

**Instructions:**

This checklist is to be used on an individual project basis and may be modified by the applicant to meet the needs of their specific project. The applicant shall strike out those sections that are not applicable to their project. The applicant and property owner assume all responsibility associated with the use of this document.

2013 CBC 301.1.1 Additions and alterations. [HCD] The mandatory provisions of Chapter 4 shall be applied to additions or alterations of ground 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.

**CHAPTER 4  
RESIDENTIAL MANDATORY MEASURES**

**DIVISION 4.1 Planning and Design**

**SECTION 4.101 GENERAL**

**4.101.1 Scope.** The provisions of this division outline planning, design and development methods that include environmentally responsible site selection, building design, building siting and development to protect, restore and enhance the environmental quality of the site and respect the integrity of adjacent properties.

**SECTION 4.102 DEFINITIONS**

**4.102.1. Definitions.** The following terms are defined in Chapter 2

**FRENCH DRAIN**

**WATTLES.**

**SECTION 4.103 SITE SELECTION (Reserved)**

**SECTION 4.104 SITE PRESERVATION (Reserved)**

**SECTION 4.105 DECONSTRUCTION AND REUSE OF EXISTING STRUCTURES (Reserved)**

**4.106 SITE DEVELOPMENT**

**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.

**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.

1. Retention basins of sufficient size shall be utilized to retain storm water on the site.
2. 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.
3. Compliance with a lawfully enacted storm water management ordinance.

(REFER TO <SHEET><DETAIL><SPECIFICATION>\_\_\_\_\_)

**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 the buildings. Examples of methods to manage surface water include, but are not limited to, the following:

1. Swales
2. Water collection and disposal systems
3. French drains
4. Water retention gardens
5. Other water measures which keep surface water away from buildings and aid in groundwater recharge.

Exceptions: Additions and alterations not altering the drainage path.

(REFER TO <SHEET><DETAIL><SPECIFICATION>\_\_\_\_\_)

**DIVISION 4.2 Energy Efficiency**

**4.201 GENERAL**

**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.

(REFER TO <SHEET><DETAIL><SPECIFICATION>\_\_\_\_\_)

**DIVISION 4.3 - WATER EFFICIENCY AND CONSERVATION**

**SECTION 4.301 GENERAL**

**4.301.1 Scope.** The provisions of this chapter shall establish the means of conserving water used indoors, outdoors and in wastewater conveyance.

**SECTION 4.302 Definitions.** Reserved.

**4.303 INDOOR WATER USE**

**4.303.1 Water conserving plumbing fixtures and fittings.** Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:

**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 Specifications for Tank-type Toilets.

**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.

**4.303.1.2 Urinals.** The effective flush volume of urinals shall not exceed 0.5 gallons per flush.

**4.303.1.3 Showerheads.**

**4.303.1.3.1 Single showerhead.** 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 U.S. E.P.A. WaterSense Specifications for Showerheads.

**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 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.

**4.303.1.4 Faucets.**

**4.303.1.4.1 Residential lavatory faucets.** 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.

**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.

**4.303.1.4.3 Metering faucets.** Metering faucets when installed in residential buildings shall not deliver more than 0.25 gallons per cycle.

**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 compelling faucets are unavailable, aerators or other means may be used to achieve reductions.

**4.303.2 Standards for plumbing fixtures and fittings.** Plumbing fixtures and fittings shall be installed in accordance with the *California Plumbing Code*, and shall meet the applicable standards referenced in Table 1401.1 of the *California Plumbing Code*.

**4.304 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' needs as weather conditions change.
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 controllers are not required to have rain sensor input.

**Note:** More information regarding irrigation controller function and specifications is available from the Irrigation Association.

**SECTION 4.305 WATER REUSE SYSTEMS (Reserved)**

(REFER TO <SHEET><DETAIL><SPECIFICATION>\_\_\_\_\_)

**DIVISION 4.4 Material Conservation and Resource Efficiency**

**SECTION 4.401.1 Scope.** The provisions of this chapter shall outline means of achieving material conservation and resource efficiency through protection of building from exterior moisture; construction waste diversion; employment of techniques to reduce pollution through recycling of materials; and building commissioning or testing, adjusting and balancing.

# 2013 CALIFORNIA GREEN BUILDING STANDARDS CODE

**SECTION 4.402 DEFINITIONS (Reserved) SECTION 4.403 FOUNDATION SYSTEMS (Reserved)  
SECTION 4.404 EFFICIENT FRAMING TECHNIQUES (Reserved) SECTION 4.405 MATERIAL SOURCES (Reserved)**

**4.406 ENHANCED DURABILITY AND REDUCED MAINTENANCE**  
**4.406.1 Rodent Proofing.** Annual spaces around pipes, electric cables, conduits or other openings in 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.

**SECTION 4.407 WATER RESISTANCE AND MOISTURE MANAGEMENT (Reserved)**  
**SECTION 4.408 CONSTRUCTION WASTE REDUCTION DISPOSAL AND RECYCLING (Reserved)**

**4.408 CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING**

**4.408.1 Construction waste management.** Recycle and/or salvage for reuse a minimum of 50 percent of the nonhazardous construction and demolition waste in accordance with either Section 4.408.2, 4.408.3 of 4.408.4, or meet a more stringent local construction and demolition waste management ordinance.  
**Exceptions:**

1. Excavated soil and land-clearing debris.
2. 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.
3. 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.

**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.

1. Identifies the construction and demolition waste materials to be diverted from disposal by recycling, reuse on the project or salvage for future use or sale.
2. Specifies if construction and demolition waste materials will be sorted on-site (source-separated) or bulk mixed (single stream).
3. Identify diversion facility where the construction or demolition waste material will be taken.
4. Identifies construction methods employed to reduce the amount of construction and demolition waste generated.
5. Specify the amount of construction and demolition waste materials diverted shall be calculated by the weight or volume, but not by both.

**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.  
**Note:** The owner or contractor may make the determination if the construction and demolition waste materials will be diverted by a waste management company.

**4.408.4 Waste stream reduction alternative [LR].** Projects that generate a total combined weight of construction and demolition waste disposed from in landfills, which do not exceed four (4) lbs./sq.ft. of the building area shall meet the minimum 50 percent construction waste reduction requirements in Section 4.408.1.

**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 two (2) pounds per square foot of the building area, shall meet the minimum 50-percent construction waste reduction requirements in Section 4.408.1.

**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.  
**Notes:** 1. Sample forms found in "A Guide to the California Green Building Standards Code (Residential)" located at [www.hcd.ca.gov/CALGreen.html](http://www.hcd.ca.gov/CALGreen.html) may be used to assist in documenting compliance with this section.  
2. Mixed construction and demolition debris (C&D) processors can be located at the California Department of Resources Recycling and Recovery (CalRecycle).

**4.409 LIFE CYCLE ASSESSMENT (Reserved)**

**4.410 BUILDING MAINTENANCE AND 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 includes all of the following shall be placed in the building:

1. Directions to the owner or occupant that the manual shall remain with the building throughout the life cycle of the structure.
2. Operation and maintenance instructions for the following:
  - a. Equipment and appliances, including water-saving devices and systems, HVAC systems, water-heating systems and other major appliances and equipment.
  - b. Roof and yard drainage, including gutters and downspouts.
  - c. Space conditioning systems, including condensers and air filters.
  - d. Landscape irrigation systems.
3. Information from local utility, water and waste recovery providers on methods to further reduce resource consumption, including recycle programs and locations.
4. Public transportation and/or carpool options available in the area.
5. 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.
6. Information about water-conserving landscape and irrigation design and controllers which conserve water.
7. Instructions for maintaining gutters and downspouts and the importance of diverting water at least 5 feet away from the foundation.
8. Information on required routine maintenance measures, including, but not limited to, caulking, painting, grading around the building, etc.
9. Information about state solar energy and incentive programs available.
10. A copy of all special inspections verifications required by the enforcing agency or this code.

(REFER TO <SHEET><DETAIL><SPECIFICATION>\_\_\_\_\_)

**DIVISION 4.5 Environmental Quality**

**SECTION 4.501.1 Scope.** The provisions of this chapter shall outline means of reducing the quantity of air contaminants that are odorous, irritating and/or harmful to the comfort and well being of a building's installers, occupants and neighbors.

**AGRIFIBER PRODUCTS, COMPOSITE WOOD PRODUCTS, DIRECT-VENT APPLIANCE  
MAXIMUM INCREMENTAL REACTIVITY (MIR), MOISTURE CONTENT, PRODUCT-WEIGHTED MIR (PWMIR)  
REACTIVE ORGANIC COMPOUND (ROC), VOC**

**4.503 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 applicable local ordinances.

**4.504 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 and cooling and ventilation equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other methods acceptable to the enforcing agency to reduce the amount of water, dust or debris which may collect in the system.

**4.504.2 Finish material pollutant control.** Finish materials shall comply with this section.

**4.504.2.1 Adhesives, sealants and caulks.** Adhesives, sealant 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 Table 4.504.1 or 4.504.2, as applicable. Such products also shall comply with the 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.

**4.504.2.2 Paints and coatings.** Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB 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 a Flat, Nonflat or Nonflat-high Gloss coating, based on its gloss, as defined in subsection 4.21, 4.22, and 4.23 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 Sections 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.

**4.504.2.4 Verification**  
Verification of compliance with this section shall be provided at the request of the enforcing agency. Documentation may include, but is not limited to, the following:

1. Manufacturer's product specification.
2. Field verification of on-site product containers.

(REFER TO <SHEET><DETAIL><SPECIFICATION>\_\_\_\_\_)

**Table 4.504.1 - ADHESIVE VOC LIMIT <sup>1, 2</sup>  
Less Water and Less Exempt Compounds in Grams per Liter**

ARCHITECTURAL APPLICATIONS	CURRENT VOC LIMIT
Indoor carpet adhesives	50
Carpet pad adhesives	50
Outdoor carpet adhesives	150
Wood flooring adhesive	100
Rubber floor adhesives	60
Subfloor adhesives	80
Ceramic tile adhesives	65
VCT and asphalt tile adhesives	50
Drywall and panel adhesives	50
Cove base adhesives	50
Multipurpose construction adhesives	100
Structural glazing adhesives	170
Single-ply roof membrane adhesives	250
Other adhesives not specifically listed	50
<b>SPECIALTY APPLICATIONS</b>	
PVC welding	510
CPVC welding	450
ABS welding	325
Plastic cement welding	250
Adhesive primer for plastic	250
Contact adhesive	80
Special purpose contact adhesive	950
Structural wood member adhesive	140
Tag and trim adhesive	250
<b>SUBSTRATE SPECIFIC APPLICATIONS</b>	
Metal to metal	30
Plastic foams	50
Porous material (except wood)	50
Wood	30
Fluegases	80

<sup>1</sup> If an adhesive is used to bond dissimilar substrates together, the adhesive with the highest VOC content shall be allowed.  
<sup>2</sup> For additional information regarding methods to measure the VOC Content specified in this table, see South Coast Air Quality Management District Rule 116.

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

SEALANTS	CURRENT VOC LIMIT
Architectural	250
Marine deck	700
Nonmembrane roof	300
Roadway	250
Single-ply roof membrane	450
Other	420
<b>SEALANT PRIMERS</b>	
Architectural	
Nonporous	250
Porous	775
Modified bituminous	500
Marine deck	700
Other	750

**Table 4.504.3 - VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS <sup>2, 3</sup>  
Grams of VOC per Liter of Coating, Less Water and Less Exempt Compounds**

COATING CATEGORY	EFFECTIVE 1/10/01 <sup>1</sup>	EFFECTIVE 1/10/12 <sup>1</sup>
Flat coatings	50	
Nonflat coatings	100	
Nonflat-high gloss coatings	150	
<b>Specialty Coatings</b>		
Aluminum roof coatings	400	
Basement specialty coatings	400	
Bituminous roof coatings	50	
Bituminous roof primers	350	
Bond breaker	350	
Concrete curing compounds	350	
Concrete/masonry sealers	100	
Driveway sealers	50	
Dry log coatings	150	
Flaw 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 <sup>1</sup>	120	
Magnesium cement coatings	450	
Metallic acrylic coatings	100	
Metallic pigmented coatings	500	
Multicolor coatings	250	
Pretreatment wash primers	420	
Primers, sealers, and undercoats	100	
Reactive penetrating sealers	350	
Recycled coatings	250	
Roof coatings	50	
Rust preventive coatings	400	250
Shellacs		
Clear	730	
Opaque	650	
Specialty primers, sealers, and undercoats	350	100
Stains	250	
Stone consolidators	450	
Swimming pool coatings	340	
Traffic marking coatings	100	
Tab and file refinish coatings	420	
Waterproofing membranes	250	
Wood coatings	275	
Wood preservatives	350	
Zinc-rich primers	340	

<sup>1</sup> Grams of VOC per liter of coating, including water and including exempt compounds.  
<sup>2</sup> The spotted limits remain in effect unless revised limits are listed in subsequent columns of the table.  
<sup>3</sup> 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.

**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 adhesive shall meet the requirements of Table 5.504.1.

**4.504.4 Resilient flooring systems:**

- Where resilient flooring is installed, at least 80 percent 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, "Standards Methods for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Versions 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 ARB's Air Toxics Control Measure for Composite Wood (17 CCR 93120 et seq.), by or before the dates specified in this section. FOR FORMALDEHYDE LIMITS

PRODUCT	CURRENT LIMIT
Hardwood plywood veneer core	0.05
Hardwood plywood composite core	0.05
Particleboard	0.09
Medium density fiberboard	0.11
Thin medium density fiberboard <sup>1</sup>	0.12

<sup>1</sup> Values in this table are derived from those specified by the California Air Resources Board, Air Toxics Control Measure for Composite Wood as tested in accordance with ASTM E 1333. For additional information see the California Code of Regulations Title 17, Sections 93120 through 93120.12.  
<sup>2</sup> Thin medium density fiberboard has a maximum thickness of 5/16 inch (9mm).

(REFER TO <SHEET><DETAIL><SPECIFICATION>\_\_\_\_\_)

**4.504.5.1 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, the Australian AS/NZS 2269 pr European 636 3S standards.
5. Other methods acceptable to the enforcing agency

**4.505 INTERIOR MOISTURE CONTROL**

**4.505.1 General:**

Buildings shall meet or exceed the provisions of the *California Building Standards Code*.

**4.505.2 Concrete slab foundations:**

Concrete slab foundations required to have a vapor retarder by California Building Code, Chapter 19, or concrete slab-on-ground floors required to have a vapor retarder by the *California Residential Code*, Chapter 5, 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-thick (101.6 mm) base of 1/2 inch (12.7mm) 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.

(REFER TO <SHEET><DETAIL><SPECIFICATION>\_\_\_\_\_)

**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 be enclosed when the framing members exceed 19 percent moisture content. Moisture content shall be verified in compliance with the following:

1. Moisture content shall be determined with either a probe-type or contact-type moisture