

Division 4.1 - PLANNING AND DESIGN

SECTION 4.101  
GENERAL

**4.101.1 Scope.** The provision of this division outline planning, design and development method that include environmentally responsible site selection, building deign, 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)

SECTION 4.106  
SITE DEVELOPMENT

**4.106.1 General.** Preservation and use of available natural resource shall be accomplished through evaluation and careful planning to minimize negative effect on the site and adjacent area. 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 measure shall be implemented to prevent flooding of adjacent property, prevent erosion and retain soil runoff on the site.

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

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

- Swales
- Water collection and disposal system
- French drains
- Water retention gardens
- Other water measures which keep surface water away from buildings and aid in groundwater recharge.

**Exception:** Additions and alterations not altering the drainage path.

**4.106.4 Electric vehicle (EV) charging for new construction.** New construction shall comply with Sections 4.106.4.1 and 4.106.4.2 to facilitate future installation and use of EV chargers. Electric vehicle supply equipment (EVSE) shall be installed in accordance with the California Electrical Code, Article 625.

**Exceptions:** On a case-by-case basis, where the local enforcing agency has determined EV charging and infrastructure are not feasible based upon one or more of the following conditions:

- Where there is no commercial power supply.
- Where there is evidence substantiating that meeting the requirements will alter the local utility infrastructure design requirements on the utility side of the meter so as to increase the utility side cost to the home owner or the developer by more than \$400.00 per dwelling unit.

**4.106.4.1 New one- and two-family dwellings and townhouses with attached private garages.** For each dwelling unit, install a listed raceway to accommodate a dedicated 208/240-volt branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or other enclosure in close proximity to the proposed location of an EV charger. Raceways are required to be continuous at enclosed, inaccessible or concealed areas and spaces. The service panel and/or subpanel shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.

**4.106.4.1.1 Identification.** The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging as "EV CAPABLE". The raceway termination location shall be permanently and visibly marked as "EV CAPABLE".

**4.106.4.2 New multifamily dwellings.** Where 17 or more multifamily dwelling units are constructed on a building site, 3 percent of the total number of parking spaces provided for all types of parking facilities, but in no case less than one, shall be electric vehicle charging stations (EVCS) capable of supporting future EVSE and shall be identified on construction documents. Calculations for the number of EVCS shall be rounded up to the nearest whole number.

**Note:** Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging. There is no requirement for EVCS to be constructed or available until EV chargers are installed for use.

**4.106.4.2.1 Electric vehicle charging station (EVCS) locations.** Construction documents shall indicate the location of proposed EVCS. At least one EVCS shall be located in common use areas and available for use by all residents.

When EV chargers are installed, EVCS required by Section 4.106.2.2, Item 3, shall comply with at least one of the following options:

- The EVCS shall be located adjacent to an accessible parking space meeting the requirements of the *California Building Code*, Chapter 11A, to allow use of the EV charger from the accessible parking space.
- The EVCS shall be located on an accessible route, as defined in the *California Building Code*, Chapter 2, to the building.

**4.106.4.2.2 Electric vehicle charging station (EVCS) dimensions and slope.** The EVCS shall be designed to comply with the following:

- The minimum length of each EVCS shall be 18 feet.
- The minimum width of each EVCS shall be 9 feet.
- One in every 25 EVCS, but not less than one EVCS, shall also have an 8-foot (2438 mm) wide minimum aisle, a 5-foot (1524 mm) wide minimum aisle shall be permitted provided the minimum width of the EVCS is 12 feet.

- Surface slope for this EVCS and the aisle shall not exceed 1 unit vertical in 48 units horizontal (2.083 percent slope) in any direction.

**4.106.4.2.3 Single EVCS required.** Install a listed raceway capable of accommodating a 208/240-volt dedicated branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or enclosure in close proximity to the proposed location of the EVCS. Construction documents shall identify the raceway termination point.

The service panel and/or subpanel shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.

**4.106.4.2.4 Multiple EVCS required.** Construction documents shall indicate the raceway termination point and proposed location of future EVCS and EV chargers. Construction documents shall also provide information on amperage of future EVSE, raceway method(s), wiring schematics and electrical load calculations to verify that the electrical panel service capacity and electrical system, including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at all required EVCS at the full rated amperage of the EVSE. Plan design shall be based upon a 40-ampere minimum branch circuit. Raceways and related components that are planned to be installed underground, enclosed, inaccessible or in concealed areas and spaces shall be installed at the time of original construction.

**4.106.4.2.5 Identification.** The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as "EV CAPABLE" in accordance with the California Electrical Code.

**Notes:**

- The California Department of Transportation adopts and publishes the "California Manual on Uniform Traffic Control Devices (California MUTCD)" to provide uniform standards and specifications for all official traffic control devices in California. Zero Emission Vehicle Signs and Pavement Markings can be found in the New Policies & Directives Number 13-01.
- Website: <http://www.dot.ca.gov/hq/traffops/signtech/signel/policy.htm>.
- See Vehicle Code Section 22511 for EV charging space signage in off-street parking facilities and for use of EV charging spaces.
- The Governor's Office of Planning and Research (OPR) published a "Zero-Emission Vehicle Community Readiness Guidebook" which provides helpful information for local governments, residents and businesses. Website: [http://opr.ca.gov/docs/ZEV\\_Guidebook.pdf](http://opr.ca.gov/docs/ZEV_Guidebook.pdf).
- The Governor's Office of Planning and Research (OPR) has developed draft guidelines, "Plug-In Electric Vehicles: Universal Charging Access Guide lines and Best Practices", addressing physical accessibility standards and design guidelines for EVs. Website: [http://opr.ca.gov/docs/PEV\\_Access\\_Guidelines.pdf](http://opr.ca.gov/docs/PEV_Access_Guidelines.pdf).

Division 4.2 - ENERGY EFFICIENCY

SECTION 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.

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  
GENERAL

**4.302.1 Definitions.** Reserved.

SECTION 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 Specification 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. EPA WaterSense Specification 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 60psi.

**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 complying faucets are unavailable, aerators or other means may be used to achieve reduction.

**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*.

SECTION 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:

- Controllers shall be weather- or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants' needs as weather conditions change.
- 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)

Division 4.4 - MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

SECTION 4.401  
GENERAL

**4.401.1 Scope.** The provision 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.

SECTION 4.402  
DEFINITIONS

**4.402.1 Definitions.** Reserved.

SECTION 4.403  
FOUNDATION SYSTEMS  
(Reserved)

SECTION 4.404  
EFFICIENT FRAMING TECHNIQUES  
(Reserved)

SECTION 4.405  
MATERIAL SOURCES  
(Reserved)

SECTION 4.406  
ENHANCED DURABILITY  
AND REDUCED MAINTENANCE

**4.406.1 Rodent proofing.** Annual pace around pipes, electric cable, conduit or other opening in sole/bottom plate at exterior walls shall be protected against the pass age of rodent 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

**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 or 4.408.4, or meet a more stringent local construction and demolition waste management ordinance.

**Exceptions:**

- Excavated soil and land-clearing debris.
- 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.
- The enforcing agency may grant exceptions to the requirements of this section when isolated jobsite 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.

- Identify the construction and demolition waste materials to be diverted from disposal by recycling, reuse on the project or salvage for future use or sale.
- Specify if construction and demolition waste materials will be sorted on-site (source-separated) or bulk mixed (single stream).
- Identify diversion facilities where the construction and demolition waste material will be taken.
- Identify construction method employed to reduce the amount of construction and demolition waste generated.
- Specify that the amount of construction and demolition waste materials diverted shall be calculated by 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 material 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 of in landfill, which do not exceed four (4) lbs./sq.ft. of the building area shall meet the minimum 50 percent construction waste reduction requirement 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 landfill, which do not exceed two (2) pound per square foot of the building area, shall meet the minimum 50-percent construction waste reduction requirement 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:**

- 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.
- Mixed construction and demolition debris. (C&D) processor can be located at the California Department of Resources Recycling and Recovery (CalRecycle).

SECTION 4.409  
LIFE CYCLE ASSESSMENT  
(Reserved)

SECTION 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:

- Directions to the owner or occupant that the manual shall remain with the building throughout the life cycle of the structure.
- Operation and maintenance instructions for the following:
  - Equipment and appliance, including water-saving devices and systems, HVAC systems, water-heating systems and other major appliance and equipment.
  - Roof and yard drainages, including gutters and downspouts.
  - Space conditioning systems, including condensers and air filters.
  - Landscape irrigation systems.
  - Water reuse systems.
- Information from local utility, water and waste recovery provider on methods to further reduce resource consumption, including recycle program and location for local rainfall.
- Public transportation and/or carpool option available in the area.
- 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.
- Information about water-conserving landscape and irrigation design and controllers which conserve water.
- Instruction for maintaining gutter and down points and the importance of diverting water at last 5 feet away from the foundation.
- Information on required routine maintenance measure, including, but not limited to, caulking, painting, grading around the building, etc.
- Information about state solar energy and incentive programs available.
- A copy of all special inspection verifications required by the enforcing agency or this code.

Division 4.5 - ENVIRONMENTAL QUALITY

SECTION 4.501  
GENERAL

**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 wellbeing of a building's installers, occupants and neighbors.

SECTION 4.502  
DEFINITIONS

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

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

SECTION 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.

SECTION 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 moisture on the construction site and until final start up 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 to the enforcing agency to reduce the amount of water, dust and debris, which may enter 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, 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 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.
- 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 state wide 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 definition 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 subsections 4.2.1, 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 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:

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

**4.504.3 Carpet systems.** All 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.

**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 4.504.1.

**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:

- 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's and 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).

**4.504.5 Composite wood products.** Hardwood plywood, particle board and medium density fiber board 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 Table 4.504.5.

**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:

- Product certifications and specifications.
- Chain of custody certifications.
- Product labeled and invoiced as meeting the Composite Wood Products regulation (see CCR, Title 17, Section 93120, et seq.).
- 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 63635 standards.
- Other methods acceptable to the enforcing agency.

SECTION 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 the *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:

- A 4-inch-thick (101.6mm) base of ½ 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.
- Other equivalent methods approved by the enforcing agency.
- 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 closed when the framing members exceed 19-percent moisture content. Moisture content shall be verified in compliance with the following:

- Moisture content shall be determined with either a probe-type or contact-type moisture meter. Equivalent moisture verification methods may be approved by the enforcing agency and shall satisfy requirements found in Section 101.8 of this code.
- Moisture readings shall be taken at a point 2 feet (610 mm) to 4 feet (1219mm) from the grade stamped end of each piece to be verified.
- 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. 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 manufacturers' drying recommendations prior to enclosure.

SECTION 4.506  
INDOOR AIR QUALITY AND EXHAUST

**4.506.1 Bathroom exhaust fans.** Each bathroom shall be mechanically ventilated and shall comply with the following:

- 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 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.
  - A humidity control may be a separate component to the exhaust fan and is not required to be integral (i.e., built-in).

**Notes:**

- For the purposes of this section, a bathroom is a room which contains a bathtub, shower, or tub/shower combination.
- Lighting integral to bathroom exhaust fans shall comply with the *California Energy Code*.

SECTION 4.507  
ENVIRONMENTAL COMFORT

**4.507.1 Reserved.**

**4.507.2 Heating and air-conditioning system design.** Heating and air-conditioning systems shall be sized, designed and have their equipment selected using the following methods: