

2019 CALIFORNIA GREEN BUILDING STANDARDS CODE

RESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2020, Includes August 2019 Supplement)

Y	NA	RESPON. PARTY	CHAPTER 3 GREEN BUILDING SECTION 301 GENERAL	Y	NA	RESPON. PARTY	CHAPTER 3 GREEN BUILDING SECTION 301 GENERAL	Y	NA	RESPON. PARTY	DIVISION 4.3 WATER EFFICIENCY AND CONSERVATION 4.303 INDOOR WATER USE	Y	NA	RESPON. PARTY	DIVISION 4.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY																		
			<p>301.1 SCOPE. Buildings shall be designed to include the green building measures specified as mandatory in the application checklists contained in this code. Voluntary green building measures are also included in the application checklists and may be included in the design and construction of structures covered by this code, but are not required unless adopted by a city, county, or city and county as specified in Section 101.7.</p> <p>301.1.1 Additions and alterations. [HCD] 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. The requirements shall apply only to and/or within the specific area of the addition or alteration.</p> <p>Note: On and after January 1, 2014, residential buildings undergoing permitted alterations, additions, or improvements shall replace noncompliant plumbing fixtures with water-conserving plumbing fixtures. Plumbing fixture replacement is required prior to issuance of a certificate of final completion, certificate of occupancy or final permit approval by the local building department. See Civil Code Section 1101.1, et seq., for the definition of a noncompliant plumbing fixture, types of residential buildings affected and other important enactment dates.</p> <p>301.2 LOW-RISE AND HIGH-RISE RESIDENTIAL BUILDINGS. [HCD] 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). When the section applies to both low-rise and high-rise buildings, no banner will be used.</p>				<p>4.106.4.2.1.1 Electric Vehicle Charging Stations (EVCS) When EV chargers are installed, EV spaces required by Section 4.106.2.2, Item 3, shall comply with at least one of the following options:</p> <ol style="list-style-type: none"> The EV space shall be located adjacent to an accessible parking space meeting the requirements of the <i>California Building Code</i>, Chapter 11A, to allow use of the EV charger from the accessible parking space. The EV space shall be located on an accessible route, as defined in the <i>California Building Code</i>, Chapter 2, to the building. <p>Exception: Electric vehicle charging stations designed and constructed in compliance with the <i>California Building Code</i>, Chapter 11B, are not required to comply with Section 4.106.4.2.1.1 and Section 4.106.4.2.2, Item 3.</p> <p>Note: Electric vehicle charging stations serving public housing are required to comply with the <i>California Building Code</i>, Chapter 11B.</p> <p>4.106.4.2.2 Electric vehicle charging space (EV space) dimensions. The EV space shall be designed to comply with the following:</p> <ol style="list-style-type: none"> The minimum length of each EV space shall be 18 feet (5486 mm). The minimum width of each EV space shall be 9 feet (2743 mm). One in every 25 EV spaces, but not less than one EV space, shall have an 8-foot (2438 mm) wide minimum aisle. A 5-foot (1524 mm) wide minimum aisle shall be permitted provided the minimum width of the EV space is 12 feet (3658 mm). <p>a. Surface slope for this EV space and the aisle shall not exceed 1 unit vertical in 48 units horizontal (2.083 percent slope) in any direction.</p> <p>4.106.4.2.3 Single EV space required. Install a listed raceway capable of accommodating a 208/240-volt dedicated branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or enclosure in close proximity to the proposed location of the EV space. Construction documents shall identify the raceway termination point. The service panel and/or subpanel shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.</p> <p>4.106.4.2.4 Multiple EV spaces required. Construction documents shall indicate the raceway termination point and proposed location of future EV spaces and EV chargers. Construction documents shall also provide information on ampereage of future EVSE, raceway method(s), wiring schematics and electrical load calculations to verify that the electrical panel service capacity and electrical system, including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at all required EV spaces at the full rated ampereage of the EVSE. Plan design shall be based upon a 40-ampere minimum branch circuit. Required raceways and related components that are planned to be installed underground, enclosed, inaccessible or in concealed areas and spaces shall be installed at the time of original construction.</p> <p>4.106.4.2.5 Identification. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as "EV CAPABLE" in accordance with the <i>California Electrical Code</i>.</p> <p>4.106.4.3 New hotels and motels. All newly constructed hotels and motels shall provide EV spaces capable of supporting future installation of EVSE. The construction documents shall identify the location of the EV spaces.</p> <p>Notes:</p> <ol style="list-style-type: none"> Construction documents are intended to demonstrate the project's capability and capacity or facilitating future EV charging. There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use. <p>4.106.4.3.1 Number of required EV spaces. The number of required EV spaces shall be based on the total number of parking spaces provided for all types of parking facilities in accordance with Table 4.106.4.3.1. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number.</p>				<p>4.303.1 WATER CONSERVING PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the sections 4.303.1.1, 4.303.1.2, 4.303.1.3, and 4.303.1.4.</p> <p>Note: All noncompliant plumbing fixtures in any residential real property shall be replaced with water-conserving plumbing fixtures. Plumbing fixture replacement is required prior to issuance of a certificate of final completion, certificate of occupancy, or final permit approval by the local building department. See Civil Code Section 1101.1, et seq., for the definition of a noncompliant plumbing fixture, types of residential buildings affected and other important enactment dates.</p> <p>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.</p> <p>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.</p> <p>4.303.1.2 Urinals. The effective flush volume of wall mounted urinals shall not exceed 0.125 gallons per flush. The effective flush volume of all other urinals shall not exceed 0.5 gallons per flush.</p> <p>4.303.1.3 Showerheads.</p> <p>4.303.1.3.1 Single Showerhead. Showerheads shall have a maximum flow rate of not more than 1.8 gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads.</p> <p>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 the showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi, or the shower shall be designed to only allow one shower outlet to be in operation at a time.</p> <p>Note: A hand-held shower shall be considered a showerhead.</p> <p>4.303.1.4 Faucets.</p> <p>4.303.1.4.1 Residential Lavatory Faucets. The maximum flow rate of residential lavatory faucets shall not exceed 1.2 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.</p> <p>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.</p> <p>4.303.1.4.3 Metering Faucets. Metering faucets when installed in residential buildings shall not deliver more than 0.2 gallons per cycle.</p> <p>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.</p> <p>Note: Where complying faucets are unavailable, aerators or other means may be used to achieve reduction.</p> <p>4.303.2 STANDARDS FOR PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures and fittings shall be installed in accordance with the <i>California Plumbing Code</i>, and shall meet the applicable standards referenced in Table 1701.1 of the <i>California Plumbing Code</i>.</p> <p>NOTE: THIS TABLE COMPILES THE DATA IN SECTION 4.303.1, AND IS INCLUDED AS A CONVENIENCE FOR THE USER.</p>				<p>4.406 ENHANCED DURABILITY AND REDUCED MAINTENANCE</p> <p>4.406.1 RODENT PROOFING. Annular spaces around pipes, electric cables, conduits or other openings in soffit/ceiling 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.</p> <p>4.408 CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING</p> <p>4.408.1 CONSTRUCTION WASTE MANAGEMENT. Recycle and/or salvage for reuse a minimum of 65 percent of the non-hazardous construction and demolition waste in accordance with either Section 4.408.2, 4.408.3 or 4.408.4, or meet a more stringent local construction and demolition waste management ordinance.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> Excavated soil and land-clearing debris. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist or are not located reasonably close to the jobsite. The enforcing agency may make exceptions to the requirements of this section when isolated jobsites are located in areas beyond the haul boundaries of the diversion facility. <p>4.408.2 CONSTRUCTION WASTE MANAGEMENT PLAN. Submit a construction waste management plan in conformance with Items 1 through 5. The construction waste management plan shall be updated as necessary and shall be available during construction for examination by the enforcing agency.</p> <ol style="list-style-type: none"> Identify the construction and demolition waste materials to be diverted from disposal by recycling, reuse on the project or salvage for future use or sale. Specify if construction and demolition waste materials will be sorted on-site (source separated) or bulk mixed (single stream). Identify diversion facilities where the construction and demolition waste material collected will be taken. Identify construction methods employed to reduce the amount of construction and demolition waste generated. Specify that the amount of construction and demolition waste materials diverted shall be calculated by weight or volume, but not by both. <p>4.408.3 WASTE MANAGEMENT COMPANY. Utilize a waste management company, approved by the enforcing agency, which can provide verifiable documentation that the percentage of construction and demolition waste material diverted from the landfill complies with Section 4.408.1.</p> <p>Note: The owner or contractor may make the determination if the construction and demolition waste materials will be diverted by a waste management company.</p> <p>4.408.4 WASTE STREAM REDUCTION ALTERNATIVE [LR]. Projects that generate a total combined weight of construction and demolition waste disposed of in landfills, which do not exceed 3.4 lbs./sq.ft. of the building area shall meet the minimum 65% construction waste reduction requirement in Section 4.408.1</p> <p>4.408.4.1 WASTE STREAM REDUCTION ALTERNATIVE. Projects that generate a total combined weight of construction and demolition waste disposed of in landfills, which do not exceed 2 pounds per square foot of the building area, shall meet the minimum 65% construction waste reduction requirement in Section 4.408.1</p> <p>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.</p> <p>Notes:</p> <ol style="list-style-type: none"> Sample forms found in "A Guide to the California Green Building Standards Code (Residential)" located at www.hcd.ca.gov/CALGreen.html may be used to assist in documenting compliance with this section. Mixed construction and demolition debris (C & D) processors can be located at the California Department of Resources Recycling and Recovery (CalRecycle). 																		
			<p>SECTION 302 MIXED OCCUPANCY BUILDINGS</p> <p>302.1 MIXED OCCUPANCY BUILDINGS. In mixed occupancy buildings, each portion of a building shall comply with the specific green building measures applicable to each specific occupancy.</p> <p>ABBREVIATION DEFINITIONS:</p> <p>HCD Department of Housing and Community Development BSC California Building Standards Commission DSA-SS Division of the State Architect, Structural Safety OSHPD Office of Statewide Health Planning and Development LR Low Rise HR High Rise AA Additions and Alterations N New</p>				<p>4.106.4.3.1</p> <table border="1"> <thead> <tr> <th>TOTAL NUMBER OF PARKING SPACES</th> <th>NUMBER OF REQUIRED EV SPACES</th> </tr> </thead> <tbody> <tr> <td>0-9</td> <td>0</td> </tr> <tr> <td>10-25</td> <td>1</td> </tr> <tr> <td>26-50</td> <td>2</td> </tr> <tr> <td>51-75</td> <td>4</td> </tr> <tr> <td>76-100</td> <td>5</td> </tr> <tr> <td>101-150</td> <td>7</td> </tr> <tr> <td>151-200</td> <td>10</td> </tr> <tr> <td>201 and over</td> <td>6 percent of total</td> </tr> </tbody> </table>	TOTAL NUMBER OF PARKING SPACES	NUMBER OF REQUIRED EV SPACES	0-9	0	10-25	1	26-50	2	51-75	4	76-100	5	101-150	7	151-200	10	201 and over	6 percent of total				<p>4.304 OUTDOOR WATER USE</p> <p>4.304.1 OUTDOOR POTABLE WATER USE IN LANDSCAPE AREAS. Residential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent.</p> <p>NOTES:</p> <ol style="list-style-type: none"> The Model Water Efficient Landscape Ordinance (MWELO) is located in the <i>California Code Regulations</i>, Title 23, Chapter 2.7, Division 2. MWLEO and supporting documents, including water budget calculator, are available at: https://www.water.ca.gov/ 				<p>4.410 BUILDING MAINTENANCE AND OPERATION</p> <p>4.410.1 OPERATION AND MAINTENANCE MANUAL. At the time of final inspection, a manual, compact disc, web-based reference or other media acceptable to the enforcing agency which includes all of the following shall be placed in the building:</p> <ol style="list-style-type: none"> Directions to the owner or occupant that the manual shall remain with the building throughout the life cycle of the structure. Operation and maintenance instructions for the following: <ol style="list-style-type: none"> Equipment and appliances, including water-saving devices and systems, HVAC systems, photovoltaic systems, electric vehicle chargers, water-heating systems and other major appliances and equipment. Roof and yard drainage, including gutters and downspouts. Space conditioning systems, including condensers and air filters. Landscape irrigation systems. Water reuse systems. Information from local utility, water and waste recovery providers on methods to further reduce resource consumption, including recycle programs and locations. Public transportation and/or carpool options available in the area. Educational material on the positive impacts of an interior relative humidity between 30-60 percent and what methods an occupant may use to maintain the relative humidity level in that range. Information about water-conserving landscape and irrigation design and controllers which conserve water. Instructions for maintaining gutters and downspouts and the importance of diverting water at least 5 feet away from the foundation. Information on required routine maintenance measures, including, but not limited to, caulking, painting, grading around the building, etc. Information about state solar energy and incentive programs available. A copy of all special inspections verifications required by the enforcing agency or this code. <p>4.410.2 RECYCLING BY OCCUPANTS. Where 5 or more multifamily dwelling units are constructed on a building site, provide readily accessible area(s) that serves all buildings on the site and are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals, or meet a lawfully enacted local recycling ordinance, if more restrictive.</p> <p>Exception: Rural jurisdictions that meet and apply for the exemption in Public Resources Code Section 42649.82 (a)(2)(A) et seq. are not required to comply with the organic waste portion of this section.</p>
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			<p>CHAPTER 4 RESIDENTIAL MANDATORY MEASURES</p> <p>DIVISION 4.1 PLANNING AND DESIGN</p> <p>SECTION 4.102 DEFINITIONS</p> <p>4.102.1 DEFINITIONS</p> <p>The following terms are defined in Chapter 2 (<i>and are included here for reference</i>)</p> <p>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.</p> <p>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 downhill slope. Wattles are also used for perimeter and inlet controls.</p> <p>4.106 SITE DEVELOPMENT</p> <p>4.106.1 GENERAL. Preservation and use of available natural resources shall be accomplished through evaluation and careful planning to minimize negative effects on the site and adjacent areas. Preservation of slopes, management of storm water drainage and erosion controls shall comply with this section.</p> <p>4.106.2 STORM WATER DRAINAGE AND RETENTION DURING CONSTRUCTION. Projects which disturb less than one acre of soil and are not part of a larger common plan of development which in total disturbs one acre or more, shall manage storm water drainage during construction. In order to manage storm water drainage during construction, one or more of the following measures shall be implemented to prevent flooding of adjacent property, prevent erosion and retain soil runoff on the site.</p> <ol style="list-style-type: none"> Retention basins of sufficient size shall be utilized to retain storm water on the site. Where storm water is conveyed to a public drainage system, collection point, gutter or similar disposal method, water shall be filtered by use of a barrier system, wattle or other method approved by the enforcing agency. Compliance with a lawfully enacted storm water management ordinance. <p>Note: Refer to the State Water Resources Control Board for projects which disturb one acre or more of soil, or are part of a larger common plan of development which in total disturbs one acre or more of soil.</p> <p>(Website: https://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.html)</p> <p>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:</p> <ol style="list-style-type: none"> Swales Water collection and disposal systems French drains Water retention gardens Other water measures which keep surface water away from buildings and aid in groundwater recharge. <p>Exception: Additions and alterations not altering the drainage path.</p> <p>4.106.4 Electric vehicle (EV) charging for new construction. New construction shall comply with Sections 4.106.4.2, 4.106.4.3 or 4.106.4.4 to facilitate future installation and use of EV chargers. Electric vehicle supply equipment (EVSE) shall be installed in accordance with the <i>California Electrical Code</i>, Article 625.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> On a case-by-case basis, where the local enforcing agency has determined EV charging and infrastructure are not feasible based upon one or more of the following conditions: <ol style="list-style-type: none"> Where there is no commercial power supply. Where there is evidence substantiating that meeting the requirements will alter the local utility infrastructure design requirements on the utility side of the meter so as to increase the utility side cost to the homeowner or the developer by more than \$400.00 per dwelling unit. Accessory Dwelling Units (ADU) and Junior Accessory Dwelling Units (JADU) without additional parking facilities. <p>4.106.4.1 New one- and two-family dwellings and townhouses with attached private garages. For each dwelling unit, install a listed raceway to accommodate a dedicated 208/240-volt branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or other enclosure in close proximity to the proposed location of an EV charger. Raceways are required to be continuous at enclosed, inaccessible or concealed areas and spaces. The service panel and/or subpanel shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.</p> <p>4.106.4.1.1 Identification. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging as "EV CAPABLE". The raceway termination location shall be permanently and visibly marked as "EV CAPABLE".</p> <p>4.106.4.2 New multifamily dwellings. If residential parking is available, ten (10) percent of the total number of parking spaces on a building site, provided for all types of parking facilities, shall be electric vehicle charging spaces (EV spaces) capable of supporting future EVSE. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number.</p> <p>Notes:</p> <ol style="list-style-type: none"> Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging. There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use. <p>4.106.4.2.1 Electric vehicle charging space (EV space) locations. Construction documents shall indicate the location of proposed EV spaces. Where common use parking is provided at least one EV space shall be located in the common use parking area and shall be available for use by all residents.</p>				<p>DIVISION 4.2 ENERGY EFFICIENCY</p> <p>4.201 GENERAL</p> <p>4.201.1 SCOPE. For the purposes of mandatory energy efficiency standards in this code, the California Energy Commission will continue to adopt mandatory standards.</p>				<p>DIVISION 4.5 ENVIRONMENTAL QUALITY</p> <p>SECTION 4.501 GENERAL</p> <p>4.501.1 Scope</p> <p>The provisions of this chapter shall outline means of reducing the quality of air contaminants that are odorous, irritating and/or harmful to the comfort and well being of a building's installers, occupants and neighbors.</p> <p>SECTION 4.502 DEFINITIONS</p> <p>5.102.1 DEFINITIONS</p> <p>The following terms are defined in Chapter 2 (<i>and are included here for reference</i>)</p> <p>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.</p> <p>COMPOSITE WOOD PRODUCTS. Composite wood products include hardwood plywood, particleboard and medium density fiberboard. "Composite wood products" does not include hardwood, structural plywood, structural panels, structural composite lumber, oriented strand board, glued laminated timber, prefabricated wood joists or finger-jointed lumber, all as specified in California Code of regulations (CCR), title 17, Section 93120.1.</p> <p>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.</p>																						

