

h. Other housekeeping BMPs acceptable to the enforcing agency.

California 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE

YES NOT APPLICABLE

WATER BUDGET. Is the estimated total landscape irrigation water use which shall not exceed the maximum applied water allowance calculated in accordance with the Department of Water Resources Model Efficient Landscape

Ordinance (MWELO).

G2

G1

NONRESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2023)

RESPONSIBLE PARTY (ie: ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR ETC.) MAXIMUM ALLOWABLE **5.106.5.3.3 Use of automatic load management systems (ALMS).**ALMS shall be permitted for EVCS. When ALMS is installed, the required electrical load capacity GLARE RATING 5 (G) **CHAPTER 3** 5.106.2 STORMWATER POLLUTION PREVENTION FOR PROJECTS THAT DISTURB ONE OR MORE ACRES OF MAXIMUM ALLOWABLE **GREEN BUILDING** LAND. Comply with all lawfully enacted stormwater discharge regulations for projects that (1) disturb one acre or 5.106.5.3.1 for each EVCS may be reduced when serviced by an EVSE controlled by an ALMS. Each GLARE RATING 5 (G) EVSE controlled by an ALMS shall deliver a minimum 30 amperes to an EV when charging one vehicle more of land, or (2) disturb less than one acre of land but are part of a larger common plan of development sale. **SECTION 301 GENERAL MAXIMUM ALLOWABLE** and shall deliver a minimum 3.3 kW while simultaneously charging multiple EVs. N/A G0 G1 G1 Note: Projects that (1) disturb one acre or more of land, or (2) disturb less than one acre of land but are part of the GLARE RATING 5 (G) 301.1 SCOPE. Buildings shall be designed to include the green building measures specified as mandatory in larger common plan of development or sale must comply with the post-construction requirements detailed in the 5.106.5.3.4 Accessible EVCS. the application checklists contained in this code. Voluntary green building measures are also included in the MAXIMUM ALLOWABLE applicable National Pollutant Discharge Elimination System (NPDES) General permit for Stormwater Discharges When EVSE is installed, accessible EVSC shall be provided in accordance with the California Building N/A G0 G0 G1 application checklists and may be included in the design and construction of structures covered by this code, Associated with Construction and Land Disturbance Activities issued by the State Water Resources Control Board or GLARE RATING 5 (G) Code, Chapter 11B, Section 11B-228.3. but are not required unless adopted by a city, county, or city and county as specified in Section 101.7. the Lahontan Regional Water Quality Control Board (for projects in the Lake Tahoe Hydrologic Unit). Note: For EVCS signs, refer to Caltrans Traffic Operations Policy Directive 13-01 (Zero Emission Vehicle MAXIMUM ALLOWABLE Signs and Pavement Markings) or its successor(s). **301.3 NONRESIDENTIAL ADDITIONS AND ALTERATIONS. [BSC-CG]** The provisions of individual sections of Chapter 5 apply to newly constructed buildings, building additions of 1,000 square The NPDES permits require postconstruction runoff (post-project hydrology) to match the preconstruction runoff GLARE RATING 5 (G) (pre-project hydrology) with the installation of postconstruction stormwater management measures. The NPDES **5.106.5.4 Electric Vehicle (EV) charging: medium-duty and heavy-duty. [N]**Construction shall comply with section 5.106.5.4.1 to facilitate future installation of electric vehicle supply feet or greater, and/or building alterations with a permit valuation of \$200,000 or above (for occupancies within permits emphasize runoff reduction through on-site stormwater use, interception, evapotranspiration, and infiltration 1. IESNA Lighting Zones 0 and 5 are not applicable; refer to Lighting Zones as defined in the California Energy the authority of California Building Standards Commission). Code sections relevant to additions and through nonstructural controls, such as Low Impact Development (LID) practices, and conversation design measures equipment (EVSE). Construction for warehouses, grocery stores and retail stores with planned off-street loading Code and Chapter 10 of the Callifornia Administrative Code. alterations shall only apply to the portions of the building being added or altered within the scope of the Stormwater volume that cannot be addressed using nonstructural practices is required to be captured in structural spaces shall also comply with Section 5.106.5.4.1 for future installation of medium- and heavy-duty EVSE. practices and be approved by the enforcing agency. 2. For property lines that abut public walkways, bikeways, plazas and parking lots, the property line may be 1. On a case-by-case basis where the local enforcing agency has determined compliance with this considered to be 5 feet beyond the actual property line for purpose of determining compliance with this section. For A code section will be designated by a banner to indicate where the code section only applies to newly Refer to the current applicable permits on the State Water Resources Control Board website at: section is not feasible based upon one of the following conditions: property lines that abut public roadways and public transit corridors, the property line may be considered to be the constructed buildings [N] or to additions and/or alterations [A]. When the code section applies to both, no www.waterboards.ca.gov/constructionstormwater. Consideration to the stormwater runoff management measures a. Where there is no local utility power supply. centerline of the public roadway or public transit corridor for the purpose of determining compliance with this banner will be used. should be given during the initial design process for appropriate integration into site development. b. Where the local utility is unable to supply adequate power. c. Where there is evidence suitable to the local enforcing agency substantiating that 301.3.1 Nonresidential additions and alterations that cause updates to plumbing fixtures only: 5.106.4 BICYCLE PARKING. For buildings within the authority of California Building Standards Commission as additional local utility infrastructure design requirements, directly related to the implementation 3. General lighting luminaires in areas such as outdoor parking, sales or storage lots shall meet these reduced specified in Section 103, comply with Section 5.106.4.1. For buildings within the authority of the Division of the State of Section 5.106.5.3, may adversely impact the construction cost of the project. ratings. Decorative luminaries located in these areas shall meet *U*-value limits for "all other outdoor lighting" Note: On and after January 1, 2014, certain commercial real property, as defined in Civil Code Section Architect pursuant to Section 105, comply with Section 5.106.4.2 When EVSE(s) is/are installed, it shall be in accordance with the California Building Code, the California 1101.3, shall have its noncompliant plumbing fixtures replaced with appropriate water-conserving Electrical Code and as follows: plumbing fixtures under specific circumstances. See Civil Code Section 1101.1 et sea, for definitions. **5.106.4.1 Bicycle parking. [BSC-CG]** Comply with Sections 5.106.4.1.1 and 5.106.4.1.2; or meet the 5.106.8.1 Facing- Backlight types of commercial real property affected, effective dates, circumstances necessitating applicable local ordinance, whichever is stricter. 5.106.5.4.1 Electric vehicle charging readiness requirements for warehouse, grocery stores and retail stores Luminaries within 2MH of a property line shall be oriented so that the nearest property line is behind the fixture, replacement of noncompliant plumbing fixtures, and duties and responsibilities for with planned off-street loading spaces. and shall comply with the backlight rating specified in Table 5.106.8 based on the lighting zone and distance to **5.106.4.1.1 Short-term bicycle parking.** If the new project or an addition or alteration is anticipated [N] In order to avoid future demolition when adding EV charging supply and distribution equipment, spare the nearest point of that property line. to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' raceways(s) or busway(s) and adequate capacity for transformers(s), service panels(s) or subpanel(s) shall be Exception: Corners. If two property lines (or two segments of the same property line) have equidistant point **301.3.2 Waste Diversion.** The requirements of Section 5.408 shall be required for additions and entrance, readily visible to passers-by, for 5% of new visitor motorized vehicle parking spaces being installed at the time of construction in accordance with the California Electrical Code. Construction plans and to the luminaire, then the luminaire may be oriented so that the intersection of the two lines (the corner) is alterations whenever a permit is required for work. added, with a minimum of one two-bike capacity rack. specifications shall include but are not limited to, the following: directly behind the luminaire. The luminaire shall still use the distance to the nearest points(s) on the property **Exception:** Additions or alterations which add nine or less visitor vehicular parking spaces. 1. The transformer, main service equipment and subpanel shall meet the minimum power lines to determine the required backlight rating. 301.4 PUBLIC SCHOOLS AND COMMUNITY COLLEGES. (see GBSC) requirement in Table 5.106.5.4.1 to accommodate the dedicated branch circuits for the future 301.5 HEALTH FACILITIES. (see GBSC) 5.106.4.1.2 Long-term bicycle parking. For new buildings with tenant spaces that have 10 or more .106.8.2 Facing-Glare. tenant-occupants, provide secure bicycle parking for 5 percent of the tenant-occupant vehicular parking 2. The construction documents shall indicate on or more location(s) convenient to the planned For luminaires covered by 5.106.8.1, if a property line also exists within or extends into the front hemisphere within **SECTION 302 MIXED OCCUPANCY BUILDINGS** spaces with a minimum of one bicycle parking facility. offstreet loading space(s) reserved for medium-and heavy-duty ZEV charging cabinets and 2MH of the luminaire then the luminaire shall comply with the more stringent glare rating specified in Table charging dispensers, and a pathway reserved for routing of conduit from the termination of the 5.106.8 based on the lighting zone and distance to the nearest point on the nearest property line within the front **302.1 MIXED OCCUPANCY BUILDINGS.** In mixed occupancy buildings, each portion of a building **5.106.4.1.3** For additions or alterations that add 10 or more tenant-occupant vehicular parking spaces, raceway(s) or busway(s) to the charging cabinet(s) and dispenser(s) as shown in Table shall comply with the specific green building measures applicable to each specific occupancy. provide secure bicycle parking for 5 percent of the tenant vehicular parking spaces being added, with a minimum of one bicycle parking facility. 3. Raceway(s) or busway(s) originating at a main service panel or a subpanel(s) serving the area where potential future medium-and heavy-duty EVSE will be located and shall terminate in close **SECTION 303 PHASED PROJECTS** 1. See also California Building Code, Chapter 12, Section 1205.6 for college campus lighting requirements for **5.106.4.1.4** For new shell buildings in phased projects provide secure bicycle parking for 5 percent of the proximity to the potential future location of the charging equipments for medium- and heavy-duty anticipated tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility. 2.Refer to Chapter 8 (Compliance Forms, Worksheets and Reference Material) for IES TM-15-11 Table **303.1 PHASED PROJECTS.** For shell buildings and others constructed for future tenant improvements, 4. The raceway(s) or busway(s) shall be sufficient size to carry the minimum additional system load A-1, California Energy Code Tables 130.2-A and 130.2-B. only those code measures relevant to the building components and systems considered to be new **5.106.4.1.5** Acceptable bicycle parking facility for Sections 5.106.4.1.2, 5.106.4.1.3, and 5.106.4.1.4 shall to the future location of the charging for medium- and heavy-duty ZEVs as shown in Table Refer to the California Building Code for requirements for additions and alterations. construction (or newly constructed) shall apply. be convenient from the street and shall meet one of the following: 5.106.5.4.1. 5.106.10 GRADING AND PAVING. Construction plans shall indicate how site grading or a drainage system will **303.1.1 Initial Tenant improvements.** The provisions of this code shall apply only to the initial tenant 1. Covered, lockable enclosures with permanently anchored racks for bicycles; manage all surface water flows to keep water from entering buildings. Examples of methods to manage surface improvements to a project. Subsequent tenant improvements shall comply with the scoping provisions in 2. Lockable bicvcle rooms with permanently anchored racks; or water include, but are not limited to, the following: Section 301.3 non-residential additions and alterations. 3. Lockable, permanently anchored bicycle lockers. TABLE 5.106.5.4.1 RACEWAY CONDUIT AND PANEL POWER **ABBREVIATION DEFINITIONS:** Note: Additional information on recommended bicycle accommodations may be obtained from REQUIREMENTS FOR MEDIUM- AND HEAVY-DUTY EVSE [N] Water collection and disposal systems. Department of Housing and Community Development Sacramento Area Bicycle Advocates. California Building Standards Commission Division of the State Architect, Structural Safety 5.106.4.2 Bicycle parking. [DSA-SS] For public schools and community colleges, comply with Sections ADDITIONAL 5. Other water measures which keep surface water away from buildings and aid in groundwater recharge. OSHPD Office of Statewide Health Planning and Development 5.106.4.2.1 and 5.106.4.2.2 CAPACITY **Exception:** Additions and alterations not altering the drainage path. Low Rise REQUIRED (KVA) **5.106.4.2.1 Student bicycle parking.** Provide permanently anchored bicycle racks conveniently High Rise 5.106.12 SHADE TREES [DSA-SS]. Shade Trees shall be planted to comply with Sections 5.106.12.1, 5.106.12.2, BUILDING SIZE (SQ. FT.) **BUILDING TYPE** OFF-STREET FOR RACEWAY Additions and Alterations accessed with a minimum of four two-bike capacity racks per new building. and 5.106.12.3. Percentages shown shall be measured at noon on the summer solstice. Landscape irrigation LOADING SPACES **BUSWAY AND** 5.106.4.2.2 Staff bicycle parking. Provide permanent, secure bicycle parking conveniently accessed necessary to establish and maintain tree health shall comply with Section 5.304.6. TRANSFORMER 8 with a minimum of two staff bicycle parking spaces per new building. Acceptable bicycle parking facilities shall be convenient from the street or staff parking area and shall meet one of the following: PANEL CHAPTER 5 **5.106.12.1 Surface parking areas.** Shade tree plantings, minimum #10 container size or equal, shall be installed to provide shade over 50 percent of the parking area within 15 years. NONRESIDENTIAL MANDATORY MEASURES 1. Covered, lockable enclosures with permanently anchored racks for bicycles; 1 or 2 200 10,000 to 90,000 2. Lockable bicycle rooms with permanently anchored racks; or **Exceptions:** Surface parking area covered by solar photovoltaic shade structures with roofing Grocery 3. Lockable, permanently anchored bicycle lockers. 3 or Greater 400 DIVISION 5.1 PLANNING AND DESIGN materials that comply with Table A5.106.11.2.2 in Appendix A5 shall be permitted in whole or in part in 400 lieu of shade tree planting. Greater than 90,000 1 or Greater 5.106.5.3 Electric vehicle (EV) charging. [N] Construction to provide electric vehicle infrastructure and facilitate **SECTION 5.101 GENERAL** electric vehicle charging shall comply with Section 5.106.5.3.1 and shall be provided in accordance with 200 1 or 2 **5.106.12.2 Landscape areas.** Shade tress plantings, minimum #10 container size or equal shall be installed to regulations in the California Building Code and the California Electrical Code provide shade of 20% of the landscape area within 15 years. 400 Retail The provisions of this chapter outline planning, design and development methods that include environmentally 3 or Greater esponsible site selection, building design, building siting and development to protect, restore and enhance the **Exceptions:** Playfields for organized sport activity are not included in the total area calculation. Greater than 135,000 1 or Greater 400 environmental quality of the site and respect the integrity of adjacent properties. 1. On a case-by-case basis where the local enforcing agency has determined compliance with this section is not feasible based upon one of the following conditions: 1 or 2 200 **5.106.12.3.** Hardscape areas. Shade tree plantings, minimum #10 container size or equal shall be installed to **SECTION 5.102 DEFINITIONS** provide shade over 20 percent of the hardscape area within 15 years. a. Where there is no local utility power supply 20,000 to 256,000 5.102.1 DEFINITIONS 3 or Greater b. Where the local utility is unable to supply adequate power. Warehouse The following terms are defined in Chapter 2 (and are included here for reference) c. Where there is evidence suitable to the local enforcement agency substantiating the Walks, hardscape areas covered by solar photovoltaic shade structures or shade structures with roofing local utility infrastructure design requirements, directly related to the implementation of Greater than 256,000 400 1 or Greater CUTOFF LUMINAIRES. Luminaires whose light distribution is such that the candela per 1000 lamp lumens does not materials that comply with Table A5.106.11.2.2 in Appendix A5 shall be permitted in whole or in part in lieu Section 5.106.5.3, may adversely impact the construction cost of the project. numerically exceed 25 (2.5 percent) at an angle of 90 degrees above nadir, and 100 (10 percent) at a vertical angle of 2. Parking spaces accessible only by automated mechanical car parking systems are not 80 degrees above nadir. This applies to all lateral angles around the luminaire. 2. Designated and marked play areas of organized sport activity are not included in the total area calculation. required to comply with this code section **5.106.8 LIGHT POLLUTION REDUCTION. [N].** I Outdoor lighting systems shall be designed and installed to comply **DIVISION 5.2 ENERGY EFFICIENCY** LOW-EMITTING AND FUEL EFFICIENT VEHICLES. Eligible vehicles are limited to the following: **5.106.5.3.1 EV capable spaces.** SECTION 5.201 GENERAL 1. The minimum requirements in the California Energy Code for Lighting Zones 0-4 as defined in Chapter 10, [N] EV capable spaces shall be provided in accordance with Table 5.106.5.3.1 and the following Section 10-114 of the California Administrative Code; and 1. Zero emission vehicle (ZEV), enhanced advanced technology PZEV (enhanced AT ZEV) or transitional zero **5.201.1 Scope [BSC-CG].** California Energy Code [DSA-SS]. For the purposes of mandatory energy efficiency mission vehicles (TZEV) regulated under CCR, Title 13, Section 1962. 2. Backlight (B) ratings as defined in IES TM-15-11 (shown in Table A-1 in Chapter 8); standards in this code, the California Energy Commission will continue to adopt mandatory building standards. 1. Raceways complying with the California Electrical Code and no less that 1-inch (25 mm) 2. High-efficiency vehicles, regulated by U.S. EPA, bearing a fuel economy and greenhouse gas rating od 9 oe 3. Uplight and Glare ratings as defined in California Energy Code (shown in Tables 130.2-A and 130.2-B in diameter shall be provided and shall originate at a service panel or a subpanel(s) serving 10 as regulated under 40 CFR Section 600 Subpart D. the area, and shall terminate in close proximity to the proposed location of the EV capable DIVISION 5.3 WATER EFFICIENCY AND CONSERVATION 4. Allowable BUG ratings not exceeding those shown in Table 5.106.8, [N] or Comply with a local ordinance and into a suitable listed cabinet, box,enclosure or equivalent. A common raceway may be NEIGHBORHOOD ELECTRIC VEHICLE (NEV). A motor vehicle that meets the definition of "low-speed vehicle" lawfully enacted pursuant to Section 101.7, whichever is more stringent. used to serve multiple EV charging spaces. SECTION 5.301 GENERAL either in Section 385.5 of the Vehicle Code or in 49CFR571.500 (as it existed on July 1, 2000), and is certified to 2. A service panel or subpanel (s) shall be provided with panel space and electrical load zero-emission vehicle standards. **5.301.1 Scope.** The provisions of this chapter shall establish the means of conserving water use indoors, outdoors capacity for a dedicated 208/240 volt, 40-ampere minimum branch circuit for each EV and in wastewater conveyance. capable space, with delivery of 30-ampere minimum to an installed EVSE at each EVCS. TENANT-OCCUPANTS. Building occupants who inhabit a building during its normal hours of operation as permanent 1. Luminaires that qualify as exceptions in Sections 130.2 (b) and 140.7 of the California Energy Code. 3. The electrical system and any on-site distribution transformers shall have sufficient capacity occupants, such as employees, as distinguished from customers and other transient visitors. SECTION 5.302 DEFINITIONS to supply full rated amperage at each EV capable space. 3. Building facade meeting the requirements in Table 140.7-B of the California Energy Code, Part 6. **5.302.1 Definitions.** The following terms are defined in Chapter 2 (and are included here for reference) 4. The service panel or subpanel circuit directory shall identify the reserved overcurrent VANPOOL VEHICLE. Eligible vehicles are limited to any motor vehicle, other than a motortruck or truck tractor, 4. Custom lighting features as allowed by the local enforcing agency, as permitted by Section 101.8 designed for carrying more than 10 but not more than 15 persons including the driver, which is maintained and used protective devices space(s) as "EV CAPABLE". The raceway termination location shall be Alternate materials, designs and methods of construction. EVAPOTRANSPIRATION ADJUSTMENT FACTOR (ETAF) [DSA-SS]. An adjustment factor when applied to permanently and visibly marked as "EV CAPABLE." primarily for the nonprofit work-related transportation of adults for the purpose of ridesharing. 5. Luminaires with less than 6,200 initial luminaire lumens. reference evapotranspiration that adjusts for plant factors and irrigation efficiency, which ae two major influences on the amount of water that needs to be applied to the landscape. Note: Source: Vehicle Code, Division 1, Section 668 Note: A parking space served by electric vehicle supply equipment or designed as a future EV charging space shall count as at least one standard automobile parking space only for the purpose of FOOTPRINT AREA [DSA-SS]. The total area of the furthest exterior wall of the structure projected to natural grade, **ZEV.** Any vehicle certified to zero-emission standards. complying with any applicable minimum parking space requirements established by an enforcement not including exterior areas such as stairs, covered walkways, patios and decks. agency. See vehicle Code Section 22511.2 for further details. TABLE 5.106.8 [N] MAXIMUM ALLOWABLE BACKLIGHT, SECTION 5.106 SITE DEVELOPMENT METERING FAUCET. A self-closing faucet that dispenses a specific volume of water for each actuation cycle. The UPLIGHT AND GLARE (BUG) RATINGS 1,2 5.106.1 STORM WATER POLLUTION PREVENTION FOR PROJECTS THAT DISTURB LESS THAN ONE ACRE volume or cycle duration can be fixed or adjustable. TABLE 5.106.5.3.1 **OF LAND.** Newly constructed projects and additions which disturb less than one acre of land, and are not part of a larger common plan of development or sale, shall prevent the pollution of storm water runoff from the construction LIGHTING LIGHTING LIGHTING LIGHTING GRAYWATER. Pursuant to Health and Safety Code Section 17922.12, "graywater" means untreated wastewater that ALLOWABLE RATING ZONE NUMBER OF EVCS (EV activities through one or more of the following measures: ZONE LZ1 ZONE LZ2 ZONE LZ3 ZONE LZ4 **TOTAL NUMBER OF ACTUAL** NUMBER OF REQUIRED EV has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated, or unhealthy LZ0 CAPABLE SPACES **PARKING SPACES** CAPABLE SPACES bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or 5.106.1.1 Local ordinance. Comply with a lawfully enacted storm water management and/or erosion control PROVIDED WITH EVSE)^2 MAXIMUM ALLOWABLE operating wastes. "Graywater" includes, but is not limited to wastewater from bathtubs, showers, bathroom **BACKLIGHT RATING 3** washbasins, clothes washing machines and laundry tubs, but does not include waste water from kitchen sinks or 0-9 **5.106.1.2 Best Management Practices (BMPs).** Prevent the loss of soil through wind or water erosion by Luminaire greater than 2 10-25 2 implementing an effective combination of erosion and sediment control and good housekeeping BMPs. mounting heights (MH) from N/A No Limit No Limit No Limit MODEL WATER EFFICIENT LANDSCAPE ORDINANCE (MWELO). The California ordinance regulating landscape property line 26-50 design, installation and maintenance practices that will ensure commercial, multifamily and other developer installed 1. Soil loss BMPs that should be considered for implementation as appropriate for each project include, landscapes greater than 2500 square feet meet an irrigation water budget developed based on landscaped area and but are not limited to, the following: 51-75 13 Luminaire back hemisphere is N/A a. Scheduling construction activity during dry weather, when possible. 1-2 MH from property line 17 76-100 b. Preservation of natural features, vegetation, soil, and buffers around surface waters. MODEL WATER EFFICIENT LANDSCAPE ORDINANCE (MWELO). [HCD] The California model ordinance Luminaire back hemisphere is c. Drainage swales or lined ditches to control stormwater flow. N/A B2 101-150 25 (California Code of Regulations, Title 23, Division 2, Chapter 2.7), regulating landscape design, installation and 0.5-1 MH from property line d. Mulching or hydroseeding to stabilize disturbed soils. maintenance practices. Local agencies are required to adopt the updated MWELO, or adopt a local ordinance at least Erosion control to protect slopes. 35 151-200 Luminaire back hemisphere is as effective as the MWELO. Protection of storm drain inlets (gravel bags or catch basin inserts). less than 0.5 MH from property 201 AND OVER 25% of EV capable spaces1 20% of total1 Perimeter sediment control (perimeter silt fence, fiber rolls). POTABLE WATER. Water that is drinkable and meets the U.S. Environmental Protection Agency (EPA) Drinking Sediment trap or sediment basin to retain sediment on site. Water Standards. See definition in the California Plumbing Code, Part 5. 1. Where there is insufficient electrical supply. Stabilized construction exits. **MAXIMUM ALLOWABLE** 2. The number of required EVCS (EV capable spaces provided with EVSE) in column 3 count towards **UPLIGHT RATING (U)** POTABLE WATER. [HCD] Water that is satisfactory for drinking, culinary, and domestic purposes, and meets the k. Other soil loss BMPs acceptable to the enforcing agency. the total number of required EV capable spaces shown in column 2. U.S. Environmental Protection Agency (EPA) Drinking Water Standards and the requirements of the Health Authority N/A U0 U0 U0 2. Good housekeeping BMPs to manage construction equipment, materials, non-stormwater discharges For area lighting 3 Having Jurisdiction. and wastes that should be considered for implementation as appropriate for each project include, but 5.106.5.3.2 Electric vehicle charging stations (EVCS) For all other outdoor are not limited to, the following: EV capable spaces shall be provided with EVSE to create EVCS in the number indicated in Table **RECYCLED WATER.** Water which, as a result of treatment of waste, is suitable for a direct beneficial use or a N/A U2 U3 lighting,including decorative Dewatering activities. 5.106.5.3.1. The EVCS required by Table 5.106.5.3.1 may be provided with EVSE in any combination of controlled use that would not otherwise occur [Water Code Section 13050 (n)]. Simply put, recycled water is water luminaires Material handling and waste management treated to remove waste matter attaining a quality that is suitable to use the water again. Level 2 and Direct Current Fast Charging (DCFC), except that at least one Level 2 EVSE shall be Building materials stockpile management. d. Management of washout areas (concrete, paints, stucco, etc.). SUBMETER. [HCD 1] A secondary device beyond a meter that measures water consumption of an individual rental e. Control of vehicle/equipment fueling to contractor's staging area. unit within a multiunit residential structure or mixed-use residential and commercial structure. (See Civic Code Section One EV charger with multiple connectors capable of charging multiple EVs simultaneously shall be . Vehicle and equipment cleaning performed off site. 1954.202 (g) and Water code Section 517 for additional details.) permitted if the electrical load capacity required by Section 5.106.5.3.1 for each EV capable space is Spill prevention and control.

DISCLAIMER: THIS DOCUMENT IS PROVIDED AND INTENDED TO BE USED AS A MEANS TO INDICATE AREAS OF COMPLIANCE WITH THE CALIFORNIA GREEN BUILDING VERIFICATION WITH THE FULL CODE.

accumulatively supplied to the EV charger.

service panel or subpanel

The installation of each DCFC EVSE shall be permitted to reduce the minimum number of required EV

capable spaces without EVSE by five and reduce proportionally the required electrical load capacity to the



California 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE

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	SECTION 5.303 INDOOR WATER USE				5.410.2 COMMISSIONING. [N] New buildings 10,000 square feet and over. For new buildings 10,000 square feet		5.410.4.4 Reporting. After completion of testing, adjusting and balancing, provide a final report of testing		
	5.303.1 METERS. Separate submeters or metering devices shall be installed for the uses described in Sections 503.1.1 and 503.1.2.				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		signed by the individual responsible for performing these services. 5.410.4.5 Operation and maintenance (O & M) manual. Provide the building owner or representative with		
	5.303.1.1 Buildings in excess of 50,000 square feet. Separate submeters shall be installed as follows:		SECTION 5.402 DEFINITIONS 5.402.1 DEFINITIONS. The following terms are defined in Chapter 2 (and are included here for reference)		comparable size and complexity. For I-occupancies that are not regulated by OSHPD or for I-occupancies and L-occupancies that are not regulated y the California Energy Code Section 100.0 Scope, all requirements in Sections 5.410.2 through 5.410.2.6 shall apply.		detailed operating and maintenance instructions and copies of guaranties/warranties for each system. O & M instructions shall be consistent with OSHA requirements in CCR, Title 8, Section 5142, and other related		
	 For each individual leased, rented or other tenant space within the building projected to consume more than 100 gal/day (380 L/day), including, but not limited to, spaces used for laundry or cleaners, restaurant or food service, medical or dental office, laboratory, or beauty salon or barber shop. 		ADJUST. To regulate fluid flow rate and air patterns at the terminal equipment, such as to reduce fan speed or adjust a damper.		Note: For energy-related systems under the scope (Section 100) of the California Energy Code, including heating,		regulations. 5.410.4.5.1 Inspections and reports. Include a copy of all inspection verifications and reports required		
	Where separate submeters for individual building tenants are unfeasible, for water supplied to the following subsystems:		BALANCE. To proportion flows within the distribution system, including sub-mains, branches and terminals, according to design quantities.		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		by the enforcing agency.		
	 a. Makeup water for cooling towers where flow through is greater than 500 gpm (30 L/s). b. Makeup water for evaporative coolers greater than 6 gpm (0.04 L/s). c. Steam and hot water boilers with energy input more than 500,000 Btu/h (147 kW). 		BUILDING COMMISSIONING. A systematic quality assurance process that spans the entire design and construction		Commissioning requirements shall include:		DIVISION 5.5 ENVIRONMENTAL QUALITY		
	5.303.1.2 Excess consumption. A separate submeter or metering device shall be provided for any tenant		process, including verifying and documenting that building systems and components are planned, designed, installed, tested, operated and maintained to meet the owner's project requirements.		 Owner's or Owner representative's project requirements. Basis of design. Commissioning measures shown in the construction documents. 		SECTION 5.501 GENERAL 5.501.1 SCOPE. The provisions of this chapter shall outline means of reducing the quantity of air contaminants that		
	within a new building or within an addition that is projected to consume more than 1,000 gal/day.		ORGANIC WASTE. Food waste, green waste, landscape and pruning wste, nonhazardous wood waste, and food soiled paper waste that is mixed in with food waste.		4. Commissioning plan.5. Functional performance testing.6. Documentation and training.		are odorous, irritating, and/or harmful to the comfort and well-being of a building's installers, occupants and neighbors. SECTION 5.502 DEFINITIONS		
	5.303.3 WATER CONSERVING PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:		TEST. A procedure to determine quantitative performance of a system or equipment SECTION 5.407 WATER RESISTANCE AND MOISTURE MANAGEMENT		7. Commissioning report. Exceptions:		5.502.1 DEFINITIONS. The following terms are defined in Chapter 2 (and are included here for reference) ARTERIAL HIGHWAY. A general term denoting a highway primarily for through traffic usually on a continuous route.		
	5.303.3.1 Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush. Tank-type water closets shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Tank-Type toilets.		5.407.1 WEATHER PROTECTION. Provide a weather-resistant exterior wall and foundation envelope as required by California Building Code Section 1402.2 (Weather Protection), manufacturer's installation instructions or local		Unconditioned warehouses of any size.		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		
	Note: The effective flush volume of dual flush toilets is defined as the composite, average flush volume of		ordinance, whichever is more stringent. 5.407.2 MOISTURE CONTROL. Employ moisture control measures by the following methods.		 Areas less than 10,000 square feet used for offices or other conditioned accessory spaces within unconditioned warehouses. Tenant improvements less than 10,000 square feet as described in Section 303.1.1. 		adjustments have been made.		
	two reduced flushes and one full flush. 5.303.3.2 Urinals.		5.407.2.1 Sprinklers. Design and maintain landscape irrigation systems to prevent spray on structures.		4. Open parking garages of any size, or open parking garage areas, of any size, within a structure. Note: For the purposes of this section, unconditioned shall mean a building, area, or room which does not		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 ⁰ Fahrenheit.		
	5.303.3.2.1 Wall-mounted Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush.		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:		provide heating and or air conditioning.		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		
	5.303.3.2.2 Floor-mounted Urinals. The effective flush volume of floor-mounted or other urinals shall not exceed 0.5 gallons per flush.		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		Informational Notes: 1. IAS AC 476 is an accreditation criteria for organizations providing training and/or certification of		to 10pm) in addition to the 10 dB nighttime adjustment used in the Ldn.		
	5.303.3.3 Showerheads. [BSC-CG] 5.303.3.3.1 Single showerhead. Showerheads shall have a maximum flow rate of not more than 1.8		such openings plus at least one of the following: 1. An installed awning at least 4 feet in depth.		commissioning personnel. AC 476 is available to the Authority Having Jurisdiction as a reference for qualifications of commissioning personnel. AC 476 des not certify individuals to conduct functional performance tests or to adjust and balance systems.		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		
	gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads.		2. The door is protected by a roof overhang at least 4 feet in depth.3. The door is recessed at least 4 feet.		 Functional performance testing for heating, ventilation, air conditioning systems and lighting controls 		finger–jointed lumber, all as specified in California Code of Regulations (CCR), Title 17, Section 93120.1(a). Note: See CCR. Title 17. Section 93120.1.		
	5.303.3.3.2 Multiple showerheads serving one shower. When a shower is served by more than one showerhead, the combined flow rate of all the showerheads and/or other shower outlets controlled by a		 Other methods which provide equivalent protection. 5.407.2.2.2 Flashing. Install flashings integrated with a drainage plane. 		must be performed in compliance with the California Energy Code.		DAY-NIGHT AVERAGE SOUND LEVEL (Ldn). The A-weighted equivalent continuous sound exposure level for 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. Note: A hand-held shower shall be considered a showerhead.				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		24-hour period with a 10 dB adjustment added to sound levels occurring during nighttime hours (10p.m. to 7 a.m.). DECIBEL (db). A measure on a logarithmic scale of the magnitude of a particular quantity (such as sound pressure,		
			SECTION 5.408 CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING		project begins. This documentation shall include the following: 1. Environmental and sustainability goals. 2. Building sustainable goals.		sound power, sound intensity) with respect to a reference quantity. ELECTRIC VEHICLE (EV). An automotive-type vehicle for on-road use, such as passenger automobiles, buses,		
	5.303.3.4 Faucets and fountains.5.303.3.4.1 Nonresidential Lavatory faucets. Lavatory faucets shall have a maximum flow rate of not		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		 Indoor environmental quality requirements. Project program, including facility functions and hours of operation, and need for after hours operation 		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.		
	more than 0.5 gallons per minute at 60 psi. 5.303.3.4.2 Kitchen faucets. Kitchen faucets shall have a maximum flow rate of not more than 1.8		meet a local construction and demolition waste management ordinance, whichever is more stringent. 5.408.1.1 Construction waste management plan. Where a local jurisdiction does not have a construction and		5. Equipment and systems expectations.6. Building occupant and operation and maintenance (O&M) personnel expectations.		Plug-in hybrid electric vehicles (PHEV) are considered electric vehicles. For purposes of the <i>California Electrical Code</i> , off-road, self-propoelled electric vehicles, such as industrial trucks, hoists, lifts, transports, golf carts, airline ground support equipment, tractors, boats, and the like, are not included.		
	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		demolition waste management ordinance, submit a construction waste management plan that: 1. Identifies the construction and demolition waste materials to be diverted from disposal by efficient		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		ELECTRIC VEHICLE CHARGING STATION(S) (EVCSj). One or more spaces intended for charging electric vehicles.		
	per minute at 60 psi. 5.303.3.4.3 Wash fountains. Wash fountains shall have a maximum flow rate of not more than 1.8		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		cover the following systems: 1. Renewable energy systems.		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,		
	gallons per minute/20 [rim space (inches) at 60 psi]. 5.303.3.4.4 Metering faucets. Metering faucets shall not deliver more than 0.20 gallons per cycle.		 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 		2. Landscape irrigation systems. 3. Water reuse system.		power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the electric vehicle.		
	5.303.3.4.5 Metering faucets for wash fountains. Metering faucets for wash fountains shall have a		by weight or volume, but not by both. 5.408.1.2 Waste Management Company. Utilize a waste management company that can provide verifiable		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:		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.		
	maximum flow rate of not more than 0.20 gallons per minute/20 [rim space (inches) at 60 psi]. Note: Where complying faucets are unavailable, aerators or other means may be used to achieve		documentation that the percentage of construction and demolition waste material diverted from the landfill complies with this section.		 General project information. Commissioning goals. Systems to be commissioned. Plans to test systems and components shall include: 		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.		
	reduction. 5.303.3.4.6 Pre-rinse spray value		Note: The owner or contractor shall make the determination if the construction and demolition waste material will be diverted by a waste management company.		 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. 		FREEWAY. A divided arterial highway with full control of access and with grade separations at intersections.		
	When installed, shall meet the requirements in the <i>California Code of Regulations</i> , Title 20 (Appliance Efficiency Regulations), Section 1605.1 (h)(4) Table H-2, Section 1605.3 (h)(4)(A), and Section 1607		Exceptions to Sections 5.408.1.1 and 5.408.1.2:		d. Conditions under which the test shall be performed.e. Measurable criteria for acceptable performance.		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.		
	(d)(7), and shall be equipped with an integral automatic shutoff.FOR REFERENCE ONLY: The following table and code section have been reprinted from the California		 Excavated soil and land-clearing debris. Alternate waste reduction methods developed by working with local agencies if diversion or recycle 		 Commissioning team information. Commissioning process activities, schedules and responsibilities. Plans for the completion of commissioning shall be included. 		GLOBAL WARMING POTENTIAL VALUE (GWP VALUE). A 100-year GWP value published by the		
	Code of Regulations, Title 20 (Appliance Efficiency Regulations), Section 1605.1 (h)(4) and Section 1605.3 (h)(4)(A).		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.		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		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.		
	TABLE H-2		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		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		HIGH-GWP REFRIGERANT. A compound used as a heat transfer fluid or gas that is: (a) a chlorofluorocarbon, a hdrochlorofluorocarbon, a hydrofluorocarbon, a perfluorocarbon, or any compound or blend of compounds, with a		
	STANDARDS FOR COMMERCIAL PRE-RINSE SPRAY		as approved by the enforcing agency.		made.		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).		
	VALUES MANUFACTURED ON OR AFTER JANUARY 28, 2019 PRODUCT CLASS MAXIMUM FLOW RATE (gpm)		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.		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.		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.		
	[spray force in ounce force (ozf)] Product Class 1 (≤ 5.0 ozf) 1.00		Notes:		5.410.2.5.1 Systems manual. [N] Documentation of the operational aspects of the building shall be		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,		
	Product Class 2 (> 5.0 ozf and ≤ 8.0 ozf) 1.20		Sample forms found in "A Guide to the California Green Building Standards Code (Nonresidential)" located www.dgs.ca.gov/BSC/Resources/Page-Content/Building-Standards-Commission- Page 100 A Commission of the California Green Building Standards Code (Nonresidential)"		completed within the systems manual and delivered to the building owner or representative. The systems manual shall include the following: 1. Site information, including facility description, history and current requirements.		sec.82.3 (as amended March 10, 2009).		
	Product Class 3 (> 8.0 ozf) 1.28 5.303.4 COMMERCIAL KITCHEN EQUIPMENT.		Resources-List-Folder/CALGreen 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		 Site contact information. Basic operations and maintenance, including general site operating procedures, basic 		MERV. Filter minimum efficiency reporting value, based on ASHRAE 52.2–1999. MAXIMUM INCREMENTAL REACTIVITY (MIR). The maximum change in weight of ozone formed by adding a		
	5.303.4.1 Food Waste Disposers. Disposers shall either modulate the use of water to no more than 1 gpm		Resources Recycling and Recovery (CalRecycle). 5.408.2 UNIVERSAL WASTE. [A] Additions and alterations to a building or tenant space that meet the scoping		troubleshooting, recommended maintenance requirements, site events log. 4. Major systems. 5. Site equipment inventory and maintenance notes.		compound to the "Base REactive Organic Gas (ROG) Mixture" per weight of compound added, expressed to hundreths of a gram (g O ³ /g ROC).		
	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. Note: This code section does not affect local jurisdiction authority to prohibit or require disposer		provisions in Section 301.3 for nonresidential additions and alterations, shall require verification that Universal Waste items such as fluorescent lamps and ballast and mercury containing thermostats as well as other California prohibited Universal Waste materials are disposed of properly and are diverted from landfills. A list of prohibited Universal Waste		6. A copy of verifications required by the enforcing agency or this code.7. Other resources and documentation, if applicable.		PRODUCT-WEIGHTED MIR (PWMIR). The sum of all weighted-MIR for all ingredients in a product subject to this article. The PWMIR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of product (excluding container and packaging).		
	installation. 5.303.5 AREAS OF ADDITION OR ALTERATION. For those occupancies within the authority of the California		materials shall be included in the construction documents.		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		product (excluding container and packaging). PSIG. Pounds per square inch, guage.		
	Building Standards Commission as specified in Section 103, the provisions of Section 5.303.3 and 5.303.4 shall apply to new fixtures in additions or areas of alteration to the building.		Note: Refer to the Universal Waste Rule link at: http://www.dtsc.ca.gov/universalwaste/ 5.408.3 EXCAVATED SOIL AND LAND CLEARING DEBRIS. 100 percent of trees, stumps, rocks and associated		report and shall include the following: 1. System/equipment overview (what it is, what it does and with what other systems and/or		REACTIVE ORGANIC COMPOUND (ROC). Any compound that has the potential, once emitted, to contribute to ozone formation in the troposphere.		
	5.303.6 STANDARDS FOR PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures and fittings shall be installed in accordance with the <i>California Plumbing Code</i> , and shall meet the applicable standards referenced in Table 1701.1		vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed.		equipment it interfaces). 2. Review and demonstration of servicing/preventive maintenance. 3. Review of the information in the Systems Manual.		SCHRADER ACCESS VALVES. Access fittings with a valve core installed.		
	of the California Plumbing Code and in Chapter 6 of this code. SECTION 5.304 OUTDOOR WATER USE		Exception: Reuse, either on or off-site, of vegetation or soil contaminated by disease or pest infestation.		4. Review of the record drawings on the system/equipment.		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.		
	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		Notes: 1. If contamination by disease or pest infestation is suspected, contact the County Agricultural		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		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		
	Efficient Landscape Ordinance (MWELO), whichever is more stringent. Notes:		Commissioner and follow its direction for recycling or disposal of the material. 2. For a map of know pest and/or disease quarantine zones, consult with the California Department of Food and Agriculture. (www.cdfa.ca.gov)		representative. 5.410.4 TESTING AND ADJUSTING. New buildings less than 10,000 square feet. Testing and adjusting of		to remote compressor units or condensing units. VOC. A volatile organic compound broadly defined as a chemical compound based on carbon chains or rings with		
	 The Model Water Efficient Landscape Ordinance (MWELO) is located in the California Code of Regulations, Title 23, Chapter 2.7, Division 2. MWELO and supporting documents, including a water budget calculator, are available at: 				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.		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)		
	https://www.water.ca.gov/.				5.410.4.2 (Reserved)		Note: Where specific regulations are cited from different agencies such as SCAQMD, ARB, etc., the VOC definition included in that specific regulation is the one that prevails for the specific measure in question.		
	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		SECTION 5.410 BUILDING MAINTENANCE AND OPERATIONS 5.410.1 RECYCLING BY OCCUPANTS. Provide readily accessible areas that serve the entire building and are		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		SECTION 5.503 FIREPLACES 5.503.1 FIREPLACES. Install only a direct-vent sealed-combustion gas or sealed wood-burning fireplace, or a sealed		
	2.7, Division 2, Title 23, <i>California Code of Regulations</i> , except that the evapotranspiration adjustment factor (ETAF) shall be 0.65 with an additional water allowance for special landscape areas (SLA) of 0.35.		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		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.		woodstove or pellet stove, and refer to residential requirements in the California Energy Code, Title 24, Part 6, Subchapter 7, Section 150. Woodstoves, pellet stoves and fireplaces shall comply with applicable local ordinances.		
	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.		ordinance, if more restrictive. Exception: Rural jurisdictions that meet and apply for the exemption in Public Resources		5.410.4.2 Systems. Develop a written plan of procedures for testing and adjusting systems. Systems to be		5.503.1.1 Woodstoves. Woodstoves and pellet stoves 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 most the emission limits.		
	5.304.6.1 Newly constructed landscapes. New construction projects with an aggregate landscape area equal to or greater than 500 square feet.		Code 42649.82 (a)(2)(A) et seq. shall also be exempt from the organic waste portion of this section. 5.410.1.1 Additions. All additions conducted within a 12-month period under single or multiple permits,		included for testing and adjusting shall include at a minimum, as applicable to the project: 1. Renewable energy systems.		to meet the emission limits.		
	5.304.6.2 Rehabilitated landscapes. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 1,200 square feet.		resulting in an increase of 30% or more in floor area, shall provide recycling areas on site.		2. Landscape irrigation systems. 3. Water reuse systems.		SECTION 5.504 POLLUTANT CONTROL 5.504.1 TEMPORARY VENTILATION. The permanent HVAC system shall only be used during construction if necessary to condition the building or areas of addition or alteration within the required temperature range for		
	DIVISION 5.4 MATERIAL CONSERVATION AND RESOURCE		Exception : Additions within a tenant space resulting in less than a 30% increase in the tenant space floor area.		5.410.4.3 Procedures. Perform testing and adjusting procedures in accordance with manufacturer's specifications and applicable standards on each system.		material and equipment installation. If the HVAC system is used during construction, use return air filters with a Minimum Efficiency Reporting Value (MERV) of 8, based on ASHRAE 52.2-1999, or an average efficiency of 30% based on ASHRAE 52.1-1992 Replace all filters immediately prior to occupancy, or, if the building is		
	EFFICIENCY		5.410.1.2 Sample ordinance. Space allocation for recycling areas shall comply with Chapter 18, Part 3, Division 30 of the <i>Public Resources Code</i> . Chapter 18 is known as the California Solid Waste Reuse and Recycling Access Act of 1991 (Act).		5.410.4.3.1 HVAC balancing. In addition to testing and adjusting, before a new space-conditioning		occupied during alteration, at the conclusion of construction.		
	SECTION 5.401 GENERAL 5.401.1 SCOPE. The provisions of this chapter shall outline means of achieving material conservation and resource		Note: A sample ordinance for use by local agencies may be found in Appendix A of the document at the		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		5.504.3 Covering of duct openings and protection of mechanical equipment during construction. At the time of rough installation and during storage on the construction site until final startup of the heating, cooling and ventilation equipment, all duct and other related air distribution component openings shall be covered with tape, plastic,		
	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 and adjusting.		CalRecycle's web site.		Council National Standards or as approved by the enforcing agency.		sheetmetal or other methods acceptable to the enforcing agency to reduce the amount of dust, water and debris which may enter the system.		

DISCLAIMER: THIS DOCUMENT IS PROVIDED AND INTENDED TO BE USED AS A MEANS TO INDICATE AREAS OF COMPLIANCE WITH THE END USER TO MEET THOSE INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER ASSUMES ALL RESPONSIBILITY ASSOCIATED WITH THE CALIFORNIA GREEN BUILDING STANDARDS (CALGREEN) CODE. DUE TO THE VARIABLES BETWEEN BUILDING DEPARTMENT JURISDICTIONS, THIS CHECKLIST IS TO BE USED ON AN INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL PROJECT BY THE END USER TO MEET THOSE INDIVIDUAL PROJECT BY THE END USER TO MEET THOSE INDIVIDUAL PROJECT BY THE END USER TO MEET THOSE IN



California 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE

NONRESIDENTIAL MANDATORY MEASURES, SHEET 3 (January 2023)

NOT APPLICABLE
RESPONSIBLE PARTY (ie: ARCHITECT, ENGINEER,

 Aerosol adhesives, and smaller unit sizes of adhesi units of product, less packaging, which do not weigh me than 16 fluid ounces) shall comply with statewide VOC prohibitions on use of certain toxic compounds, of <i>California</i> with Section 94507. 	ore than one pound and do not consist of more standards and other requirements, including
TABLE 5.504.4.1 - ADHESIVE VOC LIMIT _{1,2}	
Less Water and Less Exempt Compounds in Grams per Lit	der
ARCHITECTURAL APPLICATIONS	CURRENT VOC LIMIT
INDOOR CARPET ADHESIVES	50
CARPET PAD ADHESIVES	50
OUTDOOR CARPET ADHESIVES	150
WOOD FLOORING ADHESIVES	100
RUBBER FLOOR ADHESIVES	50
SUBFLOOR ADHESIVES 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
1. IF AN ADHESIVE IS USED TO BOND DISSIMILAR SUE WITH THE HIGHEST VOC CONTENT SHALL BE ALLOW	
2. FOR ADDITIONAL INFORMATION REGARDING METH CONTENT SPECIFIED IN THIS TABLE, SEE SOUTH COAD DISTRICT RULE 1168, www.arb.ca.gov/DRDB/SC/CURHT	AST AIR QUALITY MANAGEMENT
TABLE 5.504.4.2 - SEALANT VOC LIMIT	
Less Water and Less Exempt Compounds in Grams per Lit	er
SEALANTS	CURRENT VOC LIMIT

5.504.4 FINISH MATERIAL POLLUTANT CONTROL. Finish materials shall comply with Sections 5.504.4.1 through

the requirements of the following standards:

5.504.4.1 Adhesives, sealants and caulks. Adhesives, sealants, and caulks used on the project shall meet

TABLE 5.504.4.2 - SEALANT VOC LIMIT							
ss Water and Less Exempt Compounds in Grams per Liter							
SEALANTS	CURRENT VOC LIMIT						
ARCHITECTURAL	250						
MARINE DECK	760						
NONMEMBRANE ROOF	300						
ROADWAY	250						
SINGLE-PLY ROOF MEMBRANE	450						
OTHER	420						
SEALANT PRIMERS							
ARCHITECTURAL							
NONPOROUS	250						
POROUS	775						
MODIFIED BITUMINOUS	500						
MARINE DECK	760						
OTHER	750						

NOTE: FOR ADDITIONAL INFORMATION REGARDING METHODS TO MEASURE THE VOC CONTENT SPECIFIED IN THESE TABLES, SEE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 1168.

5.504.4.3 Paints and coatings. Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Coatings Suggested Control Measure, as shown in Table 5.504.4.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 5.504.4.3 shall be determined by classifying the coating as a Flat, Nonflat or Nonflat-High Gloss coating, based on its gloss, as defined in Subsections 4.21, 4.36 and 4.37 of the 2007 California Air Resources Board Suggested Control Measure, and the corresponding Flat, Nonflat or Nonflat-High Gloss VOC limit in Table 5.504.4.3 shall apply.

5.504.4.3.1 Aerosol Paints and coatings. Aerosol paints and coatings shall meet the PWMIR Limits for ROC in Section 94522(a)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(c)(2) and (d)(2) of California Code of Regulations, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8 Rule 49.

GRAMS OF VOC PER LITER OF COATING, LESS WATER & LESS EXEMP COATING CATEGORY	CURRENT VOC LIMIT
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 COATINGS1	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

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

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:

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

5.504.4.4 Carpet Systems. All carpet installed in the building interior shall meet the requirements of 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 1.2, January 2017 (Emission testing method for California

See California Department of Public Health's website for certification programs and testing labs. https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx#material

5.504.4.4.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the requirements of 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 1.2, January 2017 (Emission testing method for California Specifications

See California Department of Public Health's website for certification programs and testing labs. https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx#material

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

5.504.4.5 Composite wood products. Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the 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

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:

1. Product certifications and specifications.

2. Chain of custody certifications.

3. Product labeled and invoiced as meeting the Composite Wood Products regulation (see

CCR, Title 17, Section 93120, et seq.). 4. Exterior grade products marked as meeting the PS-1 or PS-2 standards of the

Engineered Wood Association, the Australian AS/NZS 2269 or European 636 3S

5. Other methods acceptable to the enforcing agency.

TABLE 5.504.4.5 - FORMALDEHYDE LIMITS ₁	E 5.504.4.5 - FORMALDEHYDE LIMITS							
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 FIBERBOARD2	0.13							
1. VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIFORNIA AIR RESOURCES BOARD 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.

2. THIN MEDIUM DENSITY FIBERBOARD HAS A MAXIMUM THICKNESS OF 5/16 INCHES (8 MM)

5.504.4.6 Resilient flooring systems. Where resilient flooring is installed, at least 80 percent of floor area receiving resilient flooring shall meet the requirements of 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 1.2, January 2017 (Emission testing method for California Specifications

See California Department of Public Health's website for certification programs and testing labs. https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx#material

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

5.504.4.7 Thermal insulation

Comply with the requirements of the California Department of Public Health, "Standard Method of the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, "Version 1.2, January 1.2, January 2017 (Emission testing method for California Specification 01350). See California Department of Public Health's website for certification programs and testing labs. https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx#material

5.504.4.7.1 Verification of compliance. Documentation shall be provided verifying that thermal insulation materials meet the pollutant emission

Version 1.2, January 2017 (Emission testing method for California Specification 01350).

5.504.4.8 Acoustical ceiling and wall panels. Comply with the requirements of the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers,

See California Department of Public Health's website for certification programs and testing labs. **5.504.4.8.1 Verification of compliance.** Documentation shall be provided verifying that acoustical

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.

Exceptions: Existing mechanical equipment.

finish materials meet the pollutant emission limits.

5.504.5.3.1 Labeling. Installed filters shall be clearly labeled by the manufacturer indicating the MERV

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.

SECTION 5.505 INDOOR MOISTURE CONTROL

5.505.1 INDOOR MOISTURE CONTROL. Buildings shall meet or exceed the provisions of California Building Code, CCR, Title 24, Part 2, Sections 1202 (Ventilation) and Chapter 14 (Exterior Walls). For additional measures, see Section 5.407.2 of this code.

SECTION 5.506 INDOOR AIR QUALITY 5.506.1 OUTSIDE AIR DELIVERY. For mechanically or naturally ventilated spaces in buildings, meet the minimum requirements of Section 120.1 (Requirements For Ventilation) of the California Energy Code, or the applicable local code, whichever is more stringent, and Division 1, Chapter 4 of CCR, Title 8.

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 California Energy Code, Section 120(c)(4).

5.506.3 Carbon dioxide (CO2) monitoring in classrooms

(DSA-SS) Each public K-12 school classroom, as listed in Table 120.1-A of the California Energy Code, shall be equipped with a carbon dioxide monitor or sensor that meets the following requirements:

The monitor or sensor shall be permanently affixed in a tamper-proof manner in each classroom between 3 and 6 feet (914 mm and 1829 mm) above the floor and at least 5 feet (1524 mm) away from door and operable

When the monitor or sensor is not integral to an Energy Management Control System (EMCS), the monitor or sensor shall display the carbon dioxide readings on the device. When the sensor is integral to an EMCS, the carbon dioxide readings shall be available to and regularly monitored by facility personnel.

A monitor shall provide notification though a visual indicator on the monitor when the carbon dioxide levels in the classroom have exceeded 1,100ppm. A sensor integral to an EMCS shall provide notification to facility personnel through a visual and/or audible indicator when the carbon dioxide levels in the classroom have exceeded 1,100ppm.

The monitor or sensor shall measure carbon dioxide levels at minimum 15- minute intervals and shall maintain a record of previous carbon dioxide measurements of not less than 30 days duration.

The monitor or sensor used to measure carbon dioxide levels shall have the capacity to measure carbon dioxide

levels with a range of 400ppm to 2000ppm or greater. The monitor or sensor shall be certified by the manufacturer to be accurate within 75ppm at 1,000ppm carbon dioxide concentration and shall be certified by the manufacturer to require calibration no more frequently than

SECTION 5.507 ENVIRONMENTAL COMFORT

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.

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.

Exception: [DSA-SS] For public schools and community colleges, the requirements of this section and all subsections apply only to new construction.

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:

1. Within the 65 CNEL noise contour of an airport.

1. Ldn or CNEL for military airports shall be determined by the facility Air Installation Compatible

2. Ldn 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.

2. Within the 65 CNEL or Ldn noise contour of a freeway or expressway, railroad, industrial source or fixed-guideway source as determined by the Noise Element of the General Plan.

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).

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.

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.

5.507.4.2.2 Documentation of Compliance. An acoustical analysis documenting complying interior sound levels shall be prepared by personnel approved by the architect or engineer of record.

5.507.4.3 Interior sound transmission. Wall and floor-ceiling assemblies separating tenant spaces and tenan spaces and public places shall have an STC of at least 40.

Note: Examples of assemblies and their various STC ratings may be found at the California Office of Noise Control: www.toolbase.org/PDF/CaseStudies/stc_icc_ratings.pdf.

SECTION 5.508 OUTDOOR AIR QUALITY

5.508.1 Ozone depletion and greenhouse gas reductions. Installations of HVAC, refrigeration and fire suppression equipment shall comply with Sections 5.508.1.1 and 5.508.1.2.

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

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

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.

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.

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.

5.508.2.1.1 Threaded pipe. Threaded connections are permitted at the compressor rack.

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.

5.508.2.1.2.1 Anchorage. One-fouth-inch OD tubing shall be securely clamped to a rigid base to keep vibration levels below 8 mils.

5.508.2.1.3 Flared tubing connections. Double-flared tubing connections may be used for pressure controls, valve pilot lines and oil.

Exception: Single-flared tubing connections may be used with a multiring seal coated with industrial sealant suitable for use with refrigerants and tightened in accordance with manufacturer's

5.508.2.1.4 Elbows. Short radius elbows are only permitted where space limitations prohibit use of

5.508.2.2 Valves. Valves Valves and fittings shall comply with the *California Mechanical Code* and as

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. 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. **5.508.2.2.2 Access valves.** Only Schrader access valves with a brass or steel body are

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.

5.508.2.2.2 Seal caps. If designed for it, the cap shall have a neoprene O-ring in place.

5.508.2.2.2.2.1 Chain tethers. Chain tethers to fit ovr the stem are required for valves designed to have seal caps.

Exception: Valves with seal caps that are not removed from the valve during stem

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 **5.508.2.3.1 Coil coating.** Consideration shall be given to the heat transfer efficiency of coil coating to

maximize energy efficiency. **5.508.2.4 Refrigerant receivers.** Refrigerant receivers with capacities greater than 200 pounds shall be fitted

5.508.2.5 Pressure testing. The system shall be pressure tested during installation prior to evacuation and

with a device tha indicates the level of refrigerant in the receiver.

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.

5.508.2.5.2 Leaks. Check the system for leaks, repair any leaks, and retest for pressure using the same

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.

5.508.2.6 Evacuation. The system shall be evacuated after pressure testing and prior to charging.

5.508.2.6.1 First vacuum. Pull a system vacuum down to at least 1000 microns (+/- 50 microns), and

5.508.2.6.2 Second vacuum. Pull a second system vacuum to a minimum of 500 microns and hold for 30

5.508.2.6.3 Third vacuum. Pull a third vacuum down to a minimum of 300 microns, and hold for 24 hours

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with a maximum drift of 100 microns over a 24-hour period.

702.1 INSTALLER TRAINING. HVAC system installers shall be trained and certified in the proper nstallation 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:

- State certified apprenticeship programs.
- Public utility training programs.
- Training programs sponsored by trade, labor or statewide energy consulting or verification organizations. 4. Programs sponsored by manufacturing organizations.

5. Other programs acceptable to the enforcing agency.

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:

- Certification by a national or regional green building program or standard publisher.
- 2. 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. 4. Other programs acceptable to the enforcing agency.

1. Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code. 2. 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).

[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.

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.

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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.

DISCLAIMER: THIS DOCUMENT IS PROVIDED AND INTENDED TO BE USED AS A MEANS TO INDICATE AREAS OF COMPLIANCE WITH THE CALIFORNIA GREEN BUILDING VERIFICATION WITH THE FULL CODE.