LOW-RISE RESIDENTIAL MANDATORY MEASURES EFFECTIVE JULY 1, 2012

SECTION	MEASURES	REQUIREMENTS
Division 4.1 - PLANNING AND DESIGN (SITE DEVELOPMENT)		
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 shall manage storm water drainage during construction.
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.
Division 4.2 - ENERGY EFFICIENCY		
4.201.1	**Scope**	Standards for residential buildings do not require compliance with levels of minimum energy efficiency beyond those required by the 2010 California Energy Code. The most recent set of changes to the California Energy Commission's Energy Efficiency Standards for Residential Buildings took effect on January 1, 2010.
Division 4.3 - WATER EFFICIENCY AND CONSERVATION (INDOOR WATER USE)		
4.303.1	**20% Savings**	Fixtures and fixture fittings reducing the overall use of potable water within the building by at least 20% shall be provided. The 20% reduction shall be demonstrated by one of the following methods: 1 - Prescriptive Method: Showerheads (≤ 2.0 gpm @ 80 psi); Residential Lavatory Faucets (≤ 1.5 gpm @ 60 psi); Nonresidential Lavatory Faucets (≤ .4 gpm @ 60 psi); Kitchen Faucets (≤ 1.8 gpm @ 60 psi); Toilets (≤ 1.28 gal/flush); and urinals (≤ 0.5 gal/flush). 2 - Performance Method: Provide a calculation demonstrating a 20% reduction of indoor potable water using the baseline values set forth in Table 4.303.1. The calculation will be limited to the total water usage of showerheads, lavatory faucets, water closets and urinals within the dwelling.
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 Rate specified in the ≥ 20% reduction column contained 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 @ 80psi.
Division 4.3 - WATER EFFICIENCY AND CONSERVATION (OUTDOOR WATER USE)		
4.304.1	**Irrigation Controllers**	Automatic irrigation system controllers for landscaping provided by the builder and installed at the time of final inspection shall comply with the following: 1 - Controllers shall be weather- or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants' watering needs as weather or soil conditions change. 2 - Weather-based controllers without integral rain sensors or communication systems that account for rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s).
Division 4.4 - MATERIAL CONSERVATION & RESOURCE EFFICIENCY (ENHANCED DURABILITY & REDUCED MAINTENANCE)		
4.406.1	**Rodent proofing**	Annular spaces around pipes, electric cables, conduits, or other openings in 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.
Division 4.4 - MATERIAL CONSERVATION & RESOURCE EFFICIENCY (CONSTRUCTION WASTE REDUCTION, DISPOSAL & RECYCLING)		
4.408.1	**Construction Waste Reduction of at least 50%**	Recycle and/or salvage for reuse a minimum of 50% of the nonhazardous 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. Documentation is required per Section 4.408.5. **Exceptions:** 1 - Excavated soil and land-clearing debris. 2 - Alternate waste reduction methods developed by working with local enforcing agencies if diversion or recycle facilities capable of compliance with this item do not exist or are not located reasonably close to the jobsite. 3 - The enforcing agency may make exceptions to the requirements of this section when jobsites are located in areas beyond the haul boundaries of the diversion facility.
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..
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.
4.408.4	**Waste Stream Reduction Alternative**	Generate a total combined weight of construction and demolition waste disposed in landfills that does not exceed 4 pounds per square-foot of the building area.
Division 4.4 - MATERIAL CONSERVATION & RESOURCE EFFICIENCY (BUILDING MAINTENANCE & OPERATION)		
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.
Division 4.5 - ENVIRONMENTAL QUALITY (FIREPLACES)		
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 Phase II emission limits where applicable. Woodstoves, pellet stoves and fireplaces shall also comply with all applicable local ordinances.
Division 4.5 - ENVIRONMENTAL QUALITY (POLLUTANT CONTROL)		
4.504.1	**Covering of Duct Openings and Protection of Mechanical Equipment 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 distribution component openings shall be covered. Tape, plastic, sheetmetal or other methods acceptable to the enforcing agency to reduce the amount of water, dust and debris entering the system may be used.
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: 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 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. 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 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 California Code of Regulations, Title 17, commencing with Section 94507.

Acknowledgement: This document is an updated version of an original checklist prepared by the California Building Industry Association for summarizing CALGreen's mandatory measures for low-rise residential structures. This checklist includes CALGreen provisions approved by the California Building Standards Commission on July 20, 2011.

LOW-RISE RESIDENTIAL MANDATORY MEASURES EFFECTIVE JULY 1, 2012

SECTION	MEASURES	REQUIREMENTS
Division 4.5 - ENVIRONMENTAL QUALITY (POLLUTANT CONTROL Continued)		
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.
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)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Section 94522(c)(2) and (d)(2) of California Code of Regulations, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8, Rule 49.
4.504.3	**Carpet Systems**	All carpet installed in the building interior shall meet the testing and product requirements of one of the following: 1 - Carpet and Rug Institute's Green Label Plus Program 2 - 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.) 3 - NSF/ANSI 140 at the Gold level 4 - Scientific Certifications Systems Indoor Advantage™ Gold
4.504.3.1	**Carpet Cushion**	All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute's Green Label Program.
4.504.3.2	**Carpet Adhesive**	All carpet adhesives shall meet the requirements of Table 4.504.1.
4.504.4	**Resilient Flooring Systems**	Where resilient flooring is installed, at least 50% 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.)
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 Air Resources Board's Air Toxics Control Measure for Composite Wood (17 CCR 93120 et. seq.), by or before the dates specified in those sections 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-jointed lumber, all as specified in CCR, Title 17, Section 93120.1(a).
Division 4.5 - ENVIRONMENTAL QUALITY (INTERIOR MOISTURE CONTROL)		
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.
4.505.2.1	**Capillary Break**	A capillary break shall be installed in compliance with at least one of the following: 1 - A 4-inch (101.6 mm) thick base of 1/2-inch (12.7 mm) 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. 2 - Other equivalent methods approved by the enforcing agency. 3 - A slab design specified by a licensed design professional.
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: 1 - Moisture content shall be determined with either a probe-type or a contact-type moisture meter. 2 - Moisture readings shall be taken at a point 2 feet (610 mm) to 4 feet (1219 mm) from the grade-stamped end of each piece to be verified. 3 - At least three 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.
Division 4.5 - ENVIRONMENTAL QUALITY (INDOOR AIR QUALITY & EXHAUST)		
4.506.1	**Bathroom Exhaust Fans**	Each bathroom shall be mechanically ventilated and shall comply with the following: 1 - Fans shall be ENERGY STAR compliant and be ducted to terminate outside the building. 2 - Unless functioning as a component of a whole house ventilation system, fans must be controlled by a humidity control. a) Humidity controls shall be capable of manual or automatic adjustment between a relative humidity range of less than 50% to a maximum of 80%. b) A humidity control may be a separate component to the exhaust fan and is not required to be integral or built-in. Note: For the purposes of this section a bathroom is a room which contains a bathtub, shower, or tub/shower combination. Fans are required in each bathroom.
Division 4.5 - ENVIRONMENTAL QUALITY (ENVIRONMENTAL COMFORT)		
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.
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: 1 - The heat loss and heat gain is established according to ANSI/ACCA 2 Manual J - 2004 (Residential Load Calculation), ASHRAE handbooks or other equivalent design software or methods. 2 - Duct systems are sized according to ANSI/ACCA 1 Manual D - 2009 (Residential Duct Systems), ASHRAE handbooks or other equivalent design software or methods. 3 - Select heating and cooling equipment according to ANSI/ACCA 3 Manual S - 2004 (Residential Equipment Selection) or other equivalent design software or methods. **Exception:** Use of alternate design temperatures necessary to ensure the system functions are acceptable.
CHAPTER 7 - INSTALLER & SPECIAL INSPECTOR QUALIFICATIONS (QUALIFICATIONS, VERIFICATIONS)		
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. Examples of acceptable HVAC training and certification programs include but are not limited to the following: 1 - State certified apprenticeship programs. 2 - Public utility training programs. 3 - Training programs sponsored by trade, labor or statewide energy consulting or verification organizations. 4 - Programs sponsored by manufacturing organizations. 5 - Other programs acceptable to the enforcing agency.
702.2	**Special Inspection**	Special inspectors must be qualified and able to demonstrate competence to the enforcing agency in the discipline in which they are inspecting.
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.