



**ADDITIONS AND ALTERATIONS TO RESIDENTIAL BUILDINGS
MANDATORY MEASURES**

2016 CALGREEN CODE
Effective January 1, 2017

PROJECT INFORMATION

Plan Check Number:	<input type="text"/>	Owner's Name:	<input type="text"/>
Project Address:	<input type="text"/>		
Description of Work:	<input type="text"/>		
Designer Responsible for CalGreen Compliance:	<input type="text"/>	Phone:	<input type="text"/>
Signature of Designer Responsible for CalGreen Compliance:	<input type="text"/>	Date:	<input type="text"/>

INSTRUCTIONS

The Owner or the Owner's Agent shall employ a Design Professional experienced with the 2016 California Green Building Standards Code to assure that all required work described herein is properly planned and implemented in the project.

The Design Professional shall complete this checklist and in the Plan Reference column provide the applicable plan Sheet number and detail/note where CalGreen compliance is detailed. The completed and signed checklist shall be printed on all final sets of plans.

MANDATORY FEATURE OR MEASURE	Plan Reference
Chapter 3 – GREEN BUILDING	
301.1.1 Additions and Alterations. Applies to additions or alterations of residential buildings where the addition or alteration increases the building's conditioned area, volume, or size. The requirements only apply within the specific area of the addition or alteration.	<input type="text"/>
301.1.1 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 occupancy. See Civil Code Section 1101.1 et seq. Completed and signed SB 407 form shall be on the final sets of plans.	<input type="text"/>
Section 4.106 - SITE DEVELOPMENT	
4.106.2 Storm water drainage and retention during construction. Projects which disturb less than 1 acre of soil and are not part of a larger common plan of development shall manage storm water drainage during construction. Provide an erosion control plan.	<input type="text"/>
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. Exception: additions and alterations which do not alter the existing drainage path.	<input type="text"/>
Division 4.2- ENERGY EFFICIENCY	
4.201. Building meets or exceeds the requirements of the 2016 California Energy Code.	<input type="text"/>

MANDATORY FEATURE OR MEASURE	Plan Reference
Section 4.303 – INDOOR WATER USE	
<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 prescriptive requirements of 4.303.1.1 through 4.303.1.4.4.</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 US EPA WaterSense Specification for Tank-type Toilets.</p>	
<p>4.303.1.2 Urinals. The effective flush volume of urinals shall not exceed 0.5 gallons per flush. The effective flush volume of all other urinals shall not exceed 0.5 gallons per flush.</p>	
<p>4.303.1.3.1 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 US 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 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 allow only one shower outlet to be in operation at a time. Note: a hand-held shower shall be considered a showerhead.</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 0.25 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. 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 required in Section 4.303.1 shall be installed in accordance with the California Plumbing Code, and shall meet the applicable referenced standards.</p>	
Section 4.304 – OUTDOOR WATER USE	
<p>4.304.1 Irrigation Controllers. Automatic irrigation system controllers for landscaping shall comply with this section.</p>	
Division 4.4 – MATERIAL CONSERVATION & RESOURCE EFFICIENCY (ENHANCED DURABILITY & REDUCED MAINTENANCE)	
<p>4.406.1 Rodent proofing. Annular spaces around pipes, electric cables, conduits or other openings in sole/bottom plates at exterior walls shall be closed with cement mortar, concrete masonry or a similar method acceptable to the enforcing agency to prevent passage of rodents.</p>	
<p>4.408.1 Construction waste management. Recycle and/or salvage for reuse a minimum of 65% of the nonhazardous construction and demolition waste in accordance with either Section 4.408.2, 4.408.3 or 4.408.4.</p>	
<p>4.408.2 Construction waste management plan. Submit a construction waste management plan meeting Items 1 through 5 in Section 4.408.2. Plans shall be updated as necessary and shall be available for examination during construction.</p>	

MANDATORY FEATURE OR MEASURE	Plan Reference
<p>4.408.3 Waste management company. Utilize a waste management company, approved by the enforcing agency, which can provide verifiable documentation that diverted construction and demolition waste materials meet the requirements in Section 4.408.1.</p>	
<p>4.408.5 Documentation shall be provided to the inspector which demonstrates compliance with Sections 4.408.2, 4.408.3, or 4.408.4.</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 covers 10 specific subject areas shall be placed in the building.</p>	
<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 is identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals.</p>	
Division 4.5 – ENVIRONMENTAL QUALITY (FIREPLACES)	
<p>4.503.1 General. Any installed gas fireplace shall be a direct-vent sealed-combustion type. Any installed woodstove or pellet stove shall comply with U.S. EPA New Source Performance Standards (NSPS) emission limits as applicable, and shall have a permanent label indicating they are certified to meet the emission limits. Woodstoves, pellet stoves and fireplaces shall also comply with all applicable local ordinances.</p>	
Division 4.5 – ENVIRONMENTAL QUALITY (POLLUTANT CONTROL)	
<p>4.504.1 Protection during construction. 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 intake and distribution component openings shall be covered. Tape, plastic, sheet metal or other methods acceptable to the enforcing agency to reduce the amount of water, dust and debris entering the system may be used.</p>	
<p>4.504.2.1 Adhesives, sealants and caulks. Adhesives, sealants and caulks used on the project shall meet the requirements of the following standards unless more stringent local or regional air pollution or air quality management district rules apply: Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant, 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 4.504.1 or 4.504.2, as applicable. Such products shall also comply with Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene and trichloroethylene), except for aerosol products as specified in Subsection 2 below. 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 1 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 the California Code of Regulations (CCR), Title 17, commencing with Section 94507.</p>	
<p>4.504.2.2 Paints and coatings. Architectural paints and coatings shall comply with VOC limits in Table 1 of the Air Resources Board Architectural Suggested Control Measure, as shown in Table 4.504.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 4.504.3 shall be determined by classifying the coating as Flat, Nonflat, or Nonflat-High Gloss coating, based on its gloss, as defined in subsections 4.21, 4.36, and 4.37, of the 2007 California Air Resources Board, Suggested Control Measure, and the corresponding Flat, Nonflat, or Nonflat-High Gloss VOC limit in Table 4.504.3 shall apply.</p>	
<p>4.504.2.3 Aerosol paints and coatings. Aerosol paints and coatings shall meet the Product-Weighted MIR Limits for ROC in Section 94522(a)(2) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Section 94522(e)(1) and (f)(1) of the CCR, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District shall additionally comply with the percent VOC by weight of product limits of Regulation 8, Rule 49.</p>	
<p>4.504.2.4 Documentation. Documentation shall be provided to verify that compliant VOC limit finish materials have been used.</p>	

MANDATORY FEATURE OR MEASURE	Plan Reference
<p>4.504.3 Carpet systems. Carpet installed in the building interior shall meet the testing and product requirements of one of the following: Carpet and Rug Institute’s Green Label Plus Program 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) NSF/ANSI 140 at the Gold level Scientific Certifications Systems Indoor Advantage™ Gold</p>	
<p>4.504.3.1 Carpet cushion. Carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute’s Green Label Plus Program.</p>	
<p>4.504.3.2 Carpet adhesive. Carpet adhesives shall meet the requirements of Table 4.504.1.</p>	
<p>4.504.4 Resilient flooring systems. Where resilient flooring is installed, at least 80% of floor area receiving resilient flooring shall comply with one or more of the following: Products compliant with 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), certified as a CHPS Low-Emitting Material in the Collaborative for High Performance Schools (CHPS) High Performance Products Database. Products certified under UL GREENGUARD Gold (formerly the Greenguard Children & Schools Program) Certification under the Resilient Floor Covering Institute (RFCI) FloorScore program 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)</p>	
<p>4.504.5 Composite wood products. 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 the Air Resources Board’s Air Toxics Control Measure for Composite Wood (17 CCR 93120 et. seq.), as shown in Table 4.504.5. Documentation is required per Section 4.504.5.1. Definition of Composite Wood Products: Composite wood products include hardwood plywood, particleboard, and medium density fiberboard. “Composite wood products” do not include hardboard, structural plywood, structural panels, structural composite lumber, oriented strand board, glued laminated timber, prefabricated wood I-joists, or finger-joined lumber, all as specified in CCR, Title 17, Section 93120.1(a).</p>	
<p>4.504.5.1 Documentation. Verification of compliance shall be provided as requested by the enforcing agency, and as required in Section 4.504.5.1.</p>	
Division 4.5 – ENVIRONMENTAL QUALITY (INTERIOR MOISTURE CONTROL)	
<p>4.505.2 Concrete slab foundations. Concrete slab foundations or concrete slab-on-ground floors required to have a vapor retarder by the California Building Code, Chapter 19, or the California Residential Code, Chapter 5, respectively, shall also comply with this section.</p>	
<p>4.505.2.1 Capillary break. A capillary break shall be installed in compliance with at least one of the following: A 4-inch thick base of 1/2-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. Other equivalent methods approved by the enforcing agency. A slab design specified by a licensed design professional.</p>	

MANDATORY FEATURE OR MEASURE	Plan Reference
<p>4.505.3 Moisture content of building materials. 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% moisture content. Moisture content shall be verified in compliance with the following:</p> <ul style="list-style-type: none"> Moisture content shall be determined with either a probe-type or a contact-type moisture meter. Equivalent moisture verification methods may be approved by the enforcing agency and shall satisfy requirements in Section 101.8. Moisture readings shall be taken at a point 2 feet to 4 feet from the grade-stamped end of each piece to be verified. At least 3 random moisture readings shall be performed on wall and floor framing with documentation acceptable to the enforcing agency provided at the time of approval to enclose the wall and floor framing. 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. Manufacturers' drying recommendations shall be followed for wet-applied insulation products prior to enclosure. 	
Division 4.5 – ENVIRONMENTAL QUALITY (INDOOR AIR QUALITY & EXHAUST)	
<p>4.506.1 Bathroom exhaust fans. Each bathroom shall be mechanically ventilated and shall comply with the following:</p> <ul style="list-style-type: none"> Fans shall be ENERGY STAR compliant and be ducted to terminate outside the building. Unless functioning as a component of a whole house ventilation system, fans must be controlled by a humidity control. Humidity controls shall be capable of manual or automatic adjustment between a relative humidity range of less than 50% to a maximum of 80%. A humidity control may be a separate component to the exhaust fan and is not required to be integral or built-in. <p>Note: For CALGreen a "bathroom" is a room which contains a bathtub, shower, or tub/shower combination. Fans or mechanical ventilation is required in each bathroom.</p>	
Division 4.5 – ENVIRONMENTAL QUALITY (ENVIRONMENTAL COMFORT)	
<p>4.507.2 Heating and air conditioning system design. Heating and air conditioning systems shall be sized, designed, and equipment selected using the following methods:</p> <ul style="list-style-type: none"> The heat loss and heat gain is established according to ANSI/ACCA 2 Manual J – 2011 (Residential Load Calculation), ASHRAE handbooks or other equivalent design software or methods. Duct systems are sized according to ANSI/ACCA 1 Manual D – 2014 (Residential Duct Systems), ASHRAE handbooks or other equivalent design software or methods. Select heating and cooling equipment according to ANSI/ACCA 3 Manual S – 2014 (Residential Equipment Selection) or other equivalent design software or methods. <p>Exception: Use of alternate design temperatures necessary to ensure the systems functions are acceptable.</p>	
CHAPTER 7 – INSTALLER & SPECIAL INSPECTOR QUALIFICATION	
<p>702.1 Installer training. HVAC system installers shall be trained and certified in the proper installation of HVAC systems and equipment by a recognized training or certification program.</p>	
<p>702.2 Special. Special inspectors must be qualified and able to demonstrate competence to the enforcing agency in the discipline in which they are inspecting.</p>	
<p>703.1 Documentation. Documentation of compliance shall include, but is not limited to, construction documents, plans, specifications, builder or installer certification, inspection reports, or other methods acceptable to the local enforcing agency. Other specific documentation or special inspections necessary to verify compliance are specified in appropriate sections of CALGreen.</p>	

RESIDENTIAL MANDATORY MEASURES

**TABLE 4.504.1
ADHESIVE VOC LIMIT^{1,2}**
Less Water and Less Exempt Compounds in Grams per Liter

ARCHITECTURAL APPLICATIONS	VOC LIMIT
Indoor carpet adhesives	50
Carpet pad adhesives	50
Outdoor carpet adhesives	150
Wood flooring adhesive	100
Rubber floor adhesives	60
Subfloor adhesives	50
Ceramic tile adhesives	65
VCT and asphalt tile adhesives	50
Drywall and panel adhesives	50
Cove base adhesives	50
Multipurpose construction adhesives	70
Structural glazing adhesives	100
Single-ply roof membrane adhesives	250
Other adhesives not specifically listed	50
SPECIALTY APPLICATIONS	
PVC welding	510
CPVC welding	490
ABS welding	325
Plastic cement welding	250
Adhesive primer for plastic	550
Contact adhesive	80
Special purpose contact adhesive	250
Structural wood member adhesive	140
Top and trim adhesive	250
SUBSTRATE SPECIFIC APPLICATIONS	
Metal to metal	30
Plastic foams	50
Porous material (except wood)	50
Wood	30
Fiberglass	80

1. If an adhesive is used to bond dissimilar substrates together, the adhesive with the highest VOC content shall be allowed.
2. For additional information regarding methods to measure the VOC content specified in this table, see South Coast Air Quality Management District Rule 1168.

**TABLE 4.504.2
SEALANT VOC LIMIT**
Less Water and Less Exempt Compounds in Grams per Liter

SEALANTS	VOC LIMIT
Architectural	250
Marine deck	760
Nonmembrane roof	300
Roadway	250
Single-ply roof membrane	450
Other	420
SEALANT PRIMERS	
Architectural	
Nonporous	250
Porous	775
Modified bituminous	500
Marine deck	760
Other	750

**TABLE 4.504.3
VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS^{2,3}**
Grams of VOC per Liter of Coating,
Less Water and Less Exempt Compounds

COATING CATEGORY	VOC LIMIT
Flat coatings	50
Nonflat coatings	100
Nonflat-high gloss coatings	150
SPECIALTY COATINGS	
Aluminum roof coatings	400
Basement specialty coatings	400
Bituminous roof coatings	50
Bituminous roof primers	350
Bond breakers	350
Concrete curing compounds	350
Concrete/masonry sealers	100
Driveway sealers	50
Dry fog coatings	150
Faux finishing coatings	350
Fire resistive coatings	350
Floor coatings	100
Form-release compounds	250
Graphic arts coatings (sign paints)	500
High temperature coatings	420
Industrial maintenance coatings	250
Low solids coatings ¹	120
Magnesite cement coatings	450
Mastic texture coatings	100
Metallic pigmented coatings	500
Multicolor coatings	250
Pretreatment wash primers	420
Primers, sealers, and undercoaters	100
Reactive penetrating sealers	350
Recycled coatings	250
Roof coatings	50
Rust preventative coatings	250
Shellacs	
Clear	730
Opaque	550
Specialty primers, sealers and undercoaters	100
Stains	250
Stone consolidants	450
Swimming pool coatings	340
Traffic marking coatings	100
Tub and tile refinish coatings	420
Waterproofing membranes	250
Wood coatings	275
Wood preservatives	350
Zinc-rich primers	340

1. Grams of VOC per liter of coating, including water and including exempt compounds.
2. The specified limits remain in effect unless revised limits are listed in subsequent columns in the table.
3. Values in this table are derived from those specified by the California Air Resources Board, Architectural Coatings Suggested Control Measure, February 1, 2008. More information is available from the Air Resources Board.