



## CALGreen MANDATORY MEASURES CHECKLIST FOR ADDITIONS AND/OR ALTERATIONS TO RESIDENTIAL STRUCTURES

### 2013 California Green Building Standards Code (CGBSC) Mandatory Measures

This checklist applies to building permit applications received on or after January 1, 2014 for additions and/or alterations to hotels, motels, lodging houses, dwellings, dormitories, condominiums, shelters, congregate residences, employee housing, factory-built housing and other types of dwellings containing sleeping accommodations with or without common toilet or cooking facilities including accessory buildings, facilities and uses thereto 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. 2013 CGBSC section 101.3.1(1)

<b>Project Name:</b> _____	<b>Permit Appl. #</b> _____
<b>Project Address:</b> _____	<b>Low Rise (LR) Residential:</b> <input type="checkbox"/>
<b>Brief Project Description:</b> _____	<b>High Rise (HR) Residential:</b> <input type="checkbox"/>

**This checklist does not include requirements of other City of Berkeley ordinances or code requirements. This checklist is only for CAL Green compliance.**

Instructions:

- The Owner or Owner's agent shall read and understand the requirements of the mandatory features or measures listed in the checklist. Mark which mandatory measure(s) or feature(s) are applicable to the proposed addition/alteration residential project.
- This document shall be incorporated as a sheet(s) into the set of plans.

Description of Mandatory Feature or Measure	Mark as applicable	If box is not shaded in the column below, specify where in the drawings the feature is addressed.
<b>DIVISION 4.1 – PLANNING AND DESIGN</b>		
<b>4.106 Site Development</b>		
<b>4.106.2 Storm water drainage and retention during construction.</b> Newly constructed projects which disturb less than one acre of soil shall manage storm water drainage during construction. One or more of the following measures shall be implemented. (Additional information may be obtained by visiting the City of Berkeley's <a href="#">website</a> .)		
<b>4.106.2(1) Retention basins</b> utilized to retain storm water on site	<input type="checkbox"/>	
<b>4.106.2(2) Storm Water conveyed</b> to a public drainage system shall be filtered by barrier system, wattles or other approved method.	<input type="checkbox"/>	
<b>4.106.2(3) Storm water management ordinance</b> requirements per Title 17 of the City of Berkeley's Municipal Code.	<input type="checkbox"/>	

Description of Mandatory Feature or Measure	Mark as applicable	If box is not shaded in the column below, specify where in the drawings the feature is addressed.
<b>DIVISION 4.1 – PLANNING AND DESIGN (Cont'd)</b>		
<p><b>4.106.3 Grading and paving.</b> Indicate how 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 swales, water collection and disposal systems, French drains, water retention gardens or other measures which keep surface water away from buildings and aid in groundwater recharge.</p>	<input type="checkbox"/>	
<b>DIVISION 4.2 - ENERGY EFFICIENCY</b>		
<b>4.201 General</b>		
<p><b>4.201.1 Scope.</b> Building design meets or exceeds the requirements of the 2013 California Building Energy Efficiency Standards. All energy forms shall be incorporated into the plan sets. 2013 California Administrative Code Section 10-103(a)2.A</p>	<input type="checkbox"/>	
<b>DIVISION 4.3 - WATER EFFICIENCY &amp; CONSERVATION</b>		
<b>4.303 Indoor Water Use</b>		
<b>4.303.1 Water Conserving Plumbing Fixtures and Fittings.</b> Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the the following:		
<p><b>4.303.1.1 Water closets.</b> 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 US EPA WaterSense Specification for Tank-type Toilets.</p>	<input type="checkbox"/>	
<p><b>4.303.1.2 Urinals.</b> The effective flush volume of urinals shall not exceed 0.5 gallons per flush.</p>	<input type="checkbox"/>	
<b>4.303.1.3 Showerheads</b>		
<p><b>4.303.1.3.1 Single showerhead.</b> 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 US EPA WaterSense Specification for Showerheads.</p>	<input type="checkbox"/>	
<p><b>4.303.1.3.2 Multiple showerheads serving one shower.</b> 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.</p>	<input type="checkbox"/>	

Description of Mandatory Feature or Measure	Mark as applicable	If box is not shaded in the column below, specify where in the drawings the feature is addressed.
<b>DIVISION 4.3 - WATER EFFICIENCY &amp; CONSERVATION (CONT'D)</b>		
<b>4.303.1.4 Faucets</b>		
<p><b>4.303.1.4.1 Residential lavatory faucets.</b> 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.</p>	<input type="checkbox"/>	
<p><b>4.303.1.4.2 Lavatory faucets in common and public use areas.</b> The maximum flow rate of lavatory faucets installed in common and public use areas (outside of dwelling or sleeping units) shall not exceed 0.5 gallons per minute at 60 psi.</p>	<input type="checkbox"/>	
<p><b>4.303.1.4.3 Metering faucets.</b> Metering faucets shall not deliver more than 0.25 gallons per cycle.</p>	<input type="checkbox"/>	
<p><b>4.303.1.4.4 Kitchen faucets.</b> 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.</p>	<input type="checkbox"/>	
<p><b>4.303.2 Standards for plumbing fixtures and fittings.</b> Plumbing fixtures and fittings required in Section 4.303.1 shall be installed in accordance with the California Plumbing Code (CPC), and shall meet the applicable standards referenced in Table 1401.1 of the CPC.</p>	<input type="checkbox"/>	
<b>4.304 Outdoor Water Use</b>		
<p><b>4.304.1 Irrigation controllers.</b> Automatic irrigation system controllers for landscaping provided by the builder and installed at the time of final inspection shall comply with the following:</p>		
<p><b>4.304.1.1 Controllers.</b> Controllers shall be weather or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants' needs as weather conditions change.</p>	<input type="checkbox"/>	
<p><b>4.304.1.2 Rain Sensors.</b> 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 controllers.</p>	<input type="checkbox"/>	

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<b>DIVISION 4.4 - MATERIAL CONSERVATION AND RESOURCE EFFICIENCY</b>		
<b>4.406 Enhanced Durability and Reduced Maintenance</b>	Mark as applicable	
<b>4.406.1 Rodent proofing.</b> Annular 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 similar method acceptable by the City of Berkeley.	<input type="checkbox"/>	
<b>4.408 Construction Waste Reduction, Disposal and Recycling</b>		
<b>4.408.1 Construction waste management.</b> All additions/alteration residential building projects subject to CALGreen shall comply with the Construction and Demolition (C&D) requirements of Berkeley Municipal Code (BMC) Section 19.24. Pursuant to BMC Section 19.24: 100 percent of asphalt, concrete, excavated soil and land clearing debris, and at least 50 percent of the remaining construction and demolition debris shall be diverted by recycling, salvage, compost, or other approved method. Note: The owner or contractor has the option to retain the services of a waste management company to divert construction waste material. (Visit the City of Berkeley's <a href="#">website</a> for further information.)	<input checked="" type="checkbox"/>	<b>A complete &amp; signed <a href="#">City of Berkeley's Waste Diversion Form</a> must be provided prior to permit issuance. (BMC Section 19.24)</b>
<b>4.410 Building Maintenance and Operation</b>		
<b>4.410.1 Operation and maintenance manual:</b> At the time of final inspection, a manual, compact disc, USB Flashdrive or other media approved by the building inspector which includes all the requirements listed in CALGreen section 4.410.1 items 1 through 10 shall be presented to the building inspector and be placed in the building prior to final inspection sign off. Note: If providing electronic media then the applicant must provide hardware to demonstrate to the building inspector compliance with this section.	<input checked="" type="checkbox"/>	
<b>DIVISION 4.5 - ENVIRONMENTAL QUALITY</b>		
<b>4.503 Fireplaces</b>		
<b>4.503.1 Gas Fireplace.</b> Any newly installed gas fireplace shall be direct-vent sealed-combustion type. Incorporate the gas fireplace specification into the set of plans.	<input type="checkbox"/>	
<b>4.503.1 Wood or Pellet Stove or Fireplaces.</b> Any newly installed woodstove or pellet stove shall comply with US EPA II Emission limits. Woodstoves, pellet stoves and fireplaces shall additionally comply with City of Berkeley ordinances. Provide specifications and details in the set of plans.	<input type="checkbox"/>	

Description of Mandatory Feature or Measure	Mark as applicable	If box is not shaded in the column below, specify where in the drawings the feature is addressed.
<b>DIVISION 4.5 - ENVIRONMENTAL QUALITY (CONT'D)</b>		
<b>4.504 Pollutant Control</b>		
<p><b>4.504.1 Covering of new or existing duct openings and protection of mechanical equipment during construction.</b> At the time of rough installation, during storage on the construction site and until final startup of the heating, cooling and ventilating equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other methods acceptable by the City of Berkeley to reduce the amount of water, dust &amp; debris, which may enter the new or existing system.</p>	<input type="checkbox"/>	
<p><b>4.504.2 Finish material pollutant control.</b> Finish materials shall comply with the following:</p> <p><b>4.504.2.1(1) CALGreen VOC Limits.</b> Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers and caulks shall comply with CALGreen Table 4.504.1 or 4.504.2 for VOC limits.</p> <p><b>4.504.2.1(2) Statewide VOC Limits.</b> Aerosol adhesives, smaller unit sizes of adhesives, sealants and/or caulking compounds shall comply with statewide VOC standards.</p> <p><b>4.504.2.2 Paints and Coatings.</b> Architectural paints and coatings shall comply with VOC limits in CALGreen Table 4.504.3.</p> <p><b>4.504.2.3 Aerosol paints and coatings.</b> 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, in Sections 94522(c)(2) and (d)(2) of California Code of Regulations, Title 17, commencing with Section 94520; and additionally comply with the Bay Area Air Quality Management District with the percent VOC by weight of product limits of Regulation 8, Rule 49.</p>	<input type="checkbox"/>	
<p><b>4.504.2.4 Verification.</b> Verification of compliance with this section shall be provided at the request of the building inspector. Documentation may include, but is not limited to the following:</p> <ol style="list-style-type: none"> <li>1. Manufacturer's product specification.</li> <li>2. Field verification of on-site product containers.</li> </ol>	<input type="checkbox"/>	
<p><b>4.504.3 Carpet systems.</b> Carpet systems. All carpet installed in the building interior shall meet the testing and product requirements of one of the following:</p> <ol style="list-style-type: none"> <li>1. Carpet and Rug Institute's Green Label Plus Program. 2010 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 (also known as Specification 01350.)</li> <li>2. NSF/ANSI 140 at the Gold level.</li> <li>3. Scientific Certifications Systems Indoor Advantage™ Gold.</li> </ol>	<input type="checkbox"/>	

Description of Mandatory Feature or Measure		If box is not shaded in the column below, specify where in the drawings the feature is addressed.
<b>DIVISION 4.5 - ENVIRONMENTAL QUALITY (CONT'D)</b>	<b>Mark if required</b>	
<b>4.504.3.1 Carpet cushion.</b> All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute's Green Label program.	<input type="checkbox"/>	
<b>4.504.3.2</b> All carpet adhesives shall meet the requirements of CALGreen Table 4.504.1.	<input type="checkbox"/>	
<p><b>4.504.4 Resilient flooring systems.</b> Where resilient flooring is installed, at least 80 percent of the floor area receiving resilient flooring shall comply with one or more of the following:</p> <ol style="list-style-type: none"> <li>1. VOC emission limits defined in the Collaborative for High Performance Schools (CHPS) High Performance Products Database.</li> <li>2. Products compliant with CHPS criteria certified under the Greenguard Children &amp; Schools program.</li> <li>3. Certification under the Resilient Floor Covering Institute (RFCI) FloorScore program.</li> <li>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).</li> </ol>	<input type="checkbox"/>	
<p><b>4.504.5 Composite wood products.</b> Hardwood 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 ARB's Air Toxics Control Measure for Composite Wood (17 CCR 93120 et seq.), by or before the dates specified in those sections, as shown in CALGreen Table 4.504.5.</p> <p><b>4.504.5.1 Documentation.</b> Verification of compliance with this section shall be provided as requested by the City of Berkeley. Documentation shall include at least one of the following:</p> <ol style="list-style-type: none"> <li>1. Product certifications and specifications.</li> <li>2. Chain of custody certifications.</li> <li>3. Product labeled and invoiced as meeting the Composite Wood Products regulation (see CCR, Title 17, Section 93120, et seq.).</li> <li>4. Exterior grade products marked as meeting the PS-1 or PS-2 standards of the Engineered Wood Association, the Australian AS/NZS 2269 or European 636 3S standards.</li> <li>5. Other methods acceptable to the City of Berkeley.</li> </ol>	<input type="checkbox"/>	
<b>4.505 Interior Moisture Control</b>		
<b>4.505.2 Concrete slab foundations.</b> Concrete slab foundations required to have a vapor retarder by the 2013 California Building Code section 1907.1 or the 2013 California Residential Code section R506.2.3 shall comply with this section.	<input type="checkbox"/>	

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<b>DIVISION 4.5 - ENVIRONMENTAL QUALITY (CONT'D)</b>		
<b>4.505 Interior Moisture Control (Cont'd)</b>		
<p><b>4.505.2.1 Capillary break.</b> A capillary break shall be installed in compliance with at least one of the following:</p> <ol style="list-style-type: none"> <li>1. A 4-inch-thick base of ½ inch or larger clean aggregate shall be provided with a vapor retarder in direct contact with concrete and a concrete mix design, which will address bleeding, shrinkage, and curling, shall be used. For additional information, see American Concrete Institute, ACI 302.2R-06.</li> <li>2. Other equivalent methods approved by the City of Berkeley.</li> <li>3. A slab design specified by a licensed design professional.</li> </ol>	<input type="checkbox"/>	
<p><b>4.505.3 Moisture content of building materials.</b> Building materials with visible signs of water damage shall not be installed. Wall and floor framing shall not be enclosed when the framing members exceed 19 percent moisture content. Moisture content shall be verified in compliance with the following:</p> <ol style="list-style-type: none"> <li>1. Moisture content shall be determined with either a probe-type or contact-type moisture meter. Equivalent moisture verification methods may be approved by the City of Berkeley and shall satisfy requirements found in CALGreen Section 101.8.</li> <li>2. Moisture readings shall be taken at a point 2 feet to 4 feet from the grade stamped end of each piece to be verified.</li> <li>3. At least three random moisture readings shall be performed on wall and floor framing with documentation acceptable to the City of Berkeley provided at the time of approval to enclose the wall and floor framing.</li> </ol> <p><b>Insulation Products.</b> Insulation products which are visibly wet or have a high moisture content shall be replaced or allowed to dry prior to enclosure in wall or floor cavities. Wet-applied insulation products shall follow the manufactures' drying recommendations prior to enclosure.</p>	<input type="checkbox"/>	
<b>4.506 Indoor Air Quality and Exhaust</b>		
<p><b>4.506.1 Bathroom exhaust fans.</b> Each bathroom shall be mechanically ventilated and shall comply with the following:</p> <ol style="list-style-type: none"> <li>1. Fans shall be ENERGY STAR compliant and be ducted to terminate outside the building.</li> <li>2. Unless functioning as a component of a whole house ventilation system, fans must be controlled by a humidity control.             <ol style="list-style-type: none"> <li>a. Humidity controls shall be capable of adjustment between a relative humidity range of ≤ 50 percent to a maximum of 80 percent. A humidity control may utilize manual or automatic means of adjustment.</li> <li>b. A humidity control may be a separate component to the exhaust fan and is not required to be integral (i.e., built-in).</li> </ol> </li> </ol> <p>Note: For the purposes of this section a bathroom is a room which contains a bathtub, shower, or tub/shower combination.</p>	<input type="checkbox"/>	

Description of Mandatory Feature or Measure		If box is not shaded in the column below, specify where in the drawings the feature is addressed.
<b>DIVISION 4.5 - ENVIRONMENTAL QUALITY (CONT'D)</b>	<b>Mark if required</b>	
<b>4.507 Environmental Comfort</b>		
<p><b>4.507.2. Heating and air-conditioning system design:</b> Heating and air-conditioning systems shall be sized, designed and have their equipment selected using the following methods, except when the use of alternate design temperatures necessary to ensure the systems function are acceptable:</p> <ol style="list-style-type: none"> <li>1. The heat loss and heat gain is established according to ANSI/ACCA 2 Manual J-2004 (<i>Residential Load Calculation</i>), ASHRAE handbooks or other equivalent design software or methods.</li> <li>2. Duct systems are sized according to ANSI/ACCA 1 Manual D-2009 (<i>Residential Duct Systems</i>), ASHRAE handbooks or other equivalent design software or methods.</li> <li>3. Select heating and cooling equipment according to ANSI/ACCA 3 Manual S-2004 (<i>Residential Equipment Selection</i>) or other equivalent design software or methods.</li> </ol>	<input type="checkbox"/>	

(END)