2016 CALIFORNIA GREEN BUILDING STANDARDS CODE
ADDITIONS & ALTERATIONS - NONRESIDENTIAL MEASURES

Purpose (101.2): The CALGreen Code is to improve public health, safety, and general welfare by enhancing the design and construction of buildings with reduced negative environmental impact and encouraging sustainable construction practice as follows:

Planning and Design (5.101): To protect, restore, enhance the environmental quality of the site and respect the integrity of adjacent properties.

Energy Efficiency (5.201): To meet California Energy Standard.

Water Efficiency and Conservation (5.301): To establish the means of conserving water used indoors (at least 20% percent reduction), outdoors, and in wastewater conveyance.

Material Conservation and Resource Efficiency (5.401): To achieving material conservation and resource efficiency through protection of building from exterior moisture, construction waste diversion, and employment of approved techniques during construction.

Environmental Quality (5.501): To reduce the quantity of air contaminants.

Scope (301.1): The CALGreen Code shall apply to only to the portions of the building being added 1,000 square feet or more or altered with valuation of $200,000 or more.

Application (LBMC): The CALGreen Code shall be used for nonresidential building (other than residential or and low-rise residential building).

<table>
<thead>
<tr>
<th>FEATURE OR MEASURES</th>
<th>VERIFICATIONS: SPECIFY VERIFICATION METHOD</th>
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<tr>
<td></td>
<td>Enforcing Agency</td>
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<tr>
<td>PLANNING AND DESIGN</td>
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<td>Site Development (5.106)</td>
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<td><strong>Bicycle parking.</strong> Comply with Sections 5.106.4.1.1 and 5.106.4.1.2; or meet local ordinance, whichever is stricter.</td>
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<td><strong>Short-term bicycle parking.</strong> If the new project or an addition or alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors’ entrance, readily visible to passers-by, for 5% of the additional visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack.</td>
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<td><strong>Long-term bicycle parking.</strong> For new buildings with over 10 tenant-occupants or for additions or alterations that add 10 or more vehicular parking spaces, provide secure bicycle parking for 5% of the tenant vehicular parking spaces being added, with a minimum of one space.</td>
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<td><strong>Designated parking.</strong> For new projects or additions or alterations that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel efficient, and carpool/van pool vehicles as shown on Table 5.106.5.2 of Division 5.1.</td>
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<td><strong>Parking stall marking.</strong> Paint, in the paint used for stall striping, the following characters such that the lower edge of the last word aligns with the end of the stall striping and is visible beneath a parked vehicle: CLEAN AIR/VANPOOL/EV</td>
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<td>WATER EFFICIENCY AND CONSERVATION</td>
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<td>Indoor Water Use (5.303)</td>
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<td><strong>Meters.</strong> Separate submeters or metering device shall be installed for the following uses**</td>
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<td><strong>New buildings or Additions in excess of 50,000 square feet.</strong> Separate submeters shall be installed as follows:</td>
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<td>1. For each individual leased, rented, or other tenant space within the building projected to consume more than 100 gal/day, including, but not limited to, spaces used for laundry or cleaners, restaurant or food service, medical or dental office, laboratory, or beauty salon or barber shop.</td>
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<td>2. Where meters for individual building tenants are unfeasible for water supplied to the following subsystems:</td>
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<td>a. Makeup water for cooling towers where flow through is greater than 500 gpm.</td>
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<td>b. Makeup water for evaporative coolers greater than 6 gpm.</td>
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<tr>
<td>c. Steam and hot-water boilers with energy input more than 500,000 Btu/h.</td>
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<td><strong>Excess consumption.</strong> Any addition or added space within an addition that is projected to consume more than 1,000 gal/day.</td>
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<td>Outdoor Water Use (5.304)</td>
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<td><strong>Outdoor potable water use.</strong> For new water service or for addition or alteration requiring upgraded water service for landscaped areas of at least 1,000 sf, but not more than 5,000 sf, separate submeters or metering devices shall be installed for outdoor potable water use</td>
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<td><strong>Irrigation design.</strong> In new nonresidential construction or building addition or alteration requiring upgraded water service for landscaped areas of at least 1000 sf but not more than 2500 sf of landscaped area (the level at which the MWELO applies), install irrigation controllers and sensors which include the following criteria, and meet manufacturer’s recommendations.</td>
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<td><strong>Irrigation controllers.</strong> Automatic irrigation system controllers installed at the time of final inspection shall comply with the following:</td>
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<td>1. Controllers shall be weather- or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants’ needs as weather conditions change.</td>
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<td>2. Weather-based controllers without integral rain sensors or communication systems that account for local rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s). Soil moisture-based</td>
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controllers are not required to have rain sensor input.

**20% Savings.** A schedule of newly installed plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the addition or area of alteration to the building by 20% shall be provided. The reduction shall be based on the maximum allowable water use per plumbing fixture and fittings as required by the California Building Standards Code. The 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 ≥20% reduction as specified in Table 5.303.2.3 of Division 5.3, or
2. Performance method. A calculation demonstrating a 20% reduction in the building “water use baseline” as established in Table 5.303.2.2 shall be provided.

**Multiple showerheads serving one shower.** When a shower is served by more than one newly installed 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 only allow one showerhead to be in operation at a time.

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

**MATERIAL CONSERVATION AND RESOURCE EFFICIENCY**

**Water Resistance and Moisture Management (5.407)**

- **Weather protection.** Provide a weather-resistant exterior wall and foundation envelope as required by California Building Code Section 1403.2 and California Energy Code Section 150, manufacturer's installation instructions, or local ordinance, whichever is more stringent.

**Moisture control.** Employ moisture control measures by the following methods;

  - **Sprinklers.** Prevent irrigation spray on structures.
  - **Entries and openings.** Design exterior entries and openings to prevent water intrusion into buildings.

**Construction Waste Reduction, Disposal and Recycling**

The construction meeting the threshold of $50,000 or more under Section LBMC18.67.020 shall comply with LBMC Chapter 18.67.

**Building Maintenance and Operation (5.410)**

- **Recycling by occupants.** If not provided on the existing site and where site conditions permit, provide readily accessible areas that serve the entire building and are identified for the depositing, storage, and collection of non-hazardous materials for recycling.

**Testing and adjusting.** Testing and adjusting of systems shall be required for new buildings less than 10,000 sqft. or new systems to serve an addition or alteration shall subject to Section 303.1.

**Systems.** Develop a written plan of procedures for testing and adjusting systems.

  1. HVAC systems and controls
  2. Indoor and outdoor lighting and controls
  3. Water heating systems
  4. Landscape irrigation systems
  5. Water reuse systems.

**Procedures.** Perform testing and adjusting procedures in accordance with manufacturer’s specifications and applicable standards on each system.

  - **HVAC balancing.** Before a new space-conditioning system serving a building or space is operated for normal use, the system should be balanced in accordance with the procedures defined by national standards listed in 5.410.4.3.1.

  - **Reporting.** After completion of testing, adjusting and balancing, provide a final report of testing signed by the individual responsible for performing these services.

**Operation and maintenance manual.** Provide the building owner with detailed operating and maintenance instructions and copies of guaranties/warranties for each system prior to final inspection.

**Inspections and reports.** Include a copy of all inspection verifications and reports required by the enforcing agency.

**ENVIRONMENTAL QUALITY (5.714)**
### Covering of duct openings and protection of mechanical equipment during construction

At the time of rough installation, or during storage on the construction site and until final startup if the heating and cooling equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheet metal or reduce the amount of dust or debris which may collect in the system.

### Finish material pollutant control

**Adhesives, sealants, caulks.** Adhesives, sealants and caulks used on the project shall meet the requirements of the following standards:

1. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers, and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable, or SCAQMD Rule 1168 VOC limits, as shown in Tables 5.504.4.1 and 5.504.4.2 in Division 5.5.

2. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than one pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of California Code of Regulations, Title 17, commencing with Section 94507.

### Paints and coatings

Architectural paints and coatings shall comply with Table 5.504.4.3 in Division 5.5, unless more stringent local limits apply.

**Aerosol Paints and Coatings.** Aerosol paints and coatings shall meet the Product-Weighted MIR Limits for ROC in section 94522(a)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances (CCR, Title 17, Section 94520 et seq).

**Verification.** Verification of compliance with this section shall be provided at the request of the enforcing agency.

### Carpet systems

All carpet cushion installed in the building interior shall meet the testing and product requirements of one of the standards listed in 5.714.4.4.

**Carpet cushion.** All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label program.

**Carpet adhesive.** All carpet adhesive shall meet the requirements of Table 5.504.4.1 in Division 5.5.

### Composite wood products

Hardware plywood, particleboard, and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in Table 5.504.4.5 of Division 5.5.

**Documentation.** Verification of compliance with this section shall be provided as requested by the enforcing agency. Documentation shall include at least one of the following:

1. Product certifications and specifications.
2. Chain of custody certifications.
3. Product labeled and invoiced as meeting the Composite Wood Products regulation (see CCR, Title 17, Section 93120, et seq.)
4. Exterior grade products marked as meeting the PS-1 or PS-2 standards of the Engineered Wood Association standards.
5. Other methods acceptable to the enforcing agency.

### Resilient flooring systems

For 80% of the floor area receiving resilient flooring, install resilient flooring complying with at least the Resilient Floor Covering Institute (RFCl) FloorScore Program, the VOC-emission limits in the California Department of Public Health’s 2010 Standard Method, the Collaborative for High Performance Schools (CHPS) criteria and listed in the CHPS High Performance Product Database or with CDPH criteria as certified under the Greenguard Children’s and School Programs.

**Verification of compliance.** Documentation shall be provided verifying that resilient flooring materials meet the pollutant emission limits.

### Filters

In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air prior to occupancy that provides at least a MERV of 8.

**Exception:** An ASHRAE 10-percent to 15-percent efficiency filter shall be permitted for an HVAC unit meeting the 2013 California Energy Code having 60,000 Btu/h or less capacity per fan coil, if the energy use of the air delivery system is 0.4 W/cfm or less at design air flow.