

**EXPRESS TERMS
FOR
PROPOSED BUILDING STANDARDS
OF THE
DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
REGARDING THE 2013 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN)
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 11
(HCD 04/12)**

The Department of Housing and Community Development (HCD) proposes to make necessary changes to be included in the 2013 edition of the California Green Building Standards Code (CGBC), also known as CALGreen, as presented on the following pages:

LEGEND FOR EXPRESS TERMS:

1. **Existing California text or language being modified:** All language is shown in normal Arial 9 point; modified language is underlined or shown in ~~strikeout~~.
 2. **Existing text not being modified:** All language not displayed in full is shown as “...” (i.e., ellipsis).
 3. **Repealed text:** All language appears in ~~strikeout~~.
 4. **Amended, adopted or repealed language after public hearing:** All language is shown in double underline or ~~double-strikeout~~.
 5. **Notation:** Authority and Reference citations are provided at the end of each section.
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1. HCD proposes to amend Section 101.3.1 as follows:

**CHAPTER 1
ADMINISTRATION**

**SECTION 101
GENERAL**

101.3 Scope ... (No change to text)

101.3.1 State-regulated buildings, structures and applications. Provisions of this code shall apply to the following buildings, structures, and applications regulated by state agencies ~~as referenced in the Matrix Adoption Tables and~~ as specified in Sections 103 through 106, except where modified by local ordinance pursuant to Section 101.7. When adopted by a state agency, the provisions of this code shall be enforced by the appropriate enforcing agency, but only to the extent of authority granted to such agency by statute.

1. ... (No change to text)
2. ... (No change to text)
3. ~~Low-rise~~ All residential buildings constructed throughout the State of California, including but not limited to, hotels, motels, lodging houses, apartment houses, 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 toilets or cooking facilities regulated by the Department of Housing and Community Development. See Section 104 for additional scoping provisions.
4. ... (No change to text)
5. ... (No change to text)
6. ... (No change to text)
7. ... (No change to text)
8. ... (No change to text)

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

2. HCD proposes to amend Section 202 as follows:

CHAPTER 2 DEFINITIONS

SECTION 202 DEFINITIONS

A. Amend existing definitions as shown:

LOW-RISE RESIDENTIAL BUILDING. For the purposes of CALGreen, any building that is of Occupancy Group R and is three stories or less, or that is a one- or two- family dwelling or townhouse.

RESIDENTIAL BUILDING. (BSC, HCD, DSA-SS) (See “LOW-RISE RESIDENTIAL BUILDING” or “HIGH-RISE RESIDENTIAL BUILDING.”)

B. Adopt new definitions as shown:

ALBEDO. Synonymous with solar reflectance, which is a ratio of the energy reflected back into the atmosphere to the energy absorbed by the surface, with 100 percent being total reflectance.

COMPACT DISHWASHER. A dishwasher that has a capacity of less than eight place settings plus six serving pieces as specified in ANSI/AHAM DW-1

DIRECT-VENT APPLIANCE. A fuel-burning appliance with a sealed combustion system that draws all air for combustion from the outside atmosphere and discharges all flue gases to the outside atmosphere.

ELECTRIC VEHICLE (EV). An automotive-type vehicle for on-road use, such as passenger automobiles, buses, trucks, vans, neighborhood electric vehicles, and the like, primarily powered by an electric motor that draws current from a rechargeable storage battery, fuel cell, photovoltaic array, or other source of electric current. Plug-in hybrid electric vehicles (PHEV) are considered electric vehicles. For purposes of the *California Electrical Code*, off-road, self-propelled electric vehicles, such as industrial trucks, hoists, lifts, transports, golf carts, airline ground support equipment, tractors, boats, and the like, are not included.

ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE). The conductors, including the ungrounded, grounded, and equipment grounding conductors and the electric vehicle connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the electric vehicle.

GRAYWATER. 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”.

HEAT ISLAND EFFECT. "Heat island effect" and "urban heat islands" refer to measurable elevated temperatures in developed areas as compared to more rural surroundings. Temperatures in developed areas are affected by absorption of heat by hardscapes and radiation of heat into surrounding areas resulting in local climate changes. Heat islands are influenced by geographic location and by local weather patterns with effects changing on a daily or seasonal basis.

HIGH-RISE RESIDENTIAL BUILDING. For the purposes of CALGreen, any building that is of Occupancy Group R and is four stories or greater in height.

IESNA. Illuminating Engineering Society of North America.

MODEL WATER EFFICIENT LANDSCAPE ORDINANCE (MWELo). [HCD] The California model ordinance (*California Code of Regulations*, Title 23, Division 2, Chapter 2.7), regulating landscape design, installation and maintenance practices. Local agencies are required to adopt the updated MWELo, or adopt a local ordinance at least as effective as the MWELo.

MOUNTING HEIGHT (MH). The height of the photometric center of a luminaire above grade level.

POTABLE WATER. Water that is satisfactory for drinking, culinary, and domestic purposes, and meets the U.S. Environmental Protection Agency (EPA) Drinking Water Standards and the requirements of the Health Authority Having Jurisdiction.

RAINWATER CATCHMENT SYSTEM. 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. 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.

RECLAIMED (RECYCLED) WATER. Nonpotable water that meets California Department of Public Health statewide uniform criteria for disinfected tertiary recycled water. Reclaimed (recycled) water is also known as “recycled water” or “reclaimed water”.

STANDARD DISHWASHER. A dishwasher that has a capacity equal to or greater than eight place settings plus six serving pieces as specified in ANSI/AHAM DW-1

SUBMETER. A meter installed subordinate to a site meter. Usually used to measure water intended for one purpose, such as landscape irrigation. For the purposes of CALGreen, a dedicated meter may be considered a submeter.

C. Relocate existing definitions from Chapter 4 and Appendix A4 to Chapter 2, Section 202 without amendment, except for modification of “MERV” and “REFERENCE EVAPOTRANSPIRATION (Eto)”, as shown:

AGRIFIBER PRODUCTS. Agrifiber products include wheatboard, strawboard, panel substrates and door cores, not including furniture, fixtures and equipment (FF&E) not considered base building elements.

ASSEMBLY (ASSEMBLY PRODUCT). An assembly (assembly product) includes or has been formulated using multiple materials.

BROWNFIELD SITE. Real property, the expansion, redevelopment or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant or contaminant, with certain legal exclusions and additions.

Note: See the full text at EPA’s web site.

COMPOSITE WOOD PRODUCTS. Composite wood products include hardwood plywood, particleboard and medium density fiberboard. “Composite wood products” does not include hardboard, structural plywood, structural panels, structural composite lumber, oriented strand board, glued laminated timber, prefabricated wood I-joists or finger-jointed lumber, all as specified in CCR, Title 17, Section 93120.1(a).

DEVELOPMENT FOOTPRINT. The total area of the building footprint, hardscape, access roads and parking. District (SCAQMD), California Air Resources Board (ARB or CARB), etc., the VOC definition included in that specific regulation is the one that prevails for the specific measure in question.

FRENCH DRAIN. A trench, hole or other depressed area loosely filled with rock, gravel, fragments of brick or similar pervious material used to collect or channel drainage or runoff water.

GREENFIELDS. Sites that are not previously developed or graded and remain in a natural state able to support agriculture, open space or habitat.

Note: Previously developed sites are those that previously contained buildings, roadways, parking lots, or were graded or altered by direct human activities.

GREYFIELD SITE. Any site previously developed with at least 50 percent of the surface area covered with impervious material.

INFILL SITE. A site in an urbanized area that meets criteria defined in *Public Resources Code* Section 21061.3.

MAXIMUM INCREMENTAL REACTIVITY (MIR). The maximum change in weight of ozone formed by adding a compound to the “base reactive organic gas (ROG) mixture” per weight of compound added, expressed to hundredths of a gram (g O₃/g ROC).

Note: MIR values for individual compounds and hydrocarbon solvents are specified in CCR, Title 17, Sections 94700 and 94701.

MERV. Filter minimum efficiency reporting value, based on ASHRAE 52.2-~~1999~~ 2007.

MOISTURE CONTENT. The weight of the water in wood expressed in percentage of the weight of the oven-dry wood.

NO ADDED FORMALDEHYDE (NAF) BASED RESINS. Resins formulated with no added formaldehyde as part of the resin cross linking structure for making hardwood plywood, particle board or medium density fiberboard. “No added formaldehyde based resins” include, but are not limited to, resins made from soy, polyvinyl acetate or methylene diisocyanate.

PERMEABLE PAVING. Permeable paving materials and techniques which allow the movement of water around the paving material and allow precipitation to percolate through the paving surface to the soil below.

POSTCONSUMER CONTENT. [HCD] Any material which has been used by a consumer and then recycled for use in a new material or product.

PRECONSUMER (OR POSTINDUSTRIAL) CONTENT. [HCD] Material diverted from the waste stream during one manufacturing process, including scraps, damaged goods and excess production that is reclaimed and used in another manufacturing process. Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated those wastes.

PRODUCT-WEIGHTED MIR (PWMIR). The sum of all weighted MIR for all ingredients in a product subject to this article. The PWMIR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of product (excluding container and packaging).

Note: PWMIR is calculated according to equations found in CCR, Title 17, Section 94521(a).

PROPORTIONAL RECYCLED CONTENT (PRCM). The amount of recycled content of a material in an assembly as related to the percentage of the material in an assembly product. PRCM is derived by multiplying the percentage of each material in an assembly by the percentage of recycled content in the material.

REACTIVE ORGANIC COMPOUND (ROC). Any compound that has the potential, once emitted, to contribute to ozone formation in the troposphere.

RECYCLED CONTENT (RC). [HCD] The amount of recycled material in an assembly product or material. Refer to International Organization for Standardization ISO 14021 – Environmental labels and declarations – Self-declared environmental claims (Type II environmental labeling).

RECYCLED CONTENT VALUE (RCV). [HCD]

Assembly products (RCVA). Assembly product cost multiplied by the recycled content of the assembly based on all of the postconsumer content and 50 percent of the preconsumer content.

Materials (RCVM). Material cost multiplied by recycled content of the material based on all of the postconsumer content and 50 percent of the preconsumer content.

REFERENCE EVAPOTRANSPIRATION (E_{to}). [HCD] ~~The estimated rate of evapotranspiration from a standardized surface of well watered, actively growing cool season turf grass clipped to 12 cm with sufficient density to fully shade the soil. The water needs of a landscape planting can be calculated by multiplying the Landscape Coefficient (K) and Reference Evapotranspiration (E_{to}). Evapotranspiration is the loss of water to the atmosphere by the combined~~

processes of evaporation (from soil and plant surfaces) and transpiration (from plant tissues). It is an indicator of how much water crops, lawn, garden, and trees need for healthy growth and productivity. Reference evapotranspiration (ET_o) is the industry standard for determining irrigation requirements. ET_o is an estimate of the evapotranspiration of a large field of four- to seven-inch tall, cool-season grass that is well watered.

ULTRA-LOW EMITTING FORMALDEHYDE (ULEF) RESINS. Resins formulated such that average formaldehyde emissions are consistently below the Phase 2 emission standards in Section 93120.2, as provided in Section 93120.3(d) of Title 17, *California Code of Regulations*.

VOC. Volatile organic compound broadly defined as a chemical compound based on carbon chains or rings with vapor pressures greater than 0.1 millimeters of mercury at room temperature. These compounds typically contain hydrogen and may contain oxygen, nitrogen and other elements. See CCR Title 17, Section 94508(a).

Note: Where specific regulations are cited from different agencies such as the South Coast Air Quality Management District (SCAQMD), California Air Resources Board (ARB or CARB), etc., the VOC definition included in that specific regulation is the one that prevails for the specific measure in question.

WATTLES. Wattles are used to reduce sediment in runoff. Wattles are often constructed of natural plant materials such as hay, straw or similar material shaped in the form of tubes and placed on a downflow slope. Wattles are also used for perimeter and inlet controls.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

3. HCD proposes to adopt Sections 301.1.1 and 301.2 as follows:

CHAPTER 3 GREEN BUILDING

SECTION 301 GENERAL

301.1 Scope. Buildings shall be designed ... (No change to text)

301.1.1 (HCD) Additions and alterations. The mandatory provisions of Chapter 4 shall be applied to additions or alterations of existing residential buildings where the addition or alteration increases the building's conditioned area, volume, or size.

Note: CALGreen requirements shall be applied to the addition or alteration and not the existing dwelling. Only CALGreen requirements directly associated to the addition or alteration are applicable. Based upon the scope of the addition or alteration, some CALGreen provisions may not be applicable.

301.2 (HCD) Low-rise and high-rise residential buildings. The provisions of individual sections of CALGreen may apply to either low-rise residential buildings, high-rise residential buildings, or both. Individual sections will be designated by banners to indicate where the section applies specifically to low-rise only (LR) or high-rise only (HR 4+). When the section applies to both low-rise and high-rise buildings no banner will be used.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

4. HCD proposes to adopt Section 304.1.1 as follows:

**SECTION 304
VOLUNTARY TIERS**

304.1 Purpose. Voluntary tiers are ... (No change to text)

304.1.1 Tiers. The provisions of ... (No change to text)

(BSC & HCD) Where there are practical difficulties involved in complying with the threshold levels of a tier, the enforcing agency may grant modifications for individual cases. The enforcing agency shall first find that a special individual reason makes the strict letter of the tier impractical and that modification is in conformance with the intent and purpose of the measure. The details of any action granting modification shall be recorded and entered in the files of the enforcing agency.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

5. HCD proposes to amend Sections 4.101.1, 4.102.1 and 4.106.3 as follows:

**CHAPTER 4
RESIDENTIAL MANDATORY MEASURES**

Division 4.1 – PLANNING AND DESIGN

**SECTION 4.101
GENERAL**

4.101.1 Purpose Scope. The provisions of this division outline planning, design and development methods that include environmentally responsible site selection, building design, building siting and development to protect, restore, and enhance the environmental quality of the site and respect the integrity of adjacent properties.

**SECTION 4.102
DEFINITIONS**

4.102.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein. The following terms are defined in Chapter 2

FRENCH DRAIN. ~~A trench, hole or other depressed area loosely filled with rock, gravel, fragments of brick or similar pervious material used to collect or channel drainage or runoff water.~~

WATTLES. ~~Wattles are used to reduce sediment in runoff. Wattles are often constructed of natural plant materials such as hay, straw or similar material shaped in the form of tubes and placed on a downflow slope. Wattles are also used for perimeter and inlet controls.~~

**SECTION 4.106
SITE DEVELOPMENT**

4.106.3 Grading and paving. Construction plans shall indicate how the site grading or drainage system will manage all surface water flows to keep water from entering buildings. Examples of methods to manage surface water include, but are not limited to, the following:

1. Swales
2. Water collection and disposal systems
3. French drains
4. Water retention gardens

5. Other water measures which keep surface water away from buildings and aid in groundwater recharge.

Exception: Additions and alterations not altering the drainage path.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

6. HCD proposes to repeal Section 4.201.1 as follows:

Division 4.2 – ENERGY EFFICIENCY

**SECTION 4.201
GENERAL**

~~**4.201.1 Scope.** The Department of Housing and Community Development does not regulate mandatory energy efficiency standards in residential buildings. For the purposes of mandatory energy efficiency standards in this code, the California Energy Commission will continue to adopt mandatory building standards.~~

~~**Note:** It is the intent of this code to encourage buildings to achieve exemplary performance in the area of energy efficiency. For the purposes of energy efficiency standards, the California Energy Commission believes specifically, a green building should achieve at least a 15% reduction in energy usage when compared to the State's mandatory energy efficiency standards. The Department of Housing and Community Development's mandatory green building standards for residential buildings do not require compliance with levels of minimum energy efficiency beyond those required by the California Energy Commission.~~

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

7. HCD proposes to repeal Section 4.302.1 as follows:

Division 4.3 – WATER EFFICIENCY AND CONSERVATION

4.301.1 Scope. ... (No change to text)

**SECTION 4.302
DEFINITIONS**

~~**4.302.1 Definitions.** The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein. All definitions are located in Chapter 2.~~

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

8. HCD proposes to repeal Sections 4.303.1, 4.303.2 and 4.303.3, and Table 4.303.1, Table 4.303.2 and Table 4.303.3 as follows:

**SECTION 4.303
INDOOR WATER USE**

4.303.1 Twenty percent savings. A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by at least 20 percent shall be provided. The reduction shall be based on the maximum allowable water use per plumbing fixture and fitting as required by the *California Building Standards Code*. The 20 percent reduction in potable water use shall be demonstrated by one of the following methods:

1. **Prescriptive Method.** Each plumbing fixture and fitting shall not exceed the Maximum Flow Rate at ≥ 20 Percent Reduction column in Table 4.303.2; or
2. **Performance Method.** A calculation demonstrating a 20 percent reduction in the building "water use" baseline as established in Table 4.303.1 shall be provided. For low-rise residential occupancies, the calculation shall be limited to the following plumbing fixture and fitting types: showerheads, lavatory faucets, water closets and urinals.

4.303.2 Multiple showerheads serving one shower. When a shower is served by more than one showerhead, the combined flow rate of all the showerheads controlled by a single valve shall not exceed the Maximum Flow Rates at ≥ 20 Percent Reduction column in Table 4.303.2 or the shower shall be designed to only allow one showerhead to be in operation at a time.

Exception: The maximum flow rate for showerheads when using the performance method specified in Section 4.303.1, Item 2, is 2.5 gpm @ 80 psi.

4.303.3 Plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall meet the standards referenced in Table 4.303.3

**TABLE 4.303.1
WATER USE BASELINE¹**

FIXTURE TYPE	BASELINE FLOW RATE	DURATION	DAILY USES	OCCUPANTS²
Showerheads, residential	2.5 gpm @ 80 psi	8 min.	1	
Lavatory faucets, residential	2.2 gpm @ 60 psi	.25 min.	3	
Lavatory faucets, nonresidential	0.5 gpm @ 60 psi	.25 min.	3	
Kitchen faucets	2.2 gpm @ 60 psi	4 min.	1	
Replacement aerators	2.2 gpm @ 60 psi			
Gravity tank-type water closets	1.6 gallons/flush	1 flush	1 male ³ 3 female	
Flushometer tank water closets	1.6 gallons/flush	1 flush	1 male ³ 3 female	
Flushometer valve water closets	1.6 gallons/flush	1 flush	1 male ³ 3 female	
Electromechanical hydraulic water closets	1.6 gallons/flush	1 flush	1 male ³ 3 female	
Urinals	1.0 gallons/flush	1 flush	2 male	

Fixture "Water Use" = Flow rate x Duration x Occupants x Daily uses

1. Use Worksheet WS-1 to calculate baseline water use.
2. For low-rise residential occupancies, the number of occupants shall be based on two persons for the first bedroom, plus one additional person for each additional bedroom.
3. The daily use number shall be increased to three if urinals are not installed in the room.

**TABLE 4.303.2
FIXTURE FLOW RATES**

FIXTURE TYPE	BASELINE FLOW RATE	MAXIMUM FLOW RATE AT ≥ 20 PERCENT REDUCTION
Showerheads	2.5 gpm @ 80 psi	2 gpm @ 80 psi
Lavatory faucets, residential	2.2 gpm @ 60 psi	1.5 gpm @ 60 psi ¹
Lavatory faucets, nonresidential	0.5 gpm @ 60 psi	0.4 gpm @ 60 psi ²
Kitchen faucets	2.2 gpm @ 60 psi	1.8 gpm @ 60 psi ³
Gravity tank type water closets	1.6 gallons/flush	1.28 gallons/flush ⁴
Flushometer tank water closets	1.6 gallons/flush	1.28 gallons/flush ⁴
Flushometer valve water closets	1.6 gallons/flush	1.28 gallons/flush ⁴
Electromechanical hydraulic water closets	1.6 gallons/flush	1.28 gallons/flush ⁴
Urinals	1.0 gallons/flush	.5 gallons/flush

1. Lavatory faucets shall not have a flow rate less than 0.8 gpm at 20 psi.
2. Where complying faucets are unavailable, aerators rated at .35 gpm or other means may be used to achieve reduction.
3. Kitchen faucets may temporarily increase flow above the maximum rate, but not above 2.2 gpm @ 60 psi and must default to a maximum flow rate of 1.8 gpm @ 60 psi.
4. Includes single and dual flush water closets with an effective flush of 1.28 gallons or less.
 - Single flush toilets - The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is the average flush volume when tested in accordance with ASME A112.19.2.
 - Dual flush toilets - The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is defined as the composite, average flush volume of two reduced flushes and one full flush. Flush volumes will be tested in accordance with ASME A112.19.2 and ASME A112.19.14.

**TABLE 4.303.3
STANDARDS FOR PLUMBING FIXTURES AND FIXTURE FITTINGS**

REQUIRED STANDARDS	
Water closets (toilets) – flushometer valve type single flush, maximum flush volume	ASME A112.19.2/CSA B45.1 – 1.28 gal (4.8 L)
Water closets (toilets) – flushometer valve type dual flush, maximum flush volume	ASME A112.19.14 and USEPA WaterSense Tank-Type High Efficiency Toilet Specification – 1.28 gal (4.8 L).
Water closets (toilets) – tank-type	U.S. EPA WaterSense Tank-Type High-Efficiency Toilet Specification
Urinals, maximum flush volume	ASME A112.19.2/CSA B45.1 – 0.5 gal (1.9 L)
Urinals, non-water urinals	ASME A112.19.19 (vitreous china) ANSI Z124.9-2004 or IAPMO Z124.9 (plastic)
Public lavatory faucets: Maximum flow rate – 0.5 gpm (1.9 L/min)	ASME A112.18.1/CSA B125.1
Public metering self-closing faucets: Maximum water use – 0.25 gal (1.0 L) per metering cycle	ASME A112.18.1/CSA B125.1
Residential bathroom lavatory sink faucets: Maximum flow rate – 1.5 gpm (5.7 L/min)	ASME A112.18.1/CSA B125.1
Showerheads: Maximum flow rate – 2.5 gal (9.5 L/min)	ASME A112.18.1/CSA B125.1

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

9. HCD proposes to adopt new Sections 4.303.1, 4.303.1.1, 4.303.1.2, 4.303.1.3, 4.303.1.3.1, 4.303.1.3.2, 4.303.1.4, 4.303.1.4.1, 4.303.1.4.2, 4.303.1.4.3, 4.303.1.4.4 and 4.303.2 as follows:

4.303.1 Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:

4.303.1.1 Water closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush. Tank-type water closets shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Tank-Type Toilets.

Note: The effective flush volume of dual flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush.

4.303.1.2 Urinals. The effective flush volume of urinals shall not exceed 0.5 gallons per flush.

4.303.1.3 Showerheads.

4.303.1.3.1 Single showerhead. Showerheads shall have a maximum flow rate of not more than 2.0 gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads.

4.303.1.3.2 Multiple showerheads serving one shower. 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 2.0 gallons per minute at 80 psi, or the shower shall be designed to allow only one shower outlet to be in operation at a time.

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

4.303.1.4 Faucets.

4.303.1.4.1 Residential lavatory faucets. The maximum flow rate of residential lavatory faucets shall not exceed 1.5 gallons per minute at 60 psi. The minimum flow rate of residential lavatory faucets shall not be less than 0.8 gallons per minute at 20 psi.

4.303.1.4.2 Lavatory faucets in common and public use areas. 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 per minute at 60 psi.

4.303.1.4.3 Metering faucets. Metering faucets when installed in residential buildings shall not deliver more than 0.25 gallons per cycle.

4.303.1.4.4 Kitchen faucets. The maximum flow rate of kitchen faucets shall not exceed 1.8 gallons per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per minute at 60 psi.

Note: Where complying faucets are unavailable, aerators or other means may be used to achieve reduction.

4.303.2 Standards for plumbing fixtures and fittings. Plumbing fixtures and fittings shall be installed in accordance with the *California Plumbing Code*, and shall meet the applicable standards referenced in Table 1401.1 of the *California Plumbing Code*.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

10. HCD proposes to amend Sections 4.402.1 and 4.406.1 as follows:

Division 4.4 – MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

SECTION 4.402 DEFINITIONS

4.402.1 Definitions. ~~The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein. All definitions are located in Chapter 2.~~

SECTION 4.406 ENHANCED DURABILITY AND REDUCED MAINTENANCE

4.406.1 Rodent proofing. Annual spaces around pipes, electric cables, conduits or other openings in sole/bottom plates at exterior walls shall be protected against the passage of rodents by closing such openings with cement mortar, concrete masonry or a similar method acceptable to the enforcing agency.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

11. HCD proposes to adopt Section 4.408.4.1 as follows:

4.408.4 Waste stream reduction alternative. ... (No change to text.)

4.408.4.1 Waste stream reduction alternative. (HR 4+) Projects that generate a total combined weight of construction and demolition waste disposed of in landfills, which do not exceed two (2) lbs./sq. ft. of the building area, shall meet the minimum 50 percent construction waste reduction requirement in Section 4.408.1.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

12. HCD proposes to amend Section 4.408.5 as follows:

4.408.5 Documentation. Documentation shall be provided to the enforcing agency which demonstrates compliance with Section 4.408.2, Items 1 through 5, Section 4.408.3 or Section 4.408.4.

Notes:

1. Sample forms found in "A Guide to the California Green Building Standards Code (~~Low-Rise Residential~~)" located at www.hcd.ca.gov/CALGreen.html may be used to assist in documenting compliance with this section.
2. Mixed construction and demolition debris (C&D) processors can be located at the California Department of Resources Recycling and Recovery (CalRecycle).

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

13. HCD proposes to amend Section 4.502.1 as follows:

Division 4.5 – ENVIRONMENTAL QUALITY

SECTION 4.502 DEFINITIONS

4.502.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein. The following terms are defined in Chapter 2.

AGRIFIBER PRODUCTS. Agrifiber products include wheatboard, strawboard, panel substrates and door cores, not including furniture, fixtures and equipment (FF&E) not considered base building elements.

COMPOSITE WOOD PRODUCTS. Composite wood products include hardwood plywood, particleboard and medium density fiberboard. "Composite wood products" does not include hardboard, structural plywood, structural panels, structural composite lumber, oriented strand board, glued laminated timber, prefabricated wood I-joists or finger-jointed lumber, all as specified in CCR, Title 17, Section 93120.1(a).

DIRECT-VENT APPLIANCE.

MAXIMUM INCREMENTAL REACTIVITY (MIR). The maximum change in weight of ozone formed by adding a compound to the "base reactive organic gas (ROG) mixture" per weight of compound added, expressed to hundredths of a gram (g O₃/g ROG).

Note: MIR values for individual compounds and hydrocarbon solvents are specified in CCR, Title 17, Sections 94700 and 94701.

MOISTURE CONTENT. The weight of the water in wood expressed in percentage of the weight of the oven-dry wood.

PRODUCT-WEIGHTED MIR (PWMIR). The sum of all weighted MIR for all ingredients in a product subject to this article. The PWMIR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of product (excluding container and packaging).

Note: PWMIR is calculated according to equations found in CCR, Title 17, Section 94521(a).

REACTIVE ORGANIC COMPOUND (ROC). Any compound that has the potential, once emitted, to contribute to ozone formation in the troposphere.

VOC. Volatile organic compound broadly defined as a chemical compound based on carbon chains or rings with vapor pressures greater than 0.1 millimeters of mercury at room temperature. These compounds typically contain hydrogen and may contain oxygen, nitrogen and other elements. See CCR Title 17, Section 94508(a).

Note: Where specific regulations are cited from different agencies such as the South Coast Air Quality Management District (SCAQMD), California Air Resources Board (ARB or CARB), etc., the VOC definition included in that specific regulation is the one that prevails for the specific measure in question.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

14. HCD proposes to amend Section 4.504 as follows:

SECTION 4.504 POLLUTANT CONTROL

4.504.4 Resilient flooring systems. Where resilient flooring is installed, at least ~~50~~ 80 percent of floor area receiving resilient flooring shall comply with one or more of the following:

1. VOC emission limits defined in the Collaborative for High Performance Schools (CHPS) High Performance Products Database.
2. Products compliant with CHPS criteria certified under the Greenguard Children & Schools program.
3. Certification under the Resilient Floor Covering Institute (RFCI) FloorScore program.
4. Meet the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.1, February 2010 (also known as Specification 01350.)

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

15. HCD proposes to amend Table 4.504.5 as follows:

**TABLE 4.504.5
FORMALDEHYDE LIMITS¹
Maximum Formaldehyde Emissions in Parts per Million**

PRODUCT	CURRENT LIMIT	JANUARY 1, 2012	JULY 1, 2012
Hardwood plywood veneer core	0.05		
Hardwood plywood composite core	0.08		0.05
Particleboard	0.09		
Medium density fiberboard	0.11		
Thin medium density fiberboard ²	0.21	0.13	

**TABLE 4.504.5
FORMALDEHYDE LIMITS¹
Maximum Formaldehyde Emissions in Parts per Million**

PRODUCT	CURRENT LIMIT
Hardwood plywood veneer core	0.05
Hardwood plywood composite core	0.05
Particleboard	0.09
Medium density fiberboard	0.11
Thin medium density fiberboard ²	0.13

1. Values in this table are derived from those specified by the California Air Resources Board, Air Toxics Control Measure for Composite Wood as tested in accordance with ASTM E 1333-96(2002). For additional information, see *California Code of Regulations*, Title 17, Sections 93120 through 93120.12.
2. Thin medium density fiberboard has a maximum thickness of 5/16" (8 millimeters).

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

16. HCD proposes to repeal Section 4.507.1 as follows:

4.507.1 Openings. Whole house exhaust fans shall have insulated louvers or covers which close when the fan is off. Covers or louvers shall have a minimum insulation value of R-4.2.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

17. HCD proposes to amend Chapter 6 “Referenced Organizations and Standards” as follows:

**CHAPTER 6
REFERENCED ORGANIZATIONS AND STANDARDS**

601.1 This chapter lists the organizations and standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard.

	STANDARD	REFERENCED SECTION
AHAM Association of Home Appliance Manufacturers 1111 19 th Street NW, Suite 402 Washington, D.C. 20026-3627 http://www.aham.org	<u>ANSI/AHAM DW-1-2010</u>	<u>A4302</u> <u>A4303.2</u>
AABC Associated Air Balance Council 1518 K Street NW Washington, D.C. 20005 http://www.aabc.com	National Standards, 1989	5.410.4.3.1 A5.410.5.3.1
ACCA Air Conditioning Contractors of America 2800 Shirlington Road, Suite 300 Arlington, VA 22206 http://www.acca.org	ANSI/ACCA 2 Manual J–2004 ANSI/ACCA 1 Manual D–2009 ANSI/ACCA 3 Manual S–2004	4.507.2 4.507.2 4.507.2
ANSI American National Standards Institute Operations Office 25 West 43rd Street, Fourth Floor New York, NY 10036 http://www.ansi.org	ANSI A190.1-2002 ANSI Z124.9-2004 ANSI/AHAM DW-1 NSF/ANSI 140-2007 ANSI/ACCA 2 Manual J–2004 ANSI/ACCA 1 Manual D–2009 ANSI/ACCA 3 Manual S–2004	4.502 Table 4.303.3 A4.30 4.504.3, 5.504.4.4 4.507.2 4.507.2 4.507.2
ASHRAE American Society of Heating, Refrigeration and Air Conditioning Engineers Inc. 1791 Tullie Circle, NE Atlanta, GA 30329 http://www.ashrae.org	52.1-92 52.2- 99 2007 62.2 90.1	A5.504.1 A4.502 A5.504.1 5.108.8
ASME American Society of Mechanical Engineers Three Park Avenue New York, NY 10016-5990 http://www.asme.org	ASME A112.18.1 ASME A112.19 ASME A112.19.2 ASME A112.19.14 ASME A112.19.19	Table 4.303.3, 5.303.6 5.303.6 Table 4.303.3, 5.303.2 Table 4.303.3, 5.303.6 Table 4.303.3
ASTM ASTM International		

100 Barr Harbor Drive West Conshohocken, PA 19428-2859 http://www.astm.org	ASTM C 33 ASTM C 150 ASTM C 595 ASTM C 618 ASTM C 989 ASTM C 1157 ASTM C 1240 ASTM C 1371-98 ASTM C 1549 ASTM C 1602 ASTM C 1697 ASTM E 90 ASTM E 408-02 ASTM E 413 ASTM E 1332 ASTM E 1333-02 <u>ASTM E 1509-04</u> ASTM E 1903-97 ASTM E 1918 ASTM E 1980-01	A 5.405.5.3.2 A 5.405.5.1 A 5.405.5.1 A 5.405.5.2.1 A 5.405.5.2.1 A 5.405.5.1 A 5.405.5.2.1 A 5.405.5.2.1 A 5.405.5.2.1 A4.205.1, A5.106.11.2.2 <u>A4.106.7</u> , A5.106.11.1 A5.405.5.3.2.3 A5.405.5.2.1 5.507.4 A4.205.1, A5.10, 6.11.2.2 5.507.4 5.507.4 5.507.4 Tables 4.504.5 & 5.504.4.5 4.503.5 A5.103.4 A4.106.7, A5.106.11.1 A4.106.5.3, A5.106.11.2.3
CSA Canadian Standards Association		
5060 Spectrum Way, Suite 100 Mississauga, Ontario, Canada L4W 5N6 http://www.csa.ca	CSA B45.1 CSA B125.1	Table 4.303.1, Table 4.303.3 Table 4.303.3, 5.303.6
IAPMO International Association of Plumbing and Mechanical Officials		
5001 E. Philadelphia St. Ontario, CA 91761 http://www.iapmo@iapmo.org	IAPMO Z124.9	Table 4.303.3, 5.303.6
IESNA Illuminating Engineering Society of North America		
170 Wall Street, Floor 17 New York, NY 10005-4001 http://www.ies.org	<u>IESNA TM-15-11</u>	A4.106.10
NEBB National Environmental Balancing Bureau		
8575 Grovemont Cir Gaithersburg, MD 20877 http://www.nebb.org/index.php	Procedural Standards, 1983	5.410.4.3.1 A5.410.5.3.1
NSF International		
789 Dixboro Rd. Ann Arbor, MI 48113-0140 http://www.nsf.org	NSF/ANSI 140-2007	4.504.3, 5.504.4.4
TABB Testing, Adjusting and Balancing Bureau		
601 N Fairfax Street, Suite 250 Alexandria, VA 22314 http://www.tabbcertified.org/contact.html	National Standards, 2003	5.410.3.3.1 A5.410.5.3.1
UL Underwriters Laboratories, Inc.		
333 Pfingsten Road Northbrook, IL 60062 http://www.ul.com	<u>UL 1482</u> <u>UL 127</u>	4.503.3 4.503.4
US EPA United States Environmental Protection Agency		
Office of Wastewater Management (4204m) 1200 Pennsylvania Avenue Washington, D.C. 20460 http://www.epa.gov/watersense/	<u>WaterSense</u>	4.303.1

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

18. HCD proposes to amend Appendix A4, Division A4.1 “PREFACE” as follows:

**APPENDIX A4
RESIDENTIAL VOLUNTARY MEASURES**

Division A4.1 – PLANNING AND DESIGN

PREFACE

Given that land use and planning are largely regulated locally, cities, counties, and cities and counties should consider reducing greenhouse gas emissions associated with development through local land-use practices in conjunction with enforcing the provisions of this code. Specific land use strategies a city, county, or city and county may wish to consider include but are not limited to the following:

Site selection ... (No change to text)

Regional sustainable communities strategy ... (No change to text)

Transit priority projects. To qualify as a transit priority project, the project shall meet three criteria:

(1) (a) ... (No change to text)

(2) ... (No change to text)

(3) ... (No change to text)

Note: For additional information, see *Government Code* Sections 65080, 65080.1, 65400, and 65470, and *Public Resources Code* Sections 21061.3 and 21155.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

19. HCD proposes to amend Section A4.102.1 as follows:

**SECTION A4.102
DEFINITIONS**

A4.102.1 Scope. ~~Unless otherwise stated, the words and terms used in this division shall, for the purposes of this division, have the meanings shown in this code.~~ **Definitions.** The following terms are defined in Chapter 2.

BROWNFIELD SITE. ~~Real property, the expansion, redevelopment or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant or contaminant, with certain legal exclusions and additions.~~ **Note:** See the full text at EPA's website.

DEVELOPMENT FOOTPRINT. ~~The total area of the building footprint, hardscape, access roads and parking.~~

GREENFIELDS. ~~Sites that are not previously developed or graded and remain in a natural state able to support agriculture, open space or habitat.~~ **Note:** ~~Previously developed sites are those that are previously contained buildings, roadways, parking lots, or were graded or altered by direct human activities.~~

GREYFIELD SITE. ~~Any site previously developed with at least 50 percent of the surface area covered with impervious material.~~

~~INFILL SITE. A site in an urbanized area that meets criteria defined in Public Resources Code Section 24061.3.~~

~~PERMEABLE PAVING. Permeable paving materials and techniques which allow the movement of water around the paving material and allow precipitation to percolate through the paving surface to the soil below.~~

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

20. HCD proposes to adopt new Section A4.103.2 as follows:

SECTION A4.103 SITE SELECTION

A4.103.2 Community connectivity. Facilitate community connectivity by one of the following methods:

1. Locate project within a 1/4-mile true walking distance of at least 4 basic services, readily accessible by pedestrians.
2. Locate project within a 1/2-mile true walking distance of at least 7 basic services, readily accessible by pedestrians.
3. Other methods increasing access to additional resources.

Note: Examples of services include, but are not limited to, bank, place of worship, convenience grocery, day care, cleaners, fire station, barber shop, beauty shop, hardware store, laundry, library, medical clinic, dental clinic, senior care facility, park, pharmacy, post office, restaurant, school, supermarket, theater, community center, fitness center, museum or farmers market. Other services may be considered on a case-by-case basis.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

21. HCD proposes to amend Section A4.106.1 as follows:

SECTION A4.106 SITE DEVELOPMENT

A4.106.1 Building orientation. (Reserved) Orient buildings to optimize the use of solar energy with the long side of the house oriented within 30° of south.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

22. HCD proposes to amend Section A4.106.5 as follows:

A4.106.5 Cool roof for reduction of heat island effect. Roofing materials for Tier 1 and Tier 2 buildings shall comply with this section.

Exceptions:

1. Roof constructions that have a thermal mass over the roof membrane with a weight of at least 25 lb/sf, including areas of vegetated (green) roofs, weighing at least 25 lb/sf.
2. Roof areas covered by building integrated solar photovoltaic panels and building integrated solar thermal panels.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

23. HCD proposes to amend Section A4.106.5.1 as follows:

A4.106.5.1 Solar reflectance. Roofing materials shall have a minimum 3 year aged solar reflectance equal to or greater than valued specified in Tables A4.106.5.1(1) and A4.106.5.1(3) for Tier 1 and Tables A4.106.5.1(2) and A4.106.5.1(4) for Tier 2.

If CRRC testing for 3-year aged solar reflectance is not available for any roofing products, the 3-year aged value shall be determined using the Cool Roof Rating Council (CRRC) certified initial value using the equation $R_{aged} = [0.2 + 0.7[\rho_{initial} - 0.2]]$ $\rho_{aged} = [0.2 + \beta[\rho_{initial} - 0.2]]$, where $\rho_{initial}$ = the initial Solar Reflectance and soiling resistance β is listed by product type in Table A4.106.5.1.

Solar reflectance may also be certified by other supervisory entities approved by the Energy Commission pursuant to Title 24, Part 1, Section 10-113.

**TABLE A4.106.5.1
VALUES OF SOILING RESISTANCE β BY PRODUCT TYPE**

PRODUCT TYPE	CCRC PRODUCT CATEGORY	β
Field-applied coating	Field-applied coating	0.65
Other	Not a field-applied coating	0.70

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

24. HCD proposes to amend Section A4.106.5.2 as follows:

A4.106.5.2 Thermal emittance. Roofing materials shall have a CRRC initial or 3-year aged thermal emittance equal to or greater than those specified in Tables A4.106.5.1(1) and A4.106.5.1(3) for Tier 1 and Tables A4.106.5.1(2) and A4.106.5.1(4) for Tier 2.

Thermal emittance may also be certified by other supervisory entities approved by the Energy Commission pursuant to Title 24, Part 1, ~~Section 10-113~~ California Administrative Code.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

25. HCD proposes to amend Section A4.106.5.3 as follows:

A4.106.5.3 Solar reflectance index alternative. Solar Reflectance Index (SRI) equal to or greater than the values specified in Tables A4.106.5.1(1) and A4.106.5.1(3) for Tier 1 and Tables A4.106.5.1(2) and A4.106.5.1(4) for Tier 2 may be used as an alternative to compliance with the 3-year aged solar reflectance values and thermal emittance.

SRI values used to comply with this section shall be calculated using the Solar Reflectance Index (SRI) Calculation Worksheet (SRI-WS) developed by the California Energy Commission or in compliance with ASTM E1980-01 as specified in the 2013 California Energy Code, Section 418 (i)3. Solar reflectance values used in the SRI-WS shall be based on the 3-year aged reflectance value of the roofing product or the equation in Section A4.106.5.1 if the CRRC certified aged solar reflectance are not available. Certified thermal emittance used in the SRI-WS may be either the initial value or the 3-year aged value listed by the CRRC.

Solar reflectance and thermal emittance may also be certified by other supervisory entities approved by the Commission pursuant to Title 24, Part 1, Section 4143 California Administrative Code.

Note: The Solar Reflectance Index Calculation Worksheet (SRI-WS) is available by contacting the Energy Standards Hotline at 1-800-772-3300, website at www.energy.ca.gov or by email at Title24@energy.state.ca.us.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

26. HCD proposes to amend Table A4.106.5.1(1) and Table A4.106.5.1(2) as follows:

TABLE A4.106.5.1(1)
Tier 1 – Low-Rise Residential

ROOF SLOPE	ROOF WEIGHT	CLIMATE ZONE	Minimum 3-year Aged Solar Reflectance	Thermal Emittance	SRI
≤ 2 : 12	N/A	13 & 15	0.55	0.75	64
> 2 : 12	< 5 lbs./ft ²	10-15	0.20	0.75	16
	≥ 5 lbs./ft ²	4-16	0.15	0.75	40

TABLE A4.106.5.1(2)
Tier 2 - Low-Rise Residential

ROOF SLOPE	ROOF WEIGHT	CLIMATE ZONE	Minimum 3-year Aged Solar Reflectance	Thermal Emittance	SRI
≤ 2 : 12	N/A	2,4,6-15	0.65	0.85	78
> 2 : 12	N/A	2,4,6-15	0.23	0.85	20

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

27. HCD proposes to adopt Table A4.106.5.1(3) and Table A4.106.5.1(4) as follows:

TABLE A4.106.5.1(3)
Tier 1 - High-Rise Residential Buildings, Hotels, and Motels

<u>ROOF SLOPE</u>	<u>CLIMATE ZONE</u>	<u>Minimum 3-Year Aged Solar Reflectance</u>	<u>Thermal Emittance</u>	<u>SRI</u>
<u>≤ 2 : 12</u>	<u>10 & 11, 13-15</u>	<u>0.55</u>	<u>0.75</u>	<u>64</u>
<u>>2 : 12</u>	<u>2-15</u>	<u>0.20</u>	<u>0.75</u>	<u>16</u>

TABLE A4.106.5.1(4)
Tier 2 - High-Rise Residential Buildings, Hotels, and Motels

<u>ROOF SLOPE</u>	<u>CLIMATE ZONE</u>	<u>Minimum 3-Year Aged Solar Reflectance</u>	<u>Thermal Emittance</u>	<u>SRI</u>
<u>≤ 2 : 12</u>	<u>2-15</u>	<u>0.65</u>	<u>0.75</u>	<u>78</u>
<u>>2 : 12</u>	<u>2-15</u>	<u>0.23</u>	<u>0.75</u>	<u>20</u>

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

28. HCD proposes to renumber former Section A4.106.6 to Section A4.106.8 and adopt new Section A4.106.6 as follows:

A4.106.6 Vegetated roof. Install a vegetated roof for at least 50 percent of the roof area. Vegetated roofs shall comply with requirements for roof gardens and landscaped roofs in the *California Building Code, Chapter 15 and Chapter 16.*

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

29. HCD proposes to adopt Section A4.106.7 as follows:

A4.106.7 Reduction of heat island effect for nonroof areas. Reduce nonroof heat islands for 50 percent of sidewalks, patios, driveways or other paved areas by using one or more of the methods listed.

1. Trees or other plantings to provide shade and that mature within 15 years of planting. Trees should be native or adaptive to the region and climate zones and non-invasive; hardy and resistant to drought, insects and disease; easy to maintain (no frequent shedding of twigs, branches, unwanted fruit or seed pods); and suitable in mature size and environmental requirements for the site. Tree selection and placement should consider location and size of areas to be shaded, location of utilities, views from the structure, distance to sidewalks and foundations, overhangs onto adjacent properties and streets; other infrastructure and adjacent to landscaping. In addition, shading shall not cast a shadow, as specified, on any neighboring solar collectors pursuant to *Public Resources Code* Section 25981, *et seq.* (Solar Shade Control Act).
2. Use high albedo materials with an initial solar reflectance value of at least .30 as determined in accordance with American Society for Testing and Materials (ASTM) Standards E1918 or C1549.
3. Use open grid pavement system or pervious or permeable pavement system.

4. Locate 50 percent of parking underground or use multilevel parking.
5. Other methods of reducing heat island effects acceptable to the enforcing agency.

Note: Local agencies may have ordinances requiring mitigation of heat island effects through building or parking lot shading, tree plantings, landscaping, use of pervious pavements and other approved methods.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

30. HCD proposes to renumber former Section A4.106.6 to Section A4.106.8 as follows:

A4.106.6 A4.106.8 Electric vehicle (EV) charging. ... (No change to text)

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

31. HCD proposes to renumber and amend former Section A4.106.6.1 to Section A4.106.8.1 as follows:

A4.106.6.1 A4.106.8.1 One-and two-family dwellings. Install a listed raceway to accommodate a dedicated branch circuit. The raceway shall not be less than trade size 1 (nominal 1 inch inside diameter). The raceway shall be securely fastened at the main service or subpanel and shall terminate in close proximity to the proposed location of the charging system into a listed cabinet, box or enclosure. Raceways are required to be continuous at enclosed or concealed areas and spaces. A raceway may terminate in an attic or other approved location when it can be demonstrated that the area is accessible and no removal of materials is necessary to complete the final installation.

Exception: Other pre-installation methods approved by the local enforcing agency that provide sufficient conductor sizing and service capacity to install Level 2 EVSE.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

32. HCD proposes to renumber Section A4.106.6.1.1 to Section A4.106.8.1.1 as follows:

A4.106.6.1.1 A4.106.8.1.1 Labeling requirement. ... (No change to text)

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

33. HCD proposes to renumber Section A4.106.6.2 to Section A4.106.8.2 as follows:

~~A4.106.6.2~~ A4.106.8.2 Multifamily dwellings. ... (No change to text)

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

34. HCD proposes to renumber and amend former Section A4.106.6.2.1 to Section A4.106.8.2.1 as follows:

~~A4.106.6.2.1~~ A4.106.8.2.1 **Single charge space required.** When only a single charging space is required, install a listed raceway capable of accommodating a dedicated branch circuit. The raceway shall not be less than trade size 1 (nominal 1 inch inside diameter). The raceway shall be securely fastened at the main service or subpanel and shall terminate in close proximity to the proposed location of the charging system into a listed cabinet, box or enclosure.

Exception: Other pre-installation methods approved by the local enforcing agency that provide sufficient conductor sizing and service capacity to install Level 2 EVSE.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

35. HCD proposes to renumber Section A4.106.6.2.2 to Section A4.106.8.2.2 as follows:

~~A4.106.6.2.2~~ A4.106.8.2.2 Multiple charging spaces required. ... (No change to text)

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

36. HCD proposes to renumber Section A4.106.6.2.3 to Section A4.106.8.2.3 as follows:

~~A4.106.6.2.3~~ A4.106.8.2.3 Labeling requirement. ... (No change to text)

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

37. HCD proposes to adopt Sections A4.106.9, A4.106.9.1, A4.106.9.2 and A4.106.9.3 as follows:

A4.106.9 Bicycle parking. Comply with Sections A4.106.9.1 through A4.106.9.3 or meet a local ordinance, whichever is more stringent.

Exception: Number of bicycle parking spaces shall be permitted to be reduced, as approved by the enforcing agency, due to building site characteristics, including but not limited to, isolation from other development.

A4.106.9.1 Short-term bicycle parking. Provide permanently anchored bicycle racks within 100 feet of the visitors entrance, readily visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity with a minimum of one two-bike capacity rack.

A4.106.9.2 Long-term bicycle parking for multifamily buildings. Provide on-site bicycle parking for at least one bicycle per every two dwelling units. Acceptable parking facilities shall be conveniently reached from the street and may include, but not be limited to:

1. Covered, lockable enclosures with permanently anchored racks for bicycles.
2. Lockable bicycle rooms with permanently anchored racks.
3. Lockable, permanently anchored bicycle lockers.

A4.106.9.3 Long-term bicycle parking for hotel and motel buildings. Provide one on-site bicycle parking space for every 25,000 square feet, but not less than two. Acceptable parking facilities shall be conveniently reached from the street and may include, but not be limited to:

1. Covered, lockable enclosures with permanently anchored racks for bicycles.
2. Lockable bicycle rooms with permanently anchored racks.
3. Lockable, permanently anchored bicycle lockers.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

38. HCD proposes to adopt Section A4.106.10 as follows:

A4.106.10 Light pollution reduction (HR 4+). Outdoor lighting systems shall be designed and installed to comply with the following:

1. The minimum requirements in the *California Energy Code* for Lighting Zones 1-4 as defined in Chapter 10 of the *California Administrative Code*; and
2. Backlight, Uplight and Glare (BUG) ratings as defined in IESNA TM-15-11; and
3. Allowable BUG ratings not exceeding those shown in Table A4.106.10; or

Comply with a local ordinance lawfully enacted pursuant to Section 101.7 of this code, whichever is more stringent.

Exceptions:

1. Luminaires that qualify as exceptions in the *California Energy Code*.
2. Emergency lighting.
3. One- and two-family dwellings.

Note: The International Dark-Sky Association (IDA) and the Illuminating Engineering Society of North America (IESNA) have developed a *Model Lighting Ordinance (MLO)*. The MLO was designed to help municipalities develop outdoor lighting standards that reduce glare, light trespass, and skyglow. The model ordinance and user guides for the ordinance may be accessed at the International Dark-Sky Association website.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

39. HCD proposes to adopt Table A4.106.10 as follows:

**TABLE A4.106.10
MAXIMUM ALLOWABLE BACKLIGHT, UPLIGHT AND GLARE (BUG) RATINGS^{1,2}**

Allowable Rating	Lighting Zone 1	Lighting Zone 2	Lighting Zone 3	Lighting Zone 4
Maximum Allowable Backlight Rating³				
<u>Luminaire greater than 2 mounting heights (MH) from property line</u>	No Limit	No Limit	No Limit	No Limit
<u>Luminaire back hemisphere is 1 – 2 MH from property line</u>	B2	B3	B4	B4
<u>Luminaire back hemisphere is 0.5 – 1 MH from property line</u>	B1	B2	B3	B3
<u>Luminaire back hemisphere is less than 0.5 MH from property line</u>	B0	B0	B1	B2
Maximum Allowable Uplight Rating				
<u>For area lighting⁴</u>	U0	U0	U0	U0
<u>For all other outdoor light, including decorative luminaires</u>	U1	U2	U3	U4
Maximum Allowable Glare Rating⁵				
<u>Luminaire greater than 2 MH from property line</u>	G1	G2	G3	G4
<u>Luminaire front hemisphere is 1 – 2 MH from property line</u>	G0	G1	G1	G2
<u>Luminaire front hemisphere is 0.5 – 1 MH from property line</u>	G0	G0	G1	G1
<u>Luminaire back hemisphere is less than 0.5 MH from property line</u>	G0	G0	G0	G1

1. IESNA Lighting Zones 0 and 5 are not applicable: refer to Lighting Zones as defined in the *California Energy Code* and Chapter 10 of the *California Administrative Code*.
2. For property lines that abut public walkways, bikeways, plazas, and parking lots, the property line may be considered to be 5 feet beyond the actual property line for purpose of determining compliance with this section. For property lines that abut public roadways and public transit corridors, the property line may be considered to be the centerline of the public roadway or public transit corridor for the purpose of determining compliance with this section.
3. If the nearest property line is less than or equal to two mounting heights from the back hemisphere of the luminaire distribution, the applicable reduced Backlight rating shall be met.
4. General lighting luminaires in areas such as outdoor parking, sales or storage lots shall meet these reduced ratings. Decorative luminaires located in these areas shall meet U value limits for “all other outdoor lighting”.
5. If the nearest property line is less than or equal to two mounting heights from the front hemisphere of the luminaire distribution, the applicable reduced Glare rating shall be met.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

40. HCD proposes to repeal Division A4.2 “Energy Efficiency” (Sections A4.201 – A4.213.1) as follows:

Division A4.2 – ENERGY EFFICIENCY

SECTION A4.201

GENERAL

~~**A4.201.1 Scope.** For the purposes of energy efficiency standards in this appendix, the California Energy Commission will continue to adopt mandatory standards. It is the intent of this code to encourage buildings to achieve exemplary performance in the area of energy efficiency. Specifically, a green building should achieve at least a 15 percent reduction in energy usage when compared to the State’s mandatory energy efficiency standards.~~

SECTION A4.202

DEFINITIONS (Reserved)

SECTION A4.203

PERFORMANCE APPROACH

~~**A4.203.1 Energy performance.** Using an Alternative Calculation Method (ACM) approved by the California Energy Commission, calculate the annual Time-Dependent Valuation (TDV) energy for each proposed building and compare it to the TDV energy budget (standard building) to achieve the following:~~

- ~~Tier 1. Exceed the 2010 *California Energy Code* requirements by 15 percent.~~
- ~~Tier 2. Exceed the 2010 *California Energy Code* requirements by 30 percent.~~

~~Field verify and document the measures and calculations used to reach the desired level of efficiency following the requirements specified in the Title 24 Reference Appendices.~~

SECTION A4.204

PRESCRIPTIVE APPROACH

(Reserved)

SECTION A4.205

BUILDING ENVELOPE

~~**A4.205.1 Radiant roof barriers.** Radiant roof barrier is installed in Climate Zones 2, 4 and 8 through 15. The radiant barrier must be tested according to ASTM C-1371-98 or ASTM E 408-71(2002) and must be certified by the Department of Consumer Affairs. Radiant barriers must also meet installation criteria specified in Appendix D, Section RA 4.2.2 of the *California Energy Commission 2008 Residential Compliance Manual*~~

~~**A4.205.2 Window shading.** Exterior shading at least 18 inches in depth is provided on south and west windows by at least one of the following methods:~~

- ~~1. Moveable exterior awnings or louvers~~
- ~~2. Porch or patio covers~~
- ~~3. Overhangs~~

SECTION A4.206

AIR SEALING PACKAGE

~~**A4.206.1 Reduced infiltration.** Infiltration is reduced and verified by third party testing to comply with requirements contained in the *California Energy Code*.~~

SECTION A4.207

HVAC DESIGN, EQUIPMENT AND INSTALLATION

~~**A4.207.1 Innovative systems.** Radiant, hydronic, ground-source and other innovative space heating and cooling systems included in the proposed design shall be designed using generally accepted industry approved guidelines and design criteria.~~

~~**A4.207.2 Commissioning.** A commissioning plan shall be developed to document specified building components meet the project design and performance goals.~~

A4.207.2.1 Commissioning of HVAC Systems. In addition to other items in the commissioning plan the following items, as appropriate, pertaining to the heating, ventilating and cooling systems shall be inspected and certified by an independent third party that is trained or certified to inspect and test building systems as specified in Section 702.2.

1. Verify compliance with the manufacturer's recommended start-up procedures.
2. Verify refrigerant charge by super-heat or other methods specified by the manufacturer.
3. Burner is set to fire at the nameplate input rating.
4. Temperature drop across the evaporator is within the manufacturer's recommended range.
5. Test and verify air flow to be within 10 percent of the initial design air flow.
6. Static pressure within the duct system is within the manufacturer's acceptable range.
7. Verify that the whole house and exhaust ventilation systems meet Title 24 requirements.
8. Verify that the recommended maintenance procedures and schedules are documented and provided to the home owner.

A4.207.2.3 Commissioning checklist. Results of the commissioning inspection shall be included in the *Operation and Maintenance Manual* required in Section 4.410.1.

A4.207.4 Gas-fired heating equipment. Install gas-fired (natural or propane) space heating equipment with an Annual Fuel Utilization Ratio (AFUE) of .90 or higher.

A4.207.5 Heat pumps. If an electric heat pump must be used, select equipment with a Heating Seasonal Performance Factor (HSPF) of 8.0 or higher.

A4.207.6 Cooling equipment. When climatic conditions necessitate the installation of cooling equipment, select cooling equipment with a Seasonal Energy Efficiency Ratio (SEER) higher than 13.0 and an Energy Efficiency Ratio (EER) of at least 11.5.

A4.207.7 Ducts location. Install ductwork to comply with at least one of the following:

1. Install ducts within the conditioned envelope of the building.
2. Install ducts in an underfloor crawl space.
3. Use ducts with an R-6 insulation value or higher.
4. Install ductwork which is buried in the ceiling insulation.

A4.207.8 Duct leakage. Perform duct leakage testing to verify a total leakage rate of less than 6 percent of the total fan flow.

A4.207.9 Whole house fans. In Climate Zones 2, 4 and 8 through 15, install a whole house fan with insulated louvers or an insulated cover.

A4.207.10 Ceiling fans. ENERGY STAR ceiling fans are installed in all bedrooms and living areas.

SECTION A4.208

WATER HEATING DESIGN, EQUIPMENT AND INSTALLATION

A4.208.1 Tank type water heater efficiency. The Energy Factor (EF) for a gas-fired storage water heater is higher than .60.

A4.208.2 Tankless water heater efficiency. The Energy Factor (EF) for a gas-fired tankless water heater is .80 or higher.

A4.208.3 Distribution systems. Where the hot water source is more than 10 feet from a fixture, the potable water distribution system shall convey hot water using one of the following methods:

1. A central manifold plumbing system with parallel piping configuration ("home-run system") is installed using the smallest diameter piping allowed by the *California Plumbing Code* or an approved alternate.
2. The plumbing system design incorporates the use of a demand-controlled circulation pump.
3. A gravity-based hot water recirculation system is used.
4. A timer-based hot water recirculation system is used.
5. Other methods approved by the enforcing agency.

**SECTION A4.209
LIGHTING**

~~**A4.209.1 Lighting.** Building lighting consists of at least 90 percent ENERGY STAR qualified hard-wired fixtures.~~

**SECTION A4.210
APPLIANCES**

~~**A4.210.1 Appliance rating.** Each appliance provided by the builder meets ENERGY STAR if an ENERGY STAR designation is applicable for that appliance.~~

**SECTION A4.211
RENEWABLE ENERGY**

~~**A4.211.1 New solar homes partnership.** Install a solar photo-voltaic (PV) system in compliance with the California Energy Commission New Solar Homes Partnership (NSHP).^{1,2,3} Install energy efficiency measures meeting either Tier I or Tier II below.~~

~~**Tier I.** Exceed the 2010 *California Energy Code* requirements by 15 percent.~~

~~**Tier II.** Exceed the 2010 *California Energy Code* requirements by 30 percent.~~

~~Solar water heating may be used to assist in meeting the energy efficiency requirements of either Tier I or Tier II.~~

~~1. In addition, for either Tier I or II, each appliance provided by the builder must be ENERGY STAR if an ENERGY STAR designation is applicable for that appliance.~~

~~2. Tier II requires a 30 percent reduction in the building's space cooling (air conditioning) energy compared to the 2010 *California Energy Code*.~~

~~3. Information on NSHP incentives available through the California Energy Commission may be obtained at the "Go Solar California" website.~~

~~**A4.211.2 Solar water heating system.** A Solar Rating and Certification Corporation (SRCC) OG 100 solar collector or OG 300 solar water heating system is installed. The SRCC Solar Energy Factor (SE) shall be used to determine the Solar Fraction (SF), which shall be at least 0.5 as determined using the California F-Chart available at the "gosolarcalifornia" website or through the California Energy Commission.~~

~~**A4.211.3 Space for future solar installation.** A minimum of 300 square feet of unobstructed roof area facing within 30° of south is provided for future solar collector or photovoltaic panels. Rough-in penetrations through the roof surface within 24 inches (610 mm) of the boundary of the unobstructed roof area are provided for electrical conduit and water piping.~~

~~**A4.211.4 Future access for solar system.** A minimum one-inch (25.4 mm) electrical conduit is provided from the electrical service equipment to an accessible location in the attic or other location approved by the enforcing agency.~~

**SECTION A4.212
ELEVATORS, ESCALATORS AND OTHER EQUIPMENT
(Reserved)**

**SECTION A4.213
INNOVATIVE CONCEPTS AND LOCAL ENVIRONMENTAL CONDITIONS**

~~**A4.213.1 Innovative concepts and local environmental conditions.** The provisions of this code are not intended to prevent the use of any alternate material, appliance, installation, device, arrangement, method, design or method of construction not specifically prescribed by this code. This code does not limit the authority of city, county, or city and county government to make necessary changes to the provisions contained in this code pursuant to Section 401.7.1.~~

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

41. HCD proposes to amend Section A4.302 as follows:

Division A4.3 – WATER EFFICIENCY AND CONSERVATION

SECTION A4.302 DEFINITIONS

A4.302.1. Definitions. The following term is defined in Chapter 2.

LANDSCAPE (PLANT) COEFFICIENT (*K_L*). The product of the species factor multiplied by the density factor and the microclimate factor. ($K_L = K_s \times K_d \times K_{mc}$) The landscape coefficient is used in the landscape water budget calculation. (UCCE, 2000)

REFERENCE EVAPOTRANSPIRATION (*E_{T0}*). ~~The estimated rate of evapotranspiration from a standardized surface of well watered, actively growing cool season turf grass clipped to 12 cm with sufficient density to fully shade the soil. The water needs of a landscape planting can be calculated by multiplying the Landscape Coefficient (*K_L*) and Reference Evapotranspiration (*E_{T0}*).~~

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

42. HCD proposes to repeal and adopt Section A4.303.1 as follows:

SECTION A4.303 INDOOR WATER USE

A4.303.1 Kitchen faucets and dishwashers. Kitchen faucets and dishwashers in Tier 1 and Tier 2 buildings shall comply with this section.

Tier 1. The maximum flow rate at a kitchen sink faucet shall not be greater than 1.5 gpm at 60 psi.

Note: Rated flow rates for the default function of the faucet shall be used to demonstrate compliance with this section.

Tier 2. In addition to the kitchen faucet requirements for Tier 1, dishwashers in Tier 2 buildings shall be ENERGY STAR qualified and not use more than 5.8 gallons of water per cycle.

A4.303.1 Ten percent savings. A schedule of plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) that will reduce the overall use of potable water within the building by at least 10 percent shall be provided. The reduction shall be based on the maximum allowable water use per plumbing fixture and fitting as required by the *California Building Standards Code*. The 10 percent reduction shall be demonstrated by one of the following methods:

- 1. Prescriptive Method.** Each plumbing fixture and fitting shall not exceed the Maximum Flow Rate at \geq 10 Percent Reduction column in Table A4.303.2; or
- 2. Performance Method.** A calculation demonstrating a 10 percent reduction in the building “water use” baseline as established in Table A4.303.1 shall be provided.

Exception: Lavatory faucets and metering faucets installed pursuant to Sections 4.303.1.4.2 and 4.303.1.4.3 need not comply with the 10 percent flow reduction requirements of Section A4.303.1.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

43. HCD proposes to adopt Sections A4.303.1.1 and A4.303.1.2 as follows:

A4.303.1.1 Multiple showerheads serving one shower. 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 the Maximum Flow Rate at ≥ 10 Percent Reduction column in Table A4.303.2, or the shower shall be designed to allow only one shower outlet to be in operation at a time.

Exception: The maximum flow rate for showerheads when using the performance method specified in Section A4.303.1, Item 2, is 2.0 gallons per minute at 80 psi.

A4.303.1.2 Alternate water sources for nonpotable applications. Alternate nonpotable water sources for indoor use may be included in the calculations demonstrating 10 percent reduction. Alternate nonpotable water sources shall comply with the *California Plumbing Code*.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

44. HCD proposes to adopt Table A4.303.1 and Table A4.303.2 as follows:

**TABLE A4.303.1
WATER USE BASELINE¹**

<u>FIXTURE TYPE</u>	<u>BASELINE FLOW RATE</u>	<u>DURATION</u>	<u>DAILY USES</u>	<u>OCCUPANTS²</u>
Showerheads	2.0 gpm @ 80 psi	8 min.	1	
Lavatory faucets, residential	1.5 gpm @ 60 psi	.25 min.	3	
Kitchen faucets	1.8 gpm @ 60 psi	4 min.	1	
Gravity tank-type water closets	1.28 gallons/flush	1 flush	1 male ³ 3 female	
Flushometer tank water closets	1.28 gallons/flush	1 flush	1 male ³ 3 female	
Flushometer valve water closets	1.28 gallons/flush	1 flush	1 male ³ 3 female	
Electromechanical hydraulic water closets	1.28 gallons/flush	1 flush	1 male ³ 3 female	
Urinals	0.5 gallons/flush	1 flush	2 male	

Fixture "Water Use" = Flow rate x Duration x Occupants x Daily uses

1. Use Worksheet [HCD] WS-1 to calculate baseline water use and Worksheet [HCD] WS-2 to calculate the 10 percent reduction water use. Both worksheets can be found in "A Guide to the California Green Building Standards Code" located at www.hcd.ca.gov/CALGreen.html. Interactive worksheets which allow user input and automatic calculation are also available.
2. For residential occupancies, the number of occupants shall be based on two persons for the first bedroom, plus one additional person for each additional bedroom.
3. The daily use number shall be increased to three if urinals are not installed in the room.

**TABLE A4.303.2
FIXTURE FLOW RATES**

<u>FIXTURE TYPE</u>	<u>BASELINE FLOW RATE</u>	<u>MAXIMUM FLOW RATE AT ≥ 10 PERCENT REDUCTION</u>
<u>Showerheads</u>	<u>2.0 gpm @ 80 psi</u>	<u>1.8 gpm @ 80 psi</u>
<u>Lavatory faucets, residential</u>	<u>1.5 gpm @ 60 psi</u>	<u>1.35 gpm @ 60 psi¹</u>
<u>Kitchen faucets</u>	<u>1.8 gpm @ 60 psi</u>	<u>1.5 gpm @ 60 psi²</u>
<u>Gravity tank-type water closets</u>	<u>1.28 gallons/flush</u>	<u>1.12 gallons/flush³</u>
<u>Flushometer tank water closets</u>	<u>1.28 gallons/flush</u>	<u>1.12 gallons/flush³</u>
<u>Flushometer valve water closets</u>	<u>1.28 gallons/flush</u>	<u>1.12 gallons/flush³</u>
<u>Electromechanical hydraulic water closets</u>	<u>1.28 gallons/flush</u>	<u>1.12 gallons/flush³</u>
<u>Urinals</u>	<u>0.5 gallon/flush</u>	<u>0.4 gallons/flush</u>

1. Lavatory faucets shall not have a flow rate less than 0.8 gpm at 20 psi.
2. When the prescriptive method is used, kitchen faucets may temporarily increase flow above the maximum rate, but not above 1.8 gpm @ 60 psi, and must default to a maximum flow rate of 1.5 gpm @ 60 psi.
3. Includes single and dual flush water closets with an effective flush of 1.12 gallons or less.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

45. HCD proposes to renumber former Section A4.303.2 to Section A4.303.3 and adopt new Section A4.303.2 as follows:

A4.303.2 Appliances. Dishwashers and clothes washers in residential buildings shall comply with the following:

Install at least one qualified ENERGY STAR appliance with maximum water use as follows:

1. Standard Dishwashers – 4.25 gallons per cycle.
2. Compact Dishwashers – 3.5 gallons per cycle.
3. Clothes Washers – water factor of 6 gallons per cubic feet of drum capacity.

Note: See Section A5.303.3 for nonresidential dishwashers and clothes washers.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

46. HCD proposes to renumber former Section A4.303.2 to Section A4.303.3 as follows:

A4.303.2 3 Nonwater supplied urinals and waterless toilets. Nonwater supplied urinals or composting toilets are installed.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

47. HCD proposes to amend Section A4.304.2 as follows:

**SECTION A4.304
OUTDOOR WATER USE**

A4.304.2 Rainwater catchment systems. ~~A rainwater capture, storage and use system~~ An approved rainwater catchment system is designed and installed to use rainwater generated by at least 65 percent of the available roof area. Rainwater catchment systems shall be designed and installed in accordance with the *California Plumbing Code*.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

48. HCD proposes to repeal Section A4.304.4.1 as follows:

**SECTION A4.304
OUTDOOR WATER USE**

A4.304.4 Potable water reduction. ... (No change to text)

Tier 1. ... (No change to text)

Note: ... (No change to text)

Tier 2. ... (No change to text)

~~**A4.304.4.1 Verification.** A calculation demonstrating the applicable potable water use reduction required by this section shall be provided.~~

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

49. HCD proposes to adopt Section A4.304.6 as follows:

A4.304.6 Irrigation metering device. For new water service connections, landscaped irrigated areas more than 2500 square feet shall be provided with separate submeters or metering devices for outdoor potable water use.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

50. HCD proposes to amend Sections A4.305.1 and A4.305.2 as follows:

**SECTION A4.305
WATER REUSE SYSTEMS**

A4.305.1 Graywater. Alternative plumbing piping is installed to permit the discharge from the clothes washer or other fixtures to be used for an irrigation system in compliance with ~~Chapter 16A~~ of the *California Plumbing Code*.

A4.305.2 Recycled water piping. Based on projected availability, dual water piping is installed for future use of recycled water at the following locations:

1. Interior piping for the use of recycled water is installed to serve all water closets, urinals and floor drains.
2. Exterior piping is installed to transport recycled water from the point of the connection to the structure.

Recycled water systems shall be designed and installed in accordance with the *California Plumbing Code*.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

51. HCD proposes to amend Section A4.402 as follows:

SECTION A4.402 DEFINITIONS

A4.402.1 Definitions. The following terms are defined in Chapter 2.

ASSEMBLY (ASSEMBLY PRODUCT). An assembly (assembly product) includes or has been formulated using multiple materials.

POSTCONSUMER CONTENT. Any material which has been used by a consumer and then recycled for use in a new material or product.

PRECONSUMER (OR POSTINDUSTRIAL) CONTENT. Material diverted from the waste stream during one manufacturing process, including scraps, damaged goods and excess production that is reclaimed and used in another manufacturing process. Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated those wastes.

PROPORTIONAL RECYCLED CONTENT (PRC_M). The amount of recycled content of a material in an assembly as related to the percentage of the material in an assembly product. PRC_M is derived by multiplying the percentage of each material in an assembly by the percentage of recycled content in the material.

RECYCLED CONTENT (RC). The amount of recycled material in an assembly product or material. Refer to International Organization for Standardization ISO 14021 — Environmental labels and declarations — Self-declared environmental claims (Type II environmental labeling).

RECYCLED CONTENT VALUE (RCV).

Assembly products (RCV_A). Assembly product cost multiplied by the recycled content of the assembly based on all of the postconsumer content and 50 percent of the preconsumer content.

Materials (RCV_M). Material cost multiplied by recycled content of the material based on all of the postconsumer content and 50 percent of the preconsumer content.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

52. HCD proposes to amend Section A4.502 as follows:

Division A4.5 – ENVIRONMENTAL QUALITY

SECTION A4.502 DEFINITIONS

A4.502.1 Definitions. The following terms are defined in Chapter 2.

MERV. Filter minimum efficiency reporting value, based on ASHRAE 52.2-1999.

NO ADDED FORMALDEHYDE (NAF) BASED RESINS. Resins formulated with no added formaldehyde as part of the resin cross-linking structure for making hardwood plywood, particle board or medium density fiberboard. “No added formaldehyde based resins” include, but are not limited to, resins made from soy, polyvinyl acetate or methylene diisocyanate.

ULTRA-LOW EMITTING FORMALDEHYDE (ULEF) RESINS. Resins formulated such that average formaldehyde emissions are consistently below the Phase 2 emission standards in Section 93120.2, as provided in Section 93120.3(d) of Title 17, California Code of Regulations.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

53. HCD proposes to amend Sections A4.504.1 and A4.504.2 as follows:

SECTION A4.504 POLLUTANT CONTROL

A4.504.1 Early Compliance with formaldehyde limits. ~~Meet the formaldehyde limits contained in Table 4.504.5 before the mandatory compliance date, or use.~~ Use composite wood products made with either California Air Resources Board approved no-added formaldehyde (NAF) resins or ultra-low emitting formaldehyde (ULEF) resins.

Note: Documentation must be provided that verifies that finish materials are certified to meet the pollutant emission limits.

A4.504.2 Resilient flooring systems. Resilient flooring systems installed in the building shall meet the percentages specified in this section and comply with the VOC emission limits defined in at least one of the following:

1. VOC emission limits defined in the Collaborative for High Performance Schools (CHPS) High Performance Products Database.
2. Products compliant with CHPS criteria certified under the Greenguard Children & Schools program.
3. Certification under the Resilient Floor Covering Institute (RFCI) FloorScore program.
4. Meet the California Department of Public Health, “Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers,” Version 1.1, February 2010 (also known as Specification 01350.)

Tier 1. At least ~~80~~ 90 percent of the total area of resilient flooring installed shall comply.

Tier 2. At least ~~90~~ 100 percent of the total area of resilient flooring installed shall comply.

Exception for Tier 2: An allowance for up to 5 percent specialty purpose flooring may be permitted.

Note: Documentation must be provided that verifies that finish materials are certified to meet the pollutant emission limits in this section.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code

Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

54. HCD proposes to amend Section A4.506.1 as follows:

SECTION A4.506 INDOOR AIR QUALITY AND EXHAUST

A4.506.1 Filters. ~~Return air F~~ilters with a ~~higher~~ value greater than MERV 6 ~~are shall be~~ installed on ~~central air or ventilation HVAC~~ systems. Pressure drop across the filter shall not exceed 0.1 inches water column.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

55. HCD proposes to renumber former Section A4.506.2 to Section A4.506.3 and adopt new Section A4.506.2 as follows:

A4.506.2 Construction filter (HR 4+). Provide filters on return air openings rated at MERV 6 or higher during construction.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

56. HCD proposes to renumber former Section A4.506.2 to Section A4.506.3 and amend as follows:

A4.506.2 ~~3~~ Direct-vent appliances. Direct-vent heating and cooling equipment ~~is shall be~~ utilized if the equipment will be located in the conditioned space, or install the space heating and water heating equipment in an isolated mechanical room.

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

57. HCD proposes to amend Section A4.601.4.2 as follows:

Division A4.6 – TIER I AND TIER 2

SECTION A4.601 GENERAL

A4.601.4.2 Prerequisite and elective measures for Tier 1. In addition to the mandatory measures, compliance with the following prerequisite and elective measures from Appendix A4 is also required to achieve Tier 1 status:

1. From Division A4.1 ... (No change to text)
2. ~~From Division A4.2, Energy Efficiency. (Reserved)~~
 - 2.1 ~~Exceed the 2010 California Energy Code requirements by 15 percent.~~
 - 2.2 ~~Comply with at least four elective measures selected from Division A4.2.~~

3. From Division A4.3, Water Efficiency and Conservation.
 - ~~3.1~~ ~~Comply with the reduced flow rate for kitchen sink faucets in Section A4.303.1.~~
 - ~~3.2~~ 3.1 Comply with the landscape irrigation water budget requirement in Section A4.304.3.
 - ~~3.3~~ 3.2 Comply with the Tier 1 potable water use reduction for landscape irrigation design in Section A4.304.4.
 - ~~3.4~~ 3.3 Comply with at least ~~one~~ two elective measures selected from Division A4.3.
4. From Division A4.4 ... (No change to text)
5. From Division A4.5, Environmental Quality.
 - 5.1 Comply with the ~~80~~ 90 percent resilient flooring systems requirements in Section A4.504.2.
 - 5.2 Comply with the thermal insulation requirements for Tier 1 and Tier 2 in Section A4.504.3.
 - 5.3 Comply with at least one elective measure selected from Division A4.5.

Note: ... (No change to text)

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

58.HCD proposes to amend Section A4.601.5.2 as follows:

A4.601.5.2 Prerequisite and elective measures for Tier 2. In addition to the mandatory measures, compliance with the following prerequisite and elective measures from Appendix A4 is also required to achieve Tier 2 status.

1. From Division A4.1 ... (No change to text)
2. ~~From Division A4.2, Energy Efficiency. (Reserved)~~
 - ~~2.1 Exceed the 2010 California Energy Code requirements by 30 percent.~~
 - ~~2.2 Comply with at least six elective measures selected from Division A4.2.~~
3. From Division A4.3, Water Efficiency and Conservation.
 - ~~3.1 Comply with the Tier 1 reduced flow rate for kitchen sink faucets in Section A4.303.1.~~
 - ~~3.2 Comply with the Tier 2 dishwasher requirements in Section A4.303.1.~~
 - ~~3.3~~ 1 Comply with the landscape irrigation water budget requirement in Section A4.304.3.
 - ~~3.4~~ 2 Comply with the Tier 2 potable water use reduction for landscape irrigation design in Section A4.304.4.
 - ~~3.5~~ 3 Comply with at least ~~two~~ three elective measures selected from Division A4.3.
4. From Division A4.4 ... (No change to text)
5. From Division A4.5, Environmental Quality.
 - 5.1 Comply with the ~~90~~ 100 percent resilient flooring systems requirements in Section A4.504.2.
 - 5.2 Comply with the thermal insulation requirements fro Tier 1 and Tier 2 in Section A4.504.3.
 - 5.3 Comply with at least one elective measure selected from Division A4.5.

Note: ... (No change to text)

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

59. HCD proposes to amend the “Residential Occupancies Application Checklist” (Appendix A4, Section A4.602) as follows:

**RESIDENTIAL OCCUPANCIES APPLICATION CHECKLIST
(APPENDIX A4, SECTION A4.602)**

FEATURE OR MEASURE	LEVELS APPLICANT TO SELECT ELECTIVE MEASURES			VERIFICATIONS ENFORCING AGENCY TO SPECIFY VERIFICATION METHOD		
	Mandatory	Prerequisites and electives ¹		Enforcing Agency <input type="checkbox"/> All	Installer or Designer <input type="checkbox"/> All	Third party <input type="checkbox"/> All
		Tier 1	Tier 2			
PLANNING AND DESIGN						
Site Selection						
A4.103.2 Facilitate community connectivity by one of the following methods: 1. Locate project within a ¼-mile true walking distance of at least 4 basic services; 2. locate project within ½-mile true walking distance of at least 7 basic services; or 3. other methods increasing access to additional resources.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.106.1 Orient buildings to optimize the use of solar energy with the long side of the house oriented within 30° of south. (Reserved)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.106.3 Post-construction landscape designs accomplish one or more of the following: 1. Areas disrupted during construction are restored to be consistent with native vegetation species and patterns. 2. Limit turf areas to the greatest extent possible. a. Not more than 50 percent for Tier 1. b. Not more than 25 percent for Tier 2. 3. Utilize at least 75 percent native California or drought tolerant plant and tree species appropriate for the climate zone region. 4. Hydrozoning irrigation techniques are incorporated into the landscape design.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

FEATURE OR MEASURE	LEVELS APPLICANT TO SELECT ELECTIVE MEASURES			VERIFICATIONS ENFORCING AGENCY TO SPECIFY VERIFICATION METHOD		
	Mandatory	Prerequisites and electives ¹		Enforcing Agency <input type="checkbox"/> All	Installer or Designer <input type="checkbox"/> All	Third party <input type="checkbox"/> All
		Tier 1	Tier 2			
<p>A4.106.5 Roofing materials shall have a minimum 3-year aged solar reflectance and thermal emittance or a minimum aged Solar Reflectance Index (SRI) equal to or greater than the values specified in Tables A4.106.5.1(1) and A4.106.5.1(2) for low-rise residential buildings and Tables A4106.5.1(3) and A4106.5.1(4) for high rise residential buildings.</p> <p style="text-align: center;"><u>Low-Rise Residential</u></p> <p>Tier 1 roof covering shall meet or exceed the values contained in Table A4.106.5.1(1).</p> <p>Tier 2 roof covering shall meet or exceed the values contained in Table A4.106.5.1(2).</p> <p style="text-align: center;"><u>High-Rise Residential, Hotels and Motels</u></p> <p>Tier 1 roof covering shall meet or exceed the values contained in Table A4.106.5.1(3).</p> <p>Tier 2 roof covering shall meet or exceed the values contained in Table A4.106.5.1(4).</p>		<input checked="" type="checkbox"/> ²	<input checked="" type="checkbox"/> ²			
<p>A4.106.6 Electric vehicle charging. Provide capability for dedicated electrical vehicle supply equipment in single-family and multi-family structures. Install a vegetated roof for at least 50 percent of the roof area. Vegetated roofs shall comply with requirements for roof gardens and landscaped roofs in the <i>California Building Code</i>, Chapter 15 and Chapter 16.</p>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>A4.106.7 Reduce nonroof heat islands for 50 percent of sidewalks, patios, driveways or other paved areas by using one or more of the methods listed.</p>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>A4.106.8 Provide capability for the installation of electrical vehicle supply equipment in single-family and multifamily structures.</p>		<input type="checkbox"/>	<input type="checkbox"/>			

FEATURE OR MEASURE	LEVELS APPLICANT TO SELECT ELECTIVE MEASURES			VERIFICATIONS ENFORCING AGENCY TO SPECIFY VERIFICATION METHOD		
	Mandatory	Prerequisites and electives ¹		Enforcing Agency	Installer or Designer	Third party
		Tier 1	Tier 2	<input type="checkbox"/> All	<input type="checkbox"/> All	<input type="checkbox"/> All
<p>A4.106.9 Provide bicycle parking facilities as noted below or meet a local ordinance, whichever is more stringent. Number of bicycle parking spaces may be reduced, as approved by the enforcing agency, due to building site characteristics, including but not limited to, isolation from other development.</p> <p>1. Provide Short-term bicycle parking per Section A4.106.9.1.</p> <p>2. Provide long-term bicycle parking for multifamily buildings per Section A4.106.9.2.</p> <p>3. Provide long-term bicycle parking for hotel and motel buildings per Section A4.106.9.3.</p>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>A4.106.10 (HR 4+). Outdoor lighting systems shall be designed and installed to comply with:</p> <p>1. The minimum requirements in the <i>California Energy Code</i> for Lighting Zones 1-4; and</p> <p>2. Backlight, Uplight and Glare (BUG) ratings as defined in IESNA TM-15-11; and</p> <p>3. Allowable BUG ratings not exceeding those shown in Table A4.106.10; or</p> <p>Comply with a lawfully enacted local ordinance whichever is more stringent.</p>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ENERGY EFFICIENCY						
General						
4.201.1 Low-rise residential buildings shall meet or exceed the minimum standard design required by the California Energy Standards.	<input checked="" type="checkbox"/>					
Performance Approach						
A4.203.1 Exceed the <i>California Energy Code</i> requirements, based on the 2008 Energy Efficiency Standards requirements by 15 percent.		<input checked="" type="checkbox"/> ²				
A4.203.1 Exceed the <i>California Energy Code</i> requirements, based on the 2008 Energy Efficiency Standards requirements by 30 percent.			<input checked="" type="checkbox"/> ²			
Prescriptive Approach (Reserved)						

FEATURE OR MEASURE	LEVELS APPLICANT TO SELECT ELECTIVE MEASURES			VERIFICATIONS ENFORCING AGENCY TO SPECIFY VERIFICATION METHOD		
	Mandatory	Prerequisites and electives ¹		Enforcing Agency <input type="checkbox"/> All	Installer or Designer <input type="checkbox"/> All	Third party <input type="checkbox"/> All
		Tier 1	Tier 2			
Building Envelope						
A4.205.1 Radiant roof barrier is installed in Climate Zones 2, 4, and 8 through 15.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.205.2 Exterior shading at least 18 inches in depth is provided on south and west windows.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Air Sealing Package						
A.4.206.1 Third party blower door test is conducted and passed to verify building envelope tightness.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
HVAC Design, Equipment and Installation						
A4.207.1 Radiant, hydronic, ground source and other innovative space heating and cooling systems included in the proposed design shall be designed using generally accepted industry-approved guidelines and design criteria.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.207.2. An HVAC system commissioning plan is developed and the following items, as appropriate, pertaining to the heating and cooling systems are inspected and certified by an independent third party agency: 1. Verify compliance with the manufacturer's recommended start-up procedures. 2. Verify refrigerant charge by super-heat or other methods specified by the manufacturer. 3. Burner is set to fire at the nameplate input rating. 4. Temperature drop across the evaporator is within the manufacturer's recommended range. 5. Test and verify air flow to be within 10 percent of the initial design air flow. 6. Static pressure within the duct system is within the manufacturer's acceptable range. 7. Verify that the whole house and exhaust ventilation systems meet Title 24 requirements. 8. Verify that the recommended maintenance procedures and schedules are documented and provided to the home owner.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

FEATURE OR MEASURE	LEVELS APPLICANT TO SELECT ELECTIVE MEASURES			VERIFICATIONS ENFORCING AGENCY TO SPECIFY VERIFICATION METHOD		
	Mandatory	Prerequisites and electives ¹		Enforcing Agency <input type="checkbox"/> All	Installer or Designer <input type="checkbox"/> All	Third party <input type="checkbox"/> All
		Tier 1	Tier 2			
A4.207.2.3 Results of the commissioning inspection shall be included in the Operation and Maintenance Manual required in Section 4.410.1.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.207.4 Install gas-fired (natural or propane) space heating equipment with an Annual Fuel Utilization Ratio (AFUE) of .90 or higher.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.207.5 If an electric heat pump must be used, select equipment with a Heating Seasonal Performance Factor (HSPF) of 8.0 or higher.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.207.6 When climatic conditions necessitate the installation of cooling equipment, select cooling equipment with a Seasonal Energy Efficiency Ratio (SEER) higher than 13.0 and an Energy Efficiency Ratio (EER) of at least 11.5.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.207.7 Install ductwork to comply with at least one of the following: 1. Install ducts within the conditioned envelope of the building. 2. Install ducts in an underfloor crawl space. 3. Use ducts with an R-6 insulation value or higher. 4. Install ductwork which is buried in the ceiling insulation.		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
A4.207.8 Perform duct leakage testing to verify a total leakage rate of less than 6 percent of the total fan flow.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.207.9 In Climate Zones 2, 4, and 8 through 15 install a whole-house fan with insulated louvers or an insulated cover.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.207.10 ENERGY STAR ceiling fans are installed in all bedrooms and living areas.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water Heating Design, Equipment and Installation						

FEATURE OR MEASURE	LEVELS APPLICANT TO SELECT ELECTIVE MEASURES			VERIFICATIONS ENFORCING AGENCY TO SPECIFY VERIFICATION METHOD		
	Mandatory	Prerequisites and electives ¹		Enforcing Agency <input type="checkbox"/> All	Installer or Designer <input type="checkbox"/> All	Third party <input type="checkbox"/> All
		Tier 1	Tier 2			
A4.208.1 The Energy Factor (EF) for a gas-fired storage water heater is higher than .60.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.208.2 The Energy Factor (EF) for a gas-fired tankless water heater is .80 or higher.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.208.3 Where the hot water source is more than 10 feet from a fixture, the potable water distribution system shall convey hot water using a method designed to minimize wait time for hot water to arrive at the fixture.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lighting						
A4.209.1 Building lighting consists of at least 90 percent ENERGY STAR qualified hard-wired fixtures.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appliances						
A4.210.1 Each appliance provided by the builder meets ENERGY STAR if an ENERGY STAR designation is applicable for that appliance.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Renewable Energy						
<p>A4.211.1 Install a solar photovoltaic (PV) system in compliance with the California Energy Commission New Solar Homes Partnership (NSHP).^{4,2,3} Install energy efficiency measures meeting either Tier I or Tier II below.</p> <p>Tier 1. Exceed the 2010 California Energy Code requirements by 15 percent.</p> <p>Tier 2. Exceed the 2010 California Energy Code requirements by 30 percent.</p> <p>Solar water heating may be used to assist in meeting the energy efficiency requirements of either Tier I or Tier II.</p> <p>1. In addition, for either Tier I or II, each appliance provided by the builder must be ENERGY STAR if an ENERGY STAR designation is applicable for that appliance.</p> <p>2. Tier II requires a 30 percent reduction in the building's space cooling (air conditioning) energy compared to the 2010 California Energy Code.</p> <p>3. Information on NSHP incentives available through the California Energy Commission may be obtained at the "Go Solar California" website.</p>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

FEATURE OR MEASURE	LEVELS APPLICANT TO SELECT ELECTIVE MEASURES			VERIFICATIONS ENFORCING AGENCY TO SPECIFY VERIFICATION METHOD		
	Mandatory	Prerequisites and electives ¹		Enforcing Agency <input type="checkbox"/> All	Installer or Designer <input type="checkbox"/> All	Third party <input type="checkbox"/> All
		Tier 1	Tier 2			
A4.211.2 A solar water heating system is installed.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.211.3 Space on the roof surface and penetrations through the roof surface are provided for future solar installation.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A4.211.4 A minimum one-inch conduit is provided from the electrical service equipment for the future installation of a photovoltaic (PV) system.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Innovative Concepts and Local Environmental Conditions						
A4.213.1 Items in this section are necessary to address innovative concepts or local environmental conditions.						
Item 1.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Item 2.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Item 3.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Indoor Water Use						
<p>4.303.1 Indoor water use shall be reduced by at least 20 percent using one of the following methods.</p> <p>1. Water saving fixtures or flow restrictors shall be used.</p> <p>2. A 20 percent reduction in baseline water use shall be demonstrated.</p> <p><u>4.303.1 Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) installed in residential buildings shall comply with the prescriptive requirements of Sections 4.303.1.1 through 4.303.1.4.4.</u></p>	<input checked="" type="checkbox"/> 7/01/2011			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

FEATURE OR MEASURE	LEVELS APPLICANT TO SELECT ELECTIVE MEASURES			VERIFICATIONS ENFORCING AGENCY TO SPECIFY VERIFICATION METHOD		
	Mandatory	Prerequisites and electives ¹		Enforcing Agency <input type="checkbox"/> All	Installer or Designer <input type="checkbox"/> All	Third party <input type="checkbox"/> All
		Tier 1	Tier 2			
<p>4.303.2 When using the calculation method specified in Section 4.303.1, multiple showerheads controlled by a single valve shall not exceed maximum flow rates.</p> <p>4.303.2 Plumbing fixtures and fittings required in Section 4.303.1 shall be installed in accordance with the <i>California Plumbing Code</i>, and shall meet the applicable referenced standards.</p>	<input checked="" type="checkbox"/> 7/01/2011			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>4.303.3 Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with specified performance requirements.</p>	<input checked="" type="checkbox"/> 7/01/2011			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>A4.303.2 Nonwater supplied urinals or waterless toilets are installed.</p>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>A4.303.2 Dishwashers and clothes washers in residential buildings shall comply with the following:</p> <p>Install at least one qualified ENERGY STAR appliance with maximum water use as follows:</p> <ol style="list-style-type: none"> 1. Standard Dishwashers - 4.25 gallons per cycle. 2. Compact Dishwashers - 3.5 gallons per cycle. 3. Clothes Washers - water factor of 6 gallons per cubic feet of drum capacity. 		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>A4.303.3 Nonwater supplied urinals or waterless toilets are installed.</p>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>A4.304.6 For new water service connections, landscaped irrigated areas more than 2500 square feet shall be provided with separate submeters or metering devices for outdoor potable water use.</p>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

FEATURE OR MEASURE	LEVELS APPLICANT TO SELECT ELECTIVE MEASURES			VERIFICATIONS ENFORCING AGENCY TO SPECIFY VERIFICATION METHOD		
	Mandatory	Prerequisites and electives ¹		Enforcing Agency <input type="checkbox"/> All	Installer or Designer <input type="checkbox"/> All	Third party <input type="checkbox"/> All
		Tier 1	Tier 2			
ENVIRONMENTAL QUALITY						
Fireplaces						
Pollutant Control						
<p>4.504.4 50 <u>80</u> percent of floor area receiving resilient flooring shall comply with the VOC-emission limits defined in the Collaborative for High Performance Schools (CHPS) High Performance Products Database or be certified under the Resilient Floor Covering Institute (RFCI) FloorScore program; or meet California Dept. of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers", Version 1.1, February 2010 (also known as Specification 01350.)</p>	<input checked="" type="checkbox"/>					
<p>A4.504.1 Meet the formaldehyde limits contained in Table 4.504.5 before the mandatory compliance date, or uUse composite wood products made with either California Air Resources Board approved no-added formaldehyde (NAF) resins or ultra-low emitting formaldehyde (ULEF) resins.</p>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>A4.504.2 Install VOC compliant resilient flooring systems.</p> <p>Tier 1. At least 80 <u>90</u> percent of the resilient flooring installed shall comply.</p> <p>Tier 2. At least 90 <u>100</u> percent of the resilient flooring installed shall comply.</p>		<input checked="" type="checkbox"/> ²	<input checked="" type="checkbox"/> ²			
Indoor Air Quality and Exhaust						

FEATURE OR MEASURE	LEVELS APPLICANT TO SELECT ELECTIVE MEASURES			VERIFICATIONS ENFORCING AGENCY TO SPECIFY VERIFICATION METHOD		
	Mandatory	Prerequisites and electives ¹		Enforcing Agency <input type="checkbox"/> All	Installer or Designer <input type="checkbox"/> All	Third party <input type="checkbox"/> All
		Tier 1	Tier 2			
<p>A4.506.1 Higher than MERV 6 filters are installed on central air or ventilation systems. Return air filters with a value greater than MERV 6 shall be installed on HVAC systems. Pressure drop across the filter shall not exceed 0.1 inches water column.</p> <p>A4.506.2 Direct-vent appliances are used or isolated from the conditioned space.</p> <p>(HR 4+). Provide filters on return air openings rated at MERV 6 or higher during construction when it is necessary to use HVAC equipment.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>A4.506.3 Direct-vent appliances shall be used when equipment is located in conditioned space; or the equipment must be installed in an isolated mechanical room.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental Comfort						
<p>4.507.1 Whole house exhaust fans shall have insulated louvers or covers which close when the fan is off. Covers or louvers shall have a minimum insulation value of R-4.2.</p>	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.

60. HCD proposes to amend Appendix A4, Division A4.7 “Residential Model Ordinance” as follows:

DIVISION A4.7– RESIDENTIAL MODEL ORDINANCE

A4.701.1 General. The voluntary measures of this code are designed and promulgated to be adopted by reference and made mandatory by local ordinance pursuant to Section 101.7. Jurisdictions wishing to adopt the voluntary provisions of this code as an enforceable regulation governing structures and premises should ensure that certain factual information is included in the adopting ordinance and that the measures are appropriate and achievable and are considered to be suitable as mandatory by the city, county, or city and county. The following sample adoption ordinance addresses several key elements of a code adoption ordinance, including the information required for insertion into the code text.

This code does not limit the authority of city, county, or city and county government to make necessary changes to the provisions contained in this code.

**SAMPLE RESOLUTION FOR ADOPTION OF
THE TIER 1 OR TIER 2 PROVISIONS OF THE CALIFORNIA GREEN BUILDING STANDARDS CODE WITH OR
WITHOUT ADDITIONAL ITEMS NECESSARY TO ADDRESS INNOVATIVE CONCEPTS OR LOCAL
ENVIRONMENTAL CONDITIONS.**

ATTACHMENT ____.

**SAMPLE RESOLUTION ADOPTING THE CALIFORNIA GREEN BUILDING STANDARDS CODE APPENDICES
AS A MANDATORY REFERENCE STANDARD**

CITY OF _____

RESOLUTION # _____

Resolution Adopting Enhanced Green Building Measures For New Home and Existing Residential Construction.

WHEREAS, the City/County of _____ 's (City or County) General Plan sets forth goals for preserving and improving the natural and built environment of the City/County, protecting the health of its residents and visitors, and fostering its economy; and

WHEREAS, green building is a holistic approach to design, construction, and demolition that minimizes the building's impact on the environment, the occupants, and the community; and

WHEREAS, green buildings benefit building industry professionals, residents, and communities by improving construction quality; increasing building durability; reducing utility, maintenance, water and energy costs; creating healthier homes; and enhancing comfort and livability; and

WHEREAS, the *California Green Building Standards Code* appendices have included voluntary tiers to provide a city, county, or city and county, building professionals, and the general public with a range of voluntary green building measures for builders to choose from when constructing homes in California; and

WHEREAS, the *California Green Building Standards Code* appendices benefited from extensive input from a city, county, or city and county, building professionals, State agencies, and recognized green building professionals and the practices contained in these guidelines were selected for their viability in today's market and their ability to promote sustainable buildings and communities; and

WHEREAS, adoption of the *California Green Building Standards Code* appendices promotes statewide consistency and predictability for building professionals; and

NOW THEREFORE, BE IT RESOLVED, that the City/County hereby finds that green building design, construction and operation furthers the goals set forth in the City/County General Plan, including land use, conservation, open space and (include others, if applicable.)

NOW THEREFORE, BE IT RESOLVED, that newly constructed ~~low-rise~~ residential buildings, alterations or additions to residential buildings shall meet the _____ (Tier 1 or Tier 2) measures contained in the *California Green Building Standards Code* appendices and the green building design, construction, and operation innovative concepts or additions or amendment thereto contained in Attachment _____ to address local environmental conditions; and

NOW THEREFORE, BE IT FURTHER RESOLVED, that the City Council or County Board of Supervisors of the City/County of _____ adopts the *California Green Building Standards Code* appendices, as they may be amended from time to time, as a City/County mandatory reference document and directs City staff to enforce these green building measures as mandatory standards within the City/County.

ADOPTED BY THE FOLLOWING VOTE:

AYES:

NOES:

ABSENT:

NOTE:

Authority cited: Health and Safety Code Sections 17921, 17922 and 19990. Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990 and 19960 through 19997.