

2019 CALIFORNIA GREEN BUILDING STANDARDS CODE

NONRESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2020, Includes August 2019 Supplement) NOT APPLICABLE RESPONSIBLE PARTY (Ie: ARCHITECT, ENGINEER, Y N/A RESPON. **CHAPTER 3** 5.106.2 STORMWATER POLLUTION PREVENTION FOR PROJECTS THAT DISTURB ONE OR MORE ACRES OF 5.106.12 SHADE TREES [DSA-SS]. Shade Trees shall be planted to comply with Sections 5.106.12.1, 5.106.12.2, LAND. Comply with all lawfully enacted stormwater discharge regulations for projects that (1) disturb one acre or Where there is insufficient electrical supply. and 5.106.12.3. Percentages shown shall be measured at noon on the summer solstice. Landscape irrigation **GREEN BUILDING** more of land, or (2) disturb less than one acre of land but are part of a larger common plan of development sale. 2. Where there is evidence suitable to the local enforcing agency substantiating that necessary to establish and maintain tree health shall comply with Section 5.304.6. additional local utility infrastructure design requirements, directly related to the **SECTION 301 GENERAL** 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 implementation of Section 5.106.5.3, may adversely impact the construction cost of the 5.106.12.1 Surface parking areas. Shade tree plantings, minimum #10 container size or equal, shall be installed larger common plan of development or sale must comply with the post-construction requirements detailed in the to provide shade over 50 percent of the parking area within 15 years. **301.1 SCOPE.** Buildings shall be designed to include the green building measures specified as mandatory in applicable National Pollutant Discharge Elimination System (NPDES) General permit for Stormwater Discharges the application checklists contained in this code. Voluntary green building measures are also included in the Associated with Construction and Land Disturbance Activities issued by the State Water Resources Control Board or **Exceptions:** The surface parking area covered by solar photovoltaic shade structures, or shade TABLE 5.106.5.3.3 application checklists and may be included in the design and construction of structures covered by this code, the Lahontan Regional Water Quality Control Board (for projects in the Lake Tahoe Hydrologic Unit). structures, with roofing materials that comply with Table A5.106.11.2.2 in Appendix A5, are not but are not required unless adopted by a city, county, or city and county as specified in Section 101.7. included in the total area calculations TOTAL NUMBER OF PARKING SPACES NUMBER OF REQUIRED SPACES The NPDES permits require postconstruction runoff (post-project hydrology) to match the preconstruction runoff 301.3 NONRESIDENTIAL ADDITIONS AND ALTERATIONS. [BSC-CG] The provisions (pre-project hydrology) with the installation of postconstruction stormwater management measures. The NPDES 0-9 **5.106.12.2** Landscape areas. Shade tress plantings, minimum #10 container size or equal shall be installed to of individual sections of Chapter 5 apply to newly constructed buildings, building additions of 1,000 square permits emphasize runoff reduction through on-site stormwater use, interception, evapotranspiration, and infiltration provide shade of 20% of the landscape area within 15 years. feet or greater, and/or building alterations with a permit valuation of \$200,000 or above (for occupancies within through nonstructural controls, such as Low Impact Development (LID) practices, and conversation design measures. 10-25 the authority of California Building Standards Commission). Code sections relevant to additions and Stormwater volume that cannot be addressed using nonstructural practices is required to be captured in structural **Exceptions:** Playfields for organized sport activity are not included in the total area calculation. alterations shall only apply to the portions of the building being added or altered within the scope of the practices and be approved by the enforcing agency. 26-50 2 permitted work. **5.106.12.3.** Hardscape areas. Shade tree plantings, minimum #10 container size or equal shall be installed to 51-75 4 Refer to the current applicable permits on the State Water Resources Control Board website at: provide shade over 20 percent of the hardscape area within 15 years. A code section will be designated by a banner to indicate where the code section only applies to newly www.waterboards.ca.gov/constructionstormwater. Consideration to the stormwater runoff management measures 76-100 constructed buildings [N] or to additions and/or alterations [A]. When the code section applies to both, no should be given during the initial design process for appropriate integration into site development. **Exceptions:** Walks, hardscape areas covered by solar photovoltaic shade structures, and hardscape 101-150 areas covered by shade structures with roofing materials that comply with Table A5.106.11.2.2 in Appendix A5, are not included in the total area calculation. 301.3.1 Nonresidential additions and alterations that cause updates to plumbing fixtures only: 151-200 10 5.106.4 BICYCLE PARKING. For buildings within the authority of California Building Standards Commission as specified in Section 103, comply with Section 5.106.4.1. For buildings within the authority of the Division of the State 201 AND OVER 6% of total1 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 1101.3. shall have its noncompliant plumbing fixtures replaced with appropriate water-conserving **DIVISION 5.2 ENERGY EFFICIENCY** 1. Calculation for spaces shall be rounded up to the nearest whole number. plumbing fixtures under specific circumstances. See Civil Code Section 1101.1 et seq. 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 types of commercial real property affected, effective dates, circumstances necessitating **SECTION 5.201 GENERAL** 5.106.5.3.4 [N] Identification. The service panel or subpanel(s) circuit directory shall identify the replacement of noncompliant plumbing fixtures, and duties and responsibilities for **5.201.1 Scope [BSC-CG].** California Energy Code [DSA-SS]. For the purposes of mandatory energy efficiency reserved overcurrent protective device space(s) for future EV charging as "EV CAPABLE". The raceway **5.106.4.1.1 Short-term bicycle parking.** If the new project or an addition or alteration is anticipated standards in this code, the California Energy Commission will continue to adopt mandatory building standards. termination location shall be permanently and visibly marked as "EV CAPABLE". to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' 301.3.2 Waste Diversion. The requirements of Section 5.408 shall be required for additions and DIVISION 5.3 WATER EFFICIENCY AND CONSERVATION entrance, readily visible to passers-by, for 5% of new visitor motorized vehicle parking spaces being **5.106.5.3.5** [N] Future charging spaces qualify as designated parking as described in Section 5.106.5.2 alterations whenever a permit is required for work. added, with a minimum of one two-bike capacity rack. Designated parking for clean air vehicles. **SECTION 5.301 GENERAL Exception:** Additions or alterations which add nine or less visitor vehicular parking spaces. 301.4 PUBLIC SCHOOLS AND COMMUNITY COLLEGES. (see GBSC) **5.301.1 Scope.** The provisions of this chapter shall establish the means of conserving water use indoors, outdoors 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 and in wastewater conveyance. 5.106.8 LIGHT POLLUTION REDUCTION. [N].I Outdoor lighting systems shall be designed and installed to comply **SECTION 302 MIXED OCCUPANCY BUILDINGS** tenant-occupants, provide secure bicycle parking for 5 percent of the tenant-occupant vehicular parking **SECTION 5.302 DEFINITIONS** with the following: spaces with a minimum of one bicycle parking facility. **5.302.1 Definitions.** The following terms are defined in Chapter 2 (and are included here for reference) **302.1 MIXED OCCUPANCY BUILDINGS.** In mixed occupancy buildings, each portion of a building 1. The minimum requirements in the California Energy Code for Lighting Zones 0-4 as defined in Chapter 10, **5.106.4.1.3** For additions or alterations that add 10 or more tenant-occupant vehicular parking spaces, shall comply with the specific green building measures applicable to each specific occupancy. Section 10-114 of the California Administrative Code; and EVAPOTRANSPIRATION ADJUSTMENT FACTOR (ETAF) [DSA-SS]. An adjustment factor when applied to provide secure bicycle parking for 5 percent of the tenant vehicular parking spaces being added, with a 2. Backlight (B) ratings as defined in IES TM-15-11 (shown in Table A-1 in Chapter 8); reference evapotranspiration that adjusts for plant factors and irrigation efficiency, which ae two major influences on minimum of one bicycle parking facility. 3. Uplight and Glare ratings as defined in California Energy Code (shown in Tables 130.2-A and 130.2-B in the amount of water that needs to be applied to the landscape. **SECTION 303 PHASED PROJECTS** 5.106.4.1.4 For new shell buildings in phased projects provide secure bicycle parking for 5 percent of the 4. Allowable BUG ratings not exceeding those shown in Table 5.106.8, [N] or Comply with a local ordinance FOOTPRINT AREA [DSA-SS]. The total area of the furthest exterior wall of the structure projected to natural grade, anticipated tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility. 303.1 PHASED PROJECTS. For shell buildings and others constructed for future tenant improvements lawfully enacted pursuant to Section 101.7, whichever is more stringent. not including exterior areas such as stairs, covered walkways, patios and decks. 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 construction (or newly constructed) shall apply. Exceptions: [N] METERING FAUCET. A self-closing faucet that dispenses a specific volume of water for each actuation cycle. The be convenient from the street and shall meet one of the following: volume or cycle duration can be fixed or adjustable. **303.1.1 Initial Tenant improvements.** The provisions of this code shall apply only to the initial tenant 1. Luminaires that qualify as exceptions in Section 140.7 of the California Energy Code. 1. Covered, lockable enclosures with permanently anchored racks for bicycles; improvements to a project. Subsequent tenant improvements shall comply with the scoping provisions in GRAYWATER. Pursuant to Health and Safety Code Section 17922.12, "graywater" means untreated wastewater that 2. Lockable bicycle rooms with permanently anchored racks; or Section 301.3 non-residential additions and alterations. 3. Building facade meeting the requirements in Table 140.7-B of the California Energy Code, Part 6. has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated, or unhealthy Lockable, permanently anchored bicycle lockers. 4. Custom lighting features as allowed by the local enforcing agency, as permitted by Section 101.8 bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or **ABBREVIATION DEFINITIONS:** Alternate materials, designs and methods of construction. operating wastes. "Graywater" includes, but is not limited to wastewater from bathtubs, showers, bathroom Note: Additional information on recommended bicycle accommodations may be obtained from Department of Housing and Community Development washbasins, clothes washing machines and laundry tubs, but does not include waste water from kitchen sinks or Sacramento Area Bicycle Advocates. California Building Standards Commission dishwashers. Division of the State Architect, Structural Safety DSA-SS 1. See also California Building Code, Chapter 12, Section 1205.6 for college campus lighting 5.106.4.2 Bicycle parking. [DSA-SS] For public schools and community colleges, comply with Sections Office of Statewide Health Planning and Development OSHPD requirements for parking facilities and walkways. MODEL WATER EFFICIENT LANDSCAPE ORDINANCE (MWELO). The California ordinance regulating landscape Low Rise 2. Refer to Chapter 8 (Compliance Forms, Worksheets and Reference Material) for IES TM-15-11 Table design, installation and maintenance practices that will ensure commercial, multifamily and other developer installed A-1, California Energy Code Tables 130.2-A and 130.2-B. landscapes greater than 2500 square feet meet an irrigation water budget developed based on landscaped area and **5.106.4.2.1 Student bicycle parking.** Provide permanently anchored bicycle racks conveniently Additions and Alterations 3. Refer to the California Building Code for requirements for additions and alterations. climatological parameters. accessed with a minimum of four two-bike capacity racks per new building. 5.106.4.2.2 Staff bicycle parking. Provide permanent, secure bicycle parking conveniently accessed MODEL WATER EFFICIENT LANDSCAPE ORDINANCE (MWELO). [HCD] The California model ordinance with a minimum of two staff bicycle parking spaces per new building. Acceptable bicycle parking facilities CHAPTER 5 (California Code of Regulations, Title 23, Division 2, Chapter 2.7), regulating landscape design, installation and shall be convenient from the street or staff parking area and shall meet one of the following: TABLE 5.106.8 [N] MAXIMUM ALLOWABLE BACKLIGHT, UPLIGHT maintenance practices. Local agencies are required to adopt the updated MWELO, or adopt a local ordinance at least NONRESIDENTIAL MANDATORY MEASURES AND GLARE (BUG) RATINGS 1,2 1. Covered, lockable enclosures with permanently anchored racks for bicycles; 2. Lockable bicycle rooms with permanently anchored racks; or POTABLE WATER. Water that is drinkable and meets the U.S. Environmental Protection Agency (EPA) Drinking DIVISION 5.1 PLANNING AND DESIGN 3. Lockable, permanently anchored bicycle lockers. LIGHTING | LIGHTING | LIGHTING ALLOWABLE RATING ZONE Water Standards. See definition in the California Plumbing Code, Part 5. ZONE LZ1 | ZONE LZ2 | ZONE LZ3 | **SECTION 5.101 GENERAL** 5.106.5.2 DESIGNATED PARKING FOR CLEAN AIR VEHICLES. In new projects or additions or alterations POTABLE WATER. [HCD] Water that is satisfactory for drinking, culinary, and domestic puroses, and meets the U.S. that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, 5.101.1 SCOPE MAXIMUM ALLOWABLE Environmental Protection Agency (EPA) Drinking Water Standards and the requirements of the Health Authority The provisions of this chapter outline planning, design and development methods that include environmentally fuel-efficient and carpool/van pool vehicles as follows: BACKLIGHT RATING 3 Having Jurisdiction. responsible site selection, building design, building siting and development to protect, restore and enhance the Luminaire greater than 2 environmental quality of the site and respect the integrity of adjacent properties. TABLE 5.106.5.2 - PARKING **RECYCLED WATER.** Water which, as a result of treatment of waste, is suitable for a direct beneficial use or a mounting heights (MH) from No Limit No Limit No Limit No Limit controlled use that would not otherwise occur [Water Code Section 13050 (n)]. Simply put, recycled water is water property line **SECTION 5.102 DEFINITIONS** TOTAL NUMBER OF PARKING SPACES NUMBER OF REQUIRED SPACES treated to remove waste matter attaining a quality that is suitable to use the water again. 5.102.1 DEFINITIONS Luminaire back hemisphere is The following terms are defined in Chapter 2 (and are included here for reference) SUBMETER. A meter installed subordinate to a site meter. Usually used to measure water intended for one purpose, 1-2 MH from property line such as landscape irrigation. For the purposes of CALGreen, a dedicated meter may be considered a submeter. 10-25 CUTOFF LUMINAIRES. Luminaires whose light distribution is such that the candela per 1000 lamp lumens does not Luminaire back hemisphere is numerically exceed 25 (2.5 percent) at an angle of 90 degrees above nadir, and 100 (10 percent) at a vertical angle of WATER BUDGET. Is the estimated total landscape irrigation water use which shall not exceed the maximum applied 0.5-1 MH from property line 25-50 80 degrees above nadir. This applies to all lateral angles around the luminaire. water allowance calculated in accordance with the Department of Water Resources Model Efficient Landscape Luminaire back hemisphere is 51-75 Ordinance (MWELO). LOW-EMITTING AND FUEL EFFICIENT VEHICLES. less than 0.5 MH from property **SECTION 5.303 INDOOR WATER USE** 76-100 Eligible vehicles are limited to the following: **5.303.1 METERS.** Separate submeters or metering devices shall be installed for the uses described in Sections 101-150 MAXIMUM ALLOWABLE 1. Zero emission vehicle (ZEV), including neighborhood electric vehicles (NEV), partial zero emission **UPLIGHT RATING (U)** vehicle (PZEV), advanced technology PZEV (AT ZEV) or CNG fueled (original equipment manufacturer 151-200 **5.303.1.1 Buildings in excess of 50,000 square feet.** Separate submeters shall be installed as follows: only) regulated under Health and Safety Code section 43800 and CCR, Title 13, Sections 1961 and 1962. For area lighting 4 U0 U0 U0 U0 2. High-efficiency vehicles, regulated by U.S. EPA, bearing High-Occupancy Vehicle (HOV) car pool lane AT LEAST 8% OF TOTAL 201 AND OVER 1. For each individual leased, rented or other tenant space within the building projected to consume stickers issued by the Department of Motor Vehicles. For all other outdoor more than 100 gal/day (380 L/day), including, but not limited to, spaces used for laundry or cleaners, lighting,including decorative restaurant or food service, medical or dental office, laboratory, or beauty salon or barber shop. NEIGHBORHOOD ELECTRIC VEHICLE (NEV). A motor vehicle that meets the definition of "low-speed vehicle" **5.106.5.2.1 - Parking stall marking.** Paint, in the paint used for stall striping, the following luminaires 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. Where separate submeters for individual building tenants are unfeasible, for water supplied to the characters such that the lower edge of the last word aligns with the end of the stall striping and is zero-emission vehicle standards. MAXIMUM ALLOWABLE following subsystems: visible beneath a parked vehicle: CLEAN AIR / VAN POOL / EV GLARE RATING 5 (G) a. Makeup water for cooling towers where flow through is greater than 500 gpm (30 L/s). TENANT-OCCUPANTS. Building occupants who inhabit a building during its normal hours of operation as permanent Makeup water for evaporative coolers greater than 6 gpm (0.04 L/s). Note: Vehicles bearing Clean Air Vehicle stickers from expired HOV lane programs may be Luminaire greater than 2 MH occupants, such as employees, as distinguished from customers and other transient visitors. Steam and hot water boilers with energy input more than 500,000 Btu/h (147 kW). considered eligible for designated parking spaces. from property line **VANPOOL VEHICLE.** Eligible vehicles are limited to any motor vehicle, other than a motortruck or truck tractor, **5.303.1.2 Excess consumption.** A separate submeter or metering device shall be provided for any tenant Luminaire front hemisphere is **5.106.5.3 Electric vehicle (EV) charging. [N]** Construction shall comply with Section 5.106.5.3.1 designed for carrying more than 10 but not more than 15 persons including the driver, which is maintained and used within a new building or within an addition that is projected to consume more than 1,000 gal/day. 1-2 MH from property line or Section 5.106.5.3.2 to facilitate future installation of electric vehicle supply equipment (EVSE). primarily for the nonprofit work-related transportation of adults for the purpose of ridesharing. When EVSE(s) is/are installed, it shall be in accordance with the California Building Code, the Luminaire front hemisphere is 5.303.3 WATER CONSERVING PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures (water closets and Note: Source: Vehicle Code, Division 1, Section 668 California Electrical Code and as follows: 0.5-1 MH from property line urinals) and fittings (faucets and showerheads) shall comply with the following: **ZEV.** Any vehicle certified to zero-emission standards. Luminaire back hemisphere is 5.106.5.3.1 Single charging space requirements. [N] When only a single charging space is **5.303.3.1 Water Closets.** The effective flush volume of all water closets shall not exceed 1.28 gallons per less than 0.5 MH from property required per Table 5.106.5.3.3, a raceway is required to be installed at the time of construction flush. Tank-type water closets shall be certified to the performance criteria of the U.S. EPA WaterSense **SECTION 5.106 SITE DEVELOPMENT** and shall be installed in accordance with the California Electrical Code. Construction plans and Specification for Tank-Type toilets. 5.106.1 STORM WATER POLLUTION PREVENTION FOR PROJECTS THAT DISTURB LESS THAN ONE ACRE specifications shall include, but are not limited to, the following: 1. IESNA Lighting Zones 0 and 5 are not applicable; refer to Lighting Zones as defined in the **OF LAND.** Newly constructed projects and additions which disturb less than one acre of land, and are not part of a Note: The effective flush volume of dual flush toilets is defined as the composite, average flush volume of California Energy Code and Chapter 10 of the Callifornia Administrative Code. larger common plan of development or sale, shall prevent the pollution of storm water runoff from the construction two reduced flushes and one full flush. 1. The type and location of the EVSE. activities through one or more of the following measures: 2. For property lines that abut public walkways, bikeways, plazas and parking lots, the property 2. A listed raceway capable of accommodating a 208/240 -volt dedicated branch circuit. line may be considered to be 5 feet beyond the actual property line for purpose of determining 3. The raceway shall not be less than trade size 1". 5.106.1.1 Local ordinance. Comply with a lawfully enacted storm water management and/or erosion control 5.303.3.2.1 Wall-mounted Urinals. The effective flush volume of wall-mounted urinals shall not exceed compliance with this section. For property lines that abut public roadways and public transit 4. The raceway shall originate at a service panel or a subpanel serving the area, and shall 0.125 gallons per flush. terminate in close proximity to the proposed location of the charging equipment and listed corridors, the property line may be considered to be the centerline of the public roadway or public transit corridor for the purpose of determining compliance with this section. **5.106.1.2 Best Management Practices (BMPs).** Prevent the loss of soil through wind or water erosion by suitable cabinet, box, enclosure or equivalent. 5.303.3.2.2 Floor-mounted Urinals. The effective flush volume of floor-mounted or other urinals shall implementing an effective combination of erosion and sediment control and good housekeeping BMPs. 5. The service panel or subpanel shall have sufficient capacity to accommodate a minimum 3. If the nearest property line is less than or equal to two mounting heights from the back not exceed 0.5 gallons per flush. 40-ampere dedicated branch circuit for the future installation of the EVSE. hemisphere of the luminaire distribution, the applicable reduced Backlight rating shall be met. 1. Soil loss BMPs that should be considered for implementation as appropriate for each project include, but are not limited to, the following: 4. General lighting luminaires in areas such as outdoor parking, sales or storage lots shall meet **5.106.5.3.2 Multiple charging space requirements. [N]** When multiple charging spaces are **5.303.3.3.1 Single showerhead.** Showerheads shall have a maximum flow rate of not more than 1.8 a. Scheduling construction activity during dry weather, when possible. these reduced ratings. Decorative luminaires located in these areas shall meet *U*-value limits for required per Table 5.106.5.3.3 raceway(s) is/are required to be installed at the time of construction gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA b. Preservation of natural features, vegetation, soil, and buffers around surface waters. "all other outdoor lighting". WaterSense Specification for Showerheads. and shall be installed in accordance with the California Electrical Code. Construction plans and c. Drainage swales or lined ditches to control stormwater flow. specifications shall include, but are not limited to, the following: 5. If the nearest property line is less than or equal to two mounting heights from the front d. Mulching or hydroseeding to stabilize disturbed soils. **5.303.3.3.2 Multiple showerheads serving one shower.** When a shower is served by more than one e. Erosion control to protect slopes. hemisphere of the luminaire distribution, the applicable reduced Glare rating shall be met. showerhead, the combined flow rate of all the showerheads and/or other shower outlets controlled by a 1. The type and location of the EVSE. Protection of storm drain inlets (gravel bags or catch basin inserts). single valve shall not exceed 1.8 gallons per minute at 80 psi, or the shower shall be designed to 2. The raceway(s) shall originate at a service panel or a subpanel(s) serving the area, and Perimeter sediment control (perimeter silt fence, fiber rolls). allow only one shower outlet to be in operation at a time. shall terminate in close proximity to the proposed location of the charging equipment and Sediment trap or sediment basin to retain sediment on site. Note: A hand-held shower shall be considered a showerhead. into listed suitable cabinet(s), box(es), enclosure(s) or equivalent. Stabilized construction exits. Wind erosion control. 3. Plan design shall be based upon 40-ampere minimum branch circuits. **5.106.10 GRADING AND PAVING.** Construction plans shall indicate how site grading or a drainage system will k. Other soil loss BMPs acceptable to the enforcing agency. 4. Electrical calculations shall substantiate the design of the electrical system, to include the manage all surface water flows to keep water from entering buildings. Examples of methods to manage surface water 2. Good housekeeping BMPs to manage construction equipment, materials, non-stormwater discharges rating of equipment and any on-site distribution transformers and have sufficient capacity include, but are not limited to, the following: and wastes that should be considered for implementation as appropriate for each project include, but to simultaneously charge all required EVs at its full rated amperage. are not limited to, the following: 5. The service panel or subpanel(s) shall have sufficient capacity to accommodate the a. Dewatering activities. required number of dedicated branch circuit(s) for the future installation of the EVSE. 2. Water collection and disposal systems. b. Material handling and waste management. French drains. c. Building materials stockpile management. 5.106.5.3.3 EV charging space calculations. [N] Table 5.106.5.3.3 shall be used to determine if 4. Water retention gardens. d. Management of washout areas (concrete, paints, stucco, etc.). single or multiple charging space requirements apply for the future installation of EVSE. 5. Other water measures which keep surface water away from buildings and aid in groundwater e. Control of vehicle/equipment fueling to contractor's staging area. Vehicle and equipment cleaning performed off site. **Exception:** Additions and alterations not altering the drainage path. Spill prevention and control. **Exceptions:** On a case-by-case basis where the local enforcing agency has determined EV h. Other housekeeping BMPs acceptable to the enforcing agency. charging and infrastructure is not feasible based upon one or more of the following conditions:

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Y = YES
N/A = NOT APPLICABLE
RESPON. PARTY = RESPONSIBLE PARTY (Ie: ARCHITECT, ENGINEER,
OWNER, CONTRACTOR, INSPECTOR ETC.)

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	5.303.3.4 Faucets and fountains.	SECTION 5.407 WATER RESISTANCE AND MOISTURE MANAGEMENT 5.407.1 WEATHER PROTECTION. Provide a weather-resistant exterior wall and foundation envelope as required by	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	5.410.4.4 Reporting. After completion of testing, adjusting and balancing, provide a final report of testing signed by the individual responsible for performing these services.
	5.303.3.4.1 Nonresidential Lavatory faucets. Lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi.	California Building Code Section 1402.2 (Weather Protection), manufacturer's installation instructions or local ordinance, whichever is more stringent.	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	5.410.4.5 Operation and maintenance (O & M) manual. Provide the building owner or representative with detailed operating and maintenance instructions and copies of guaranties/warranties for each system. O & M
	5.303.3.4.2 Kitchen faucets. Kitchen faucets shall have a maximum flow rate of not more than 1.8	5.407.2 MOISTURE CONTROL. Employ moisture control measures by the following methods. 5.407.2.1 Sprinklers. Design and maintain landscape irrigation systems to prevent spray on structures.	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.	instructions shall be consistent with OSHA requirements in CCR, Title 8, Section 5142, and other related regulations.
	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.	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:	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	5.410.4.5.1 Inspections and reports. Include a copy of all inspection verifications and reports required by the enforcing agency.
	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].	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	Commissioning requirements shall include:	DIVISION 5.5 ENVIRONMENTAL QUALITY
	5.303.3.4.4 Metering faucets. Metering faucets shall not deliver more than 0.20 gallons per cycle.5.303.3.4.5 Metering faucets for wash fountains. Metering faucets for wash fountains shall have a	such openings plus at least one of the following: 1. An installed awning at least 4 feet in depth.	 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
	maximum flow rate of not more than 0.20 gallons per minute/20 [rim space (inches) at 60 psi].	 The door is protected by a roof overhang at least 4 feet in depth. The door is recessed at least 4 feet. Other methods which provide equivalent protection. 	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
	Note: Where complying faucets are unavailable, aerators or other means may be used to achieve reduction.	5.407.2.2.2 Flashing. Install flashings integrated with a drainage plane.	7. Commissioning report.	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.
	5.303.4 COMMERCIAL KITCHEN EQUIPMENT.	SECTION 5.408 CONSTRUCTION WASTE REDUCTION, DISPOSAL AND	Exceptions: 1. Unconditioned warehouses of any size.	A-WEIGHTED SOUND LEVEL (dBA). The sound pressure level in decibels as measured on a sound level meter
	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. Note: This code section does not affect local jurisdiction authority to prohibit or require disposer	RECYCLING 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	 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. Open parking garages of any size, or open parking garage areas, of any size, within a structure. 	using the internationally standardized A-weighting filter or as computed from sound spectral data to which A-weighting adjustments have been made. 1 BTU/HOUR. British thermal units per hour, also referred to as Btu. The amount of heat required to raise one pound
	installation. 5.303.5 AREAS OF ADDITION OR ALTERATION. For those occupancies within the authority of the California	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	Note: For the purposes of this section, unconditioned shall mean a building, area, or room which does not provide heating and or air conditioning.	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. COMMUNITY NOISE EQUIVALENT LEVEL (CNEL). A metric similar to the day-night average sound level (Ldn),
	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.	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	Informational Notes:	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.
	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 of the <i>California Plumbing Code</i> and in Chapter 6 of this code.	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	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 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 finger–jointed lumber, all as specified in California Code of Regulations (CCR), Title 17, Section 93120.1(a).
	SECTION 5.304 OUTDOOR WATER USE 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	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	 Functional performance testing for heating, ventilation, air conditioning systems and lighting controls must be performed in compliance with the California Energy Code. 	Note: See CCR, Title 17, Section 93120.1. DAY-NIGHT AVERAGE SOUND LEVEL (Ldn). The A-weighted equivalent continuous sound exposure level for a
	Efficient Landscape Ordinance (MWELO), whichever is more stringent. Notes:	complies with this section. Note: The owner or contractor shall make the determination if the construction and demolition waste material	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,
	1. The Model Water Efficient Landscape Ordinance (MWELO) is located in the California Code of Regulations, Title 23, Chapter 2.7, Division 2. 3. MWELO and supporting documents, including a water budget calculator, are available at:	will be diverted by a waste management company.	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.
	MWELO and supporting documents, including a water budget calculator, are available at: https://www.water.ca.gov/.	Exceptions to Sections 5.408.1.1 and 5.408.1.2: 1. Excavated soil and land-clearing debris.	Indoor environmental quality requirements. Project program, including facility functions and hours of operation, and need for after hours operation.	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.
	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	Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist. Demolition waste meeting local ordinance or calculated in consideration of local recycling facilities	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.
	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.	and markets.	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.
	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.	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.	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,
	5.304.6.1 Newly constructed landscapes. New construction projects with an aggregate landscape area equal to or greater than 500 square feet.	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	Landscape irrigation systems. Water reuse system.	power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the electric vehicle.
	5.304.6.2 Rehabilitated landscapes. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 1,200 square feet.	necessary and shall be accessible during construction for examination by the enforcing agency. Notes:	 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: General project information. 	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.
		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	 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.
	DIVISION 5.4 MATERIAL CONSERVATION AND RESOURCE	with the waste management plan. 2. Mixed construction and demolition debris processors can be located at the California Department of	 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. GLOBAL WARMING POTENTIAL (GWP). The radiative forcing impact of one mass-based unit of a given greenhouse
	EFFICIENCY GENERAL GENERAL GENERAL	Resources Recycling and Recovery (CalRecycle). 5.408.2 UNIVERSAL WASTE. [A] Additions and alterations to a building or tenant space that meet the scoping	d. Conditions under which the test shall be performed. e. Measurable criteria for acceptable performance. 4. Commissioning team information.	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.
	SECTION 5.401 GENERAL 5.401.1 SCOPE. The provisions of this chapter shall outline means of achieving material conservation and resource efficiency through protection of buildings from exterior moisture, construction waste diversion, employment of techniques to reduce pollution through recycling of materials, and building commissioning or testing and adjusting.	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 materials shall be included in the construction documents.	Commissioning process activities, schedules and responsibilities. Plans for the completion of commissioning shall be included. S.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	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.
	SECTION 5.402 DEFINITIONS 5.402.1 DEFINITIONS. The following terms are defined in Chapter 2 (and are included here for reference)	Note: Refer to the Universal Waste Rule link at: http://www.dtsc.ca.gov/LawsRegsPolicies/Regs/upload/OEAR-A_REGS_UWR_FinalText.pdf 5.408.3 EXCAVATED SOIL AND LAND CLEARING DEBRIS. 100 percent of trees, stumps, rocks and associated	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.	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 GWP value equal to or greater than 150, or (B) any ozone depleting substance as defined in Title 40 of the Code of
	ADJUST. To regulate fluid flow rate and air patterns at the terminal equipment, such as to reduce fan speed or adjust a damper.	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.	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 <i>California Code of Regulations</i> (CCR),	Federal Regulations, Part 82, sec.82.3 (as amended March 10, 2009). LONG RADIUS ELBOW. Pipe fitting installed between two lengths of pipe or tubing to allow a change of direction,
	BALANCE. To proportion flows within the distribution system, including sub-mains, branches and terminals, according to design quantities.	Exception: Reuse, either on or off-site, of vegetation or soil contaminated by disease or pest infestation. Notes:	Title 8, Section 5142, and other related regulations. 5.410.2.5.1 Systems manual. [N] Documentation of the operational aspects of the building shall be	with a radius 1.5 times the pipe diameter. LOW-GWP REFRIGERANT. A compound used as a heat transfer fluid or gas that: (A) has a GWP value less than
	BUILDING COMMISSIONING. A systematic quality assurance process that spans the entire design and construction 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.	If contamination by disease or pest infestation is suspected, contact the County Agricultural Commissioner and follow its direction for recycling or disposal of the material.	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.	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). MERV. Filter minimum efficiency reporting value, based on ASHRAE 52.2–1999.
	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.	For a map of know pest and/or disease quarantine zones, consult with the California Department of Food and Agriculture. (www.cdfa.ca.gov)	 Site contact information. Basic operations and maintenance, including general site operating procedures, basic troubleshooting, recommended maintenance requirements, site events log. 	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
	TEST. A procedure to determine quantitative performance of a system or equipment	SECTION 5.410 BUILDING MAINTENANCE AND OPERATIONS 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	 Major systems. Site equipment inventory and maintenance notes. A copy of verifications required by the enforcing agency or this code. Other resources and documentation, if applicable. 	hundreths of a gram (g O³/g ROC). 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
		ordinance, if more restrictive. Exception: Rural jurisdictions that meet and apply for the exemption in Public Resources	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.
		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,	report and shall include the following: 1. System/equipment overview (what it is, what it does and with what other systems and/or equipment it interfaces).	REACTIVE ORGANIC COMPOUND (ROC). Any compound that has the potential, once emitted, to contribute to ozone formation in the troposphere.
		resulting in an increase of 30% or more in floor area, shall provide recycling areas on site. Exception: Additions within a tenant space resulting in less than a 30% increase in the tenant space	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.	SCHRADER ACCESS VALVES. Access fittings with a valve core installed.
		floor area. 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	5.410.2.6 Commissioning report. [N] A report of commissioning process activities undertaken through the	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. SUPERMARKET. For the purposes of Section 5.508.2, a supermarket is any retail food facility with 8,000 square feet
		Recycling Access Act of 1991 (Act).	design and construction phases of the building project shall be completed and provided to the owner or representative.	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.
		CalRecycle's web site.	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.	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)
			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.
			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	SECTION 5.503 FIREPLACES 5.503.1 FIREPLACES. Install only a direct-vent sealed-combustion gas or sealed wood-burning fireplace, or a sealed 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.
			systems. 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:	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 meet the emission limits.
			1. Renewable energy systems. 2. Landscape irrigation systems.	SECTION 5.504 POLLUTANT CONTROL
			3. Water reuse systems. 5.410.4.3 Procedures. Perform testing and adjusting procedures in accordance with manufacturer's	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 material and equipment installation. If the HVAC system is used during construction, use return air filters with a
			specifications and applicable standards on each system.	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 occupied during alteration, at the conclusion of construction.
			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	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
			Standards; the National Environmental Balancing Bureau Procedural Standards; Associated Air Balance Council National Standards or as approved by the enforcing agency.	equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other methods acceptable to the enforcing agency to reduce the amount of dust, 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 2016 CALIFORNIA GREEN BUILDING VERIFICATION WITH THE FULL CODE.



2019 CALIFORNIA GREEN BUILDING STANDARDS CODE

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

Y = YES

N/A = NOT APPLICABLE

RESPON. PARTY = RESPONSIBLE PARTY (ie: ARCHITECT, ENGINEER

OWNER. CONTRACTOR. INSPECTOR ETC.)

Y N/A RESPON.
PARTY

5.504.4 FINISH MATERIAL POLLUTANT CONTROL. Finish
5.504.4 6

5.504.4 FINISH MATERIAL POLLUTANT CONTROL. Finish materials shall comply with Sections 5.504.4.1 through 5.504.4.6.

5.504.4.1 Adhesives, sealants and caulks. Adhesives, sealants, and caulks used on the project shall meet the requirements of the following standards:
1. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable, or SCAQMD Rule 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.

2. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than one pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of *California Code of Regulations*, Title 17, commencing

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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
WOOD	

- 1. IF AN ADHESIVE IS USED TO BOND DISSIMILAR SUBSTRATES TOGETHER, THE ADHESIVE WITH THE HIGHEST VOC CONTENT SHALL BE ALLOWED.
- 2. FOR ADDITIONAL INFORMATION REGARDING METHODS TO MEASURE THE VOC CONTENT SPECIFIED IN THIS TABLE, SEE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 1168, www.arb.ca.gov/DRDB/SC/CURHTML/R1168.PDF

LIMIT
rams per Liter
CURRENT VOC LIMIT
250
760
300
250
450
420
250
775
500
760
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.

ELAT COATINGS 50 IONFLAT COATINGS 100 IONFLAT COATINGS 1150 SPECIALTY COATINGS 150 IAUMINUM ROOF COATINGS 400 IAUMINUM ROOF COATINGS 50 IAUMINUM ROOF	GRAMS OF VOC PER LITER OF COATING, LESS WATER & LESS EXEMPT	COMPOUNDS
NONFLAT COATINGS 100	COATING CATEGORY	CURRENT VOC LIMIT
ACMPERATE HIGH GLOSS COATINGS 150	FLAT COATINGS	50
### SPECIALTY COATINGS ### AUDITION OF COATING	NONFLAT COATINGS	100
ALUMINUM ROOF COATINGS	NONFLAT HIGH GLOSS COATINGS	150
ASSEMENT SPECIALTY COATINGS	SPECIALTY COATINGS	
### STATES AND PRIMERS 50 ### STATES AND PRIMERS AND PRIMERS 50 ### STATES AND PRIMERS AND PRIMERS 50 ### STATES AND PRIMERS AND PRI	ALUMINUM ROOF COATINGS	400
### ### ### ### ### ### ### ### ### ##	BASEMENT SPECIALTY COATINGS	400
### STORMER ST	BITUMINOUS ROOF COATINGS	50
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### PRIVEWAY SEALERS	CONCRETE CURING COMPOUNDS	350
150 250	CONCRETE/MASONRY SEALERS	100
AUX FINISHING COATINGS FIRE RESISTIVE COATING	DRIVEWAY SEALERS	50
IRE RESISTIVE COATINGS 350	DRY FOG COATINGS	150
100	FAUX FINISHING COATINGS	350
### CORM-RELEASE COMPOUNDS 250 ### CORM-RELEASE COMPOUNDS 500 #### COATINGS (SIGN PAINTS) 500 #### COATINGS (SIGN PAINTS) 500 #### COATINGS 420 ### COATINGS 420 ### COATINGS 250 ### COATINGS 120 ### COATINGS 120 ### COATINGS 100 ### COATINGS 100 ### COATINGS 100 ### COATINGS 250 ### COATING	FIRE RESISTIVE COATINGS	350
### STAPHIC ARTS COATINGS (SIGN PAINTS)	FLOOR COATINGS	100
HIGH-TEMPERATURE COATINGS	FORM-RELEASE COMPOUNDS	250
NDUSTRIAL 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 250 SHELLACS: 250 CLEAR 730 DPAQUE 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	GRAPHIC ARTS COATINGS (SIGN PAINTS)	500
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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: 250 CLEAR 730 DPAQUE 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	NDUSTRIAL MAINTENANCE COATINGS	250
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### AUULTICOLOR 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 DPAQUE 550 SPECIALTY PRIMERS, SEALERS & UNDERCOATERS 100 STAINS 250 STONE CONSOLIDANTS 450 SWIMMING POOL COATINGS 340 TRAFFIC MARKING COATINGS 100 FUB & TILE REFINISH COATINGS 420 WATERPROOFING MEMBRANES 250 WOOD COATINGS 250 WOOD COATINGS 250 WOOD COATINGS 420 WATERPROOFING MEMBRANES 250 WOOD COATINGS 275	MASTIC TEXTURE COATINGS	100
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PRIMERS, SEALERS, & UNDERCOATERS REACTIVE PENETRATING SEALERS RECYCLED COATINGS ROOF COATINGS RUST PREVENTATIVE COATINGS SHELLACS: CLEAR PAQUE SPECIALTY PRIMERS, SEALERS & UNDERCOATERS STAINS STAINS STONE CONSOLIDANTS SWIMMING POOL COATINGS SWIMMING POOL COATINGS TRAFFIC MARKING COATINGS WATERPROOFING MEMBRANES WOOD COATINGS 100 PAGE PROOF COATINGS 100 PROOF COATI	MULTICOLOR COATINGS	250
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RECYCLED COATINGS 250 ROOF COATINGS 50 RUST PREVENTATIVE COATINGS 250 SHELLACS: CLEAR 730 DPAQUE 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	PRIMERS, SEALERS, & UNDERCOATERS	100
ROOF COATINGS 50 RUST PREVENTATIVE COATINGS 250 SHELLACS: CLEAR 730 DPAQUE 550 SPECIALTY PRIMERS, SEALERS & UNDERCOATERS 100 STAINS 250 STONE CONSOLIDANTS 450 SWIMMING POOL COATINGS 340 FRAFFIC MARKING COATINGS 100 FUB & TILE REFINISH COATINGS 420 WATERPROOFING MEMBRANES 250 WOOD COATINGS 275	REACTIVE PENETRATING SEALERS	350
RUST PREVENTATIVE COATINGS SHELLACS: CLEAR CDPAQUE SPECIALTY PRIMERS, SEALERS & UNDERCOATERS STAINS STONE CONSOLIDANTS SWIMMING POOL COATINGS TRAFFIC MARKING COATINGS TUB & TILE REFINISH COATINGS WOOD COATINGS WOOD COATINGS 250 250 250 250 250 275	RECYCLED COATINGS	250
SHELLACS: 730 CLEAR 730 DPAQUE 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	ROOF COATINGS	50
CLEAR 730 DPAQUE 550 SPECIALTY PRIMERS, SEALERS & UNDERCOATERS 100 STAINS 250 STONE CONSOLIDANTS 450 SWIMMING POOL COATINGS 340 FRAFFIC MARKING COATINGS 100 FUB & TILE REFINISH COATINGS 420 WATERPROOFING MEMBRANES 250 WOOD COATINGS 275	RUST PREVENTATIVE COATINGS	250
DPAQUE 550 SPECIALTY PRIMERS, SEALERS & UNDERCOATERS 100 STAINS 250 STONE CONSOLIDANTS 450 SWIMMING POOL COATINGS 340 FRAFFIC MARKING COATINGS 100 FUB & TILE REFINISH COATINGS 420 WATERPROOFING MEMBRANES 250 WOOD COATINGS 275	SHELLACS:	
SPECIALTY PRIMERS, SEALERS & UNDERCOATERS STAINS STONE CONSOLIDANTS SWIMMING POOL COATINGS TRAFFIC MARKING COATINGS TUB & TILE REFINISH COATINGS WATERPROOFING MEMBRANES WOOD COATINGS 100 250 250 275	CLEAR	730
STAINS 250 STONE CONSOLIDANTS 450 SWIMMING POOL COATINGS 340 FRAFFIC MARKING COATINGS 100 FUB & TILE REFINISH COATINGS 420 WATERPROOFING MEMBRANES 250 WOOD COATINGS 275	OPAQUE	550
STONE CONSOLIDANTS SWIMMING POOL COATINGS TRAFFIC MARKING COATINGS TUB & TILE REFINISH COATINGS WATERPROOFING MEMBRANES WOOD COATINGS 450 450 440 420 420 420 420 427 427 42	SPECIALTY PRIMERS, SEALERS & UNDERCOATERS	100
SWIMMING POOL COATINGS TRAFFIC MARKING COATINGS TUB & TILE REFINISH COATINGS WATERPROOFING MEMBRANES WOOD COATINGS 250 275	STAINS	250
TRAFFIC MARKING COATINGS TUB & TILE REFINISH COATINGS WATERPROOFING MEMBRANES WOOD COATINGS 100 420 250 275	STONE CONSOLIDANTS	450
TUB & TILE REFINISH COATINGS 420 WATERPROOFING MEMBRANES 250 WOOD COATINGS 275	SWIMMING POOL COATINGS	340
WATERPROOFING MEMBRANES 250 WOOD COATINGS 275	TRAFFIC MARKING COATINGS	100
WOOD COATINGS 275	TUB & TILE REFINISH COATINGS	420
	WATERPROOFING MEMBRANES	250
WOOD PRESERVATIVES 350	WOOD COATINGS	275
	WOOD PRESERVATIVES	350

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
 Field verification of on-site product containers

5.504.4.4 Carpet Systems. All carpet installed in the building interior shall meet at least one of the testing and

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

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

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

- 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.).
 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			
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 R			

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

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

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:

- 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;
 3. Compliant with the Collaborative for High Performance Schools California (2014 CA-CHPS) Criteria and listed in the CHPS High Performance Product Database; or
- 4. Products certified under UL GREENGUARD Gold (formerly the Greenguard Children's & Schools Program)

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

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.

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

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).

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.

Exceptions:

SECTION 5.508 OUTDOOR AIR QUALITY

- Ldn or CNEL for military airports shall be determined by the facility Air Installation Compatible
 Land Use Zone (AICUZ) plan.
- 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.
- Within the 65 CNEL or Light noise contour of a freeway or expressway railroad, industrial source
- 2. Within the 65 CNEL or Lan 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.

5.507.4.3 Interior sound transmission. Wall and floor-ceiling assemblies separating tenant spaces and tenant

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.

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

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.

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

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

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

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

long radius elbows.

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

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 permitted for use.

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.

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

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

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

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

than a +/- one pound pressure change from 300 psig, measured with the same gauge.

5.508.2.6.1 First vacuum. Pull a system vacuum down to at least 1000 microns (+/- 50 microns), and hold for 30 minutes.

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

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.

CHAPTER 7 INSTALLER & SPECIAL INSPECTOR QUALIFICATIONS

702 QUALIFICATIONS

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:

- 1. 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.
 Certification by a statewide energy consulting or verification organization, such as HERS raters, building
- Certification by a statewide energy consulting or verification organization, such as HERS raters performance contractors, and home energy auditors.
- 3. Successful completion of a third party apprentice training program in the appropriate trade.4. Other programs acceptable to the enforcing agency.

Notes:

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).

[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.

703 VERIFICATIONS

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 2016 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 NEEDS. THE END USER ASSUMES ALL RESPONSIBILITY ASSOCIATED WITH THE 2016 CALIFORNIA GREEN BUILDING VERIFICATION WITH THE FULL CODE.