CalGreen Mandatory Measures: Verification Strategies/Approaches

The purpose of this document is to review the CalGreen Building Code and to provide green code verification measures for contractors, building inspectors, and other professionals. There should be a master green code binder on the job site that contains building plans, tables, policy documents, product cut sheets, MSDS sheets, photos, and any other documentation used to verify requirements in the code. This master binder should have tabs separating sections of the code and should be located on site during business hours.

CHAPTER 4
RESIDENTIAL

SECTION 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.

Verification Methods:

1. Visual inspection – ensure items 1 through 3 above are applied.
2. If visual inspection is not an option:
    a. Ask contractor to take pictures to be displayed digitally (camera, email, laptop, etc.) and cross reference pictures to storm water drainage and retention plans if such plans are available/required.

4.106.3 Surface drainage. The site shall be planned and developed to keep surface water from entering buildings. Construction plans shall indicate how the site grading or drainage system will manage surface water flows. 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

Verification Methods:

1. Visually inspect surface water management implementation.
2. Inspect Surface drainage plans and cross reference to what is implemented on the site.

Division 4.2 – ENERGY EFFICIENCY

SECTION 4.201
GENERAL

4.201.1 Scope. The Department of Housing and Community Development does not regulate mandatory energy efficiency standards in residential buildings. For the purposes of mandatory energy efficiency standards in this code, the California Energy Commission will continue to adopt mandatory building standards.

Note: It is the intent of this code to encourage buildings to achieve exemplary performance in the area of energy efficiency. For the purposes of energy efficiency standards, the California Energy Commission believes specifically, a green building should achieve at least a 15 percent reduction in energy usage when compared to the State's mandatory energy efficiency standards. The Department of Housing and Community Development's mandatory green building standards for residential buildings do not require compliance with levels of minimum energy efficiency beyond those required by the California Energy Commission.

Verification Methods:

1. Ensure that lighting meets Title-24 standards as specified in the site plans (E-Sheets). In order to encourage measures above Title-24, ensure that lighting calculations exceed Title-24 standards by 15%. A baseline calculation/chart for Title-24 should be displayed on the plans as well as calculations/charts demonstrating additional 15% improvement.
2. Verify that installed lighting meets E-Sheet plans by location and quantity.
3. Inspect fixtures to ensure that light bulb/fixture wattage meets or exceeds plan specifications.

SECTION 4.303
INDOOR WATER USE

4.303.1 Twenty percent savings. A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by at least 20 percent shall be provided. The reduction shall be based on the maximum allowable water use per plumbing fixture and fitting as required by the *California Building Standards Code*. The 20 percent reduction in potable water use shall be demonstrated by one of the following methods:

1. Each plumbing fixture and fitting shall meet reduced flow rates specified in Table 4.303.2; or
2. A calculation demonstrating a 20 percent reduction in the building "water use" baseline as established in Table 4.303.1 shall be provided. For low-rise residential occupancies, the calculation shall be limited to the following plumbing fixture and fitting types: water closets, urinals, lavatory faucets and showerheads.

Verification Methods:

1. Review schedule of plumbing fixtures and fixture fittings and ensure that flow rates comply with Table 4.303.2, the third column Maximum Flow Rate ≥ 20%; or

2. Ensure that the total building water use is at 20% below the water use baseline. The baseline is calculated by using flush/flow rates on Table 4.303.1.
    a. Add up all the fixture and fitting flush/flow rates. All the fixtures have to meet Table 4.303.1, but all of fittings/fixtures aggregated shall improve water efficiency by 20%.
    b. Ensure that one calculation for the baseline is made and ensure that another calculation using actual fittings installed is available for 20% reduction.
3. Provide cut sheets of fixtures that demonstrate proper flow rates. Cut sheets with photos of the fixtures are ideal since flow rates are not typically branded/stamped on fixtures/fittings. Cut sheets may originate from websites, the manufacturer or the reseller.

TABLE 4.303.1
WATER USE BASELINE[1]

FIXTURE TYPE	FLOW RATE[2]	DURATION	DAILY USES	OCCUPANTS[3]
Showerheads, residential	2.5 gpm @ 80 psi	8 min.	1	
Lavatory faucets, residential	2.2 gpm @ 60 psi	.25 min.	3	
Kitchen faucets	2.2 gpm @ 60 psi	4 min.	1	
Replacement aerators	2.2 gpm @ 60 psi			
Gravity tank-type water closets	1.6 gallons/flush	1 flush	1 male[4] 3 female	
Flushometer tank water closets	1.6 gallons/flush	1 flush	1 male[4] 3 female	
Flushometer valve water closets	1.6 gallons/flush	1 flush	1 male[4] 3 female	
Electromechanical hydraulic water closets	1.6 gallons/flush	1 flush	1 male[4] 3 female	
Urinals	1.0 gallon/flush	1 flush	2 male	

Fixture "Water Use" = Flow rate × Duration × Occupants × Daily uses

1. Use Worksheet WS-1 to calculate baseline water use.
2. The flow rate is from the CEC Appliance Efficiency Standards, Title 20, *California Code of Regulations*; where a conflict occurs, the CEC standards shall apply.
3. For low-rise residential occupancies, the number of occupants shall be based on two persons for the first bedroom, plus one additional person for each additional bedroom.
4. The daily use number shall be increased to three if urinals are not installed in the room.

TABLE 4.303.2
FIXTURE FLOW RATES

FIXTURE TYPE	FLOW RATE	MAXIMUM FLOW RATE AT ≥ 20 percent REDUCTION
Showerheads	2.5 gpm @ 80 psi	2 gpm @ 80 psi
Lavatory faucets, residential	2.2 gpm @ 60 psi	1.5 gpm @ 60 psi[2]
Kitchen faucets	2.2 gpm @ 60 psi	1.8 gpm @ 60 psi
Gravity tank-type water closets	1.6 gallons/flush	1.28 gallons/flush[1]
Flushometer tank water closets	1.6 gallons/flush	1.28 gallons/flush[1]
Flushometer valve water closets	1.6 gallons/flush	1.28 gallons/flush[1]
Electromechanical hydraulic water closets	1.6 gallons/flush	1.28 gallons/flush[1]
Urinals	1.0 gallon/flush	.5 gallon/flush

1. Includes single and dual flush water closets with an effective flush of 1.28 gallons or less.
    Single flush toilets—The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is the average flush volume when tested in accordance with ASME A112.19.233.2.
    Dual flush toilets—The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is defined as the composite, average flush volume of two reduced flushes and one full flush. Flush volumes will be tested in accordance with ASME A112.19.2 and ASME A112.19.14.
2. Lavatory faucets shall not have a flow rate less than 0.8 gpm at 20 psi.

TABLE 4.303.3
STANDARDS FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

REQUIRED STANDARDS	
Water closets (toilets)—flushometer valve-type single flush, maximum flush volume	ASME A 112.19.2/CSA B45.1 – 1.28 gal (4.8 L)
Water closets (toilets)—flushometer valve-type dual flush, maximum flush volume	ASME A 112.19.14 and U.S. EPA WaterSense Tank-Type High-Efficiency Toilet Specification – 1.28 gal (4.8 L).
Water closets (toilets)—tank type	U.S. EPA WaterSense Tank-Type High-Efficiency Toilet Specification
Urinals, maximum flush volume	ASME A 112.19.2/CSA B45.1 – 0.5 gal (1.9 L)
Urinals, nonwater urinals	ASME A 112.19.19 (vitreous china) ANSI Z124.9-2004 or IAPMO Z124.9 (plastic)
Public lavatory faucets: Maximum flow rate – 0.5 gpm (1.9 L/min)	ASME A 112.18.1/CSA B125.1
Public metering self-closing faucets: Maximum water use – 0.25 gal (1.0 L) per metering cycle	ASME A 112.18.1/CSA B125.1
Residential bathroom lavatory sink faucets: Maximum flow rate – 1.5 gpm (5.7 L/min)	ASME A 112.18.1/CSA B125.1

4.303.2 Multiple showerheads serving one shower. When single shower fixtures are served by more than one showerhead, the combined flow rate of all the showerheads shall not exceed the maximum flow rates specified in the 20 percent 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 calculation method specified in Section 4.303.1, Item 2, is 2.5 gpm @ 80 psi.

Verification Methods:

1. Ensure that only single shower heads are used. If more than one shower head is used per shower, verify that the flow rate is below 2.5 gpm @ 80 psi for all shower heads.
    a. Check flows rates by inspecting cut sheets; or
    b. Deliver water to a 2.5 or more gallon bucket and measure flow rates by using a timer/stop watch. In one minute the total amount of water dispensed should reach the 2.5 gallon line.

4.303.3 Plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall meet the standards referenced in Table 4.303.3.

Verification Methods:

1. Ensure that fixture and fitting schedule matches Table 4.303.3.
2. Ensure cut sheets are available for each fixture.

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:

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.

Verification Methods:

1. Irrigation Association website: http://www.irrigation.org/
2. This section refers to smart controllers. Smart controllers estimate or measure depletion of available plant soil moisture in order to operate an irrigation system, replenishing water as needed while minimizing excess water use. A properly programmed smart controller requires initial site specific set-up and will make irrigation schedule adjustments, including run times and required cycles, throughout the irrigation season without human intervention.[1]
    a. The Irrigation Association has tested and approved several smart controllers, which are listed on this link - http://www.irrigation.org/swat/control_climate/.
3. Ensure that smart controllers are installed and operating properly. (Maintenance issues and site modifications may require irrigation system repair or recalibration of the smart controller settings to optimize system performance.)
4. Review product literature of smart controllers to ensure that the product meets the intent of this section.

Division 4.4 – MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

SECTION 4.406
ENHANCED DURABILITY
AND REDUCED MAINTENANCE

4.406.1 Joints and openings. Openings in the building envelope separating conditioned space from unconditioned space needed to accommodate gas, plumbing, electrical lines and other necessary penetrations must be sealed in compliance with the *California Energy Code*.

Exception: Annular 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.

Verification Methods:

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SECTION 4.408
CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING

4.408.1 Construction waste reduction of at least 50 percent.

Recycle and/or salvage for reuse a minimum of 50 percent of the nonhazardous construction and demolition debris, or meet a local construction and demolition waste management ordinance, whichever is more stringent.

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.

[1] Irrigation Association, Definition of Smart Controller, 8-6-2007. http://www.irrigation.org

Verification Methods:

1. 50% non-hazardous diversion means that 50% of such waste shall be diverted from landfills.
2. If there is local or jurisdictional ordinance requiring 50% or greater waste diversion compliance:
    a. Typically the ordinance should at minimum satisfy the conditions in this section. If waste diversion is formally enforced by the jurisdiction and a verification process is in place, ensure that the policy is being adhered to per the ordinance/law/code etc.
    b. Compliance can be met if the jurisdiction has agreements/contracts with specific, certified waste haulers, and if using such waste haulers automatically complies with 50% or more waste diversion.
3. If jurisdiction does not have its own waste diversion program:
    a. If a contracted waste hauler is used, ask to see their policy on waste diversion and what percentage waste is diverted from landfills.
    b. If contractor is self-hauling, ask to see a list of diversion/transfer facilities and ensure that such facilities divert more than 50%.
    c. Verify waste diversion rates by reviewing waste hauling tickets from transfer facilities.

4.408.2 Construction waste management plan. Where a local jurisdiction does not have a construction and demolition waste management ordinance, a construction waste management plan shall be submitted for approval to the enforcing agency that:

1. Identifies the materials to be diverted from disposal by recycling, reuse on the project or salvage for future use or sale.
2. Specifies if materials will be sorted on-site or mixed for transportation to a diversion facility.
3. Identifies the diversion facility where the material collected will be taken.
4. Identifies construction methods employed to reduce the amount of waste generated.
5. Specifies that the amount of materials diverted shall be calculated by weight or volume, but not by both.

Verification Methods:

1. Ask to see construction waste manage plan (WMP). Ensure all subs are adhering to the plan.
2. Spot check to see if WMP implementation is consistent with the plan.
    a. Some inspection measures include – is the proper waste hauler is being used, storage and collection of materials – is landfill waste mixed with recycled waste and hazardous waste, is there proper signage instructing work crews where/how to recycle, is waste hauling being tracked or monitored, are jurisdictional codes/ordinances being met?

4.408.2.1 Documentation. Documentation shall be provided to the enforcing agency which demonstrates compliance with Section 4.408.2, Items 1 through 5. The waste management plan shall be updated as necessary and shall be accessible during construction for examination by the enforcing agency.

Verification Methods:

1. This can be verified by having plan intake personnel stamp off the waste management plan and a copy of the plan with the stamp is located in the project folder on the job site.
    a. Some inspect measures include – is the proper waste hauler is being used, storage and collection of materials – is landfill waste mixed with recycled waste and hazardous waste, is there proper signage instructing work crews where/how to recycle, is waste hauling being tracked or monitored, are jurisdictional codes/ordinances being met?

4.408.2.2 Isolated jobsites. 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.

Notes:

1. Sample forms found in Chapter 8 may be used to assist in documenting compliance with the waste management plan.
2. Mixed construction and demolition debris (C&D) processors can be located at the California Department of Resources Recycling and Recovery (CalRecycle).

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:

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.
   e. Water reuse 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 inspection verifications required by the enforcing agency or this code.

Verification Methods:

1. Operation & Maintenance manual shall be located on site at final inspection. Contractor should setup the operations manual to at minimum address the items above and also organize it in a manner that is easy to read and understand.

Division 4.5 – ENVIRONMENTAL QUALITY

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 or during storage on the construction site and until final startup of the heating and cooling 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 dust or debris which may collect in the system.

Verification Methods:

1. Have contractor provide photographic evidence or visually inspect that duct openings are sealed and that mechanical equipment is protected from dust/finish exposure.

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:

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 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 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.

Verification Methods:

1. Most Material Safety Data Sheets (MSDS) sheets have VOC material thresholds measured in grams per Liter or g/L. The VOC limits listed on the Tables below are g/L. MSDS sheets may be obtained for these materials.
2. Containers may have VOC limits on them. MSDS sheets, cut sheets or products safety sheets with VOC content should be located onsite.

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 Practice for the testing of VOCs (Specification 01350).
3. 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 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 50 percent of floor area receiving resilient flooring shall comply with the VOC emission limits defined in the Collaborative for High Performance Schools (CHPS) Low-emitting Materials List or certified under the Resilient Floor Covering Institute (RFCI) FloorScore program.

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 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:

1. Product certifications and specifications
2. Chain of custody certifications
3. Other methods acceptable to the enforcing agency

Verification Methods:

1. MSDS sheets may have VOC content or information related to product toxicity, but not necessarily whether a product has a particular environmentally friendly certification. Other acceptable documentation compliance forms may include product cut sheets, web page information that verifies requirements in this section, a letter from the manufacturer, labels on products, or other product literature.
2. All documents should be placed within the project binder and should remain on site.

The following Tables VOC Limits are in grams per Liter or g/L

TABLE 4.504.1
ADHESIVE VOC LIMIT[1,2]
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	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	CURRENT VOC LIMIT
Architectural	250
Marine deck	760
Nonmembrane roof	300
Roadway	250
Single-ply roof membrane	450
Other	420
SEALANT PRIMERS	
Architectural Nonporous Porous	 250 775
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	EFFECTIVE 1/1/2010	EFFECTIVE 1/1/2012
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	400	250
Shellacs Clear Opaque	 730 550	
Specialty primers, sealers and undercoaters	350	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.

TABLE 4.504.5
FORMALDEHYDE LIMITS[1]
Maximum Formaldehyde Emissions in Parts per Million

PRODUCT	CURRENT LIMIT	JANUARY 1, 2012	JULY 1, 2012
Hardwood plywood veneer core	0.05		
Hardwood plywood composite core	0.08		0.05
Particleboard	0.09		
Medium density fiberboard	0.11		
Thin medium density fiberboard[2]	0.21	0.13	

1. 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 1333-96(2002). For additional information, see *California Code of Regulations*, Title 17, Sections 93120 through 93120.12.
2. Thin medium density fiberboard has a maximum thickness of 8 millimeters.

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 *California Building Code*, CCR, Title 24, Part 2, Chapter 19, 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 barrier 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.

Verification Methods:

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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 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 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. 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.

Verification Methods:

1. This inspection may occur prior to walls being sealed – during, framing (flooring), drywall or electrical inspections for example.
2. Obtain a moisture reader, preferably one that is capable of producing readings electronically.

SECTION 4.506
INDOOR AIR QUALITY AND EXHAUST

4.506.1 Bathroom exhaust fans. Mechanical exhaust fans which exhaust directly from bathrooms 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 humidistat which shall be readily accessible. Humidistat controls shall be capable of adjustment between a relative humidity range of 50 to 80 percent.

Note: For the purposes of this section, a bathroom is a room which contains a bathtub, shower or tub/shower combination.

Verification Methods:

1. Verify that bathroom fans are Energy Star compliant by reviewing cut sheets, product literature or product packaging.
2. Fan should be connected to ducting that leads outside of the building or be part of a wall system that delivers air to the outside.
3. If the fan is not part of whole house ventilation, visually verify that the fan is controlled by a readily accessible humidistat.

SECTION 4.507
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.

Verification Methods:

1. Visual inspection and a test of the system shall be sufficient to demonstrate compliance.

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:

1. The heat loss and heat gain is established according to ACCA Manual J, ASHRAE handbooks or other equivalent design software or methods.
2. Duct systems are sized according to ACCA 29-D Manual D, ASHRAE handbooks or other equivalent design software or methods.
3. Select heating and cooling equipment according to ACCA 36-S Manual S or other equivalent design software or methods.

Exception: Use of alternate design temperatures necessary to ensure the systems function are acceptable.

Verification Methods:

1. Saum

CHAPTER 5
NONRESIDENTIAL MANDATORY MEASURES

SECTION 5.106
SITE DEVELOPMENT

5.106.1 Storm water pollution prevention plan. For newly constructed projects of less than one acre, develop a Storm Water Pollution Prevention Plan (SWPPP) that has been designed, specific to its site, conforming to the State Storm water NPDES Construction Permit or local ordinance, whichever is stricter, as is required for projects one acre or more. The plan should cover prevention of soil loss by stormwater run-off and/or wind erosion, of sedimentation, and/or of dust/particulate matter air pollution.

Note: Assistance with the permit may be obtained from the California State Water Resources Control Board (SWRCB) at: http://www.swrcb.ca.gov/stormwtr/, from a Regional Water Quality Control Board, and at local public works departments.

Verification Methods:

1. The plan should be approved by the jurisdiction and placed within the project binder. The plan may be checked and stormwater prevention strategies verified through site inspection.

5.106.4 Bicycle parking and changing rooms. Comply with Sections 5.106.4.1 and 5.106.4.2; or meet local ordinance or the University of California Policy on Sustainable Practices, whichever is stricter.

5.106.4.1 Short-Term bicycle parking. If the project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 100 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack.

5.106.4.2 Long-Term bicycle parking. For buildings with over 10 tenant-occupants, provide secure bicycle parking for 5 percent of motorized vehicle parking capacity, with a minimum of one space. Acceptable parking facilities shall be convenient from the street and may include:

1. Covered, lockable enclosures with permanently anchored racks for bicycles;
2. Lockable bicycle rooms with permanently anchored racks; and
3. Lockable, permanently anchored bicycle lockers.

Note: Additional information on recommended bicycle accommodations may be obtained from Sacramento Area Bicycle Advocates.

5.106.5.2 Designated parking. Provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as follows:

TABLE 5.106.5.2

TOTAL NUMBER OF PARKING SPACES	NUMBER OF REQUIRED SPACES
0–9	0
10–25	1
26–50	3
51–75	6
76–100	8
101–150	11
151–200	16
201 and over	At least 8 percent of total

5.106.5.2.1 Parking stall marking. Paint, in the paint used for stall striping, the following characters such that the lower edge of the last word aligns with the end of the stall striping and is visible beneath a parked vehicle:

CLEAN AIR
VEHICLE

Verification Methods:

1. Parking stall marking should be similar to the photo below. Signage is optional.

Figure: 5.106.A – Parking Stall Striping Example

5.106.8 Light pollution reduction. Comply with lighting power requirements in the *California Energy Code*, CCR, Part 6, and design interior and exterior lighting such that zero direct-beam illumination leaves the building site. Meet or exceed exterior light levels and uniformity ratios for lighting zones 1–4 as defined in Chapter 10 of the *California Administrative Code*, CCR, Part 1, using the following strategies:

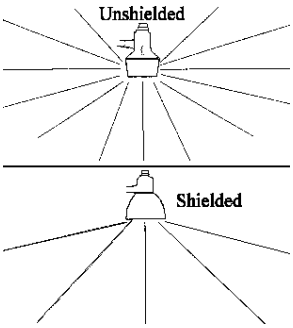
1. Shield all exterior luminaires or provide cutoff luminaires per Section 132 (b) of the *California Energy Code.*
2. Contain interior lighting within each source.
3. Allow no more than .01 horizontal lumen footcandles to escape 15 feet beyond the site boundary.
4. Automatically control exterior lighting dusk to dawn to turn off or lower light levels during inactive periods.

Exceptions:

1. Part 2, Chapter 12, Section 1205.6 for campus lighting requirements for parking facilities and walkways.
2. Emergency lighting and lighting required for nighttime security.

Verification Methods:

1. Exterior lamps/lights shall be covered so that light is not emitted up into the night sky.

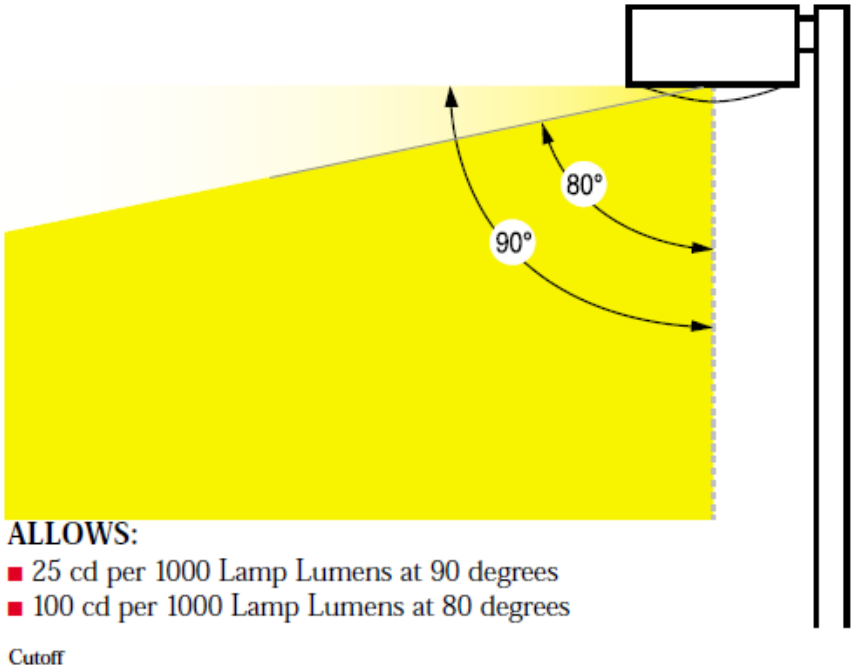


2. *Definition of Cutoff:* A luminaire light distribution where the candela per 1000 lamp lumens does not numerically exceed 25 (2.5 percent) at an angle of 90 degrees above nadir, and 100 (10 percent) at a vertical angle of 80 degrees above nadir. This applies to all lateral angles around

the luminaire. Ensure that lighting is installed in a manner that complies with the Figure 5.106.B below.

3. Use a light meter to take measurements to verify that no more than .01 horizontal lumen foot candles to escape 15 feet beyond the site boundary.

Figure: 5.106.B – Cutoff Luminary Example



Source: http://www.iesna.org/PDF/FullCutoffLighting.pdf

5.106.10 Grading and paving. The site shall be planned and developed to keep surface water from entering buildings. Construction plans shall indicate how site grading or a drainage system will manage all surface water flows.

Verification Methods:

1. If surface water has entered the building, than one can assume the site has failed to adhere to this code.

Division 5.2 – ENERGY EFFICIENCY

SECTION 5.201
GENERAL

5.201.1 Scope. For the purposes of mandatory energy efficiency standards in this code, the California Energy Commission will continue to adopt mandatory building standards.

Note: It is the intent of this code to encourage buildings to achieve exemplary performance in the area of energy efficiency. For the purposes of energy efficiency standards, the California Energy Commission believes specifically, a green building should achieve at least a 15 percent reduction in energy usage when compared to the State's mandatory energy efficiency standards.

Verification Methods:

1. Ensure that lighting meets Title-24 standards as specified in the site plans (E-Sheets). In order to encourage measures above Title-24, ensure that lighting calculations exceed Title-24 standards by 15%. A baseline calculation/chart for Title-24 should be displayed on the plans as well as calculations/charts demonstrating additional 15% improvement.
2. Verify that installed lighting meets E-Sheet plans by location and quantity.
3. Inspect fixtures to ensure that light bulb/fixture wattage meets or exceeds plan specifications.

Division 5.3 – WATER EFFICIENCY AND CONSERVATION

SECTION 5.303
INDOOR WATER USE

5.303.1 Meters. Separate meters or metering devices shall be installed for the uses described in Sections 503.1.1 and 503.1.2.

5.303.1.1 Buildings in excess of 50,000 square feet. Separate submeters shall be installed as follows:

1. For each individual leased, rented or other tenant space within the building projected to consume more than 100 gal/day.
2. For spaces used for laundry or cleaners, restaurant or food service, medical or dental office, laboratory, or beauty salon or barber shop projected to consume more than 100 gal/day.

5.303.1.2 Excess consumption. Any building within a project or space within a building that is projected to consume more than 1,000 gal/day.

Verification Methods:
Verify and inspect that submeters are installed for spaces classified above. Meter requirements should be identified during plan intake when space use types are determined.

5.303.2 Twenty percent savings. A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 20 percent shall be provided. The reduction shall be based on the maximum allowable water use per plumbing fixture and fittings as required by the *California Building Standards Code.* The 20 percent reduction in potable water use shall be demonstrated by one of the following methods:

1. Each plumbing fixture and fitting shall meet the 20 percent reduced flow rate specified in Table 5.303.2.3, or
2. A calculation demonstrating a 20 percent reduction in the building "water use baseline" as established in Table 5.303.2.2 shall be provided.

Verification Methods:

1. Review schedule of plumbing fixtures and fixture fittings and ensure that flow rates comply with Table 5.303.2; or
2. Ensure that the total building water use is at 20% below the water use baseline. The baseline is calculated by using flush/flow rates on Table 5.303.2.2.
    a. Add up all the fixture and fitting flush/flow rates. All the fixtures have to meet Table 5.303.2.2, but all of fittings/fixtures aggregated shall improve water efficiency by 20%.
    b. Ensure that one calculation for the baseline is made and ensure that another calculation using actual fittings installed is available for 20% reduction.

Provide cut sheets of fixtures that demonstrate proper flow rates. Cut sheets with photos of the fixtures are ideal since flow rates are not typically branded/stamped on fixtures/fittings. Cut sheets may originate from websites, the manufacturer or the reseller.

TABLE 5.303.2.2
INDOOR WATER USE BASELINE[4]

FIXTURE TYPE	FLOW RATE[2]	DURATION	DAILY USES	OCCUPANTS[3]
Showerheads	2.5 gpm @ 80 psi	8 min.	1	X
Lavatory faucets nonresidential	0.5 gpm @ 60 psi	.25 min.	3	X
Kitchen faucets	2.2 gpm @ 60 psi	4 min.	1	X
Replacement aerators	2.2 gpm @ 60 psi			X
Wash fountains	2.2 [rim space (in.)/20 gpm @ 60 psi]			X
Metering faucets	0.25 gallons/cycle	.25 min.	3	X
Metering faucets for wash fountains	.25 [rim space (in.)/20 gpm @ 60 psi]	.25 min.		X
Gravity tank type water closets	1.6 gallons/flush	1 flush	1 male[1] 3 female	X
Flushometer tank water closets	1.6 gallons/flush	1 flush	1 male[1] 3 female	X
Flushometer valve water closets	1.6 gallons/flush	1 flush	1 male[1] 3 female	X
Electromechanical hydraulic water closets	1.6 gallons/flush	1 flush	1 male[1] 3 female	X
Urinals	1.0 gallons/flush	1 flush	2 male	X

Fixture "Water Use" = Flow rate × Duration × Occupants × Daily uses

1. The daily use number shall be increased to three if urinals are not installed in the room.
2. The flow rate is from the CEC Appliance Efficiency Standards, Title 20, *California Code of Regulations*; where a conflict occurs, the CEC standards shall apply.
3. Refer to Table A, Chapter 4, *California Plumbing Code*, for occupant load factors.
4. Use Worksheet WS-1 to calculate base line water use.

TABLE 5.303.2.3
FIXTURE FLOW RATES

FIXTURE TYPE	FLOW RATE	MAXIMUM FLOW RATE AT 20 percent REDUCTION
Showerheads	2.5 gpm @ 80 psi	2 gpm @ 80 psi
Lavatory faucets—nonresidential	0.5 gpm @ 60 psi	0.4 gpm @ 60 psi
Kitchen faucets	2.2 gpm @ 60 psi	1.8 gpm @ 60 psi
Wash fountains	2.2 [rim space (in.)/20 gpm @ 60 psi]	1.8 [rim space (in.)/20 gpm @ 60 psi]
Metering faucets	0.25 gallons/cycle	0.2 gallons/cycle
Metering faucets for wash fountains	.25 [rim space (in.)/20 gpm @ 60 psi]	.20 [rim space (in.)/20 gpm @ 60 psi]
Gravity tank type water closets	1.6 gallons/flush	1.28 gallons/flush[1]
Flushometer tank water closets	1.6 gallons/flush	1.28 gallons/flush[1]
Flushometer valve water closets	1.6 gallons/flush	1.28 gallons/flush[1]
Electromechanical hydraulic water closets	1.6 gallons/flush	1.28 gallons/flush[1]
Urinals	1.0 gallons/flush	.5 gallons/flush

1. Includes single and dual flush water closets with an effective flush of 1.28 gallons or less:
   Single flush toilets—The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is the average flush volume when tested in accordance with ASME A 112.19.233.2.
   Dual flush toilets—The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is defined as the composite, average flush volume of two reduced flushes and one full flush. Flush volumes will be tested in accordance with ASME A 112.19.2 and ASME A 112.19.14.

5.303.2.1 Multiple showerheads serving one shower. When single shower fixtures are served by more than one showerhead, the combined flow rate of all the showerheads shall not exceed the maximum flow rates specified in the 20 percent reduction column contained in Table 5.303.2.3 or the shower shall be designed to only allow one showerhead to be in operation at a time.

Exception: The maximum flow rate for shower heads when using the calculation method specified in Section 5.303.2, Item 2 is 2.5 gpm @ 80 psi.

Verification Methods:

1. Ensure that only single shower heads are used. If more than one shower head is used per shower, verify that the flow rate is below 2.5 gpm @ 80 psi for all shower heads.
    a. Check flows rates by inspecting cut sheets; or
    b. Deliver water to a 2.5 or more gallon bucket and measure flow rates by using a timer/stop watch. In one minute the total amount of water dispensed should reach the 2.5 gallon line.

5.303.4 Wastewater reduction. Each building shall reduce by 20 percent wastewater by one of the following methods:

1. [DSA-SS] The installation of water-conserving fixtures (water closets, urinals) meeting the criteria established in sections 5.303.2 or 5.303.3 or
2. Utilizing nonpotable water systems [captured rainwater, graywater, and municipally treated wastewater (recycled water) complying with the current edition of the California Plumbing Code or other methods described in Section A5.304].

5.303.6 Plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall meet the standards referenced in Table 5.303.6.

TABLE 5.303.6
STANDARDS FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

REQUIRED STANDARDS	
Water closets (toilets) – flushometer valve type single flush, maximum flush volume	ASME A 112.19.2/ CSA B45.1 – 1.28 gal (4.8 L)
Water closets (toilets) – flushometer valve type dual flush, maximum flush volume	ASME A 112.19.14 and USEPA WaterSense Tank-Type High-Efficiency Toilet Specification – 1.28 gal (4.8 L)
Water closets (toilets) – tank-type	U.S. EPA WaterSense Tank-Type High-Efficiency Toilet Specification
Urinals, maximum flush volume	ASME A 112.19.2/ CSA B45.1 – 0.5 gal (1.9 L)
Urinals, nonwater urinals	ASME A 112.19.19 (vitreous china) ANSI Z124.9-2004 or IAPMO Z124.9 (plastic)
Public lavatory faucets: Maximum flow rate – 0.5 gpm (1.9 L/min)	ASME A 112.18.1/CSA B125.1
Public metering self-closing faucets: Maximum water use – 0.25 gal (1.0 L) per metering cycle	ASME A 112.18.1/CSA B125.1
Residential bathroom lavatory sink faucets: Maximum flow rate – 1.5 gpm (5.7 L/min)[1]	ASME A 112.18.1/CSA B125.1

SECTION 5.304
OUTDOOR WATER USE

5.304.1 Water budget. A water budget shall be developed for landscape irrigation use that conforms to the local water efficient landscape ordinance or to the California Department of Water Resources Model Water Efficient Landscape Ordinance where no local ordinance is applicable.

Note: Prescriptive measures to assist in compliance with the water budget are listed in Sections 492.5 through 492.8, 492.10 and 492.11 of the ordinance, which may be found at: http://www.owue.water.ca.gov/landscape/ord/ord.cfm. (BROKEN LINK)

5.304.2 Outdoor potable water use. For new water service for landscaped areas between 1,000 square feet and 5,000 square feet (the level at which *Water Code* §535 applies), separate meters or submeters shall be installed for indoor and outdoor potable water use.

5.304.3 Irrigation design. In new nonresidential construction with between 1,000 and 2,500 square feet of landscaped area (the level at which the MLO applies), install irrigation controllers and sensors which include the following criteria, and meet manufacturer's recommendations.

5.304.3.1 Irrigation controllers. Automatic irrigation system controllers 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.

Verification Methods:

1. California Department of Water Resources Model Water Efficient Landscape Ordinance: http://www.water.ca.gov/wateruseefficiency/landscapeordinance/
2. Irrigation Association website: http://www.irrigation.org/
3. Verify that irrigation is installed as designed from plans that meet local or State mandated irrigation design requirements.
4. Ensure that irrigation/smart controllers and sensors are installed and operating properly. (Maintenance issues and site modifications may require irrigation system repair or recalibration of the smart controller settings to optimize system performance.)
5. Review product literature of smart controllers and sensors to ensure that the product meets the intent of this section.

Division 5.4 – MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

SECTION 5.407
WATER RESISTANCE AND MOISTURE MANAGEMENT

5.407.1 Weather protection. Provide a weather-resistant exterior wall and foundation envelope as required by *California Building Code* Section 1403.2 (Weather Protection) and *California Energy Code*

Section 150, (Mandatory Features and Devices), manufacturer's installation instructions or local ordinance, whichever is more stringent.

5.407.2 Moisture control. Employ moisture control measures by the following methods.

5.407.2.1 Sprinklers. Design and maintain landscape irrigation systems to prevent spray on structures.

5.407.2.2 Entries and openings. Design exterior entries and/or openings subject to foot traffic or wind-driven rain to prevent water intrusion into buildings.

Notes:

1. Use features such as overhangs and recesses, and flashings integrated with a drainage plane.
2. Use nonabsorbent floor and wall finishes within at least two feet around and perpendicular to such openings.

Verification Methods:

1. The design and construction team shall plan for and install appropriate water resistance and moisture management strategies based on requirements set forth in the following codes - *California Building Code* Section 1403.2 (Weather Protection) and *California Energy Code* Section 150 manufacturer's installation instructions or local ordinance, whichever is more stringent.
    a. These measures can be identified in the owner's project requirements (OPR) documentation and/or on plan intake set.
    b. Verify these measures have been implemented/installed.
2. While testing landscape irrigation systems, ensure water is not spraying onto the structure and verify proper buffering between the structure and wet soil, moisture from plants coming into contact with the building, etc.

SECTION 5.408
CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING

5.408.1 Construction waste diversion. Establish a construction waste management plan for the diverted materials, or meet local construction and demolition waste management ordinance, whichever is more stringent.

5.408.2 Construction waste management plan. Where a local jurisdiction does not have a construction and demolition waste management ordinance, submit a construction waste management plan for approval by the enforcement agency that:

1. Identifies the materials to be diverted from disposal by efficient usage, recycling, reuse on the project or salvage for future use or sale.
2. Determines if materials will be sorted on-site or mixed.
3. Identifies diversion facilities where material collected will be taken.
4. Specifies that the amount of materials diverted shall be calculated by weight or volume, but not by both.

Verification Methods:

1. Ask to see construction waste manage plan (WMP). Ensure all subs are adhering to the plan.
    a. Subs should receive copies of the plan and communication strategies such as signage, weekly tailgate meetings should be implemented to ensure the plan is being followed.
2. Spot check to see if WMP implementation is consistent with the plan.

b. Some inspection measures include – is the proper waste hauler is being used, storage and collection of materials – is landfill waste mixed with recycled waste and hazardous waste, is there proper signage instructing work crews where/how to recycle, is waste hauling being tracked or monitored, are jurisdictional codes/ordinances being met?

5.408.2.1 Documentation. Documentation shall be provided to the enforcing agency which demonstrates compliance with Section 5.408.2, Items 1 thru 4. The waste management plan shall be updated as necessary and shall be accessible during construction for examination by the enforcing agency.

Verification Methods:

1. This can be verified by having plan intake personnel stamp off the waste management plan and a stamped copy is located in the project folder on the job site.
    a. Updates of the plan to be documented and remain on site.

Exception: [DSA-SS] Jobsites in areas where there is no mixed construction and demolition debris (C&D) processor or recycling facilities within a feasible haul distance shall meet the requirements as follows:

1. The enforcement agency having jurisdiction shall at its discretion, enforce the waste management plan and make exceptions as deemed necessary.

5.408.2.2 Isolated jobsites. 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.

Notes:

2. Sample forms found in Chapter 8 may be used to assist in documenting compliance with the waste management plan.
3. Mixed construction and demolition debris (C&D) processors can be located at the California Department of Resources Recycling and Recovery (CalRecycle).

5.408.3 Construction waste reduction of at least 50 percent.

Recycle and/or salvage for reuse a minimum of 50 percent of the non-hazardous construction and demolition debris, or meet a local construction and demolition waste management ordinance, whichever is more stringent. Calculate the amount of materials diverted by weight or volume, but not by both.

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.

Verification Methods:

1. 50% non-hazardous diversion means that 50% of such waste shall be diverted from landfills.
2. If there is local or jurisdictional ordinance requiring 50% or greater waste diversion compliance:
    a. Typically the ordinance should at minimum satisfy the conditions in this section. If waste diversion is formally enforced by the jurisdiction and a verification process is in place, ensure that the policy is being adhered to per the ordinance/law/code etc.
    b. Compliance can be met if the jurisdiction has agreements/contracts with specific, certified waste haulers, and if using such waste haulers automatically complies with 50% or more waste diversion

c. Make sure calculations either by weight or by volume remain consistent throughout the tracking period e.g. if waste hauling tickets are reported in Tons, measure all waste hauling debris in Tons.

3. If jurisdiction does not have its own waste diversion program:
    a. If a contracted waste hauler is used, ask to see their policy on waste diversion and what percentage waste is diverted from landfills.
    b. If contractor is self-hauling, ask to see a list of diversion/transfer facilities and ensure that such facilities divert more than 50%.
    c. Verify waste diversion rates by reviewing waste hauling tickets from transfer facilities.

5.408.4 Excavated soil and land clearing debris. 100 percent of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed.

Verification Methods:

1. Section 5.408.4 should be added to the waste management plan. Stock piling on site, reusing (mulching, replanting, donating, etc.) should be addressed in the plan and implemented.

SECTION 5.410
BUILDING MAINTENANCE AND OPERATION

5.410.1 Recycling by occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics and metals.

5.410.1.1 Sample ordinance. Space allocation for recycling areas shall comply with Chapter 18, Part 3, Division 30 of the *Public Resources Code.* Chapter 18 is known as the California Solid Waste Reuse and Recycling Access Act of1991 (Act).

Verification Methods:

1. Some municipalities have recycling contracts in place that can serve the site. Some building locations may not have recycling services that serve the site; however, space allocation for recycling areas are still required.
2. Verify that space has been designated for the collection and storage of recyclable materials.

Note: A sample ordinance for use by local agencies may be found in Appendix A of the document at the CalRecycle's web site.

5.410.2 Commissioning. For new buildings 10,000 square feet and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements. Commissioning shall be performed in accordance with this section by trained personnel with experience on projects of comparable size and complexity. Commissioning requirements shall include:

1. Owner's or Owner representative's project requirements
2. Basis of design
3. Commissioning measures shown in the construction documents
4. Commissioning plan
5. Functional performance testing
6. Documentation and training

7. Commissioning report

All building systems and components covered by Title 24, Part 6, as well as process equipment and controls, and renewable energy systems shall be included in the scope of the Commissioning Requirements.

5.410.2.1 Owner's or Owner representative's Project Requirements (OPR). The expectations and requirements of the building appropriate to its phase shall be documented before the design phase of the project begins. This documentation shall include the following:

1. Environmental and sustainability goals
2. Energy efficiency goals
3. Indoor environmental quality requirements
4. Project program, including facility functions and hours of operation, and need for after hours operation
5. Equipment and systems expectations
6. Building occupant and operation and maintenance (O&M) personnel expectations

5.410.2.2 Basis of Design (BOD). A written explanation of how the design of the building systems meets the OPR shall be completed at the design phase of the building project, and updated as necessary during the design and construction phases. The Basis of Design document shall cover the following systems:

1. Heating, ventilation, air conditioning (HVAC) systems and controls
2. Indoor lighting system and controls
3. Water heating system
4. Renewable energy systems
5. Landscape irrigation systems
6. Water reuse systems

5.410.2.3 Commissioning plan. Prior to permit issuance a commissioning plan shall be completed to document how the project will be commissioned and shall be started during the design phase of the building project. The Commissioning Plan shall include the following:

1. General project information
2. Commissioning goals
3. Systems to be commissioned. Plans to test systems and components shall include:
    a. An explanation of the original design intent
    b. Equipment and systems to be tested, including the extent of tests
    c. Functions to be tested
    d. Conditions under which the test shall be performed
    e. Measurable criteria for acceptable performance
    f. Commissioning team information Commissioning process activities, schedules and responsibilities. Plans for the completion of commissioning requirements listed in Sections 5.410.2.4 through 5.410.2.6 shall be included

5.410.2.4 Functional performance testing. Functional performance tests shall demonstrate the correct installation and operation of each component, system and systemto- system interface in accordance with the approved plans and specifications. Functional performance testing reports shall contain information addressing each of the building components tested, the testing methods utilized, and include any readings and adjustments made.

5.410.2.5 Documentation and training. A Systems Manual and Systems Operations Training are required, including Occupational Safety and Health Act (OSHA) requirements in *California Code of Regulations* (CCR), Title 8, Section 5142, and other related regulations.

5.410.2.5.1 Systems manual. Documentation of the operational aspects of the building shall be completed within the Systems Manual and delivered to the building owner or representative and facilities operator. The Systems Manual shall include the following:

1. Site information, including facility description, history and current requirements
2. Site contact information
3. Basic operations and maintenance, including general site operating procedures, basic troubleshooting, recommended maintenance requirements, site events log
4. Major systems
5. Site equipment inventory and maintenance notes
6. A copy of all special inspection verifications required by the enforcing agency or this code
7. Other resources and documentation

5.410.2.5.2 Systems operations training. The training of the appropriate maintenance staff for each equipment type and/or system shall be documented in the commissioning report and shall include the following:

1. System/equipment overview (what it is, what it does and with what other systems and/or equipment it interfaces)
2. Review and demonstration of servicing/preventive maintenance
3. Review of the information in the Systems Manual
4. Review of the record drawings on the system/ equipment

5.410.2.6 Commissioning report. A complete report of commissioning process activities undertaken through the design, construction and reporting recommendations for postconstruction phases of the building project shall be completed and provided to the owner or representative.

5.410.4 Testing and adjusting. Testing and adjusting of systems shall be required for buildings less than 10,000 square feet.

5.410.4.2 Systems. Develop a written plan of procedures for testing and adjusting systems. Systems to be included for testing and adjusting shall include at a minimum, as applicable to the project:

1. HVAC systems and controls
2. Indoor and outdoor lighting and controls
3. Water heating systems
4. Renewable energy systems
5. Landscape irrigation systems
6. Water reuse systems

5.410.4.3 Procedures. Perform testing and adjusting procedures in accordance with industry best practices and applicable standards on each system as determined by the building official.

5.410.4.3.1 HVAC balancing. In addition to testing and adjusting, before a new space-conditioning system serving a building or space is operated for normal use, the system shall be balanced in accordance with the procedures defined by the Testing Adjusting and Balancing Bureau National Standards; the National Environmental Balancing Bureau Procedural Standards; or Associated Air Balance Council National Standards or as approved by the building official.

5.410.4.4 Reporting. After completion of testing, adjusting and balancing, provide a final report of testing signed by the individual responsible for performing these services.

5.410.4.5 Operation and maintenance (O &M) manual. Provide the building owner or representative with detailed operating and maintenance instructions and copies of guaranties/ warranties for each system. O &M instructions shall be consistent with OSHA requirements in CCR, Title 8, Section 5142, and other related regulations.

5.410.4.5.1 Inspections and reports. Include a copy of all inspection verifications and reports required by the enforcing agency.

Verification Methods:

1. Ensure that the documentation above is approved through the intake process and is located on site or within the project folder.
2. The commissioning report should be signed off by an authorized commissioning agent who has verified that building systems are operating as prescribed on the owner's project requirements (OPR) and in the basis of design (BOD).

Division 5.5 – ENVIRONMENTAL QUALITY

SECTION 5.503
FIREPLACES

5.503.1 General. Install only a direct-vent sealed-combustion gas or sealedwood-burning fireplace, or a sealedwoodstove or pellet stove, and refer to residential requirements in the *California Energy Code*, Title 24, Part 6, Subchapter 7, Section 150. Woodstoves, pellet stoves and fireplaces shall comply with applicable local ordinances.

5.503.1.1 Woodstoves. Woodstoves and pellet stoves shall comply with U.S. EPA Phase II emission limits.

Verification Methods:

1. Plan intake process should either allow or disallow fireplaces. If such fireplaces are permitted, ensure that proper approval to install is granted and that the characteristics of the fireplace meet the conditions above.

Division 5.5 – ENVIRONMENTAL QUALITY

SECTION 5.504
POLLUTANT CONTROL

5.504.3 Covering of duct openings and protection of mechanical equipment during construction. At the time of rough installation, or during storage on the construction site and until final startup of the heating and cooling 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 dust or debris which may collect in the system.

Verification Methods:

1. Have contractor provide photographic evidence or visually inspect that duct openings are sealed and that mechanical equipment is protected from dust/finish exposure.

5.504.4 Finish material pollutant control. Finish materials shall comply with Sections 5.504.4.1 through 5.504.4.4.

5.504.4.1 Adhesives, sealants and caulks. Adhesives, sealants, and caulks used on the project shall meet the requirements of the following standards:

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 1168VOClimits, as shown in Tables 5.504.4.1 and 5.504.4.2. 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 weighmore than one 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.

TABLE 5.504.4.1
ADHESIVE VOC LIMIT[1,2]
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	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 adhesive 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, http://www.arb.ca.gov/DRDB/SC/CURHTML/R1168.PDF.

TABLE 5.504.4.2
SEALANT VOC LIMIT
Less Water and Less Exempt Compounds in Grams per Liter

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

Note: For additional information regarding methods to measure the VOC content specified in these tables, see South Coast Air Quality Management District Rule 1168.

5.504.4.3 Paints and coatings. Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Coatings Suggested Control Measure, as shown in Table 5.504.4.3, 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 5.504.4.3 shall be determined by classifying the coating as a Flat, Nonflat or Nonflat-High Gloss coating, based on its gloss, as defined in Subsections 4.21, 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 5.504.4.3 shall apply.

5.504.4.3.1 Aerosol paints and coatings. Aerosol paints and coatings shall meet the PWMIR 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.

TABLE 5.504.4.3
VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS[2, 3]
Grams of VOC Per Liter of Coating,
Less Water and Less Exempt Compounds

COATING CATEGORY	EFFECTIVE 1/1/2010	EFFECTIVE 1/1/2012
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	400	250
Shellacs: Clear Opaque	 730 550	
Specialty primers, sealers and undercoaters	350	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.

5.504.4.3.2 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

5.504.4.4 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 Practice for the testing of VOCs (Specification 01350).
3. NSF/ANSI 140 at the Gold level.
4. Scientific Certifications Systems Sustainable Choice.

5.504.4.4.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label program.

5.504.4.4.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 5.504.4.1.

5.504.4.5 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 those sections, as shown in Table 5.504.4.5.

TABLE 5.504.4.5
FORMALDEHYDE LIMITS[1]
Maximum Formaldehyde Emissions in Parts per Million.

PRODUCT	CURRENT LIMIT	JAN 1, 2012	JUL 1, 2012
Hardwood plywood veneer core	0.05		
Hardwood plywood composite core	0.08		0.05
Particle board	0.09		
Medium density fiberboard	0.11		
Thin medium density fiberboard[2]	0.21	0.13	

1. 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 1333-96 (2002). For additional information, see *California Code of Regulations*, Title 17, Sections 93120 through 93120.12.
2. Thin medium density fiberboard has a maximum thickness of eight millimeters.

5.504.4.5.2 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. Other methods acceptable to the enforcing agency

5.504.4.6 Resilient flooring systems. For 50 percent of floor area receiving resilient flooring, install resilient flooring complying with the VOC-emission limits defined in the 2009 Collaborative for High Performance Schools (CHPS) criteria and listed on its Low-emitting Materials List (or Product Registry) or

certified under the Resilient Floor Covering Institute (RFCI) FloorScore program. **[DSA-SS]** Documentation shall be provided that verifies that finish materials are certified to meet the pollutant emission limits.

5.504.4.6.1 Verification of compliance. Documentation shall be provided verifying that resilient flooring materials meet the pollutant emission limits.

Notes:

1. CHPS Low-emitting Materials List may be found at www.chpregistry.com/live or http://www.chps.net/dev/Drupal/node/381.
2. [DSA-SS] Products certified under the FloorScore program may be found at: http://www.rfci.com/ int_FS-ProdCert.htm.
3. Products certified under the Greenguard Children & Schools program and compliant with CHPS criteria may be found at: http://www.greenguard.org/Default.aspx?tabid=135.

Verification Methods:

1. Most Material Safety Data Sheets (MSDS) sheets have VOC material thresholds measured in grams per Liter or g/L. The VOC limits listed on the Tables below are g/L. MSDS sheets may be obtained for these materials.
2. Containers may have VOC limits on them. MSDS sheets, cut sheets or products safety sheets with VOC content should be located onsite.
3. MSDS sheets may have VOC content or information related to product toxicity, but not necessarily whether a product has a particular environmentally friendly certification. Other acceptable documentation compliance forms may include product cut sheets, web page information that verifies requirements in this section, a letter from the manufacturer, labels on products, or other product literature.
4. All documents should be placed within the project binder and should remain on site.

5.504.5.3 Filters. In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air prior to occupancy that provides at least a Minimum Efficiency Reporting Value (MERV) of 8.

Verification Methods:

1. Ask to see cute sheets, filters with the MERV ratings listed on them or packaging.

5.504.7 Environmental tobacco smoke (ETS) control. Where outdoor areas are provided for smoking, prohibit smoking within 25 feet of building entries, outdoor air intakes and operable windows and in buildings; or as enforced by ordinances, regulations or policies of any city, county, city and county, California Community College, campus of the California State University, or campus of the University of California, whichever are more stringent. When ordinances, regulations or policies are not in place, post signage to inform building occupants of the prohibitions.

Verification Methods:

1. Smoking areas may be located on plans. Cross reference and ensure that 25’ of space is available between smoking area and building openings.

SECTION 5.505
INDOOR MOISTURE CONTROL

5.505.1 Indoor moisture control. Buildings shall meet or exceed the provisions of *California Building Code*, CCR, Title 24, Part 2, Sections 1203 (Ventilation) and Chapter 14 (Exterior Walls). For additional measures not applicable to low-rise residential occupancies, see Section 5.407.2 of this code.

SECTION 5.506
INDOOR AIR QUALITY

5.506.1 Outside air delivery. For mechanically or naturally ventilated spaces in buildings, meet the minimum requirements of Section 121 (Requirements For Ventilation) of the *California Energy Code*, CCR, Title 24, Part 6, or the applicable local code, whichever is more stringent, and Chapter 4 of CCR, Title 8.

Verification Methods:

1. This Section should be addressed in commissioning documents and should be listed in the OPR and BOD documents. Functional performance testing which is typically performed through building commissioning should be able to address whether this Section is satisfied or not.
2. Check commissioning report or the mechanical plans and verify minimum air delivery is met.

5.506.2 Carbon dioxide (CO2) monitoring. For buildings equipped with demand control ventilation, CO2 sensors and ventilation controls shall be specified and installed in accordance with the requirements of the current edition of the *California Energy Code*, CCR, Title 24, Part 6, Section 121(c).

Verification Methods:

1. Ensure that CO2 sensors are installed and working properly.

SECTION 5.507
ENVIRONMENTAL COMFORT

5.507.4 Acoustical control. Employ building assemblies and components with Sound Transmission Coefficient (STC) values determined in accordance with ASTM E 90 and ASTM E413.

5.507.4.1 Exterior noise transmission. Wall and roof-ceiling assemblies making up the building envelope shall have an STC of at least 50, and exterior windows shall have a minimum STC of 30 for any of the following building locations:

1. Within 1,000 ft (300 m) of right of ways of freeways.
2. Within 5 mi. (8 km) of airports serving more than 10,000 commercial jets per year.
3. Where sound levels at the property line regularly exceed 65 decibels, other than occasional sound due to church bells, train horns, emergency vehicles and public warning systems.

Verification Methods:

1. Verify through review of materials list or inspect stored on site materials

Exception: Buildings with few or no occupants and where occupants are not likely to be affected by exterior noise, as determined by the enforcement authority, such as factories, stadiums, storage, enclosed parking structures and utility buildings.

SECTION 5.508
OUTDOOR AIR QUALITY

5.508.1 Ozone depletion and greenhouse gas reductions.

Installations of HVAC, refrigeration and fire suppression equipment shall comply with Sections 5.508.1.1 and 5.508.1.2.

5.508.1.1 Chlorofluorocarbons (CFCs). Install HVAC, refrigeration and fire suppression equipment that do not contain CFCs.

5.508.1.2 Halons. Install HVAC, refrigeration and fire suppression equipment that do not contain Halons.

Verification Methods:

1. Inspect equipment and review equipment specification documents to ensure compliance with this Section.