

2019 CALIFORNIA GREEN BUILDING STANDARDS CODE

NONRESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2020, Includes August 2019 Supplement)

Y = YES
 NA = NOT APPLICABLE
 RESPON. PARTY = RESPONSIBLE PARTY (i.e. ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR ETC.)

Y	NA	RESPON. PARTY	SECTION	Y	NA	RESPON. PARTY	SECTION	Y	NA	RESPON. PARTY	SECTION	Y	NA	RESPON. PARTY	SECTION
			<p>5.303.3.4 Faucets and fountains.</p> <p>5.303.3.4.1 Nonresidential Lavatory faucets. Lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi.</p> <p>5.303.3.4.2 Kitchen faucets. Kitchen faucets shall have a maximum flow rate of not more than 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.</p> <p>5.303.3.4.3 Wash fountains. Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute/20 [rim space (inches) at 60 psi].</p> <p>5.303.3.4.4 Metering faucets. Metering faucets shall not deliver more than 0.20 gallons per cycle.</p> <p>5.303.3.4.5 Metering faucets for wash fountains. Metering faucets for wash fountains shall have a maximum flow rate of not more than 0.20 gallons per minute/20 [rim space (inches) at 60 psi].</p> <p>Note: Where complying faucets are unavailable, aerators or other means may be used to achieve reduction.</p>				<p>SECTION 5.407 WATER RESISTANCE AND MOISTURE MANAGEMENT</p> <p>5.407.1 WEATHER PROTECTION. Provide weather and foundation envelope as required by California Building Code Section 1402.2 (Weather Protection), manufacturer's installation instructions or local ordinance, whichever is more stringent.</p> <p>5.407.2 MOISTURE CONTROL. Employ moisture control measures by the following methods.</p> <p>5.407.2.1 Sprinklers. Design and maintain landscape irrigation systems to prevent spray on structures.</p> <p>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 as follows:</p> <p>5.407.2.2.1 Exterior door protection. Primary exterior entries shall be covered to prevent water intrusion by using nonabsorbent floor and wall finishes within at least 2 feet around and perpendicular to such openings plus at least one of the following:</p> <ol style="list-style-type: none"> 1. An installed awning at least 4 feet in depth. 2. The door is protected by a roof overhang at least 4 feet in depth. 3. The door is recessed at least 4 feet. 4. Other methods which provide equivalent protection. <p>5.407.2.2.2 Flashing. Install flashings integrated with a drainage plane.</p>				<p>5.410.2 COMMISSIONING. [N] New buildings 10,000 square feet and over. 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. For I-occupancies that are not regulated by OSHPD or for I-occupancies and L-occupancies that are not regulated by the California Energy Code Section 100.0 Scope, all requirements in Sections 5.410.2 through 5.410.2.6 shall apply.</p> <p>Note: For energy-related systems under the scope (Section 100) of the California Energy Code, including heating, ventilation, air conditioning (HVAC) systems and controls, indoor lighting systems and controls, as well as water heating systems and controls, refer to California Energy Code Section 120.8 for commissioning requirements</p> <p>Commissioning requirements shall include:</p> <ol style="list-style-type: none"> 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. <p>Exceptions:</p> <ol style="list-style-type: none"> 1. Unconditioned warehouses of any size. 2. Areas less than 10,000 square feet used for offices or other conditioned accessory spaces within unconditioned warehouses. 3. Tenant improvements less than 10,000 square feet as described in Section 303.1.1. 4. Open parking garages of any size, or open parking garage areas, of any size, within a structure. <p>Note: For the purposes of this section, unconditioned shall mean a building, area, or room which does not provide heating and/or air conditioning.</p> <p>Informational Notes:</p> <ol style="list-style-type: none"> 1. IAS AC 476 is an accreditation criteria for organizations providing training and/or certification of commissioning personnel. AC 476 is available to the Authority Having Jurisdiction as a reference for qualifications of commissioning personnel. AC 476 does not certify individuals to conduct functional performance tests or to adjust and balance systems. 2. Functional performance testing for heating, ventilation, air conditioning systems and lighting controls must be performed in compliance with the California Energy Code. 				<p>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.</p> <p>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 warranties/warranties for each system. O & M instructions shall be consistent with OSHA requirements in CCR, Title 8, Section 5142, and other related regulations.</p> <p>5.410.4.5.1 Inspections and reports. Include a copy of all inspection verifications and reports required by the enforcing agency.</p>
			<p>5.303.4 COMMERCIAL KITCHEN EQUIPMENT.</p> <p>5.303.4.1 Food Waste Disposers. Disposers shall either modulate the use of water to no more than 1 gpm when the disposer is not in use (not actively grinding food waste/no-load) or shall automatically shut off after no more than 10 minutes of inactivity. Disposers shall use no more than 8 gpm of water.</p> <p>Note: This code section does not affect local jurisdiction authority to prohibit or require disposer installation.</p>				<p>SECTION 5.408 CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING</p> <p>5.408.1 CONSTRUCTION WASTE MANAGEMENT. Recycle and/or salvage for reuse a minimum of 65% of the non-hazardous construction and demolition waste in accordance with Section 5.408.1.1, 5.408.1.2 or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent.</p> <p>5.408.1.1 Construction waste management plan. Where a local jurisdiction does not have a construction and demolition waste management ordinance, submit a construction waste management plan that:</p> <ol style="list-style-type: none"> 1. Identifies the construction and demolition waste materials to be diverted from disposal by efficient usage, recycling, reuse on the project or salvage for future use or sale. 2. Determines if construction and demolition waste materials will be sorted on-site (source-separated) or bulk mixed (single stream). 3. Identifies diversion facilities where construction and demolition waste material collected will be taken. 4. Specifies that the amount of construction and demolition waste materials diverted shall be calculated by weight or volume, but not by both. <p>5.408.1.2 Waste Management Company. Utilize a waste management company that can provide verifiable documentation that the percentage of construction and demolition waste material diverted from the landfill complies with this section.</p> <p>Note: The owner or contractor shall make the determination if the construction and demolition waste material will be diverted by a waste management company.</p> <p>Exceptions to Sections 5.408.1.1 and 5.408.1.2:</p> <ol style="list-style-type: none"> 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. 3. Demolition waste meeting local ordinance or calculated in consideration of local recycling facilities and markets. <p>5.408.1.3 Waste stream reduction alternative. The combined weight of new construction disposal that does not exceed two pounds per square foot of building area may be deemed to meet the 65% minimum requirement as approved by the enforcing agency.</p> <p>5.408.1.4 Documentation. Documentation shall be provided to the enforcing agency which demonstrates compliance with Sections 5.408.1.1, through 5.408.1.3. The waste management plan shall be updated as necessary and shall be accessible during construction for examination by the enforcing agency.</p> <p>Notes:</p> <ol style="list-style-type: none"> 1. Sample forms found in "A Guide to the California Green Building Standards Code (Nonresidential)" located at www.bsc.ca.gov/Home/CALGreen.aspx may be used to assist in documenting compliance with the waste management plan. 2. Mixed construction and demolition debris processors can be located at the California Department of Resources Recycling and Recovery (CalRecycle). 				<p>DIVISION 5.5 ENVIRONMENTAL QUALITY</p> <p>SECTION 5.501 GENERAL</p> <p>5.501.1 SCOPE. The provisions of this chapter shall outline means of reducing the quantity of air contaminants that are odorous, irritating, and/or harmful to the comfort and well-being of a building's installers, occupants and neighbors.</p> <p>SECTION 5.502 DEFINITIONS</p> <p>5.502.1 DEFINITIONS. The following terms are defined in Chapter 2 (and are included here for reference)</p> <p>ARTERIAL HIGHWAY. A general term denoting a highway primarily for through traffic usually on a continuous route.</p> <p>A-WEIGHTED SOUND LEVEL (dBA). The sound pressure level in decibels as measured on a sound level meter using the internationally standardized A-weighting filter or as computed from sound spectral data to which A-weighting adjustments have been made.</p> <p>1 BTU/HOUR. British thermal units per hour, also referred to as Btu. The amount of heat required to raise one pound of water one degree Fahrenheit per hour, a common measure of heat transfer rate. A ton of refrigeration is 12,000 Btu, the amount of heat required to melt a ton (2,000 pounds) of ice at 32° Fahrenheit.</p> <p>COMMUNITY NOISE EQUIVALENT LEVEL (CNEL). A metric similar to the day-night average sound level (Ldn), except that a 5 decibel adjustment is added to the equivalent continuous sound exposure level for evening hours (7pm to 10pm) in addition to the 10 dB nighttime adjustment used in the Ldn.</p> <p>COMPOSITE WOOD PRODUCTS. Composite wood products include hardwood plywood, particleboard and medium density fiberboard. "Composite wood products" does not include hardboard, structural plywood, structural panels, structural composite lumber, oriented strand board, glued laminated timber, timber, prefabricated wood I-joists or finger-jointed lumber, all as specified in California Code of Regulations (CCR), Title 17, Section 93120.1(a).</p> <p>Note: See CCR, Title 17, Section 93120.1.</p> <p>DAY-NIGHT AVERAGE SOUND LEVEL (Ldn). The A-weighted equivalent continuous sound exposure level for a 24-hour period with a 10 dB adjustment added to sound levels occurring during nighttime hours (10p.m. to 7 a.m.).</p> <p>DECIBEL (dB). A measure on a logarithmic scale of the magnitude of a particular quantity (such as sound pressure, sound power, sound intensity) with respect to a reference quantity.</p> <p>ELECTRIC VEHICLE (EV). An automotive-type vehicle for on-road use, such as passenger automobiles, buses, trucks, vans, neighborhood electric vehicles, electric motorcycles, and the like, primarily powered by an electric motor that draws current from a rechargeable storage battery, fuel cell, photovoltaic array, or other source of electric current. Plug-in hybrid electric vehicles (PHEV) are considered electric vehicles. For purposes of the California Electrical Code, off-road, self-propelled electric vehicles, such as industrial trucks, hoists, lifts, transports, golf carts, airline ground support equipment, tractors, boats, and the like, are not included.</p> <p>ELECTRIC VEHICLE CHARGING STATION(S) (EVCS). One or more spaces intended for charging electric vehicles.</p> <p>ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE). The conductors, including the ungrounded, grounded, and equipment grounding conductors and the electric vehicle connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the electric vehicle.</p> <p>ENERGY EQUIVALENT (NOISE) LEVEL (Leq). The level of a steady noise which would have the same energy as the fluctuating noise level integrated over the time of period of interest.</p> <p>EXPRESSWAY. An arterial highway for through traffic which may have partial control of access, but which may or may not be divided or have grade separations at intersections.</p> <p>FREEWAY. A divided arterial highway with full control of access and with grade separations at intersections.</p> <p>GLOBAL WARMING POTENTIAL (GWP). The radiative forcing impact of one mass-based unit of a given greenhouse gas relative to an equivalent unit of carbon dioxide over a given period of time. Carbon dioxide is the reference compound with a GWP of one.</p> <p>GLOBAL WARMING POTENTIAL VALUE (GWP VALUE). A 100-year GWP value published by the Intergovernmental Panel on Climate Change (IPCC) in either its Second Assessment Report (SAR) (IPCC, 1995); or its Fourth Assessment A-3 Report (AR4) (IPCC, 2007). The SAR GWP values are found in column "SAR (100-yr)" of Table 2.14.; the AR4 GWP values are found in column "100 yr" of Table 2.14.</p> <p>HIGH-GWP REFRIGERANT. A compound used as a heat transfer fluid or gas that is: (a) a chlorofluorocarbon, a hydrochlorofluorocarbon, a hydrofluorocarbon, a perfluorocarbon, or any compound or blend of compounds, with a GWP value equal to or greater than 150, or (B) any ozone depleting substance as defined in Title 40 of the Code of Federal Regulations, Part 82, sec.82.3 (as amended March 10, 2009).</p> <p>LONG RADIUS ELBOW. Pipe fitting installed between two lengths of pipe or tubing to allow a change of direction, with a radius 1.5 times the pipe diameter.</p> <p>LOW-GWP REFRIGERANT. A compound used as a heat transfer fluid or gas that: (A) has a GWP value less than 150, and (B) is not an ozone depleting substance as defined in Title 40 of the Code of Federal Regulations, Part 82, sec.82.3 (as amended March 10, 2009).</p> <p>MERV. Filter minimum efficiency reporting value, based on ASHRAE 52.2-1999.</p> <p>MAXIMUM INCREMENTAL REACTIVITY (MIR). The maximum change in weight of ozone formed by adding a compound to the "Base Reactive Organic Gas (ROG) Mixture" per weight of compound added, expressed to hundredths of a gram (g O₃/g ROG).</p> <p>PRODUCT-WEIGHTED MIR (PW-MIR). The sum of all weighted-MIR for all ingredients in a product subject to this article. The PW-MIR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of product (excluding container and packaging).</p> <p>PSIG. Pounds per square inch, gauge.</p> <p>REACTIVE ORGANIC COMPOUND (ROC). Any compound that has the potential, once emitted, to contribute to ozone formation in the troposphere.</p> <p>SCHRADER ACCESS VALVES. Access fittings with a valve core installed.</p> <p>SHORT RADIUS ELBOW. Pipe fitting installed between two lengths of pipe or tubing to allow a change of direction, with a radius 1.0 times the pipe diameter.</p> <p>SUPERMARKET. For the purposes of Section 5.508.2, a supermarket is any retail food facility with 8,000 square feet or more conditioned area, and that utilizes either refrigerated display cases, or walk-in coolers or freezers connected to remote compressor units or condensing units.</p> <p>VOC. A volatile organic compound broadly defined as a chemical compound based on carbon chains or rings with vapor pressures greater than 0.1 millimeters of mercury at room temperature. These compounds typically contain hydrogen and may contain oxygen, nitrogen and other elements. See CCR Title 17, Section 94508(a).</p> <p>Note: Where specific regulations are cited from different agencies such as SCAQMD, ARB, etc., the VOC definition in that specific regulation is the one that prevails for the specific measure in question.</p>				
			<p>5.304.1 OUTDOOR POTABLE WATER USE IN LANDSCAPE AREAS. Nonresidential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent.</p> <p>Notes:</p> <ol style="list-style-type: none"> 1. The Model Water Efficient Landscape Ordinance (MWELO) is located in the California Code of Regulations, Title 23, Chapter 2.7, Division 2. 2. MWELO and supporting documents, including a water budget calculator, are available at: https://www.water.ca.gov/. <p>5.304.6 OUTDOOR POTABLE WATER USE IN LANDSCAPE AREAS. For public schools and community colleges, landscape projects as described in Sections 5.304.6.1 and 5.304.6.2 shall comply with the California Department of Water Resources Model Water Efficient Landscape Ordinance (MWELO) commencing with Section 490 of Chapter 2.7, Division 2, Title 23, California Code of Regulations, except that the evapotranspiration adjustment factor (ETAF) shall be 0.65 with an additional water allowance for special landscape areas (SLA) of 0.35.</p> <p>Exception: Any project with an aggregate landscape area of 2,500 square feet or less may comply with the prescriptive measures contained in Appendix D of the MWELO.</p> <p>5.304.6.1 Newly constructed landscapes. New construction projects with an aggregate landscape area equal to or greater than 500 square feet.</p> <p>5.304.6.2 Rehabilitated landscapes. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 1,200 square feet.</p>				<p>SECTION 5.410 BUILDING MAINTENANCE AND OPERATIONS</p> <p>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, organic waste, and metals or meet a lawfully enacted local recycling ordinance, if more restrictive.</p> <p>Exception: Rural jurisdictions that meet and apply for the exemption in Public Resources Code 42649.82 (a)(2)(A) et seq. shall also be exempt from the organic waste portion of this section.</p> <p>5.410.1.1 Additions. All additions conducted within a 12-month period under single or multiple permits, resulting in an increase of 30% or more in floor area, shall provide recycling areas on site.</p> <p>Exception: Additions within a tenant space resulting in less than a 30% increase in the tenant space floor area.</p> <p>5.410.1.2 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 of 1991 (Act).</p> <p>Note: A sample ordinance for use by local agencies may be found in Appendix A of the document at the CalRecycle's web site.</p>				<p>5.410.2.1 Owner's or Owner Representative's Project Requirements (OPR). [N] 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:</p> <ol style="list-style-type: none"> 1. Environmental and sustainability goals. 2. Building sustainable 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. <p>5.410.2.2 Basis of Design (BOD). [N] 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. The Basis of Design document shall cover the following systems:</p> <ol style="list-style-type: none"> 1. Renewable energy systems. 2. Landscape irrigation systems. 3. Water reuse system. <p>5.410.2.3 Commissioning plan. [N] Prior to permit issuance a commissioning plan shall be completed to document how the project will be commissioned. The commissioning plan shall include the following:</p> <ol style="list-style-type: none"> 1. General project information. 2. Commissioning goals. 3. Systems to be commissioned. Plans to test systems and components shall include: <ol style="list-style-type: none"> 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. 4. Commissioning team information. 5. Commissioning process activities, schedules and responsibilities. Plans for the completion of commissioning shall be included. <p>5.410.2.4 Functional performance testing. [N] Functional performance tests shall demonstrate the correct installation and operation of each component, system and system-to-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.</p> <p>5.410.2.5 Documentation and training. [N] 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.</p> <p>5.410.2.5.1 Systems manual. [N] Documentation of the operational aspects of the building shall be completed within the systems manual and delivered to the building owner or representative. The systems manual shall include the following:</p> <ol style="list-style-type: none"> 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 verifications required by the enforcing agency or this code. 7. Other resources and documentation, if applicable. <p>5.410.2.5.2 Systems operations training. [N] A program for training of the appropriate maintenance staff for each equipment type and/or system shall be developed and documented in the commissioning report and shall include the following:</p> <ol style="list-style-type: none"> 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. <p>5.410.2.6 Commissioning report. [N] A report of commissioning process activities undertaken through the design and construction phases of the building project shall be completed and provided to the owner or representative.</p> <p>5.410.4 TESTING AND ADJUSTING. New buildings less than 10,000 square feet. Testing and adjusting of systems shall be required for new buildings less than 10,000 square feet or new systems to serve an addition or alteration subject to Section 303.1.</p> <p>5.410.4.2 (Reserved)</p> <p>Note: For energy-related systems under the scope (Section 100) of the California Energy Code, including heating, ventilation, air conditioning (HVAC) systems and controls, indoor lighting system and controls, as well as water heating systems and controls, refer to California Energy Code Section 120.8 for commissioning requirements and Sections 120.5, 120.6, 130.4, and 140.9(b)3 for additional testing requirements of specific systems.</p> <p>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:</p> <ol style="list-style-type: none"> 1. Renewable energy systems. 2. Landscape irrigation systems. 3. Water reuse systems. <p>5.410.4.3 Procedures. Perform testing and adjusting procedures in accordance with manufacturer's specifications and applicable standards on each system.</p> <p>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; Associated Air Balance Council National Standards or as approved by the enforcing agency.</p>				

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NONRESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2020, Includes August 2019 Supplement)

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		<p>5.504.4 FINISH MATERIAL POLLUTANT CONTROL. Finish materials shall comply with Sections 5.504.4.1 through 5.504.4.6.</p> <p>5.504.4.1 Adhesives, sealants and caulks. Adhesives, sealants, and caulks used on the project shall meet the requirements of the following standards:</p> <ol style="list-style-type: none"> Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable, or SCAQMD Rule 1168 VOC limits, as shown in Tables 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. 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 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 <i>California Code of Regulations</i>, Title 17, commencing with Section 94507. 																																																																		
		<table border="1"> <thead> <tr> <th colspan="2">TABLE 5.504.4.1 - ADHESIVE VOC LIMIT^{1,2}</th> </tr> <tr> <th colspan="2">Less Water and Less Exempt Compounds in Grams per Liter</th> </tr> <tr> <th>ARCHITECTURAL APPLICATIONS</th> <th>CURRENT VOC LIMIT</th> </tr> </thead> <tbody> <tr><td>INDOOR CARPET ADHESIVES</td><td>50</td></tr> <tr><td>CARPET PAD ADHESIVES</td><td>50</td></tr> <tr><td>OUTDOOR CARPET ADHESIVES</td><td>150</td></tr> <tr><td>WOOD FLOORING ADHESIVES</td><td>100</td></tr> <tr><td>RUBBER FLOOR ADHESIVES</td><td>60</td></tr> <tr><td>SUBFLOOR ADHESIVES</td><td>50</td></tr> <tr><td>CERAMIC TILE ADHESIVES</td><td>65</td></tr> <tr><td>VCT & ASPHALT TILE ADHESIVES</td><td>50</td></tr> <tr><td>DRYWALL & PANEL ADHESIVES</td><td>50</td></tr> <tr><td>COVE BASE ADHESIVES</td><td>50</td></tr> <tr><td>MULTIPURPOSE CONSTRUCTION ADHESIVES</td><td>70</td></tr> <tr><td>STRUCTURAL GLAZING ADHESIVES</td><td>100</td></tr> <tr><td>SINGLE-PLY ROOF MEMBRANE ADHESIVES</td><td>250</td></tr> <tr><td>OTHER ADHESIVES NOT SPECIFICALLY LISTED</td><td>50</td></tr> <tr><th colspan="2">SPECIALTY APPLICATIONS</th></tr> <tr><td>PVC WELDING</td><td>510</td></tr> <tr><td>CPVC WELDING</td><td>490</td></tr> <tr><td>ABS WELDING</td><td>325</td></tr> <tr><td>PLASTIC CEMENT WELDING</td><td>250</td></tr> <tr><td>ADHESIVE PRIMER FOR PLASTIC</td><td>550</td></tr> <tr><td>CONTACT ADHESIVE</td><td>80</td></tr> <tr><td>SPECIAL PURPOSE CONTACT ADHESIVE</td><td>250</td></tr> <tr><td>STRUCTURAL WOOD MEMBER ADHESIVE</td><td>140</td></tr> <tr><td>TOP & TRIM ADHESIVE</td><td>250</td></tr> <tr><th colspan="2">SUBSTRATE SPECIFIC APPLICATIONS</th></tr> <tr><td>METAL TO METAL</td><td>30</td></tr> <tr><td>PLASTIC FOAMS</td><td>50</td></tr> <tr><td>POROUS MATERIAL (EXCEPT WOOD)</td><td>50</td></tr> <tr><td>WOOD</td><td>30</td></tr> <tr><td>FIBERGLASS</td><td>80</td></tr> </tbody> </table> <p>1. IF AN ADHESIVE IS USED TO BOND DISSIMILAR SUBSTRATES TOGETHER, THE ADHESIVE WITH THE HIGHEST VOC CONTENT SHALL BE ALLOWED.</p> <p>2. FOR ADDITIONAL INFORMATION REGARDING METHODS TO MEASURE THE VOC CONTENT SPECIFIED IN THIS TABLE, SEE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 1168, www.arb.ca.gov/DRDB/SC/CRHTMLR1168.PDF</p>	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 ADHESIVES	100	RUBBER FLOOR ADHESIVES	60	SUBFLOOR ADHESIVES	50	CERAMIC TILE ADHESIVES	65	VCT & ASPHALT TILE ADHESIVES	50	DRYWALL & 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 & TRIM ADHESIVE	250	SUBSTRATE SPECIFIC APPLICATIONS		METAL TO METAL	30	PLASTIC FOAMS	50	POROUS MATERIAL (EXCEPT WOOD)	50	WOOD	30	FIBERGLASS	80
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		<p>TABLE 5.504.4.3 - VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS^{1,2}</p> <p>GRAMS OF VOC PER LITER OF COATING, LESS WATER & LESS EXEMPT COMPOUNDS</p> <table border="1"> <thead> <tr> <th>COATING CATEGORY</th> <th>CURRENT VOC LIMIT</th> </tr> </thead> <tbody> <tr><td>FLAT COATINGS</td><td>50</td></tr> <tr><td>NONFLAT COATINGS</td><td>100</td></tr> <tr><td>NONFLAT HIGH GLOSS COATINGS</td><td>150</td></tr> <tr><th colspan="2">SPECIALTY COATINGS</th></tr> <tr><td>ALUMINUM ROOF COATINGS</td><td>400</td></tr> <tr><td>BASEMENT SPECIALTY COATINGS</td><td>400</td></tr> <tr><td>BITUMINOUS ROOF COATINGS</td><td>50</td></tr> <tr><td>BITUMINOUS ROOF PRIMERS</td><td>350</td></tr> <tr><td>BOND BREAKERS</td><td>350</td></tr> <tr><td>CONCRETE CURING COMPOUNDS</td><td>350</td></tr> <tr><td>CONCRETE/MASONRY SEALERS</td><td>100</td></tr> <tr><td>DRIVEWAY SEALERS</td><td>50</td></tr> <tr><td>DRY FOG COATINGS</td><td>150</td></tr> <tr><td>FAUX FINISHING COATINGS</td><td>350</td></tr> <tr><td>FIRE RESISTIVE COATINGS</td><td>350</td></tr> <tr><td>FLOOR COATINGS</td><td>100</td></tr> <tr><td>FORM-RELEASE COMPOUNDS</td><td>250</td></tr> <tr><td>GRAPHIC ARTS COATINGS (SIGN PAINTS)</td><td>500</td></tr> <tr><td>HIGH-TEMPERATURE COATINGS</td><td>420</td></tr> <tr><td>INDUSTRIAL MAINTENANCE COATINGS</td><td>250</td></tr> <tr><td>LOW SOLIDS COATINGS¹</td><td>120</td></tr> <tr><td>MAGNESITE CEMENT COATINGS</td><td>450</td></tr> <tr><td>MASTIC TEXTURE COATINGS</td><td>100</td></tr> <tr><td>METALLIC PIGMENTED COATINGS</td><td>500</td></tr> <tr><td>MULTICOLOR COATINGS</td><td>250</td></tr> <tr><td>PRETREATMENT WASH PRIMERS</td><td>420</td></tr> <tr><td>PRIMERS, SEALERS, & UNDERCOATERS</td><td>100</td></tr> <tr><td>REACTIVE PENETRATING SEALERS</td><td>350</td></tr> <tr><td>RECYCLED COATINGS</td><td>250</td></tr> <tr><td>ROOF COATINGS</td><td>50</td></tr> <tr><td>RUST PREVENTATIVE COATINGS</td><td>250</td></tr> <tr><td>SHELLACS:</td><td></td></tr> <tr><td>CLEAR</td><td>730</td></tr> <tr><td>OPAQUE</td><td>550</td></tr> <tr><td>SPECIALTY PRIMERS, SEALERS & UNDERCOATERS</td><td>100</td></tr> <tr><td>STAINS</td><td>250</td></tr> <tr><td>STONE CONSOLIDANTS</td><td>450</td></tr> <tr><td>SWIMMING POOL COATINGS</td><td>340</td></tr> <tr><td>TRAFFIC MARKING COATINGS</td><td>100</td></tr> <tr><td>TUB & TILE REFINISH COATINGS</td><td>420</td></tr> <tr><td>WATERPROOFING MEMBRANES</td><td>250</td></tr> <tr><td>WOOD COATINGS</td><td>275</td></tr> <tr><td>WOOD PRESERVATIVES</td><td>350</td></tr> <tr><td>ZINC-RICH PRIMERS</td><td>340</td></tr> </tbody> </table> <p>1. GRAMS OF VOC PER LITER OF COATING, INCLUDING WATER & EXEMPT COMPOUNDS</p> <p>2. THE SPECIFIED LIMITS REMAIN IN EFFECT UNLESS REVISED LIMITS ARE LISTED IN SUBSEQUENT COLUMNS IN THE TABLE.</p> <p>3. VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIFORNIA AIR RESOURCES BOARD, ARCHITECTURAL COATINGS SUGGESTED CONTROL MEASURE, FEB. 1, 2008. MORE INFORMATION IS AVAILABLE FROM THE AIR RESOURCES BOARD.</p> <p>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:</p> <ol style="list-style-type: none"> Manufacturer's product specification Field verification of on-site product containers <p>5.504.4.4 Carpet Systems. All carpet installed in the building interior shall meet at least one of the testing and product requirements:</p> <ol style="list-style-type: none"> Carpet and Rug Institute's Green Label Plus program. Compliant with the VOC-emission limits and testing requirements specified in 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 CDPH Standard Method V1.1 or Specification 01350). NSF/ANSI 140 at the Gold level or higher. Scientific Certifications Systems Sustainable Choice; or Compliant with the Collaborative for High Performance Schools California (2014 CA-CHPS) Criteria listed in the CHPS High Performance Product Database. <p>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.</p> <p>5.504.4.4.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 5.504.4.1.</p> <p>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 buildings shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure (ATCM) for Composite Wood (17 CCR 93120 et seq.). Those materials not exempted under the ATCM must meet the specified emission limits, as shown in Table 5.504.4.5.</p> <p>5.504.4.5.3 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:</p> <ol style="list-style-type: none"> Product certifications and specifications. Chain of custody certifications. Product labeled and invoiced as meeting the Composite Wood Products regulation (see CCR, Title 17, Section 93120, et seq.). Exterior grade products marked as meeting the PS-1 or PS-2 standards of the Engineered Wood Association, the Australian AS/NZS 2269 or European 636 3S standards. Other methods acceptable to the enforcing agency. 	COATING CATEGORY	CURRENT VOC LIMIT	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, & UNDERCOATERS	100	REACTIVE PENETRATING SEALERS	350	RECYCLED COATINGS	250	ROOF COATINGS	50	RUST PREVENTATIVE COATINGS	250	SHELLACS:		CLEAR	730	OPAQUE	550	SPECIALTY PRIMERS, SEALERS & UNDERCOATERS	100	STAINS	250	STONE CONSOLIDANTS	450	SWIMMING POOL COATINGS	340	TRAFFIC MARKING COATINGS	100	TUB & TILE REFINISH COATINGS	420	WATERPROOFING MEMBRANES	250	WOOD COATINGS	275	WOOD PRESERVATIVES	350	ZINC-RICH PRIMERS	340
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		<p>TABLE 5.504.4.5 - FORMALDEHYDE LIMITS:</p> <table border="1"> <thead> <tr> <th colspan="2">MAXIMUM FORMALDEHYDE EMISSIONS IN PARTS PER MILLION</th> </tr> <tr> <th>PRODUCT</th> <th>CURRENT LIMIT</th> </tr> </thead> <tbody> <tr><td>HARDWOOD PLYWOOD VENEER CORE</td><td>0.05</td></tr> <tr><td>HARDWOOD PLYWOOD COMPOSITE CORE</td><td>0.05</td></tr> <tr><td>PARTICLE BOARD</td><td>0.09</td></tr> <tr><td>MEDIUM DENSITY FIBERBOARD</td><td>0.11</td></tr> <tr><td>THIN MEDIUM DENSITY FIBERBOARD²</td><td>0.13</td></tr> </tbody> </table> <p>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. FOR ADDITIONAL INFORMATION, SEE CALIFORNIA CODE OF REGULATIONS, TITLE 17, SECTIONS 93120 THROUGH 93120.12.</p> <p>2. THIN MEDIUM DENSITY FIBERBOARD HAS A MAXIMUM THICKNESS OF 5/16 INCHES (8 MM).</p> <p>5.504.4.6 Resilient flooring systems. For 80 percent of floor area receiving resilient flooring, installed resilient flooring shall meet at least one of the following:</p> <ol style="list-style-type: none"> Certified under the Resilient Floor Covering Institute (RFCI) FloorScore program; Compliant with the VOC-emission limits and testing requirements specified in the California Department of Public Health's 2010 Standard Method for the Testing and Evaluation Chambers, Version 1.1, February 2010; Compliant with the Collaborative for High Performance Schools California (2014 CA-CHPS) Criteria and listed in the CHPS High Performance Product Database; or Products certified under UL GREENGUARD Gold (formerly the Greenguard Children's & Schools Program). <p>5.504.4.6.1 Verification of compliance. Documentation shall be provided verifying that resilient flooring materials meet the pollutant emission limits.</p> <p>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 that provides at least a Minimum Efficiency Reporting Value (MERV) of 13. MERV 13 filters shall be installed prior to occupancy, and recommendations for maintenance with filters of the same value shall be included in the operation and maintenance manual.</p> <p>Exceptions: Existing mechanical equipment.</p> <p>5.504.5.3.1 Labeling. Installed filters shall be clearly labeled by the manufacturer indicating the MERV rating.</p> <p>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 within the building as already prohibited by other laws or regulations; 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.</p> <p>SECTION 5.505 INDOOR MOISTURE CONTROL</p> <p>5.505.1 INDOOR MOISTURE CONTROL. Buildings shall meet or exceed the provisions of California Building Code, CCR, Title 24, Part 2, Sections 1202 (Ventilation) and Chapter 14 (Exterior Walls). For additional measures, see Section 5.407.2 of this code.</p> <p>SECTION 5.506 INDOOR AIR QUALITY</p> <p>5.506.1 OUTSIDE AIR DELIVERY. For mechanically or naturally ventilated spaces in buildings, meet the minimum requirements of Section 120.1 (Requirements For Ventilation) of the <i>California Energy Code</i>, or the applicable local code, whichever is more stringent, and Division 1, Chapter 4 of CCR, Title 8.</p> <p>5.506.2 CARBON DIOXIDE (CO₂) MONITORING. For buildings or additions equipped with demand control ventilation, CO₂ sensors and ventilation controls shall be specified and installed in accordance with the requirements of the <i>California Energy Code</i>, Section 120(c)(4).</p> <p>SECTION 5.507 ENVIRONMENTAL COMFORT</p> <p>5.507.4 ACOUSTICAL CONTROL. Employ building assemblies and components with Sound Transmission Class (STC) values determined in accordance with ASTM E 90 and ASTM E 413, or Outdoor-Indoor Sound Transmission Class (OITC) determined in accordance with ASTM E 1332, using either the prescriptive or performance method in Section 5.507.4.1 or 5.507.4.2.</p> <p>Exception: Buildings with few or no occupants or 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.</p> <p>Exception: [DSA-SS] For public schools and community colleges, the requirements of this section and all subsections apply only to new construction.</p> <p>5.507.4.1 Exterior noise transmission, prescriptive method. Wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall meet a composite STC rating of at least 50 or a composite OITC rating of no less than 40, with exterior windows of a minimum STC of 40 or OITC of 30 in the following locations:</p> <ol style="list-style-type: none"> Within the 65 CNEL noise contour of an airport. <p>Exceptions:</p> <ol style="list-style-type: none"> L_{eq} or CNEL for military airports shall be determined by the facility Air Installation Compatible Land Use Zone (AICLIZ) plan. L_{eq} or CNEL for other airports and heliports for which a land use plan has not been developed shall be determined by the local general plan noise element. <p>2. Within the 65 CNEL or L_{eq} noise contour of a freeway or expressway, railroad, industrial source or fixed-guideway source as determined by the Noise Element of the General Plan.</p> <p>5.507.4.1.1 Noise exposure where noise contours are not readily available. Buildings exposed to a noise level of 65 dB L_{eq} 1-hr during any hour of operation shall have building, addition or alteration exterior wall and roof-ceiling assemblies exposed to the noise source meeting a composite STC rating of at least 45 (or OITC 35), with exterior windows of a minimum STC of 40 (or OITC 30).</p> <p>5.507.4.2 Performance Method. For buildings located as defined in Section 5.507.4.1 or 5.507.4.1.1, wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall be constructed to provide an interior noise environment attributable to exterior sources that does not exceed an hourly equivalent noise level (Leq-1hr) of 50 dBA in occupied areas during any hour of operation.</p> <p>5.507.4.2.1 Site Features. Exterior features such as sound walls or earth berms may be utilized as appropriate to the building, addition or alteration project to mitigate sound migration to the interior.</p> <p>5.507.4.2.2 Documentation of Compliance. An acoustical analysis documenting complying interior soundlevels shall be prepared by personnel approved by the architect or engineer of record.</p> <p>5.507.4.3 Interior sound transmission. Wall and floor-ceiling assemblies separating tenant spaces and tenant spaces and public places shall have an STC of at least 40.</p> <p>Note: Examples of assemblies and their various STC ratings may be found at the California Office of Noise Control: www.toobase.org/PDF/CaseStudies/stc_ratings.pdf.</p> <p>SECTION 5.508 OUTDOOR AIR QUALITY</p> <p>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.</p> <p>5.508.1.1 Chlorofluorocarbons (CFCs). Install HVAC, refrigeration and fire suppression equipment that do not contain CFCs.</p> <p>5.508.1.2 Halons. Install HVAC, refrigeration and fire suppression equipment that do not contain Halons.</p> <p>5.508.2 Supermarket refrigerant leak reduction. New commercial refrigeration systems shall comply with the provisions of this section when installed in retail food stores 8,000 square feet or more conditioned area, and that utilize either refrigerated display cases, or walk-in coolers or freezers connected to remote compressor units or condensing units. The leak reduction measures apply to refrigeration systems containing high-global-warming potential (high-GWP) refrigerants with a GWP of 150 or greater. New refrigeration systems include both new facilities and the replacement of existing refrigeration systems in existing facilities.</p> <p>Exception: Refrigeration systems containing low-global warming potential (low-GWP) refrigerant with a GWP value less than 150 are not subject to this section. Low-GWP refrigerants are nonozone-depleting refrigerants that include ammonia, carbon dioxide (CO₂), and potentially other refrigerants.</p>	MAXIMUM FORMALDEHYDE EMISSIONS IN PARTS PER MILLION		PRODUCT	CURRENT LIMIT	HARDWOOD PLYWOOD VENEER CORE	0.05	HARDWOOD PLYWOOD COMPOSITE CORE	0.05	PARTICLE BOARD	0.09	MEDIUM DENSITY FIBERBOARD	0.11	THIN MEDIUM DENSITY FIBERBOARD ²	0.13
MAXIMUM FORMALDEHYDE EMISSIONS IN PARTS PER MILLION																
PRODUCT	CURRENT LIMIT															
HARDWOOD PLYWOOD VENEER CORE	0.05															
HARDWOOD PLYWOOD COMPOSITE CORE	0.05															
PARTICLE BOARD	0.09															
MEDIUM DENSITY FIBERBOARD	0.11															
THIN MEDIUM DENSITY FIBERBOARD ²	0.13															

Y	N/A	RESPON. PARTY
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		<p>5.508.2.1 Refrigerant piping. Piping compliant with the California Mechanical Code shall be installed to be accessible for leak protection and repairs. Piping runs using threaded pipe, copper tubing with an outside diameter (OD) less than 1/4 inch, flared tubing connections and short radius elbows shall not be used in refrigerant systems except as noted below.</p> <p>5.508.2.1.1 Threaded pipe. Threaded connections are permitted at the compressor rack.</p> <p>5.508.2.1.2 Copper pipe. Copper tubing with an OD less than 1/4 inch may be used in systems with a refrigerant charge of 5 pounds or less.</p> <p>5.508.2.1.2.1 Anchorage. One-fourth-inch OD tubing shall be securely clamped to a rigid base to keep vibration levels below 8 mils.</p> <p>5.508.2.1.3 Flared tubing connections. Double-flared tubing connections may be used for pressure controls, valve pilot lines and oil.</p> <p>Exception: Single-flared tubing connections may be used with a multilayer seal coated with industrial sealant suitable for use with refrigerants and tightened in accordance with manufacturer's recommendations.</p> <p>5.508.2.1.4 Elbows. Short radius elbows are only permitted where space limitations prohibit use of long radius elbows.</p> <p>5.508.2.2 Valves. Valves and fittings shall comply with the <i>California Mechanical Code</i> and as follows.</p> <p>5.508.2.2.1 Pressure relief valves. For vessels containing high-GWP refrigerant, a rupture disc shall be installed between the outlet of the vessel and the inlet of the pressure relief valve.</p> <p>5.508.2.2.1.1 Pressure detection. A pressure gauge, pressure transducer or other device shall be installed in the space between the rupture disc and the relief valve inlet to indicate a disc rupture or discharge of the relief valve.</p> <p>5.508.2.2.2 Access valves. Only Schrader access valves with a brass or steel body are permitted for use.</p> <p>5.508.2.2.2.1 Valve caps. For systems with a refrigerant charge of 5 pounds or more, valve caps shall be brass or steel and not plastic.</p> <p>5.508.2.2.2.2 Seal caps. If designed for it, the cap shall have a neoprene O-ring in place.</p> <p>5.508.2.2.2.2.1 Chain leathers. Chain leathers to fit over the stem are required for valves designed to have seal caps.</p> <p>Exception: Valves with seal caps that are not removed from the valve during stem operation.</p> <p>5.508.2.3 Refrigerated service cases. Refrigerated service cases holding food products containing vinegar and salt shall have evaporator coils of corrosion-resistant material, such as stainless steel, or be coated to prevent corrosion from these substances.</p> <p>5.508.2.3.1 Coil coating. Consideration shall be given to the heat transfer efficiency of coil coating to maximize energy efficiency.</p> <p>5.508.2.4 Refrigerant receivers. Refrigerant receivers with capacities greater than 200 pounds shall be fitted with a device that indicates the level of refrigerant in the receiver.</p> <p>5.508.2.5 Pressure testing. The system shall be pressure tested during installation prior to evacuation and charging.</p> <p>5.508.2.5.1 Minimum pressure. The system shall be charged with regulated dry nitrogen and appropriate tracer gas to bring system pressure up to 300 psig minimum.</p> <p>5.508.2.5.2 Leaks. Check the system for leaks, repair any leaks, and retest for pressure using the same gauge.</p> <p>5.508.2.5.3 Allowable pressure change. The system shall stand, unaltered, for 24 hours with no more than a +/- one pound pressure change from 300 psig, measured with the same gauge.</p> <p>5.508.2.6 Evacuation. The system shall be evacuated after pressure testing and prior to charging.</p> <p>5.508.2.6.1 First vacuum. Pull a system vacuum down to at least 1000 microns (+/- 50 microns), and hold for 30 minutes.</p> <p>5.508.2.6.2 Second vacuum. Pull a second system vacuum to a minimum of 500 microns and hold for 30 minutes.</p> <p>5.508.2.6.3 Third vacuum. Pull a third vacuum down to a minimum of 300 microns, and hold for 24 hours with a maximum drift of 100 microns over a 24-hour period.</p>
		<p>CHAPTER 7</p> <p>INSTALLER & SPECIAL INSPECTOR QUALIFICATIONS</p> <p>702 QUALIFICATIONS</p> <p>702.1 INSTALLER TRAINING. HVAC system installers shall be trained and certified in the proper installation of HVAC systems including ducts and equipment by a nationally or regionally recognized training or certification program. Uncertified persons may perform HVAC installations when under the direct supervision and responsibility of a person trained and certified to install HVAC systems or contractor licensed to install HVAC systems. Examples of acceptable HVAC training and certification programs include but are not limited to the following:</p> <ol style="list-style-type: none"> State certified apprenticeship programs. Public utility training programs. Training programs sponsored by trade, labor or statewide energy consulting or verification organizations. Programs sponsored by manufacturing organizations. Other programs acceptable to the enforcing agency. <p>702.2 SPECIAL INSPECTION [HCD]. When required by the enforcing agency, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Special inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition to other certifications or qualifications acceptable to the enforcing agency, the following certifications or education may be considered by the enforcing agency when evaluating the qualifications of a special inspector:</p> <ol style="list-style-type: none"> Certification by a national or regional green building program or standard publisher. Certification by a statewide energy consulting or verification organization, such as HERS raters, building performance contractors, and home energy auditors. Successful completion of a third party apprentice training program in the appropriate trade. Other programs acceptable to the enforcing agency. <p>Notes:</p> <ol style="list-style-type: none"> Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code. HERS raters are special inspectors certified by the California Energy Commission (CEC) to rate homes in California according to the Home Energy Rating System (HERS). <p>[BSC-CG] When required by the enforcing agency, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Special inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition, the special inspector shall have a certification from a recognized state, national or international association, as determined by the local agency. The area of certification shall be closely related to the primary job function, as determined by the local agency.</p> <p>Note: Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.</p> <p>703 VERIFICATIONS</p> <p>703.1 DOCUMENTATION. Documentation used to show compliance with this code shall include but is not limited to, construction documents, plans, specifications, builder or installer certification, inspection reports, or other methods acceptable to the enforcing agency which demonstrate substantial conformance. When specific documentation or special inspection is necessary to verify compliance, that method of compliance will be specified in the appropriate section or identified applicable checklist.</p>