SECTION 4.101 GENERAL

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

SECTION 4.102 DEFINITIONS

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

FRENCH DRAIN.

WATTLES.

SECTION 4.103 SITE SELECTION

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 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 con**struction.** 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

- 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
- 3. 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 methods to manage surface water include, but are not limited to, the following:

- 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. Exception: Additions and alterations not altering the

4.106.4 Electric vehicle (EV) charging for new construc**tion.** New construction shall comply with Section 4.106.4.1, 4.106.4.2, or 4.106.4.3, 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:

- 1. Where there is no commercial power supply.
- 2. 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 homeowner 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 spaces (EV spaces) capable of supporting future EVSE. Calculations for the required number of EV spaces 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 EV spaces to be constructed or available until EV chargers are installed for use.

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

- When EV chargers are installed, EV spaces required by Section 4.106.4.2.2, Item 3, shall comply with at least one of the following options:
- 1. The EV space 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.
- 2. The EV space 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 space (EV **space**) **dimensions.** The EV spaces shall be designed to comply with the following:

- 1. The minimum length of each EV space shall be 18 feet (5486 mm).
- 2. The minimum width of each EV space shall be 9 feet (2743 mm).
- 3. One in every 25 EV spaces, but not less than one, 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 EV space is 12 feet (3658 mm).
- a. Surface slope for this EV space 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 EV space 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 EV space. 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 EV spaces required. Construction documents shall indicate the raceway termination point and proposed location of future EV spaces 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 EV spaces at the full rated amperage of the EVSE. Plan design shall be based upon a 40-ampere minimum branch circuit. Required 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.

1. 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/ trafficops/policy/13-01.pdf

2. See Vehicle Code Section 22511 for EV charging space signage in off-street parking facilities and for use of EV charging spaces.

3. 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.

4.106.4.3 New hotels and motels. All newly constructed hotels and motels shall provide EV spaces capable of supuments shall identify the location of the EV spaces.

- 1. Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging.
- 2. There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use.

4.106.4.3.1 Number of required EV spaces. The number of required EV spaces shall be based on the total number of parking spaces provided for all types of parking facilities in accordance with Table 4.106.4.3.1. Calculations for the required number of EV spaces | |

shall be rounded up to the nearest whole number. **TABLE 4.106.4.3.1**

TOTAL NUMBER OF PARKING SPACES	NUMBER OF REQUIRED EV SPACES	
0–9	0	
10-25	1	
26-50	2	
51-75	4	
76–100	5	
101-150	7	
151-200	10	
201 and over	6 percent of total	

4.106.4.3.2 Electric vehicle charging space (EV **space**) **dimensions.** The EV spaces shall be designed to comply with the following:

1. The minimum length of each EV space shall be 18 feet (5486 mm).

2. The minimum width of each EV space shall be 9 feet (2743 mm).

accordance with Section 4.106.4.2.3. 4.106.4.3.4 Multiple EV spaces required. When multiple EV spaces are required, the EV spaces shall be designed in accordance with Section 4.106.4.2.4. **4.106.4.3.5 Identification.** The service panels or sub-

4.106.4.3.3 Single EV space required. When a single

EV space is required, the EV space shall be designed in

panels shall be identified in accordance with Section 4.106.4.2.5. 4.106.4.3.6 Accessible EV spaces. In addition to the requirements in Section 4.106.4.3, EV spaces for hotels/motels and all EVSE, when installed, shall comply with the accessibility provisions for EV charging

stations in the *California Building Code*, Chapter 11B.

1. 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/ trafficops/policy.html.

2. See Vehicle Code Section 22511 for EV charging space signage in off-street parking facilities and for use of EV charging spaces.

3. 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: https://opr.ca.gov/docs/ZEV_Guidebook.pdf.

4. The Governor's Interagency Working Group on Zero-Emission Vehicles, 2016, "2016 ZEV Action Plan, An Updated Roadmap toward 1.5 Million Zero-Emission Vehicles on California Roadways by 2025." https://www.gov.ca.gov/ docs/2016_ZEV_Action_Plan.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 CONSERVA-

SECTION 4.301 GENERAL

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

SECTION 4.302 DEFINITIONS

SECTION 4.303 **INDOOR WATER USE**

(faucets and showerheads) shall comply with the following: mance criteria of the U.S. EPA WaterSense Specification

exceed 0.5 gallons per flush. **4.303.1.3** Showerheads.

4.303.1.3.2 Multiple showerheads serving one

Note: A hand-held shower shall be considered a showerhead

4.303.1.4.1 Residential lavatory faucets. The maximum flow rate of residential lavatory faucets shall not exceed 1.2 gallons per minute at 60 psi. The minimum flow rate of residential lavatory faucets shall not be less than 0.8 gallons per minute at 20 psi.

4.303.1.4.2 Lavatory faucets in common and public **use areas.** The maximum flow rate of lavatory faucets installed in common and public use areas (outside of dwellings or sleeping units) in residential buildings shall not exceed 0.5 gallons per minute at 60 psi.

4.303.1.4.3 Metering faucets. Metering faucets when installed in residential buildings shall not deliver more than 0.25 gallons per cycle. **4.303.1.4.4 Kitchen faucets.** The maximum flow rate

of kitchen faucets shall not exceed 1.8 gallons per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per minute at 60 psi.

tors 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 1701.1 of the California Plumbing Code.

SECTION 4.304 OUTDOOR WATER USE

4.304.1 Outdoor potable water use in landscape areas. After December 1, 2015, new residential developments with an aggregate landscape area equal to or greater than 500

square feet shall comply with one of the following options: 1. A local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO),

2. Projects with aggregate landscape areas less than 2,500 square feet may comply with the MWELO's Appendix D Prescriptive Compliance Option.

1. The Model Water Efficient Landscape Ordinance (MWELO) and supporting documents are available at: http://www.water.ca.gov/wateruseefficiency/ landscapeordinance/

2. A water budget calculator is available at: http:// www.water.ca.gov/wateruseefficiency/landscapeordi-

SECTION 4.305 WATER REUSE SYSTEMS

4.305.1 Recycled water supply systems. Newly constructed residential developments, where disinfected tertiary recycled water is available from a municipal source to a construction site, may be required to have recycled water supply systems installed, allowing the use of recycled water for residential landscape irrigation systems. See Chapter 15 of the California Plumbing Code.

Division 4.4 - MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

4.401.1 Scope. The provisions of this chapter shall outline means of achieving material conservation and resource efficiency through protection of buildings 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

SECTION 4.406 ENHANCED DURABILITY

(Reserved)

AND REDUCED MAINTENANCE

4.406.1 Rodent proofing. Annular spaces around pipes, electric cables, conduits or other openings in sole/bottom 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

SECTION 4.407 WATER RESISTANCE AND MOISTURE MANAGEMENT (Reserved)

SECTION 4.408

CONSTRUCTION WASTE REDUCTION,

DISPOSAL AND RECYCLING

salvage for reuse a minimum of 65 percent of the nonhazard-

ous 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 manage-

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

requirements of this section when isolated jobsites

are located in areas beyond the haul boundaries of

3. The enforcing agency may make exceptions to the

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

1. Identify the construction and demolition waste materi-

2. Specify if construction and demolition waste materials

3. Identify diversion facilities where the construction and

4. Identify construction methods employed to reduce the

5. Specify that the amount of construction and demolition

4.408.3 Waste management company. Utilize a waste man-

agement company, approved by the enforcing agency, which

can provide verifiable documentation that the percentage of

construction and demolition waste material diverted from the

Note: The owner or contractor may make the determina-

tion if the construction and demolition waste materials will

4.408.4 Waste stream reduction alternative [LR]. Projects

that generate a total combined weight of construction and

exceed 3.4 pounds per square foot of the building area shall

demolition waste disposed of in landfills, which do not

meet the minimum 65 percent construction waste reduction

4.408.4.1 Waste stream reduction alternative. Projects

that generate a total combined weight of construction and

demolition waste disposed of in landfills, which do not

1. Sample forms found in "A Guide to the California

Green Building Standards Code (Residential)"

located at www.hcd.ca.gov/CALGreen.html may be

used to assist in documenting compliance with this

2. Mixed construction and demolition debris (C&D)

SECTION 4.409

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 refer-

ence or other media acceptable to the enforcing agency which

1. Directions to the owner or occupant that the manual

2. Operation and maintenance instructions for the fol-

a. Equipment and appliances, including water-saving

devices and systems, HVAC systems, photovoltaic

systems, electric vehicle chargers, water-heating

systems and other major appliances and equipment.

b. Roof and yard drainage, including gutters and down-

c. Space conditioning systems, including condensers

3. Information from local utility, water and waste recov-

4. Public transportation and/or carpool options available

ery providers on methods to further reduce resource

consumption, including recycle programs and loca-

shall remain with the building throughout the life

includes all of the following shall be placed in the building:

LIFE CYCLE ASSESSMENT

processors can be located at the California Depart-

ment of Resources Recycling and Recovery (CalRe-

exceed 2 pounds per square foot of the building area, shall

be diverted by a waste management company.

amount of construction and demolition waste gener-

waste materials diverted shall be calculated by weight

als to be diverted from disposal by recycling, reuse on

will be sorted on-site (source-separated) or bulk mixed

construction for examination by the enforcing agency.

the project or salvage for future use or sale.

demolition waste material will be taken.

or volume, but not by both

landfill complies with Section 4.408.1.

requirement in Section 4.408.1.

1. Excavated soil and land-clearing debris.

the diversion facility.

(single stream).

ment ordinance.

Exceptions:

4.408.1 Construction waste management. Recycle and/or

4.302.1 Definitions. Reserved.

4.303.1 Water conserving plumbing fixtures and fittings.

Plumbing fixtures (water closets and urinals) and fittings **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 perfor-

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 wallmounted urinals shall not exceed 0.125 gallons per flush. The effective flush volume of all other urinals shall not

4.303.1.3.1 Single showerhead. Showerheads shall have a maximum flow rate of not more than 1.8 gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads.

shower. When a shower is served by more than one showerhead, the combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi, or the shower shall be designed to allow only one shower outlet to be in operation at a time.

4.303.1.4 Faucets.

meet the minimum 65-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 Sec-**Note:** Where complying faucets are unavailable, aera-

whichever is more stringent; or

SECTION 4.401 GENERAL

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.

cycle of the structure.

and air filters.

e. Water reuse systems.

d. Landscape irrigation systems.

6. Information about water-conserving landscape and irrigation design and controllers which conserve 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.

4.410.2 Recycling by occupants. Where 5 or more multifamily dwelling units are constructed on a building site, provide readily accessible area(s) that serves all buildings on the site and is identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals, or meet a lawfully enacted local recycling ordinance, if more restrictive.

Exception: Rural jurisdictions that meet and apply for the exemption in Public Resources Code Section 42649.82 (a)(2)(A) et seq. are not required to comply with the organic waste portion of this section.

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

AGRIFIBER PRODUCTS. COMPOSITE WOOD PRODUCTS. DIRECT-VENT APPLIANCE.

VOC.

MAXIMUM INCREMENTAL REACTIVITY (MIR). MOISTURE CONTENT. PRODUCT-WEIGHTED MIR (PWMIR). REACTIVE ORGANIC COMPOUND (ROC).

SECTION 4.503 FIREPLACES

4.503.1 General. Any installed gas fireplace shall be a directvent sealed-combustion type. Any installed woodstove or pellet stove shall comply with U.S. EPA New Source Performance Standards (NSPS) emission limits as applicable, and shall have a permanent label indicating they are certified to meet the emission limits. Woodstoves, pellet stoves and fireplaces shall also comply with 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 storage on the construction site and until final startup of the heating, cooling and ventilating equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other methods acceptable to the enforcing agency to reduce the amount of water, dust and debris, which may enter

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 strin-

gent 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

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)(2) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(e)(1) and (f)(1) 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.

TABLE 4.504.1

ADHESIVE VOC LIMIT^{1, 2}

TABLE CONTINUED →

Less Water and Less Exempt Compounds in Grams per Liter ARCHITECTURAL APPLICATIONS VOC LIMIT loor carpet adhesives Carpet pad adhesives 150 Outdoor carpet adhesives Wood flooring adhesive 100 Rubber floor adhesives

Subfloor adhesives

Cove base adhesives

Ceramic tile adhesives

VCT and asphalt tile adhesives

Drywall and panel adhesives

CONTINUED → **TABLE 4.504.1**

ADHESIVE VOC LIMIT ^{1, 2} Less Water and Less Exempt Compounds in Grams per Liter		
ARCHITECTURAL APPLICATIONS	VOC LIMIT	
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

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

Less Water and Less Exempt Compounds in Grams per Liter		
SEALANTS	VOC LIMIT	
Architectural	250	
Marine deck	760	
Nonmembrane roof	300	
Roadway	250	
Single-ply roof membrane	450	
Other	420	
SEALANT PRIMERS		
Architectural Nonporous Porous	250 775	
Modified bituminous	500	
Marine deck	760	
Other	750	

VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS^{2, 3} Grams of VOC per Liter of Coating, Less Water and Less Exempt Compound VOC LIMIT COATING CATEGORY

TABLE 4.504.3

t coatings	50
nflat coatings	100
nflat-high gloss coatings	150
SPECIALTY COATINGS	
minum roof coatings	400
sement specialty coatings	400
aminous roof coatings	50
uminous roof primers	350
nd breakers	350
ncrete curing compounds	350
ncrete/masonry sealers	100
veway sealers	50
fog coatings	150
ax finishing coatings	350
e resistive coatings	350
or coatings	100
m-release compounds	250
phic arts coatings (sign paints)	500
h temperature coatings	420
ustrial maintenance coatings	250
v solids coatings ¹	120
gnesite cement coatings	450
stic texture coatings	100
tallic pigmented coatings	500
lticolor coatings	250
treatment wash primers	420
mers, sealers, and undercoaters	100
active penetrating sealers	350
cycled coatings	250
of coatings	50
et preventative coatings	250
llacs	
Clear	730
Opaque	550
cialty primers, sealers and undercoaters	100
ns	250
ne consolidants	450
mming pool coatings	340
ffic marking coatings	100
and tile refinish coatings	420
terproofing membranes	250
od coatings	275
od preservatives	350
c-rich primers	340

Alum Basso Bitu Bon Con Driv Dry Faux Fire Floo Grap Higl Indu Low Mag

Spec Stair Stor Swir Traf

Tub

one of the following:

1. Grams of VOC per liter of coating, including water and including exempt

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

4.504.3 Carpet systems. All carpet installed in the building

interior shall meet the testing and product requirements of

1. Carpet and Rug Institute's Green Label Plus Program. 2. California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.1, February 2010 (also known as Specification 01350.) 3. NSF/ANSI 140 at the Gold level.

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

4.504.4 Resilient flooring systems. Where resilient flooring

the requirements of Table 4.504.1.

4. Scientific Certifications Systems Indoor AdvantageTM

4.504.3.1 Carpet cushion. All carpet cushion installed in

is installed, at least 80 percent of floor area receiving resilient flooring shall comply with one or more of the following: 1. 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

2. Products certified under UL GREENGUARD Gold (formerly the Greenguard Children & Schools pro-

(CHPS) High Performance Products Database.

3. Certification under the Resilient Floor Covering Institute (RFCI) FloorScore program.

4. Meet the California Department of Public Health,

"Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.1,

February 2010 (also known as Specification 01350). **4.504.5 Composite wood products.** Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the building

shall meet the requirements for formaldehyde as specified in

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. Product labeled and invoiced as meeting the Composite Wood Products regulation (see CCR, Title 17, Section 93120, et seq.). 4. Exterior grade products marked as meeting the PS-1

3S, and Canadian CSA O121, CSA O151, CSA O153 and CSA O325 standards. 5. Other methods acceptable to the enforcing agency.

TABLE 4.504.5

or PS-2 standards of the Engineered Wood Associa-

tion, the Australian AS/NZS 2269, European 636

FORMALDEHYDE LIMITS¹ Maximum Formaldehyde Emissions in Parts per Million		
PRODUCT	CURRENT LIMIT	
Hardwood plywood veneer core	0.05	
Hardwood plywood composite core	0.05	
Particleboard	0.09	
Medium density fiberboard	0.11	
Thin medium density fiberboard ²	0.13	
I. Values in this table are derived from those spe	ecified by the California	

Resources Board, Air Toxics Control Measure for Composite Wood as tested in accordance with ASTM E1333. 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 $\frac{5}{16}$ inch (8 mm).

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 founda-

tions 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:

1. A 4-inch-thick (101.6 mm) base of ¹/₂ inch (12.7)

mm) or larger clean aggregate shall be provided

with a vapor retarder in direct contact with concrete

and a concrete mix design, which will address bleeding, shrinkage, and curling, shall be used. For additional information, see American Concrete Institute, ACI 302.2R-06.

3. A slab design specified by a licensed design profes-

2. Other equivalent methods approved by the enforcing

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 fol-

1. 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.

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

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

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: 1. Fans shall be ENERGY STAR compliant and be ducted

a. Humidity controls shall be capable of adjustment between a relative humidity range of ≤ 50 percent to

utilize manual or automatic means of adjustment. the exhaust fan and is not required to be integral (i.e., built-in).

1. For the purposes of this section, a bathroom is a room which contains a bathtub, shower, or tub/ shower combination. 2. Lighting integral to bathroom exhaust fans shall

SECTION 4.507

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:

design software or methods. 2. Duct systems are sized according to ANSI/ACCA 1 ASHRAE handbooks or other equivalent design soft-

Manual D—2014 (Residential Duct Systems), ASHRAE handbooks or other equivalent design software or methods.

2. Moisture readings shall be taken at a point 2 feet (610

acceptable to the enforcing agency provided at the time

to terminate outside the building.

a maximum of 80 percent. A humidity control may b. A humidity control may be a separate component to

comply with the California Energy Code. **ENVIRONMENTAL COMFORT**

Manual D—2014 (Residential Duct Systems),

3. Select heating and cooling equipment according to ANSI/ACCA 3 Manual S-2014 (Residential Equip-

ment Selection) or other equivalent design software or Exception: Use of alternate design temperatures neces#

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SECTION 4.508

3. Select heating and cooling equipment according to ANSI/ACCA 3 Manual S—2014 (Residential Equip-

sary to ensure the systems function are acceptable.

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products shall follow the manufacturers' drying recommendations prior to enclosure.

2. Unless functioning as a component of a whole house ventilation system, fans must be controlled by a humid-

1. The heat loss and heat gain is established according to ANSI/ACCA 2 Manual J-2011 (Residential Load Calculation), ASHRAE handbooks or other equivalent

ware or methods.

OUTDOOR AIR QUALITY

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