# July 1, 2021 Supplement update

# Guide to the 2019 California Green Building Standards Code Nonresidential

Effective July 1, 2021

The purpose of this supplement is to provide an update to the *Guide to the 2019 California Green Building Standards Code*-nonresidential to align with regulatory changes that occurred during the 2019 Intervening Code Adoption Cycle to the 2019 California Green Building Standards Code (*CALGreen*) which becomes effective July 1, 2021.

The information contained in this document is believed to be accurate; however, it is being provided for informational purposes only and is intended for use only as a guide. It is not a substitute for studying the *CALGreen* code itself. An online version of the *CALGreen* Code is available through the California Building Standards Commission website: dgs.ca.gov/bsc

LEGEND FOR UPDATES TO THE *GUIDE TO THE 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE (the Guide)*

Amendments to the 2019 *CALGreen* regulatory language appear underlined. If using assistive technology, please adjust your settings to recognize underline, strikeout, italic and ellipsis.
New intent language to support the regulatory change is titled: *Changes for the 2019 Intervening Code.*

*[NOTE TO CODE USER]: Italicized text not included within the code sections indicates notes to the code user. Only modified sections are included in this update however some related code sections are included for context.*

***Section 5.106.5.2 - pages 34-35 of the CALGreen* Code and page 24 of the 2019 guide**

**5.106.5.2 Designated parking for clean air vehicles.** In new projects or additions that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as follows:

**TABLE 5.106.5.2**

| TOTAL NUMBER OF PARKING SPACES | NUMBER OF REQUIRED SPACES |
|---|---|
| 0-9 | 0 |
| 10-25 | 3 |
| 26-50 | 6 |
| 51-75 | 9 |
| 76-100 | 12 |
| 101-150 | 18 |
| 151-200 | 21 |
| 201 and over | At least 12 percent of total[1] |

1. Calculation for spaces shall be rounded up to the nearest whole number.

Note: Designated parking for clean air vehicles shall count toward the total parking spaces required by the local enforcing agencies.

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

CLEAN AIR/
VANPOOL/EV

**Note:** Vehicles bearing Clean Air Vehicle stickers from expired HOV lane programs may be considered eligible for designated parking spaces.

## INTENT:

The intent of these requirements is to enhance the appeal of driving clean air vehicles in an effort to reduce greenhouse gas emissions. This code ensures that newly constructed projects or additions and alterations provide designated parking for clean air vehicles (e.g., low-emitting, fuel-efficient and carpool/vanpool vehicles).

**Change for 2019 Intervening Code Cycle:** Changes increased the percentages for clean air vehicles from 8% to 12% for parking lots with 201 vehicles or more. Similar percentage increases were made to the entire Clean Air Vehicle (CAV) table to maintain consistency between the parking space ranges. Additional changes include the addition of a footnote 1 for the table to require that the parking spaces be rounded up to the nearest whole number when doing a clean air vehicle calculation. This amendment is consistent with similar EV infrastructure tables already codified in Section 5.106.5.3. Additionally, a note has been added to advise the regulated community that designated parking for clean air vehicles shall count toward the total number of parking spaces required by the local enforcing agencies. This amendment is needed because there is confusion about the intent of the CAV parking stalls counting toward the total parking spaces requirements.

## COMPLIANCE METHOD:

**Design team:** The construction documents and/or site plan should indicate the location and required number of designated parking stalls. These parking spaces should be marked "CLEAN AIR/VANPOOL/EV." The markings should be visible when a clean air vehicle is parked. In other words, if the front of the vehicle goes into the parking stall first, the markings should be visible at the back end of the vehicle. Lettering should be at least 8 inches high. The CLEAN AIR/VANPOOL/EV parking stalls may be located anywhere on the site and do not require a preferential location. Take into consideration the location of stalls that are designated for future EV stalls because once charging units are installed the charging spaces will need to comply with Chapter 11B accessibility requirements.

## SUGGESTION:

The plans should reflect the total number of required motor vehicle parking spaces. Refer to Table 5.106.5.2 in *CALGreen* to ensure that the correct number of designated parking stalls is provided. Include all parking spaces in the calculation. As approved by the enforcing agency, some compact stalls may also be marked for clean air vehicles.

**EXAMPLES:**

1. **If a parking lot contains 55 total parking spaces:** Based on Table 5.106.5.2, provide nine clean air vehicle spaces, with required stall markings, which fall within the range.
2. **If a parking lot contains 240 total parking spaces:** Based on Table 5.106.5.2, calculate 240 X 12 percent = 28.8. Provide 29 clean air vehicle spaces with required stall markings.

**ENFORCEMENT:**

**Plan intake:** The plan reviewer should review the plans and confirm that the correct number of "CLEAN AIR/VANPOOL/EV" parking stalls are included on the drawings.

**On-site enforcement:** The inspector should verify that the correct number of clean air vehicle parking stalls have been installed and are accurately identified.

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***Section 5.106.5.3 - pages 35-36 of the CALGreen* Code and page 26 of the 2019 guide**

**5.106.5.3 Electric vehicle (EV) charging. [N]** Construction shall comply with Section 5.106.5.3.1 or Section 5.106.5.3.2 to facilitate future installation of electric vehicle supply equipment (EVSE). When EVSE(s) is/are installed, it shall be in accordance with the California Building Code, the California Electrical Code and as follows:

**5.106.5.3.1 Single charging space requirements. [N]** When only a single charging space is required per Table 5.106.5.3.3, a raceway is required to be installed at the time of construction and shall be installed in accordance with the California Electrical Code. Construction plans and specifications shall include, but are not limited to, the following:

1. The type and location of the EVSE.
2. A listed raceway capable of accommodating a 208/240-volt dedicated branch circuit.
3. The raceway shall not be less than trade size 1."
4. The raceway shall originate at a service panel or a subpanel serving the area, and shall terminate in close proximity to the proposed location of the charging equipment and into a listed suitable cabinet, box, enclosure or equivalent.
5. The service panel or subpanel shall have sufficient capacity to accommodate a minimum 40- ampere dedicated branch circuit for the future installation of the EVSE.

**5.106.5.3.2 Multiple charging space requirements. [N]** When multiple charging spaces are required per Table 5.106.5.3.3 raceway(s) is/are required to be installed at the time of construction and shall be installed in accordance with the *California Electrical Code.* Construction plans and specifications shall include, but are not limited to, the following:

1. The type and location of the EVSE.
2. The raceway(s) shall originate at a service panel or a subpanel(s) serving the

area, and shall terminate in close proximity to the proposed location of the charging equipment and into listed suitable cabinet(s), box(es), enclosure(s) or equivalent.
3. Plan design shall be based upon 40-ampere mini- mum branch circuits.
4. Electrical calculations shall substantiate the design of the electrical system, to include the rating of equipment and any on-site distribution transformers and have sufficient capacity to simultaneously charge all required EVs at its full rated amperage.
5. The service panel or subpanel(s) shall have sufficient capacity to accommodate the required number of dedicated branch circuit(s) for the future installation of the EVSE.

**5.106.5.3.3. EV charging space calculation. [N]** Table 5.106.5.3.3 shall be used to determine if single or multiple charging space requirements apply for the future installation of EVSE.

**Exceptions:** On a case-by-case basis where the local enforcing agency has determined EV charging and infrastructure is not feasible based upon one or more of the following conditions:

1. Where there is insufficient electrical supply.
2. Where there is evidence suitable to the local enforcing agency substantiating that additional local utility infrastructure design requirements, directly related to the implementation of Section 5.106.5.3, may adversely impact the construction cost of the project.

**TABLE 5.106.5.3.3**

| TOTAL NUMBER OF ACTUAL PARKING SPACES | NUMBER OF REQUIRED EV CHARGING SPACES |
|---|---|
| 0-9 | 0 |
| 10-25 | 2 |
| 26-50 | 4 |
| 51-75 | 7 |
| 76-100 | 9 |
| 101-150 | 13 |
| 151-200 | 18 |
| 201 and over | 10 percent of total[1] |

1. Calculation for spaces shall be rounded up to the nearest whole number.

**5.106.5.3.4 [N] Identification** The service panel or subpanel(s) circuit directory shall identify the reserved overcurrent protective device space(s) for future EV charging as “EV CAPABLE”. The raceway termination location shall be permanently and visibly marked as “EV CAPABLE.”

**5.106.5.3.5 [N] Future charging spaces.**
Future charging spaces qualify as designated parking as described in Section 5.106.5.2 Designated parking for clean air vehicles.

Note: Future electric vehicle charging spaces shall count toward the total parking

spaces required by the local enforcing agencies.

**INTENT:**

The intent of these requirements is to facilitate Electric Vehicle (EV) charging capability by installing raceways for future electric vehicle supply equipment (EVSE) at the time of new building construction. Construction plans and specifications must reflect that the infrastructure will be capable of supporting future electrical demands. Having the infrastructure pre-installed will allow the charging stations to be easily added at a future date. This will aid in achieving an interim goal for infrastructure that will support 5 million zero emissions vehicles (ZEV's) on California roadways by 2030 as directed by executive order EO B-48-18.

**Note:** The EVSE capable requirements are intended for new construction as in a new building on a new or existing site with new or existing parking stalls. The EV requirement is not triggered for additions or alterations to existing buildings or to existing parking lots.

**Change for 2019 Intervening Code Cycle:** Changes include increased percentages for Electric Vehicle (EV) infrastructure from 6% to 10% for parking lots with 201 vehicle parking spaces or more. Similar percentage increases were made to the entire EV table to maintain consistency between the parking space ranges. Additional changes include adding a note to advise the regulated community that designated parking for clean air vehicles shall count toward the total number of parking spaces required by the local enforcing agencies. This amendment is needed because there is confusion about the intent of the EV infrastructure parking stalls not counting toward the total parking spaces requirements.

**SUGGESTION:**

Anticipate accessibility requirements where EV charging stations are installed per the California Building Code, Part 2, Chapter 11B. Locate the EVSE stalls near the entrance to the building and in a parking area that can easily accommodate compliance with accessibility regulations once the EVSE chargers are installed.

**COMPLIANCE METHOD:**

Include on the site plan the proposed location of the listed suitable cabinet(s), box(es), enclosure(s) or equivalent required for future EV equipment connections. Indicate on the plans the 40-amp minimum service panel capacity with raceway to the approximate location of the future EV charging connections as required in the code Section 5.106.5.3. Use Table 5.106.5.3.3 to determine if single or multiple charging space requirements apply for the future installation of EVSE. Lastly, ensure that the service panel or subpanel(s) circuit directory is properly identified as being "EV CAPABLE" and that the raceway termination location is permanently and visibly marked as "EV CAPABLE."

**RECOMMENDATION:**

The plans should reflect the EV capacity needed to accommodate the total number of required future EV vehicular charging spaces as required per Table 5.106.5.3.3.

Include all parking spaces in the calculation when determining the required EV capacity for future installation.

**SUGGESTION:**

Refer to the access provisions for EVCS found in the *California Building Code*, Chapter 11B when designing the EV Capable charging spaces in new parking lots. Designing the EV Capable charging spaces in new parking lots to meet size requirements for accessibility can reduce complications when EV charging stations are installed at a future date.

**EXAMPLES:**

1. **If a parking lot contains 55 actual parking spaces:** Based on Table 5.106.5.3.3, provide capacity for seven future EV charging spaces.
2. **If a parking lot contains 240 actual parking spaces:** Based on Table 5.106.5.3.3, calculate 240 X 10 percent = 24; Provide capacity for 24 future EV charging spaces.

**ENFORCEMENT:**

**Plan intake:** The plan reviewer should confirm that the construction documents are compliant with Sections 5.106.5.3.1 or 5.106.5.3.2, and 5.106.5.3.3 and 5.106.3.4 as applicable and that the appropriate EV capacity for future EV connection to the required number of future EV charging spaces per Table 5.106.5.3.3 has been provided. Confirm proper identification at the service panel or subpanel(s) and that the raceway termination location is permanently and visibly marked as "EV CAPABLE."

**On-site enforcement:** The inspector should verify on-site that the service panel and raceway with proper termination have been installed per the approved set of construction documents.

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***Section 5.106.8 - page 36 of the CALGreen* Code and pages 28-29 of the 2019 guide**

***Note:*** *footnotes 3 and 5 have been repealed and original footnote 4 was renumbered to footnote 3.*

**5.106.8 Light pollution reduction. [N]** Outdoor lighting systems shall be designed and installed to comply with the following:

1. The minimum requirements in the *California Energy Code* for Lighting Zones 0-4 as defined in Chapter 10, Section 10-114 of the *California Administrative Code***;** and
2. Backlight (B) ratings as defined in IES TM-15-11 (shown in Table A-1 in Chapter 8)**;**
3. Uplight and Glare ratings as defined in *California Energy Code* (shown in Tables 130.2-A and 130.2-B in Chapter 8) and
4. Allowable BUG ratings not exceeding those shown in Table 5.106.8 [N], or

Comply with a local ordinance lawfully enacted pursuant to Section 101.7,

whichever is more stringent.

**Exceptions: ~~[N]~~**

1. Luminaires that qualify as exceptions in Sections 130.2(b) and 140.7 of the *California Energy Code*.
2. Emergency lighting.
3. Building façade **. . .**
4. Custom lighting features **. . .**
5. Luminaires with less than 6,200 initial luminaire lumens.

**5.106.8.1 Facing – Backlight.** Luminaires within 2MH of a property line shall be oriented so that the nearest property line is behind the fixture, and shall comply with the backlight rating specified in Table 5.106.8 based on the lighting zone and distance to the nearest point of that property line.

**Exception: Corners.** If two property lines (or two segments of the same property line) have equidistant points to the luminaire, then the luminaire may be oriented so that the intersection of the two lines (the corner) is directly behind the luminaire. The luminaire shall still use the distance to the nearest point(s) on the property lines to determine the required backlight rating.

**5.106.8.2 Facing – Glare.** For luminaires covered by 5.106.8.1, if a property line also exists within or extends into the front hemisphere within 2MH of the luminaire then the luminaire shall comply with the more stringent glare rating specified in Table 5.106.8 based on the lighting zone and distance to the nearest point on the nearest property line within the front hemisphere.

**Notes:**

1. **~~[N]~~** See also *California Building Code*, Chapter 12, Section 1205.7 for college campus lighting requirements for parking facilities and walkways.
2. Refer to Chapter 8 (Compliance Forms, Worksheets and Reference Material) for IES TM-15-11 Table A-1, *California Energy Code* Tables 130.2-A and 130.2-B.
3. Refer to the *California Energy Code* for requirements for additions and alterations.

**TABLE 5.106.8 [N]**
**MAXIMUM ALLOWABLE BACKLIGHT, UPLIGHT AND GLARE (BUG) RATINGS[1,2]**

| ALLOWABLE RATING | LIGHTING ZONE LZ0 | LIGHTING ZONE LZ1 | LIGHTING ZONE LZ2 | LIGHTING ZONE LZ3 | LIGHTING ZONE LZ4 |
|---|---|---|---|---|---|
| **Maximum Allowable Backlight Rating~~[3]~~ (B)** | | | | | |
| Luminaire greater than 2 mounting heights (MH) from property line | N/A | No Limit | No Limit | No Limit | No Limit |
| Luminaire back hemisphere is 1 – 2 MH from property line | N/A | B2 | B3 | B4 | B4 |
| Luminaire back hemisphere is 0.5 – 1 MH from property line | N/A | B1 | B2 | B3 | B3 |
| Luminaire back hemisphere is less than 0.5 MH from property line | N/A | B0 | B0 | B1 | B2 |

| ALLOWABLE RATING | LIGHTING ZONE LZ0 | LIGHTING ZONE LZ1 | LIGHTING ZONE LZ2 | LIGHTING ZONE LZ3 | LIGHTING ZONE LZ4 |
|---|---|---|---|---|---|
| **Maximum Allowable Uplight Rating (U)** | | | | | |
| For area lighting~~4~~ 3 | N/A | U0 | U0 | U0 | U0 |
| For all other outdoor lighting, including decorative luminaires | N/A | U1 | U2 | U3 | U4 |

| ALLOWABLE RATING | LIGHTING ZONE LZ0 | LIGHTING ZONE LZ1 | LIGHTING ZONE LZ2 | LIGHTING ZONE LZ3 | LIGHTING ZONE LZ4 |
|---|---|---|---|---|---|
| **Maximum Allowable Glare Rating~~5~~ (G)** | | | | | |
| Luminaire greater than 2 MH from property line | N/A | G1 | G2 | G3 | G4 |
| Luminaire front hemisphere is 1 – 2 MH from property line | N/A | G0 | G1 | G1 | G2 |
| Luminaire front hemisphere is 0.5 – 1 MH from property line | N/A | G0 | G0 | G1 | G1 |
| Luminaire front hemisphere is less than 0.5 MH from property line | N/A | G0 | G0 | G0 | G1 |

1. IESNA Lighting Zones 0 are not applicable; refer to Lighting Zones as defined in the *California Energy Code* and Chapter 10 of the *California Administrative Code*.

2. For property lines that abut public walkways, bikeways, plazas and parking lots, the property line may be considered to be 5 feet beyond the actual property line for purpose of determining compliance with this section. For property lines that abut public roadways and public transit 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.

3. General lighting luminaires in areas such as outdoor parking, sales or storage lots shall meet these reduced ratings. Decorative luminaires located in these areas shall meet U-value limits for “all other outdoor lighting.”

**INTENT:**

Light pollution is disruptive to the environment, wildlife and humans. The intent of this requirement is to minimize light pollution in an effort to maintain dark skies and to ensure that newly constructed projects reduce the amount of backlight, uplight, and glare (BUG) from not-in-code exterior light sources.

**Change for 2019 Intervening Code Cycle:** Changes include the repeal of the “N” banner from the Exceptions and to amend Exception 1 by adding the reference to Section 130.2(b) for additions and alterations per the *California Energy Code*. BSC proposed to add Exception 5, for “Luminaries with less than 6,200 initial luminaire lumens” to align *CALGreen* with similar language adopted in the 2019 *California Energy Code* Section 130.2(b), luminaire cutoff requirements. Other amendments include the relocation of footnotes 3 and 5 into new code Sections 5.106.8.1 Facing-Backlight and 5.106.8.2-Glare. These amendments will benefit the code user by clarifying the exceptions to the requirements of light pollution reduction by avoiding conflict with mandatory provisions of the *California Energy Code*, Part 6 of Title 24 for newly constructed nonresidential buildings, additions and alterations. Additionally, the new code sections will help clarify the application and intent of how backlight and glare are to be addressed when located near property lines.
Changes for the 2018 Triennial Code Adoption Cycle included adding Note 3 that

directed the code user to the *California Energy Code* for additions and alterations. During the 2015 Triennial Code Cycle additional exceptions were added for facade lighting and custom lighting features. Subsequently during the 2016 Intervening Code Cycle, additional compliance clarification was provided stating that for backlight ratings code users shall refer to the IESNA standard, and for uplight and glare ratings code users shall use the California Energy Code ratings. References to the ratings tables have been added to this code section and the tables with those ratings have been placed in Chapter 8 Compliance Forms, Worksheets and Reference Material in the *CALGreen* Code for ease of use to the code user. Note 2 has been added to direct the code user to Chapter 8 in the *CALGreen* Code for the BUG rating values.

**COMPLIANCE METHOD:**

Comply with California Energy Commission regulations in the *California Administrative Code* (Part 1 of Title 24) and *California Energy Code* (Part 6 of Title 24) as cited in Section 5.106.8(1) and 5.106.8 (3). Those standards form a basis upon which to build for the purpose of light pollution reduction. The provisions in the *California Administrative Code* provide a weighted approach to the project site location, with a project located in the middle of a big city allowed more light to escape than a project at a rural or urban location. The *California Energy Code* addresses power and energy efficiency of outdoor lighting. There are exceptions for certain occupancies for lighting power requirements.

Comply with a local dark skies ordinance, if more stringent than these regulations. Specify exterior lighting fixtures that meet IESNA TM-15-11 regarding backlight, and Part 6 for uplight and glare. Rating may not exceed those values shown in Table 5.106.8.

**Plan intake:** The plan reviewer should confirm the following:

- Construction documents shall include exterior light sources that comply with the *California Administrative Code*, and the *California Energy Code* along with the IESNA TM-15-11 standard which are all reprinted and located in Chapter 8 of the *CALGreen* code;
- Electrical plans and specifications for compliance with building and exterior lighting, including photometric data for perimeter site lighting fixtures; and
- Specifications for any controls to be installed on the project.

**On-site enforcement**: The inspector should verify that all specified lighting products are installed as shown on the approved construction documents.

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***Section 5.303.3.4.5 - page 42 of the CALGreen* Code and page 35 of the 2019 guide**

**5.303.3.4.5 Metering faucets for wash fountains.** Metering faucets for wash fountains shall have a maximum flow rate of not more than 0.20 gallons per cycle/ 20 [rim space (inches) at 60 psi].

> **Note:** Where complying faucets are unavailable, aerators or other means may be used to achieve reduction.

**5.303.3.4.6 Pre-rinse spray valve.** When installed, shall meet the requirements in the *California Code of Regulations*, Title 20 (Appliance Efficiency Regulations), Section 1605.1(h)(4) Table H-2, Section 1605.3(h)(4)(A), and Section 1607(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 Code of Regulations*, Title 20 (Appliance Efficiency Regulations), Section 1605.1(h)(4) and Section 1605.3(h)(4)(A).

**Table H-2**
**Standards For Commercial Pre-Rinse Spray Valves Manufactured On Or After January 28, 2019.**

| Product Class (spray force in ounce force (ozf)) | Maximum Flow Rate (gpm) |
|---|---|
| Product Class 1 (≤ 5.0 ozf) | 1.00 |
| Product Class 2 (> 5.0 ozf and ≤ 8.0 ozf) | 1.20 |
| Product Class 3 (> 8.0 ozf) | 1.28 |

Title 20 Section 1605.3(h)(4)(A): Commercial pre-rinse spray valves manufactured on or after January 1, 2006, shall have a minimum spray force of not less than 4.0 ounces-force (ozf) [113 grams-force (gf)].

**INTENT:**

The intent of this regulation is to reduce the overall use of potable water within the building. Reduction of water use also results in decreasing the amount of energy needed to transport, process and treat water, thereby contributing to reduction of greenhouse gas emissions. Assembly Bill 715 (Chapter 499, Statutes of 2007) modified the Health and Safety Code to allow only high-efficiency toilets and urinals to be sold or installed after January 1, 2014.

**Note:** See Chapter 8 for sample forms and templates.

**Change for 2019 Intervening Code Cycle:** Changes include the relocation of appendix Chapter A5 Section A5.303.5 item 7 Pre-rinse Spray Valves into the mandatory Section 5.303.3.4.6 Pre-rinse Spray Valves. This relocation from the voluntary code into the mandatory code is needed because the pre-rinse spray valve regulations are currently regulated by *Title 20*, Article 4, Appliance Efficiency Regulations and when installed need to meet specific code requirements. The relocation from the voluntary code into the mandatory code does not require pre-rinse spray valves to be installed; however, when installed they need to meet specific code requirements. This amendment is needed to avoid conflict with the Appliance Efficiency regulations adopted by the *California Energy Commission* in Title 20 of the *California Code of Regulations*.

**COMPLIANCE METHOD:**

Indicate on the construction documents the prescriptive water reduction fixture flow rates from Sections 5.303.3.2, 5.303.3.4.6 and 5.303.4.

**ENFORCEMENT:**
**Plan intake:** The plan reviewer should confirm that the construction documents show the appropriate reduced flow rates for the listed fixture types, this includes the requirements for pre-rinse spay valves when installed.

**On-site enforcement:** The inspector should verify that the specified plumbing fixture is installed. The inspector may review the fixture specifications to verify compliance or accept a self-certification

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***Section 5.504.4.4 - page 52 of the CALGreen* Code and pages 65-66 of the 2019 guide**

***Note:*** *Sections 5.504.4.4, 5.504.4.4.1and 5.504.5.6 have been amended and strike-out language has been omitted for clarity.*

**5.504.4.4 Carpet systems.**

1. 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 Specification 01350).

   See California Department of Public Health's website for certification programs and testing labs.
   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 Specification 01350).

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

. . .

**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 Specification 01350).

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

**INTENT:**

The purpose of these requirements is to reduce the volatile organic compounds (VOC) of finish materials commonly installed on a project, improving air quality for building occupants. The low-VOC provisions are based on the recommendations, guidelines and regulations of the Air Resources Board cited in each section. Regulations for aerosol adhesives and paints, and for composite wood products, are found in *California Code of Regulations*, Title 17, as noted above.

**Note:** See Chapter 8 of this guide for forms and templates.

**Change for 2019 Intervening Code Cycle:** Changes include: repealing the five acceptable testing methods for compliance for carpet and resilient flooring systems and replace them with a single reference to the California Department of Public Health (CDPH) "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 Specification 01350) and added a reference to their website.

During the 2019 Triennial Code Adoption Cycle, the carpet systems and resilient floor systems code sections were amended to correct the referenced year from 2012 to 2014 CA-CHPS for the CHPS criteria for VOC limits. Additionally, the CHPS standard has been updated, therefore these two sections were updated accordingly to avoid a conflict.

**COMPLIANCE METHOD:**

Specify finish materials that meet the VOC limits as shown in the CDPH website standards listed above for adhesives and sealants, paints and coatings, and composite wood products (particle board and hardboard casework). Flooring products (carpet systems and resilient flooring) shall also be specified to meet VOC limit criteria as per the CDPH website standards listed website above. Substitutes may be approved by the local enforcing authority if it deems equivalency.

**SUGGESTION:**

Retain product data sheets for on-site verification by the enforcing agency and for the operation and maintenance manual.

**ENFORCEMENT:**

**Plan intake:** The plan reviewer should confirm that material specifications listed in the construction documents meet VOC emission limits.

**On-site enforcement:** The inspector should verify product data sheets/containers furnished by the contractor to verify that finishes specified on the approved plans and specifications are installed or stored on site. The inspector may verify data on material containers or specifications provided with products or accept a self-certification form.

## CHAPTER 6
## REFERENCED ORGANIZATIONS AND STANDARDS

**601.1** This chapter lists the organizations and standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard.

| ORGANIZATION | STANDARDS | REFERENCE SECTION |
|---|---|---|
| **AHAM** Association of Home Appliance Manufacturers | | |
| 1119 19th Street NW, Suite 402<br>Washington, D.C.<br>20026-3627<br>aham.org | ANSI/AHAM DW-1-2010 | 202 |
| **AABC** Associated Air Balance Council | | |
| Washington,<br>DC 20005<br>aabc.com | National Standards, 1989 | 5.410.4.3.1<br>A5.410.5.3.1 |
| **ACCA** Air Conditioning Contractors of America | | |
| 2800 Shirlington Road, Suite 300<br>Arlington,<br>VA 22206<br>acca.org | ANSI/ACCA 2 Manual J–2016<br>ANSI/ACCA 1 Manual D–2016<br>ANSI/ACCA 3 Manual S–2014 | 4.507.2<br>4.507.2<br>4.507.2 |
| **ANSI** American National Standards Institute | | |
| Operations Office<br>25 West 43rd Street, Fourth Floor<br>New York,<br>NY 10036<br>ansi.org | ANSI/AHAM DW-1-2010<br>NSF/ANSI 140-2014<br>ANSI/ACCA 2 Manual J–2016<br>ANSI/ACCA 1 Manual D–2016<br>ANSI/ACCA 3 Manual S–2014 | 202<br>4.504.3<br>4.507.2<br>4.507.2<br>4.507.2 |
| **ASHRAE** American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. | | |
| 1791 Tullie<br>Circle, NE<br>Atlanta, GA<br>30329<br>ashrae.org | 52.1-92<br>52.2-2007<br>62.2<br>90.1 | A5.504.1<br>202<br>A5.504.1<br>5.108.8 |

| ORGANIZATION | STANDARD | REFERENCED SECTION |
|---|---|---|
| **ASME** American Society of Mechanical Engineers | | |
| Three Park Avenue<br>New York,<br>NY 10016-5990<br>asme.org | ASME A112.18.1<br>ASME A112.19<br>ASME A112.19.2<br>ASME A112.19.14 | 5.303.6<br>5.303.6<br>5.303.2<br>5.303.6 |
| **ASTM** ASTM International | | |
| 100 Barr Harbor Drive<br>West Conshohocken,<br>PA 19428-2859<br>astm.org | ASTM C33<br>ASTM C150<br>ASTM C595 | A5.405.5.3.2<br>A5.405.5.1<br>A5.405.5.1 |

| ORGANIZATION | STANDARD | REFERENCED SECTION |
|---|---|---|
| | ASTM C618 | A5.405.5.2.1 |
| | ASTM C989 | A5.405.5.2.1 |
| | ASTM C1157 | A5.405.5.1 |
| | ASTM C1240 | A5.405.5.2.1 |
| | ASTMC1371-98 | A5.106.11.2.2 |
| | ASTM C1549-09(2014) | A4.106.7, A5.106.11.1 |
| | ASTM C1602 | A5.405.5.3.2.3 |
| | ASTM C1697 | A5.405.5.2.1 |
| | ASTM E90 | 5.507.4 |
| | ASTM E408-02 | A5.10, 6.11.2.2 |
| | ASTM E413 | 5.507.4 |
| | ASTM E1332 | 5.507.4 |
| | ASTM E1333-14 | Tables 4.504.5, 5.504.4.5, 5.504.8.5 |
| | ASTME1903-11 | A5.103.2.1 |
| | ASTM E1918 06(2015) | A4.106.7 |
| | ASTM E 1918-16 (2016) | A5.106.11.1 |
| | ASTM E1980-11 | A4.106.5.3, A5.106.11.2.3 |
| **CSA** Canadian Standards Association | | |
| 5060 Spectrum Way, Suite 100<br>Mississauga, Ontario,<br>Canada L4W 5N6<br>csa.ca/ | CSA B125.1, CSA O121, CSA O151, CSA O153, CSA O325 | 4.504.5.1 |
| **IAPMO** International Association of Plumbing and Mechanical Officials | | |
| 4755 E.<br>Philadelphia St.<br>Ontario,<br>CA 91761<br>iapmo@iapmo.org | IAPMO Z124.9 | 5.303.6 |
| **IESNA** Illuminating Engineering Society of North America | | |
| 170 Wall St., Floor 17<br>New York,<br>NY 10005-4001<br>ies.org | IES TM-15-11 | 5.106.6<br>A4.106.10 |
| **NEBB** National Environmental Balancing Bureau | | |
| 8575 Grovemont Cir<br>Gaithersburg,<br>MD 20877<br>nebb.org/index.php | Procedural Standards, 1983 | 5.410.4.3.1<br>A5.410.5.3.1 |
| **NSF International** | | |
| 789 Dixboro Rd.<br>Ann Arbor,<br>MI 48113-0140<br>nsf.org/ | NSF/ANSI 140-2014 | 4.504.3, 5.504.4.4 |
| TABB Testing, Adjusting and Balancing Bureau | | |
| 601 N Fairfax St, Ste 250<br>Alexandria,<br>VA 22314<br>tabbcertified.org/contact.html | National Standards, 2003 | 5.410.3.3.1<br>A5.410.5.3.1 |

| ORGANIZATION | STANDARD | REFERENCED SECTION |
|---|---|---|
| US EPA United States Environmental Protection Agency | | |
| Office of Wastewater Management<br>(4204M) 1200 Pennsylvania Avenue<br>Washington,<br>D.C. 20460<br>epa.gov/watersense/ | WaterSense | 4.303.1 |

***Change for 2019 Intervening Code Cycle:*** *These tables have been amended to reflect the updated reference standards contained in CALGreen. Note, the entire reference standards tables have been added to this guide for ease of use to the code user.*

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***Chapter 8 - pages 59-60 of the CALGreen* Code pages 85-87 of the 2019 guide**

## CHAPTER 8
## COMPLIANCE FORMS, WORKSHEETS AND REFERENCE MATERIAL

. . .

### WORKSHEET (WS-1)
### BASELINE WATER USE

**BASELINE WATER USE CALCULATION TABLE**

| FIXTURE TYPE | FLOW RATE | | DURATION | | DAILY USES | | OCCUPANTS[1] | | GALLONS PER DAY |
|---|---|---|---|---|---|---|---|---|---|
| Shower-heads | 1.8 gpm @ 80 psi | X | 5 min. | X | 1 | X | Note 1a | = | |

1. For nonresidential occupancies Refer to Table 4-1, Chapter 4, 2019 *California Plumbing Code*, for occupant load factors.
   a. . . .
   b. . . .
2. . . .
3. . . .

### WORKSHEET (WS-2)
### WATER USE REDUCTION

**12-, 20-, 25-PERCENT REDUCTION WATER USE CALCULATION TABLE**

| FIXTURE TYPE | FLOW RATE | | DURATION | | DAILY USES | | OCCUPANTS[1] | | GALLONS PER DAY |
|---|---|---|---|---|---|---|---|---|---|
| … | | | | | | | | | |
| Gravity tank-type water closets | | X | 1 flush | X | 1 male [3]<br>3 female | X | | = | |
| Flushometer tank water closets | | X | 1 flush | X | 1 male [3]<br>3 female | X | | = | |
| Flushometer valve water closets | | X | 1 flush | X | 1 male [3]<br>3 female | X | | = | |
| Electromechanical hydraulic water | | X | 1 flush | X | 1 male [3]<br>3 female | X | | = | |

| FIXTURE TYPE | FLOW RATE | | DURATION | | DAILY USES | | OCCUPANTS[1] | | GALLONS PER DAY |
|---|---|---|---|---|---|---|---|---|---|
| closets | | | | | | | | | |
| … | | | | | | | | | |

1. For occupancies Refer to Table 4-1, Chapter 4, 2019 *California Plumbing Code*, for occupant load factors.
   a. . . .
   b. . . .
2. . . .
3. . . .

***Change for 2019 Intervening Code Cycle:*** *These tables have been amended to reflect the most current showerhead flow rates and the amended footnote 1 to refer to the new plumbing code table. No change to the remainder of the tables or footnotes.*

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***Appendix A5.103 - page 128 of the CALGreen* Code page 150 of the 2019 guide**

**APPENDIX A5**
**NONRESIDENTIAL VOLUNTARY MEASURES**

**DIVISION A5.1-PLANNING AND DESIGN**

. . .

**SECTION A5.103**
**SITE SELECTION**

. . .

**A5.103.2.1 Brownfield redevelopment.** Develop a site documented as contaminated by means of an ASTM E1903-11 Phase II Environmental Site Assessment or on a site defined as a brownfield by a local, state or federal government agency. The site must be fully remediated in accordance with EPA regulations to the level required of the anticipated land use.

**INTENT:**

The intent of these provisions is to encourage infill, and the use of existing infrastructures, in an effort to both revitalize an existing site with economic growth while minimizing urban blight and sprawl. By reclaiming brownfield (previously unusable locations due to contamination) or greyfield (50 percent covered with impervious materials such as existing parking lots) sites, undeveloped land may be preserved, and greenhouse gas emissions limited.

**Reference:** Environmental Protection Agency (EPA) regulations and ASTM E 1903-11, Phase II Environmental Site Assessment Process, apply to brownfields; local ordinances may also be in place.

**Change for the 2019 Intervening Code cycle:** Changes include updating the ASTM

standard for Brown or greyfield site redevelopment or in fill development. The new standard is ASTM E 1903-11. This update was necessary to maintain consistency with the California Energy Commission who recently updated this same standard in the *California Energy Code*.

**COMPLIANCE METHOD:**

Prepare documentation regarding remediation of contaminated sites in accordance with ASTM and EPA assessment processes. Confirm zoning requirements and any specific local, state or federal limitations related to brownfield or greyfield project sites with the local enforcement agency.

**ENFORCEMENT:**

Verify that remediation has occurred in accordance with appropriate local, state and/or federal requirements for brownfield or greyfield sites.

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***Section A5.106.4.3 - page 128 of the CALGreen* Code page 155 of the 2019 guide**

**SECTION A5.106**
**SITE DEVELOPMENT**

**. . .**

**A5.106.4.3 Changing rooms.** For buildings with over 10 tenant-occupants, provide changing/shower facilities for tenant-occupants only in accordance with Table A5.106.4.3 or document arrangements with nearby changing/ shower facilities.

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

***Change for 2019 Intervening Code Cycle:*** *This code section was amended to reflect the added hyperlink and website to the Sacramento Area Bicycle advocates.*

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***Section A5.106.5.1 - page 129 of the CALGreen* Code and pages 157-158 of the 2019 guide**

**A5.106.5.1. Designated parking for clean air vehicles.** In new projects or additions or alterations that add 10 or more vehicular parking spaces, provide designated parking spaces for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles shown in Table A5.106.5.1.1 or Table A5.106.5.1.2

**A5.106.5.1.1 Tier 1.** Provide 17 percent designated parking spaces, 201 and over parking spaces, for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as follows:

**TABLE A5.106.5.1.1**

| TOTAL NUMBER OF PARKING SPACES | NUMBER OF REQUIRED SPACES |
|---|---|
| 0-9 | 1 |
| 10-25 | 3 |
| 26-50 | 7 |
| 51-75 | 11 |
| 76-100 | 15 |
| 101-150 | 26 |
| 151-200 | 30 |
| 201 and over | At least 17 percent of total[1] |

1. Calculation for spaces shall be rounded up to the nearest whole number.

**Note:** Designated parking for clean air vehicles shall count toward the total parking spaces required by the local enforcing agencies.

**A5.106.5.1.2 Tier 2**. Provide 22 percent of total designated parking spaces, 201 and over parking spaces, for any combination of low-emitting, fuel-efficient, and carpool/van pool vehicles as follows:

**TABLE A5.106.5.1.2**

| TOTAL NUMBER OF PARKING SPACES | NUMBER OF REQUIRED SPACES |
|---|---|
| 0-9 | 2 |
| 10-25 | 4 |
| 26-50 | 9 |
| 51-75 | 14 |
| 76-100 | 18 |
| 101-150 | 26 |
| 151-200 | 36 |
| 201 and over | At least 22 percent of total[1] |

1. Calculation for spaces shall be rounded up to the nearest whole number.

**Note:** Designated parking for clean air vehicles shall count toward the total parking spaces required by the local enforcing agencies

**INTENT:**

The intent of these requirements is to enhance the appeal of driving clean air vehicles in an effort to reduce greenhouse gas emissions. This code ensures that newly constructed projects or additions and alterations provide designated parking for clean air vehicles (e.g., low-emitting, fuel-efficient and carpool/vanpool vehicles).

***Change for 2019 Intervening Code Cycle:*** Changes include increases to the percentages for clean air vehicles for the Tier 1 and Tier 2 voluntary measures. The changes for Tier 1 increased from 10% to 17% for parking lots with 201 vehicles or

more and for Tier 2 increase from 12% to 22%. Similar percentage increases were made to both tables to maintain consistency between the parking space ranges. Other changes include the addition of a footnote 1 for the table to require that the parking spaces be rounded up to the nearest whole number when performing a clean air vehicle calculation. Additionally, a note was added to advise the regulated community that designated parking for clean air vehicles shall count toward the total number of parking spaces required by the local enforcing agencies.

## COMPLIANCE METHOD:

**Design team:** The construction documents and/or site plan should indicate the location and required number of designated parking stalls. These parking spaces should be marked "CLEAN AIR/VANPOOL/EV." The markings should be visible when a clean air vehicle is parked. In other words, if the front of the vehicle goes into the parking stall first, the markings should be visible at the back end of the vehicle. Lettering should be at least 8 inches high. The CLEAN AIR/VANPOOL/ EV parking stalls may be located anywhere on the site and do not require a preferential location. However, take into consideration the location of stalls that are designated for future EV stalls because once charging units are installed the charging spaces will need to comply with Chapter 11B accessibility requirements.

## SUGGESTION:

The plans should reflect the total number of required motor vehicle parking spaces. Refer to Tables A5.106.5.1.1 and A5.106.5.1.2 in *CALGreen* to ensure that the correct number of designated parking stalls is provided. Include all parking spaces in the calculation. As approved by the enforcing agency, some compact stalls may also be marked for clean air vehicles.

## EXAMPLES:

**If a parking lot contains 55 total parking spaces:** Based on Table A5.106.5.1.1., provide eleven clean air vehicle spaces, with required stall markings, which fall within the range.

**If a parking lot contains 240 total parking spaces**: Based on Table 5.106.5.1.1, calculate 240 X 17 percent = 40.8. Provide 41 clean air vehicle spaces with required stall markings.

## ENFORCEMENT:

**Plan intake:** The plan reviewer should review the plans and confirm that the correct number of "CLEAN AIR/VANPOOL/EV" parking stalls is included on the drawings.

**On-site enforcement:** The inspector should verify that the correct number of clean air vehicle parking stalls have been installed and are accurately identified.

***Section A5.106.5.31 - page 130 of the CALGreen* Code and page 158 of the 2019 guide**

**A5.106.5.3 [N] Electric vehicle (EV) charging.** Construction shall comply with **. . .** and as follows:

**A5.106.5.3.1 Tier 1 . . .**

**A5.106.5.3.2 Tier 2 . . .**

**TABLE A5.106.5.3.1**

| TOTAL NUMBER OF ACTUAL PARKING SPACES | TIER 1 NUMBER OF REQUIRED EV CHARGING SPACES |
|---|---|
| 0-9 | 1 |
| 10-25 | 3 |
| 26-50 | 6 |
| 51-75 | 10 |
| 76-100 | 14 |
| 101-150 | 23 |
| 151-200 | 27 |
| 201 and over | 15 percent of total[1] |

1. Calculation for spaces shall be rounded up to the nearest whole number.

**TABLE A5.106.5.3.2**

| TOTAL NUMBER OF ACTUAL PARKING SPACES | TIER 2 NUMBER OF REQUIRED EV CHARGING SPACES |
|---|---|
| 0-9 | 2 |
| 10-25 | 4 |
| 26-50 | 8 |
| 51-75 | 13 |
| 76-100 | 18 |
| 101-150 | 26 |
| 151-200 | 36 |
| 201 and over | 20 percent of total[1] |

1. Calculation for spaces shall be rounded up to the nearest whole number.

**. . .**

**A5.106.5.3.3 [N] Identification.** The service panel or subpanel **. . .**

**. . .**

**A5.106.5.3.4 [N] Future charging spaces.** Future charging spaces qualify as **. . .**

**Note:** Future electric vehicle charging spaces shall count toward the total parking spaces required by the local enforcing agencies.

**INTENT:**

The intent of these requirements is to facilitate EV charging capability by installing raceways for future electric vehicle supply equipment (EVSE) at the time of new building construction. Construction plans and specifications must reflect that the infrastructure will be capable of supporting future electrical demands. Having the infrastructure pre-installed will allow the charging stations to be more cost-effectively added at a future date. This will aid in achieving an interim goal for infrastructure that will support 5 million zero-emissions vehicles (ZEV's) on California roadways by 2030 as directed by executive order EO B-48-18.

> **Note:** The EVSE capable requirements are intended for new construction as in a new building on a new or existing site with new or existing parking stalls. The EV requirement is not triggered for additions or alterations to existing buildings or to existing parking lots.

***Change for 2019 Intervening Code Cycle:*** Changes include increases to the percentages for electric vehicle infrastructure installation in Table A5.106.5.3.1 and Table A5.106.5.3.2 for nonresidential voluntary measures. Section A5.106.5.3.3 Identification was amended to add a banner [N] to align with the mandatory code Section 5.106.3.4. Section A5.106.5.3.4 is also amended to add a banner and title, "[N] Future charging spaces". "Notes" are repealed as they are no longer needed and will align with existing mandatory language in Section 5.106.5.3.5. Amendments to the EV code Sections 5.106.5.3.5 and A5.106.5.3.4 were made by adding a "Note" that states, "Future electric vehicle charging spaces shall be considered parking spaces and shall count toward the total parking spaces required by the local enforcing agencies." This amendment is needed because there is confusion about the intent of the future EV charging space requirements as not counting toward the total parking space requirements.

During the 2018 Triennial Code Adoption Cycle, Section 5.106.5.3.5 was amended to add the title "Future charging spaces." Additionally, Notes 1 through 3 were repealed. The guide was also amended to add clarity that the application of EVSE requirements is intended for new buildings at new or existing parking lots and not applicable for building additions or alteration at existing parking lots. Previously, during the 2015 Triennial Code Adoption Cycle, the percent of voluntary parking spaces required to install electric vehicle (EV) charging infrastructure to support future installation of electric vehicle supply equipment (EVSE) was increased from 4 percent to 8 percent for Tier 1 and 6 percent to 10 percent for Tier 2, and the parking lot size thresholds decreased from 51 spaces to 10 spaces.

**SUGGESTION:**

Anticipate accessibility requirements where EV charging stations are installed per the California Building Code, Part 2, Chapter 11B. Locate the EVSE stalls near the entrance to the building and in a parking area that can easily accommodate compliance with

accessibility regulations once the EVSE chargers are installed. Designing the EV Capable charging spaces in new parking lots to meet size requirements for accessibility can reduce complications when EV charging stations are installed at a future date.

**COMPLIANCE METHOD:**

Include on the site plan the proposed location of the listed suitable cabinet(s), box(es), enclosure(s) or equivalent required for future EV equipment connections. Indicate on the plans the 40-amp minimum service panel capacity with raceway to the approximate location of the future EV charging connections as required in the code Sections A5.106.5.3.1 or A5.106.3.2. Use Tables A5.106.5.3.1 or A5.106.5.3.2 to determine if single or multiple charging space requirements apply for the future installation of EVSE. Lastly, ensure that the service panel or subpanel(s) circuit directory is properly identified as being “EV CAPABLE” and that the raceway termination location is permanently and visibly marked as “EV CAPABLE.”

**RECOMMENDATION:**

The plans should reflect the EV capacity needed to accommodate the total number of required future EV vehicular charging spaces as required per Tables A5.106.5.3.1 or A5.106.5.3.2. Include all parking spaces in the calculation when determining the required EV capacity for future installation.

**EXAMPLES:**

1. **If a parking lot contains 55 actual parking spaces:** Based on Tier 1 Table A5.106.5.3.1, provide capacity for 10 future EV charging spaces.
2. **If a parking lot contains 240 actual parking spaces:** Based on Tier 1 Table A5.106.5.3.1, calculate 240 X 15 percent = 36; Provide capacity for 36 future EV charging spaces.

**ENFORCEMENT:**

**Plan intake:** The plan reviewer should confirm that the construction documents are compliant with Sections A5.106.5.3.1, A5.106.5.3.2 and A5.106.3.3 as applicable and that the appropriate EV capacity for future EV connection to the required number of future EV charging spaces per Table A5.106.5.3.1 or A5.106.3.2 has been provided. Confirm proper identification at the service panel or subpanel(s) and that the raceway termination location is permanently and visibly marked as “EV CAPABLE.”

**On-site enforcement:** The inspector should verify on-site that the service panel and raceway with proper termination have been installed per the approved set of construction documents.

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***Section A5.106.11.2.3 - page 131 of the CALGreen* Code and page 162 of the 2019 guide**

***…***

**A5.106.11.2.3 Solar reflectance index alternative.**

SRI values used to comply with this section shall be calculated using the Solar Reflectance Index (SRI) Calculation Worksheet (SRI-WS) developed by the California Energy Commission or in compliance with ASTM E1980 -11 as specified in the *California Energy Code,* Section 110.8-(i)3.

**…**

***Change for 2019 Intervening Code Cycle:*** *This code section has been amended to reflect the correct ASTM standard and the appropriate code section found in the California Energy Code.*

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***Section A5.303 - page 138 of the CALGreen*** **Code and page 171 of the 2019 guide**

**SECTION A5.303**
**INDOOR WATER USE**

**TABLE A5.303.2.2**
**WATER USE BASELINE (PERFORMANCE METHOD)**

| FIXTURE TYPE | BASELINE FLOW RATE | DURATION | DAILY USES | OCCUPANTS |
|---|---|---|---|---|
| Showerheads | 1.8 gpm @ 80 psi | 5 min. | 1 | **X** |
| Lavatory faucets nonresidential | … | … | … | … |

1. The daily use number **. . .**
2. Refer to Table 4-1, Chapter 4, 2019 *California Plumbing Code*, for occupant load factors.
    a. **. . .**
    b. **. . .**
3. **. . .**

**TABLE A5.303.2.3.1**
**FIXTURE FLOW RATES (PRESCRIPTIVE METHOD)**

| FIXTURE TYPE | BASELINE FLOW RATE | MAXIMUM FLOW RATE AT ≥ 12 PERCENT REDUCTION |
|---|---|---|
| Showerheads | 1.8 gpm @ 80 psi | 1.6 gpm @ 80 psi |
| Lavatory faucets nonresidential | … | ... |

***Change for 2019 Intervening Code Cycle:*** *These tables have been amended to reflect the most current showerhead flow rates and the amended footnote 1 to refer to the new plumbing code table. No change to the remainder of the tables or footnotes.*

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***Section A5.303.3 - page 139 of the CALGreen* Code and page 173 of the 2019 guide**

**A5.303.3 Appliances and fixtures for commercial application**. Appliances and fixtures shall meet the following:

1. Clothes washers shall have a maximum **. . .**
2. Dishwashers shall meet the following water use standards:
   a. Residential – ENERGY STAR
      i. Standard Dishwashers – 4.25 gallons per cycle.
      ii. Compact Dishwashers – 3.5 gallons per cycle.
   b. Commercial – Shall be in accordance with **. . .**
3. Ice makers shall be air cooled.
4. Food steamers shall be connectionless **. . .**
5. The use and installation of water softeners **. . .**
6. Combination ovens shall use a maximum **. . .**
7. Food waste pulping systems shall use no more than 2 gpm of potable water.
   7.1 Note: potable water excludes on-site gray water use, such as dishwasher discharge water.

***Change for 2019 Intervening Code Cycle:*** *This code section has been amended to remove the Commercial pre-rinse spray valve from this Section A5.303.3 and move it to the mandatory new Section* 5.303.3.4.6 Pre-rinse Spray Valve. Also, Food waste pulping systems was renumbered to code item 7 and Note became 7.1.

***Section A5.405.2.1 - page 142 of the CALGreen* Code and page 181 of the 2019 guide**

**SECTION A5.405**
**MATERIAL SOURCES**

**A5.405.2 Bio-based materials.** [no change]

**A5.405.2.1 [RESERVED]**

**A5.405.2.2 Rapidly renewable materials** [no change]

***Change for 2019 Intervening Code Cycle:*** *This code section has been amended to repeal of the Rapidly renewable material code language. A RESERVED verbiage has been added to reserve the code section number.*

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***Section A5.405.3 - page 142 of the CALGreen* Code and page 182 of the 2019 guide**

**A5.405.3 Reused materials.** Use salvaged, refurbished, refinished or reused materials for a minimum of 5 percent of the total value, based on estimated cost of materials on the project. Provide documentation as to the respective values.

**Note:** Sources of some reused materials can be found at CalRecycle's website, calrecycle.ca.gov/. See also Appendix A5, Division A5.1, Section A5.105.1 for on-site materials reuse.

***Change for 2019 Intervening Code Cycle:*** *This code section has been amended to add the hyperlink and website for CALRecycle.*

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***Section A5.504 - pages 149 and 150 of the CALGreen*** **Code and page 198 of the 2019 guide**

***Note:*** *Code Sections A5.504.4.7, A5.504.7.1, A5.504.4.8, and A5.504.9 have been amended and strike-out language has been omitted for clarity.*

## SECTION A5.504
## POLLUTANT CONTROL

**A5.504.4.7 Resilient flooring systems, Tier 1.**
Where resilient flooring is installed, at least 90 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 Specification 01350).

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

**A5.504.4.7.1 Resilient flooring systems, Tier 2.**
Where resilient flooring is installed,100 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 Specification 01350).

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

Exception: [no change]

**A5.504.4.7.2 Verification of compliance.** [no change]

**A5.504.4.8 Thermal insulation, Tier 1.**
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," Version 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.
> cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx#material

**A5.504.4.8.1 Thermal insulation, Tier 2.** [no change]
**A5.504.4.8.2 Verification of compliance.** [no change]

**A5.504.4.9 Acoustical ceilings 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," Version 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.
cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx#material

**A5.504.4.9.1 Verification of compliance.** Documentation shall be provided verifying that acoustical finish materials meet the pollutant emission limits.

## INTENT:

The purpose of these measures is to reduce the volatile organic compounds (VOC) of finish materials commonly installed on a project, which will help improve air quality for the building occupants. These measures exceed the mandatory regulations in Chapter 5, Division 5.5, of *CALGreen* and are available as a tier option. The low-VOC provisions are based on the recommendations, guidelines and regulations of the California Air Resources Board cited in each section. Regulations for aerosol adhesives and paints and for composite wood products are found in Title 17, California Department of Public Health.

**Note:** See Chapter 8 of this guide for forms and templates.

**Change for 2019 Intervening Code Cycle:** Changes include: repealing the various acceptable testing methods for compliance for carpet and resilient flooring systems and replace them with a single reference to the California Department of Public Health (CDPH) "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 Specification 01350) and added a reference to their website. Lastly, the Note under Section A5.504.4.9.1 has been repealed.

Change for 2019: During the 2018 Triennial Code Adoption Cycle the references to the standards for carpet and resilient floor systems were updated in the approved list of products to align with the mandatory code. Additionally, the referenced standard for thermal insulation was also updated to the 2014 standard.

## COMPLIANCE METHOD:

Specify finish materials that meet the VOC limits as shown in the CDPH website standards listed above for resilient flooring systems, thermal insulation, and acoustical ceiling and wall panels. Provide specifications that meet VOC limit criteria as per the CDPH standards listed on their website above.

**SUGGESTION:**

Retain product data sheets for on-site verification by the enforcing agency and for the operation and maintenance manual.

**ENFORCEMENT:**

**Plan intake:** The plan reviewer should confirm in the construction documents that these finishes are specified to meet VOC emission limits.

**On-site enforcement:** The inspector should verify that finishes specified on the approved construction documents are installed or stored on site with the ability to be verified. The inspector may review product data provided with products or accept self-certification forms signed by the contractor.

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***Section A5.601 - page 155 of the CALGreen* Code and page 208 of the 2019 guide**

**TABLE A5.601 NONRESIDENTIAL BUILDINGS:**
**GREEN BUILDING STANDARDS CODE PROPOSED PERFORMANCE APPROACH**

| CATEGORY | ENVIRONMENTAL PERFORMANCE GOAL | TIER 1 | TIER 2 |
|---|---|---|---|
| **All** | Minimum Mandatory (See Mandatory Checklist) | Meet all of the provisions of Chapter 5 (See Tier 1 Checklist) | Meet all of the provisions of Chapter 5 (See Tier 2 Checklist) |
| **DIVISION 5.1 Planning and Design** | Designated Parking for Fuel Efficient Vehicles | Approx. 17% of total spaces | Approx. 22% of total spaces |
| | Electric Vehicle Charging | Approx. 15% of total spaces | Approx. 20% of total spaces |

**Change for 2019 Intervening Code Cycle:** *This table has been amended to update the table percentages to match the modified code sections in Chapter A5. The changes were to increase the Tier 1 and Tier 2 percentages for Designated parking for clean air vehicles and electric vehicle charging. No changes to the remainder of the table or footnotes.*

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***Verification Guidelines Checklists pages 156-159 of the CALGreen* Code and pages 209-213 of the 2019 guide**

**Verification Guidelines Checklists**

This chapter also provides verification guidelines that include three checklists to be used for implementing *CALGreen* nonresidential mandatory and voluntary measures.

CBSC has created three checklists:

- Mandatory nonresidential measures;
- Tier 1 voluntary nonresidential measures; and
- Tier 2 voluntary nonresidential measures.

These checklists can be used for verifying compliance with the mandatory and tier options. Use of these checklists is not mandated for compliance with *CALGreen*; however, they can assist the local building department with checking compliance with the mandatory provisions and in selecting and adopting local green building standards amendments (i.e., local ordinances) to *CALGreen*. Additionally, these checklists may be used by code users to assist in implementing the mandatory provisions and the locally adopted *CALGreen* amendments (ordinances).

## A5.602
## *CALGreen* VERIFICATION GUIDELINES
## MANDATORY MEASURES CHECKLIST

**Application:** This checklist shall be used for nonresidential projects that meet one of the following: new construction, building additions of 1,000 sq. ft. or greater, or building alterations with a permit valuation of $200,000 or more pursuant to section 301.3 AND do not trigger a Tier 1 or Tier 2 requirement:

**Y** = Yes (section has been selected and/or included)
**N/A** = Not Applicable (code section does not apply to the project—mainly used for additions and alterations)
**O** = Other (provide explanation)
**[N]** = New construction pursuant to Section 301.3
**[A]** = Additions and/or Alterations pursuant to Section 301.3

| CHAPTER 5 DIVISIONS | | SECTION TITLE | CODE SECTION | Y | N/A | O | PLAN SHEET, SPEC, OR ATTACH REFER-ENCE |
|---|---|---|---|---|---|---|---|
| **DIVISION 5.1 Planning and Design** | . . . | . . . | . . . | | | | |
| | Mandatory | Long-term bicycle parking | 5.106.4.1.2 through 5.106.4.1.5 | | | | |
| | Mandatory | Designated parking for clean air vehicles w/footnote and note | 5.106.5.2 | | | | |
| | . . . | . . . | . . . | | | | |
| | Mandatory | [N] Future charging spaces with note | 5.106.5.3.5 | | | | |

| CHAPTER 5 DIVISIONS | | SECTION TITLE | CODE SECTION | Y | N/A | O | PLAN SHEET, SPEC, OR ATTACH REFER-ENCE |
|---|---|---|---|---|---|---|---|
| | Mandatory | Light pollution reduction [N] (with exceptions, ~~and~~ notes and table) | 5.106.8 through 5.106.8.2 | | | | |
| | . . . | . . . | . . . | | | | |
| **DIVISION 5.3 Water Efficiency and Conservation** (continued) | . . . | . . . | . . . | | | | |
| | Mandatory | Metering faucets for wash fountains | 5.303.3.4.5 | | | | |
| | Mandatory | Pre-rinse spray valve | 5.303.3.4.6 | | | | |
| | Mandatory | Food waste disposers | 5.303.4.1 | | | | |
| | . . . | . . . | . . . | | | | |

**Change for 2019 Intervening Code Cycle:** *This checklist has been amended to update the mandatory checklist table to match the modified code sections in Chapter 5. The changes were done to Sections 5.106.5.2, 5.106.5.3.5, 5.106.8.2, and 5.303.3.4.6. No changes to the remainder of the checklist table.*

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***Verification Guidelines Checklists pages 160-165 of the CALGreen* Code and pages 215-221 of the 2019 guide**

**A5.602.1**
***CALGreen* VERIFICATION GUIDELINES**
**TIER 1 CHECKLIST**

**Application:** This checklist shall be used for nonresidential projects that meet the following: new construction, or building additions of 1,000 square feet or greater, or building alterations with a permit valuation of $200,000 or more pursuant to section 5.301.3, AND are adopting Tier 1 voluntary measures.

**Note:** All applicable mandatory requirements in Chapter 5 shall be met prior to applying Tier 1 voluntary measures.

**Instructions:**

Comply with all Tier 1 prerequisite measures from the various categories

shown on the table below. Add a **"Y"** to all Mandatory and Tier 1 prerequisite provisions in the appropriate columns.

Select the required number of additional electives from those categories shown on the table below and add a **"Y"** on the selected elective and add an **"N"** on the rest.

Count the total number of Tier 1 prerequisite measures plus the additional electives and write down the total number at the end of the checklist. Determine if the required number of Tier 1 measures have been selected to achieve Tier 1 compliance.

**Y** = Yes (section has been selected and/or included)

**N** = No (section has not been selected and/or included)

**O** = Other (provide explanation)

**[N]** = New construction pursuant to Section 301.3

**[A]** = Additions and/or Alterations pursuant to Section 301.3

| CHAPTER 5 DIVISIONS | | SECTION TITLE | CODE SECTION | Y | N/A | O | PLAN SHEET, SPEC, OR ATTACH REFER-ENCE |
|---|---|---|---|---|---|---|---|
| **DIVISION 5.1 Planning and Design** | . . . | . . . | . . . | | | | |
| | Mandatory | Long-term bicycle parking | 5.106.4.1.2 through 5.106.4.1.5 | | | | |
| | Mandatory | Designated parking for clean air vehicles w/footnote and note | 5.106.5.2 | | | | |
| | *Tier 1 Prerequisite* | *Designated parking—17% of parking capacity w/ parking stall markings and stall identification* | *A5.106.5.1, A5.106.5.1.2, A5.106.5.1.3, A5.106.5.1.4* | | | | |
| | . . . | . . . | . . . | | | | |
| | Mandatory | [N] Future charging spaces with note | 5.106.5.3.5 | | | | |
| | Mandatory | Light pollution reduction [N] (with exceptions, notes and table) | 5.106.8 through 5.106.8.2 | | | | |

| CHAPTER 5 DIVISIONS | | SECTION TITLE | CODE SECTION | Y | N/A | O | PLAN SHEET, SPEC, OR ATTACH REFER-ENCE |
|---|---|---|---|---|---|---|---|
| | . . . | . . . | . . . | | | | |
| **DIVISION 5.3 Water Efficiency and Conservation** | . . . | . . . | . . . | | | | |
| | Mandatory | Metering faucets for wash fountains | 5.303.3.4.5 | | | | |
| | Mandatory | Pre-rinse spray valve | 5.303.3.4.6 | | | | |
| | Mandatory | Food waste disposers | 5.303.4.1 | | | | |
| | … | … | … | | | | |
| **DIVISION 5.4 Material Conservation and Resource Efficiency** | . . . | . . . | . . . | | | | |
| | … | … | … | | | | |
| | | | | | | | |
| | … | … | … | | | | |

**Change for 2019 Intervening Code Cycle:** *This checklist has been amended to update the Tier 1 checklist table to match the modified code sections in Chapters 5 and A5. The changes were done to Sections 5.106.5.2, A5.106.5.1, 5.106.5.3.5, 5.106.8.2, and 5.303.3.4.6. No changes to the remainder of the checklist table.*

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***Verification Guidelines Checklists pages 166-172 of the CALGreen* Code and pages 225-230 of the 2019 guide**

**A5.602.2**

***CALGreen* VERIFICATION GUIDELINES**

**TIER 2 CHECKLIST**

**Application:** This checklist shall be used for nonresidential projects that meet the following: new construction, or building additions of 1,000 sq. ft. or greater, or building alterations with a permit valuation of $200,000 or more pursuant to section 5.301.3, AND are adopting Tier 1 voluntary measures.

**Note:** All applicable mandatory requirements in chapter 5 shall be met prior to

applying Tier 2 voluntary measures.

**Instructions:**

Comply with all Tier 2 prerequisite measures from the various categories shown on the table below. Add a **"Y"** to all Mandatory and Tier 2 prerequisite provisions in the appropriate columns.

Select the required number of additional electives from those categories shown on the table below and add a **"Y"** on the selected elective and add an **"N"** on the rest.

Count the total number of Tier 2 prerequisite measures plus the additional electives and write down the total number at the end of the checklist. Determine if the required number of Tier 2 measures have been selected to achieve Tier 2 compliance.

**Y** = Yes (section has been selected and/or included)

**N** = No (section has not been selected and/or included)

**O** = Other (provide explanation)

**[N]** = New construction pursuant to section 301.3

**[A]** = Additions and/or Alterations pursuant to section 301.3

| **CHAPTER 5 DIVISIONS** | | **SECTION TITLE** | **CODE SECTION** | **Y** | **N / A** | **O** | **PLAN SHEET, SPEC, OR ATTACH REFER-ENCE** |
|---|---|---|---|---|---|---|---|
| **DIVISION 5.1 Planning and Design** | **. . .** | **. . .** | **. . .** | | | | |
| | Mandatory | Designated parking for clean air vehicles w/footnote and note | 5.106.5.2 | | | | |
| | *Tier 2 Prerequisite* | *Designated parking 22% of parking capacity w/ parking stall markings and stall identification* | *A5.106.5.1, A5.106.5.1.2, A5.106.5.1.3, A5.106.5.1.4* | | | | |
| | **. . .** | **. . .** | **. . .** | | | | |
| | Mandatory | [N] Future charging spaces with note | 5.106.5.3.5 | | | | |
| | Mandatory | Light pollution reduction [N] (with exceptions, ~~and~~ notes and table) | 5.106.8 through 5.106.8.2 | | | | |
| | **. . .** | **. . .** | **. . .** | | | | |

| CHAPTER 5 DIVISIONS | | SECTION TITLE | CODE SECTION | Y | N / A | O | PLAN SHEET, SPEC, OR ATTACH REFER-ENCE |
|---|---|---|---|---|---|---|---|
| **DIVISION 5.3 Water Efficiency and Conservation** | **. . .** | **. . .** | **. . .** | | | | |
| | Mandatory | Metering faucets for wash fountains | 5.303.3.4.5 | | | | |
| | Mandatory | Pre-rinse spray valve | 5.303.3.4.6 | | | | |
| | Mandatory | Food waste disposers | 5.303.4.1 | | | | |
| **DIVISION 5.4 Material Conservation and Resource Efficiency** | **. . .** | **. . .** | **. . .** | | | | |
| | | | | | | | |
| | **…** | **…** | **…** | | | | |

**Change for 2019 Intervening Code Cycle:** *This checklist has been amended to update the Tier 2 checklist table to match the modified code sections in Chapters 5 and A5. The changes were done to Sections 5.106.5.2, A5.106.5.1, 5.106.5.3.5, 5.106.8.2, and 5.303.3.4.6. No changes to the remainder of the checklist table.*