250 watts.~~

~~(D) This subsection does not apply to any metal halide lamp fixture:~~

~~1. with regulated lag ballasts;~~

~~2. that uses electronic ballasts that operate at 480 volts; or~~

~~3. that (i) are rated only for 150 watt lamps; (ii) are rated for use in wet locations, as specified by the National Electrical Code 2002, Section 410.4(A): and (iii) contain a ballast that is rated to operate at ambient air temperatures above 50°C., as specified by UL 1029-2001.~~

~~(3)~~ See Section 1605.3(n) for energy efficiency standards and energy design standards for luminaires, including standards for metal halide luminaires sold or offered for sale in California that are manufactured~~:~~

~~(A) prior to January 1, 2009, or~~
~~(B)~~ on or after January 1, 2010.

(2) Each metal halide lamp fixture, designed to be operated with lamps less than 150 W and greater than 500 W, manufactured on or after February 10, 2017, must contain a metal halide ballast with an efficiency not less than the value determined from the appropriate equation in the following table:

Table N-1

Designed to be operated with lamps of the following rated lamp wattage	Tested input voltage‡‡	Minimum standard equation‡‡ %
≥50 W and ≤100 W	Tested at 480 V	(1/(1+1.24×P^(−0.351))) − 0.020‡‡;
≥50 W and ≤100 W	All others	1/(1+1.24×P^(−0.351))
>100 W and <150‡; W	Tested at 480 V	(1/(1+1.24×P^(−0.351))) − 0.020
>100 W and <150‡; W	All others	1/(1+1.24×P^(−0.351))
>500 W and ≤1000 W	Tested at 480 V	For >500 W and ≤750 W: 0.900
__		For >750 W and ≤1000 W: 0.000104×P+0.822
__		For >500 W and ≤1000 W: may not utilize a probe-start ballast
>500 W and ≤1000 W	All others	For >500 W and ≤750 W: 0.910
__		For >750 W and ≤1000 W: 0.000104×P+0.832
__		For >500 W and ≤1000 W: may not utilize a probe-start ballast

‡ Includes 150 W fixtures specified in paragraph (b)(3) of this section, that are fixtures rated only for 150 W lamps; rated for use in wet locations, as specified by the NFPA 70 (incorporated by reference, see §431.323), section 410.4(A); and containing a ballast that is rated to operate at ambient air temperatures above 50 °C, as specified by UL 1029 (incorporated by reference, see §431.323).

‡ Excludes 150 W fixtures specified in paragraph (b)(3) of this section, that are fixtures rated only for 150 W lamps; rated for use in wet locations, as specified by the NFPA 70, section 410.4(A); and containing a ballast that is rated to operate at ambient air temperatures above 50 °C, as specified by UL 1029.

‡‡ P is defined as the rated wattage of the lamp the fixture is designed to operate.

‡‡ Tested input voltage is specified in 10 CFR 431.324.

(d) Except as provided in paragraph (e) of this section, metal halide lamp fixtures manufactured on or after February 10, 2017, that operate lamps with rated wattage >500 W to ≤1000 W must not contain a probe-start metal halide ballast.

(e) The standards described in paragraphs (c) and (d) of this section do not apply to—

(1) Metal halide lamp fixtures with regulated-lag ballasts;
(2) Metal halide lamp fixtures that use electronic ballasts that operate at 480 volts; and
(3) Metal halide lamp fixtures that use high-frequency electronic ballasts.

...

(r) Cooking Products and Food Service Equipment.

(2) Microwave-only ovens, countertop convection microwave ovens, built-in microwave ovens, and over-the-range convection microwave ovens manufactured on or after June 17, 2016 shall ~~be~~ not exceed ~~less than~~ the ~~maximum~~ average standby power rating (watts) shown in Table R-2.

Note: Authority cited: Sections 25213, 25218(e), 25402(a)-(c) and 25960, Public Resources Code. Reference: Sections 25216.5(d), 25402(a)-(c) and 25960, Public Resources Code.

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

…

(c) Central Air Conditioners, Air Filters, and Heat Pump Water-Chilling Packages.

(1) **Energy Efficiency Standards for Ground Water-Source Heat Pumps and Ground-Source Heat Pumps.** The EER and COP for ground water-source heat pumps and ground-source heat pumps manufactured on or after October 29, 2003, shall be not less than the applicable values shown in Table C-~~7~~8.

Table C-~~7~~8

Standards for Ground Water-Source and Ground-Source Heat Pumps

(2) **Energy Efficiency Standards for Computer Room Air Conditioners.** The EER of evaporatively-cooled computer room air conditioners manufactured on or after the effective dates shown, shall be not less than the applicable values shown in Table C-~~8~~9.

Table C-~~8~~9

Standards for Evaporatively Cooled Computer Room Air Conditioners

(5) **Heat Pump Water Chilling Packages.** There is no energy efficiency standard or energy design standard for heat pump water-chilling packages. The performance of each model shall be reported per the requirements of section 1606 for equipment manufactured on or after May 1, 2016.

…

(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.

~~(2) Showerhead-Tub Spout Diverter Combinations. Showerhead-tub spout diverter combinations shall meet both the standard for shower heads and the standard for tub spout diverters.~~

(2) **Showerheads, Faucets, Aerators, and Wash Fountains.** The flow rate of showerheads, lavatory faucets, kitchen faucets, replacement accessories, lavatory replacement aerators,

kitchen replacement aerators, wash fountains, and metering faucets shall be not greater than the applicable values shown in Table H-3. Showerheads shall also meet the requirements of ASME/ANSI Standard A112.18.1M-1996, 7.4.4(a).

Table H-3: Standards for Plumbing Fittings

Appliance	*Maximum Flow Rate*	
	Manufactured prior to May 1, 2016	*Manufactured on or after May 1, 2016*
Lavatory faucets	2.2 gpm at 60 psi [1,2]	1.5 gpm at 60 psi [1, 2] and no less than 0.8 gpm at 20 psi
Kitchen faucets	2.2 gpm at 60 psi	1.8 gpm with optional temporary flow of 2.2 gpm at 60 psi
Public lavatory faucets	2.2 gpm at 60 psi	0.5 gpm at 60 psi

[1] **Sprayheads with independently-controlled orifices and manual controls.** The maximum flow rate of each orifice that manually turns on or off shall not exceed the maximum flow rate for a lavatory faucet.

[2] **Sprayheads with collectively controlled orifices and manual controls.** 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)).

…

(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.

~~See Section 1605.1(i) for water efficiency standards for plumbing fixtures that are federally-regulated consumer products.~~

Table I-2 Standards for Plumbing Fixtures

Appliance	**Maximum Gallons per Flush or Average Flush for Dual Flush**	
	Manufactured on or after January 1, 2014	**Manufactured on or after May 1, 2016**
All water closets	1.28	1.28
Trough-type urinals	$\frac{\text{trough length (inches)}}{16}$	$\frac{\text{trough length (inches)}}{16}$
Wall mounted urinals	0.5	0.125
Floor mounted urinals	0.5	0.5

(2) Water closets manufactured on or after May 1, 2016 shall achieve a MaP score of no less than 350 grams.

…

(j) Fluorescent Lamp Ballasts and Deep-Dimming Fluorescent Ballasts.

(1) Deep-Dimming Fluorescent Ballasts. Deep-dimming fluorescent ballasts manufactured on or after May 1, 2016 shall meet the following energy conservation standards:

(i) Shall not consume more than 1 watt in standby mode;
(ii) Shall have a power factor of 0.9 or greater; and
(iii) Shall have a weighted ballast luminous efficacy greater than or equal to the threshold described in the following equation:

$$Weighted\ Ballast\ Luminous\ Efficacy \geq \frac{P_{100}\ *}{P_{100} \times 1.091 + 7.55}$$

*P_{100} is shorthand for maximum arc power as defined in section 1602 and discussed in section 1604

(2) See section 1605.1(j) for energy efficiency standards for fluorescent lamp ballasts that are federally regulated consumer products.

(n) Luminaires and Torchieres.

(1) **Energy Efficiency Standard for Metal Halide Luminaires.** Metal halide luminaires rated at least partially within the range of 150 to 500 watts shall not have probe-start ballasts and shall comply with Section 1605.3(n)(1)(A) as applicable:

(C) See section 1605.1(n) for energy efficiency standards for metal halide luminaires rated under 150 W and above 500 W.

Note: Authority cited: Sections 25213, 25218(e), 25401(d), 25402(a)-(c) and 25960, Public Resources Code. Reference: Sections 25216.5(d), 25402(a)-(c), 25402.5.4 and 25960.

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

…

Table X Continued - Data Submittal Requirements

	Appliance	**Required Information**	Permissible Answers
	All Appliances	* Manufacturer's Name	
		* Brand Name	
		* Model Number	
		Date model to be displayed	
		Regulatory Status	Federally-regulated consumer product, federally-regulated commercial and industrial equipment, non-federally-regulated

* "Identifier" information as described in Section 1602(a).

1 = Voluntary for federally-regulated appliances

2 = Voluntary for state-regulated appliances

Table X Continued - Data Submittal Requirements

	Appliance	Required Information	Permissible Answers
A	Self-contained Commercial Refrigerators with or without doors, Self-contained Commercial Refrigerator-Freezers with doors, Self-contained Commercial Freezers with or without doors, Self-contained Commercial Refrigerators specifically designed for display and sale of bottled or canned beverages without doors, Remote Condensing Commercial Refrigerators, Remote Condensing Commercial Freezers, Commercial Ice Cream Freezers Certification of Self-contained Commercial Refrigerators without doors, Self-contained Commercial Freezers without doors, Remote Condensing Commercial Refrigerators, Remote Condensing Commercial Freezers, and Commercial Ice Cream Freezers, including all Energy Consumption values except Daily Energy Consumption, is not required for models manufactured before January 1, 2012 (Note: units with multiple compartments must certify data for each compartment)	**Cabinet Style*	Ice cream cabinet; milk or beverage cabinet; milk, beverage, or ice cream cabinet; undercounter cabinet; other reach-in cabinet; pass-through cabinet; roll-in or roll-through cabinet; preparation table; buffet table; wedge case; work top table; wine chiller
		*Defrost System	Automatic, manual, partial-automatic
		*Type	Ice-cream application, low-temperature application, medium-temperature application, pull-down application
		~~*Door Style (for units manufactured before January 1, 2012 only)~~ Total Compartments (for hybrid models and refrigerator-freezers)	~~Solid hinged, solid sliding, transparent hinged, transparent sliding, none.~~
		Equipment Family ~~(for those units manufactured on or after January 1, 2012 only)~~	Vertical open, semivertical open, horizontal open, vertical closed transparent, horizontal closed transparent, vertical closed solid, horizontal closed solid, service over counter
		Condensing Unit Configuration ~~(for those units manufactured on or after January 1, 2012 only)~~	Remote, self-contained
		Multiple compartments number ~~(for those units manufactured on or after January 1, 2012 only)~~	~~Yes, no~~
		Total Display Area (TDA)	
		~~Refrigerator Volume (for those units manufactured before January 1, 2012 only)~~	
		~~Freezer Volume (for those units manufactured before January 1, 2012 only)~~	
		Total Volume	
		Height	
		Width	
		Depth	
		Anti-condensate Energy Consumption (AEC) (for hybrid models and refrigerator-freezers)	

		Condensate Evaporator Pan Energy Consumption (PEC) (for hybrid models and refrigerator-freezers)	
		Defrost Energy Consumption (DEC) (for hybrid models and refrigerator-freezers)	
		Fan Energy Consumption (FEC) (for hybrid models and refrigerator-freezers)	
		Compressor Energy Consumption (CEC) (for hybrid models and refrigerator-freezers)	
		Lighting Energy Consumption (LEC) (for hybrid models and refrigerator-freezers)	
		Other Energy Consumption (OEC) (for hybrid models and refrigerator-freezers)	
		Daily Energy Consumption	
		Calculated Daily Energy Consumption (CDEC)	
		Total Daily Energy Consumption (TDEC)	
		Refrigerant Type	Ozone-depleting, non-ozone-depleting
		Insulation Type	Ozone-depleting, non-ozone-depleting

* "Identifier" information as described in Section 1602(a).

1 = Voluntary for federally-regulated appliances

2 = Voluntary for state-regulated appliances

…

Table X Continued - Data Submittal Requirements

	Appliance	Required Information	Permissible Answers
B	Room Air Conditioners and Room Air-Conditioning Heat Pumps	*Voltage	
		*Electrical Phase	1, 3
		*Type	Room air conditioner, room air conditioning heat pump, casement-only room air conditioner, casement-slider room air conditioner.
		*Louvered Sides	Yes, no
		Cooling Capacity at 95°F	
		Electrical Input at 95°F	
		~~Energy Efficiency Ratio (EER) at 95°F~~	
		Combined Energy Efficiency Ratio at 95°F ~~(required for models manufactured on or after June 1, 2014 only)~~	
		Standby and Off Mode Annual Energy Consumption	
		Heating Capability	Heat pump, electric resistance heating, heat pump and electric resistance heating, no heating capability
		~~Heating Capacity (for heat pumps only)~~	
		~~Electrical Input (for heat pumps only)~~	
		~~Coefficient of Performance (for heat pumps only)~~	
		~~Heating Capacity (for models with electric resistance heating only)~~	
		~~Electrical Input (for those with electric resistance heating)~~	
		Refrigerant Type[1]	Ozone-depleting, non-ozone-depleting
	Packaged Terminal Air Conditioners and Packaged Terminal Heat Pumps	*Voltage	
		*Electrical Phase	1, 3
		*Type	PTAC, PTHP
		Size	Standard, non-standard
		Cooling Capacity at 95°F	
		Electrical Input at 95°F	
		Energy Efficiency Ratio (EER) at 95°F	
		Heating Capability	Heat pump, electric resistance heating, heat pump and electric resistance heating, no heating capability
		Heating Capacity (for models with heating capability only)	
		Electrical Input (for models with heating capability only)	
		Coefficient of Performance (for models with heating capability only)	

		Refrigerant Type[1]	Ozone-depleting, non-ozone-depleting
		~~Indoor Fan Nominal Horsepower[1]~~	
		~~Indoor Fan Motor Type[1]~~	~~Premium, standard~~
		~~Outdoor Fan Nominal Horsepower[1]~~	
		~~Outdoor Fan Motor Type[1]~~	~~Premium, standard~~
		Compressor Power[1]	

* "Identifier" information as described in Section 1602(a).

1 = Voluntary for federally-regulated appliances

2 = Voluntary for state-regulated appliances

...

Table X: Data Submittal Requirements

	Appliance	Required Information	Permissible Answers
C	Air Filters	MERV	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20
		Particle Size Efficiency for 0.3 to 1.0 μm particle size	
		Particle Size Efficiency for 1.0 to 3.0 μm particle size	
		Particle Size Efficiency for 3.0 to 10.0 μm particle size	
		Test Procedure used to determine air filter efficiency performance	AHRI 680-2009, or ASHRAE 52.2-2012
		Maximum Rated Airflow Rate	Test results in cubic-feet-per-minute, in multiples of 1
		Initial Resistance at 400 cubic-feet-per-minute (cfm)	Test results to one-hundredths of an Inch of Water Column
		Initial Resistance at 800 cubic-feet-per-minute (cfm)	Test results to one-hundredths of an Inch of Water Column
		Initial Resistance at 1,200 cubic-feet-per-minute (cfm) unless maximum rated airflow rate (as published by the manufacturer) is less than 1,200 cfm	Test results to one-hundredths of an Inch of Water Column
		Initial Resistance at 1,600 cubic-feet-per-minute (cfm) unless maximum rated airflow rate (as published by the manufacturer) is less than 1,600 cfm	Test results to one-hundredths of an Inch of Water Column
		Initial Resistance at 2,000 cubic-feet-per-minute (cfm) or the maximum rated airflow rate as published by the manufacturer	Test results to one-hundredths of an Inch of Water Column
		Final Resistance at 2,000 cubic-feet-per-minute (cfm) or the maximum rated airflow rate as published by the manufacturer	Test results to one-hundredths of an Inch of Water Column
		Dust Holding Capacity	Test results in multiples of one gram.
		Test Procedure used to determine air filter dust holding capacity	AHRI 680-2009, or ASHRAE 52.2-2012

Table X Continued - Data Submittal Requirements

	Appliance	Required Information	Permissible Answers
C	All Central Air Conditioners and Central Air-Conditioning Heat Pumps	*Coil Model Number with which Compressor was Tested (for split systems only)	
		*Type	Air conditioner, heat pump (heating and cooling), heat pump (heating only), heat pump (cooling only)
		*Energy Source for Cooling	Electricity, natural gas
		*Energy Source for Heating	Gas, oil, electric heat pump, electric resistance, heat pump and electric resistance, none
		*ARI Classification	
		*Voltage	
		*Electrical Phase	1, 3
		Variable Refrigerant Flow	Yes, no
		Heat Recovery (for Variable Refrigerant Flow models only)	Yes, no
		Vertical Air Conditioner (for single package models only) (required on or after January 1, 2010)	Yes, no
		Refrigerant Type[1, 2]	Ozone-depleting, non-ozone-depleting
		Thermostatic Expansion Valve (for air-source or air-cooled models only)	Yes, no
		~~Thermostatic Expansion Valve (for air-source or air-cooled models only)[1, 2]~~	~~Exception 1, Exception 2, Exception 3 [See Section 1605.2(c)(1)(B)], no exception~~
		Compressor Motor Design	Single-speed, dual-speed, multiple-speed, variable-speed
		~~Compressor Motor Horsepower[1, 2]~~	
		~~Compressor Motor Type[1, 2]~~	~~Premium, standard~~
		~~Outdoor Fan Motor Design[1, 2]~~	~~Single-speed, dual-speed, multiple-speed, variable-speed~~
		~~Outdoor Fan Motor Nominal Horsepower[1, 2]~~	
		~~Outdoor Fan Motor Type[1, 2]~~	~~Premium, standard~~
		~~Outdoor Fan Motor Power Factor (for models with variable speed motors only)[1, 2]~~	
		~~Indoor Fan Motor Design[1, 2]~~	~~Single-speed, dual-speed, multiple-speed, variable-speed~~
		~~Indoor Fan Motor Nominal Horsepower[1, 2]~~	
		~~Indoor Fan Motor Type[1, 2]~~	~~Premium, standard~~
		~~Indoor Fan Motor Power Factor (for variable speed motors only)[1, 2]~~	

* "Identifier" information as described in Section 1602(a).

1 = Voluntary for federally-regulated appliances

2 = Voluntary for state-regulated appliances

Table X Continued - Data Submittal Requirements

	Appliance	Required Information	Permissible Answers
C	Air-Cooled, Single Package CAC < 65,000 Btu/hour and Air-Cooled, Split System CAC < 65,000 Btu/hour	Seasonal Energy Efficiency Ratio (SEER)[3]	
		Cooling Capacity at 82°F[3]	
		Electrical Input at 82°F[3]	
		Degradation Coefficient at 82°F[3]	
		Cooling Capacity at 95°F	
		Electrical Input at 95°F	
		Energy Efficiency Ratio (EER) at 95°F	
		Average Off Mode Power Consumption (Watts) ~~(for models manufactured on or after January 1, 2015 only)~~	
		Space-constrained Product	Space-constrained; ~~through-the-wall~~ variable-speed mini-split; small duct, high velocity; not space-constrained
	Air-Source, Single Package Heat Pumps < 65,000 Btu/hour and Air-Source Split System Heat Pumps < 65,000 Btu/hour	Seasonal Energy Efficiency Ratio (SEER)	
		Cooling Capacity at 82°F[3]	
		Electrical Input at 82°F[3]	
		Degradation Coefficient at 82°F[3]	
		Cooling Capacity at 95°F	
		Electrical Input at 95°F	
		Energy Efficiency Ratio (EER) at 95°F	
		Average Off Mode Power Consumption (Watts)	
		Heating Seasonal Performance Factor (HSPF) [3]	
		Heating Capacity	
		Electrical Input	
		Coefficient of Performance (COP) at 47°F (single package vertical heat pumps only)	
		Space-constrained Product	Space-constrained~~; through-the-wall~~ variable-speed mini-split; small duct, high velocity; not space-constrained
	Air-Cooled, Single Package CAC ≥ 65,000 and < 760,000 Btu/hour Air-Cooled, Split System CAC ≥ 65,000 and < 760,000 Btu/hour	Cooling Capacity at 95°F	
		Electrical Input at 95°F	
		Energy Efficiency Ratio (EER) at 95°F	
		Integrated Part Load Value (IPLV) If Applicable	
		Heating System Type[1, 2]	Gas, oil, electric resistance, none

* "Identifier" information as described in Section 1602(a).

1 = Voluntary for federally-regulated appliances

2 = Voluntary for state-regulated appliances

3 = Voluntary for single package vertical air conditioners and single package vertical heat pumps only.

Table X Continued - Data Submittal Requirements

	Appliance	Required Information	Permissible Answers
C	Air-Source, Single Package Heat Pumps ≥ 65,000 Btu/hour and < 760,000 Btu/hour; and Air-Source, Split-System Heat Pumps ≥ 65,000 and < 760,000 Btu/hour	Cooling Capacity at 95°F	
		Electrical Input at 95°F	
		Energy Efficiency Ratio (EER) at 95°F	
		Integrated Part Load Value (IPLV) If Applicable	
		Heating Capacity at 47°F	
		Electrical Input at 47°F	
		Coefficient of Performance (COP) at 47°F	
		Heating Capacity at 17°F	
		Electrical Input at 17°F	
		Coefficient of Performance (COP) at 17°F	
	Evaporatively-Cooled Single Package CAC < 760,000 Btu/hour and Evaporatively-Cooled Split System CAC < 760,000 Btu/hour	Cooling Capacity at 95°F	
		Electrical Input at 95°F	
		Energy Efficiency Ratio (EER) at 95°F	
		Integrated Part Load Value (IPLV) If Applicable	
		Heating System Type[1, 2]	Gas, oil, electric resistance, none
	Water-Cooled Single-Package CAC < 760,000 Btu/hour and Water-Cooled, Split System CAC < 760,000 Btu/hour	Compressor Electrical Input (for models ≥ 65,000 Btu/hour only)	
		Indoor Fan Electrical Input (for models ≥ 65,000 Btu/hour only)[3]	
		Outdoor Fan Electrical Input (for models ≥ 65,000 Btu/hour only)[3]	
		Cooling Capacity at 85°F Entering Water Temperature	
		Electrical Input at 85°F Entering Water Temperature	
		Energy Efficiency Ratio (EER) at 85°F Entering Water Temperature	
		Low Temperature EER at 70°F Entering Water Temperature (for models < 65,000 Btu/hour only)	
		Heating System Type[1]	Gas, oil electric resistance, none
	Water-Source, Single Package Heat Pumps < 760,000 Btu/hour and Water-Source Split System Heat Pumps < 760,000 Btu/hour	Compressor Electrical Input (for models ≥ 65,000 Btu/hour only)	
		Indoor Fan Electrical Input (for models ≥ 65,000 Btu/hour only)[3]	
		Outdoor Fan Electrical Input (for models ≥ 65,000 Btu/hour only)[3]	
		Cooling Capacity at 86°F Entering Water Temperature	

		Electrical Input at 86°F Entering Water Temperature	
		Energy Efficiency Ratio (EER) at 86°F Entering Water Temperature	
		Heating Capacity at 68°F Entering Water Temperature	
		Electrical Input at 68°F Entering Water Temperature	
		Coefficient of Performance (COP) at 68°F Entering Water Temperature	

* "Identifier" information as described in Section 1602(a).

1 = Voluntary for federally-regulated appliances

2 = Voluntary for state-regulated appliances

3 = Report both fields for split systems; either indoor or outdoor fan electrical input (not both) for single package models.

Table X Continued - Data Submittal Requirements

	Appliance	Required Information	Permissible Answers
C	Ground Water-Source, Single Package Heat Pumps and Ground Water-Source Split System Heat Pumps	Compressor Electrical Input (for models ≥ 65,000 Btu/hour only)	
		Indoor Fan Electrical Input (for models ≥ 65,000 Btu/hour only)[3]	
		Outdoor Fan Electrical Input (for models ≥ 65,000 Btu/hour only)[3]	
		Cooling Capacity at 59°F Entering Water Temperature (for all sizes, including but not limited to models ≥ 240,000 Btu/hour)	
		Electrical Input at 59°F Entering Water Temperature (for all sizes, including but not limited to models ≥ 240,000 Btu/hour)	
		Energy Efficiency Ratio (EER) at 59°F Entering Water Temperature (for all sizes, including but not limited to models ≥ 240,000 Btu/hour)	
		Heating Capacity at 50°F Entering Water Temperature (for all sizes, including but not limited to models ≥ 240,000 Btu/hour)	
		Electrical Input at 50°F Entering Water Temperature (for all sizes, including but not limited to models ≥ 240,000 Btu/hour)	
		Coefficient of Performance (COP) at 50°F Entering Water Temperature (for all sizes, including but not limited to models ≥ 240,000 Btu/hour)	
	Ground-Source, Closed-Loop, Single Package Heat Pumps and Ground-Source, Closed-Loop, Split System Heat Pumps	Compressor Electrical Input (for models ≥ 65,000 Btu/hour only)	
		Indoor Fan Electrical Input (for models ≥ 65,000 Btu/hour only)[3]	
		Outdoor Fan Electrical Input (for models ≥ 65,000 Btu/hour only)[3]	
		Cooling Capacity at 77°F Entering Brine Temperature	
		Electrical Input at 77°F Entering Brine Temperature	
		Energy Efficiency Ratio (EER) at 77°F Entering Brine Temperature	
		Heating Capacity at 32°F Entering Brine Temperature	
		Electrical Input at 32°F Entering Brine Temperature	
		Coefficient of Performance (COP) at 32°F Entering Brine Temperature	

* "Identifier" information as described in Section 1602(a).

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3 = Report both fields for split systems; either indoor or outdoor fan electrical input (not both) for single package models.

Table X Continued - Data Submittal Requirements

	Appliance	Required Information	Permissible Answers
C	Gas-Fired Air Conditioners and Gas-Fired Heat Pumps	Cooling Capacity – (cooling bin summary)	
		Gas Input While Cooling – (cooling bin summary)	
		Electric Input While Cooling – (cooling bin summary)	
		Cooling COP – Gas	
		Cooling COP – Electric	
		Heating Output – (heating bin summary)	
		Gas Input While Heating – (heating bin summary)	
		Electric Input While Heating – (heating bin summary)	
		Heating COP – Gas	
		Heating COP – Electric	
	Computer Room Air Conditioners	Equipment Type	Air-cooled, water-cooled, water-cooled with a fluid economizer, glycol-cooled, glycol-cooled with a fluid economizer, evaporatively cooled; chilled-water-cooled
		Net Sensible Cooling Capacity (air-cooled, water-cooled, glycol-cooled, chilled-water-cooled models only)	
		Downflow Unit Power Input (watts) (air-cooled, water-cooled, glycol-cooled, chilled-water-cooled models only)	
		Downflow Unit SCOP (air-cooled, water-cooled, glycol-cooled, chilled-water-cooled models only)	
		Upflow Unit Power Input (watts) (air-cooled, water-cooled, glycol-cooled, chilled-water-cooled models only)	
		Upflow Unit SCOP (air-cooled, water-cooled, glycol-cooled, chilled-water-cooled models only)	
		Cooling Capacity at 95°F (evaporatively cooled models only)	
		Electrical Input at 95°F *(evaporatively cooled models only)	
		Energy Efficiency Ratio (EER) at 95°F (evaporatively cooled models only)	

* "Identifier" information as described in Section 1602(a).

1 = Voluntary for federally-regulated appliances

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	Appliance	Required Information	Permissible Answers
C	Heat pump water-chilling package	Voltage*	
		Phase*	1, 3
		Refrigerant Type*	Ozone-depleting, non-ozone-depleting
		Compressor Motor Design*	Single-speed, dual-speed, multiple-speed, variable-speed
		OD Fan Motor Design*	Single-speed, dual-speed, multiple-speed, variable-speed
		Model number includes all components?	Yes, no
		Is the model designed for space cooling?	Yes, no
		Cooling Capacity (BTU per hour) if applicable	
		Cooling power input (watts) if applicable	
		Energy Efficiency Ratio (EER) if applicable	
		Integrated part load value (IPLV)	
		Heating Capacity (BTU per hour) at 47°F	
		Heating power input (watts) at 47°F	
		Coefficient of Performance (COP) at 47°F	
		Heating Capacity (BTU per hour) at 17°F	
		Heating power input (watts) at 17°F	
		Coefficient of Performance (COP) at 17°F	
		Heat Capacity (BTU per hour) of heat reclaim[2]	
		COPR of heat reclaim[2]	

* "Identifier" information as described in Section 1602(a).

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Table X Continued - Data Submittal Requirements

	Appliance	Required Information	Permissible Answers
D	Dehumidifiers		
		Product capacity (pints per day)	
		Energy Factor	
	Residential Furnace Fans	Furnace Fan Type	Non-weatherized, non-condensing gas (NWG-NC); Non-weatherized, condensing gas (NWG-C); Weatherized non-condensing gas (WG-NC); Non-weatherized, non-condensing oil (NWO-NC); Non-weatherized electric furnace/ modular blower fan (NWEF/NWMB); Mobile home non-weatherized, non-condensing gas (MH-NWG-NC); Mobile home non-weatherized, condensing gas (MH-NWG-C); Mobile home electric furnace/modular blower fan (MH-EF/MB); Mobile home non-weatherized oil (MG-NOW); Mobile home weatherized gas
		Wattage	
		Airflow at the maximum airflow-control setting (in cfm)	
		Fan Energy Rating (FER)	

* "Identifier" information as described in Section 1602(a).

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Table X Continued - Data Submittal Requirements

	Appliance	Required Information	Permissible Answers
G	Other Pool Heaters	Energy Source	Natural gas, LPG, oil, electric resistance
		~~Readily accessible on-off switch~~	~~Yes, no~~
		Constant Burning Pilot Light (for gas models)	Yes, no
		Input	
		Thermal Efficiency	

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Table X Continued - Data Submittal Requirements

	Appliance	Required Information	Permissible Answers
G	Residential Pool Pump and Motor Combinations and Replacement Residential Pool Pump Motors	Motor Construction	PSC, Capacitor Start-Capacitor Run, ECM, Capacitor Start-induction run, split-phase
		Motor Design	Single-speed, dual-speed, multi-speed, variable-speed
		Frame	
		Speed (in RPM)	
		Motor has Capability of Operating at Two or More Speeds with the Low Speed having a Rotation Rate that is No More than One-Half of the Motor's Maximum Rotation Rate	Yes, no
		Unit Type	Residential Pool Pump and Motor Combination, Replacement Residential Pool Pump Motor
		Pool Pump Motor Capacity	
		Motor Service Factor	
		Motor Efficiency (%)	
		Nameplate Horsepower	
		Pump Control Speed (compliance with Section 1605.3(g)(5)(B)~~3~~2	Yes, no
		Flow for Curve 'A' (in gpm)	
		Power for Curve 'A' (in watts)	
		Energy Factor for Curve 'A' (in gallons per watt-hour)	
		Flow for Curve 'B' (in gpm)	
		Power for Curve 'B' (in watts)	
		Energy Factor for Curve 'B' (in gallons per watt-hour)	
		Flow for Curve 'C' (in gpm)	
		Power for Curve 'C' (in watts)	
		Energy Factor for Curve 'C' (in gallons per watt-hour)	

* "Identifier" information as described in Section 1602(a).

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Table X Continued – Data Submittal Requirements

	Appliance	Required Information	Permissible
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, push-type tub spout diverter
		Flow Rate	
		Pulsating (for showerheads only)	Yes, no
		Rim Space (for wash fountains only)	
		Tub Spout Leakage Rate When New	
		Tub Spout Leakage Rate After 15,000 Cycles	
	Commercial Prerinse Spray Valves	Flow Rate (gpm)	
		Cleaning ability test	Pass, fail

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Table X Continued – Data Submittal Requirements

	Appliance	Required Information	Permissible
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, waterless urinal, vacuum type urinal, vacuum type water closet
		Water Consumption (dual-flush effective flush volume for dual-flush water closet)	
		MaP Score (for water closet only)	
		Trough Length (trough-type urinals only)	

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Table X Continued − Data Submittal Requirements

	Appliance	Required Information	Permissible
J	Deep-Dimming Fluorescent Ballasts	*Ballast Input Voltage	120, 277, other (specify)
		*Number of Lamps	
		*Lamp type	T5, T8, other (specify)
		*Dimming Type	Continuous, stepped, individual lamp control, other (specify)
		*Control Type	3-wire, 0-10 volts, digital communication, phase, other (specify)
		*Start Type	Instant start, rapid start, program start, other (specify)
		P_{100}	
		Arc Power 100	
		P_{80}	(answer NA if not applicable)
		Arc Power 80	(answer NA if not applicable)
		P_{50}	(answer NA if not applicable)
		Arc Power 50	(answer NA if not applicable)
		P_0 (standby mode power)	
		Integrated Ballast Luminous Efficacy	
		Power Factor	

* "Identifier" information as described in Section 1602(a).

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Table X Continued - Data Submittal Requirements

	Appliance	**Required Information**	**Permissible Answers**
Q	Clothes Dryers	*Energy Source	Gas, electric
		*Drum Capacity	
		*Voltage	120, 240, other (specify)
		Combination Washer/Dryer[1]	Yes, no
		~~Automatic Termination Control[1]~~ Venting	~~Yes, no~~ Vented, ventless
		~~Energy Factor (through December 31, 2014)~~	
		Combined Energy Factor ~~(required only on and after January 1, 2015)~~	
		Constant Burning Pilot Light (Gas models only)	Yes, no

* "Identifier" information as described in Section 1602(a).

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Note: Authority cited: Sections 25213, 25218(e), 25401(d), 25402(a)-(c) and 25960, Public Resources Code. Reference: Sections 25216.5(d), 25402(a)-(c), 25402.5.4 and 25960, Public Resources Code.

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Section 1607. Marking of Appliances.

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(d) Energy Performance Information.

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(12) Air Filters.

Each unit of air filters manufactured on or after May 1, 2016 shall be marked, permanently and legibly, on an accessible and conspicuous place on the edge of the filter itself, in characters of font size 12, with the following information, as applicable to the air filter model: the MERV or particle size efficiency rating of the unit and initial resistance at 400 cfm, 800 cfm, 1200 cfm, 1600 cfm, and either 2000 cfm or maximum rated airflow rate, as published by the manufacturer. The particle size efficiency rating used for this label shall be the particle size efficiency of 3.0 to 10.0 micron particles. Manufacturers may include both the MERV and particle size efficiency rating. If either MERV or particle size efficiency ratings have not been reported, mark the non-reported rating as "N/A."

The information shall be disclosed in the format in Table Z.

Table Z

MERV	PSER (um)	Airflow Rate (CFM)	400	800	1200	1600	2000*	*Max Rated Airflow
[value]	[value]	Initial Resistance (IWC)	[value]	[value]	[value]	[value]	[value]	

If the marking on the air filter is not legible through its retail packaging, then the packaging shall also be labeled with the same information and in the same format as Table Z. The requirements of this section shall not preclude manufacturers from providing additional information.

Note: Authority cited: Sections 25213, 25218(e), 25402(a)-(c) and 25960, Public Resources Code. Reference: Sections 25216.5(d), 25402(a)-(c) and 25960, Public Resources Code.