

**July 1, 2015 Supplement
update**

**Guide to the 2013 California
Green Building Standards
Code nonresidential**

LEGEND FOR NEW CODE LANGUAGE

New California amendments to the 2013 CALGreen code incorporating the July 1, 2015 supplement: All such language appears underlined.

[NOTE TO CODE USER]: Italicized text not included within the code sections indicates notes to the code user.

New code sections added between pages 28 & 29 of the Guidebook

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 minimum 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 PARKING SPACES	NUMBER OF REQUIRED EV
<u>0-50</u>	<u>0</u>
<u>51-75</u>	<u>1</u>
<u>76-100</u>	<u>2</u>
<u>101-200</u>	<u>3</u>
<u>201 and over</u>	<u>3%¹</u>

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 qualify as designated parking as described in Section 5.106.5.2
Designated parking. Notes:

1. The California Department of Transportation adopts and publishes the California Manual on Uniform Traffic Control Devices (California MUTCD) to provide uniform standards and specifications for all official traffic control devices in California. Zero Emission Vehicle Signs and Pavement Markings can be found in the New Policies & Directives number [13-01. www.dot.ca.gov/hq/traffops/policy/13-01.pdf](http://www.dot.ca.gov/hq/traffops/policy/13-01.pdf).
2. See Vehicle Code Section 22511 for EV charging spaces signage in off-street parking facilities and for use of EV charging spaces.
3. The Governor’s Office of Planning and Research published a Zero-Emission Vehicle Community Readiness Guidebook which provides helpful information for local governments, residents and businesses. www.opr.ca.gov/docs/ZEV_Guidebook.pdf.

Intent:

The intent of these provisions is to encourage the use of electric vehicles as an alternate means of transportation. These vehicles can help to reduce the amount of greenhouse gas emission released into the environment and can assist in reducing personal transportation expenses.

Change for the July 1, 2015 supplement: New code sections have been added to the mandatory provisions.

Existing Law or Regulation:

The *California Building Code* has provisions in Chapter 4 regarding electric vehicle charging requirements and also in the *California Electrical Code*. Check to see if local jurisdiction ordinances exist and incorporate whichever is stricter.

Compliance Method:

Include on the site plan the location and the appropriate number of parking stalls required to be dedicated for future electric vehicle charging stations. Indicate on the plans the 40-amp minimum service panel with raceway to the approximate location of the future EV parking stalls as required in the code sections 5.106.5.3.1 or 5.106.5.3.1.1

Enforcement:

Plan intake: The reviewer and/or plan checker should review the construction documents to confirm compliance with sections 5.106.5.3.1 or 5.106.5.3.1.1 as applicable.

On-site enforcement: The inspector should review the permit set of plans and verify on-site that the service panel, raceway and parking stalls have been installed per the permitted set of construction documents.

New changes are found on page 38 of the Guidebook

[Table 5.303.2.2 “Water Use Baseline” table has been deleted from the code and table 5.303.2.3 “Water Reduction Fixture Flow Rates” has been deleted but the individual fixture types have been extracted from the table and listed in a paragraph format as shown below.]

5.303.3.4 Faucets and fountains.

5.303.3.4.1 Nonresidential Lavatory faucets. Lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi.

5.303.3.4.2 Kitchen faucets. Kitchen faucets shall have a maximum flow rate of not more than 1.8 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.

5.303.3.4.3 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].

5.303.3.4.4 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 maximum flow rate of not more than 0.20 gallons per minute/20 [rim space (inches) at 60 psi].

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

5.303.4 Areas of addition or alteration. For those occupancies within the authority of the California Building Standards Commission as specified in Section 103, the provisions of Section 5.303.3 shall apply to new fixtures in additions or areas of alteration to the building.

Intent:

The intent of this code provision is to reduce the overall use of potable water within the building.

Change for the July 1, 2015 supplement: This code section that defines the maximum allowable flow rates for various fixture types: kitchen faucets, metering faucets and wash basins. As part of the supplement changes; Table 5.303.2.2 “Water Use Baseline” table has been deleted from the code and table 5.303.2.3 “Water Reduction Fixture Flow Rates” has been deleted but the individual fixture types have been extracted from the table and listed in a paragraph format as shown in new code sections. Although the fixture types have been reformatted from a table to a new listed paragraph format, the fixture flow rates did not change from the 2013 CALGreen code to the July supplement.

Compliance method:

Specify the prescriptive fixture flow rates as listed in section 5.303.4.1 and subsections.

Suggestion: Provide a note on the plans and specify the fixture types that meet the requirements.

Enforcement:

Plan intake: The reviewer and/or plan checker should review the plans and specifications to confirm that the prescriptive reduced flow rates for the listed fixture types are used. For additions or alterations, confirm that the new fixture flow rates comply with the code.

On-site enforcement: The inspector should review the permit set of plans to verify that the specified plumbing fixture types are installed. The inspector may review the fixture specifications to verify compliance.

New changes are found on page 60 of the Guidebook

5.410.2 Commissioning. [N] For new buildings 10,000 square feet and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements. Commissioning shall be performed in accordance with this section by trained personnel with experience on projects of comparable size and complexity. Commissioning requirements shall include:

Owner's or owner representative's project requirements.

Basis of design.

Commissioning measures shown in the construction documents.

Commissioning plan.

Functional performance testing.

Documentation and training.

Commissioning report.

Exceptions:

1. Unconditioned warehouses of any size.

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.

Commissioning requirements for energy systems covered by the *California Energy Code*.

Open parking garages of any size, or open parking garage areas, of any size, within a structure.

Note: For the purposes of this section, unconditioned shall mean a building, area, or room which does not provide heating and or air conditioning.

All building operating systems covered by Title 24, Part 6, as well as process equipment and controls, and renewable energy systems shall be included in the scope of the commissioning requirements.

Informational Notes:

IAS AC 476 is an accreditation criteria for organizations providing training and/or certification of commissioning personnel. AC 476 is available to the Authority Having Jurisdiction as a reference for qualifications of commissioning personnel. AC 476 does not certify individuals to conduct functional performance tests or to adjust and balance systems.

Functional performance testing for heating, ventilation, air conditioning systems and lighting controls must be performed in compliance with the *California Energy Code*.

Introduction:

The purpose of this section is to improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of concepts that reduce negative and increase positive environmental impacts. Commissioning is a vital element in this effort.

Change for the July 1, 2015 supplement: As part of the supplement changes; additional exceptions have been added and/or amended excepting the commissioning requirements for certain uses. Additionally, an "Informational Note" has been added to notify local jurisdictions that there is a reference standard IAS AC 476 for accreditation for certification of commissioning personnel. A clarification banner [N] was previously added that clarified that this provision applies to new [N] projects only. For compliance with energy-related items in Exception 4, review appropriate California Energy Code sections.

New changes are found on pages 88 & 89 of the Guidebook

[Some amendments were made to the carpet systems and resilient flooring systems. No changes were made to Composite wood products or the Verification of compliance sections.]

5.504.4.4 Carpet systems. All carpet installed in the building interior shall meet at least one of the following testing and product requirements:

1. Carpet and Rug Institute's Green Label Plus Program;
2. 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*);
3. NSF/ANSI 140 at the Gold level or higher;
4. Scientific Certifications Systems Sustainable Choice; or
5. Compliant with the Collaborative for High Performance Schools California (CA-CHPS) Criteria Interpretation for EQ 7.0 and EQ 7.1 (formerly EQ 2.2) dated July 2012 and 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. *No changes were made to this section (see page 88 of the CALGreen guide for existing code language).*

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:

1. Certified under the Resilient Floor Covering Institute (RFCI) FloorScore program;
2. 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 (CA-CHPS) Criteria Interpretation for EQ 7.0 and EQ 7.1 (formerly EQ 2.2) dated July 2012 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.

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.

Change for the July 1, 2015 supplement: As part of the supplement changes; the references to the standards for carpet and resilient floor systems were updated as shown. Also, the requirement for resilient floor systems was previously increased from 50 to 80 percent.

Existing law or regulation: 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.

Compliance method:

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

Suggestion:

Contractor: Retain product data sheets for on-site verification by the enforcing agency and for the operation and maintenance manual. Sample compliance forms can be found in Part 4 of this guide.

Enforcement:

Plan intake: The reviewer and/or plan checker should review the plans and specifications to confirm that the finishes are specified to meet VOC emission limits.

On-site enforcement: The inspector should review the permit set of plans and product data sheets maintained by the contractor to verify finishes specified on the approved plans and specifications are installed, or at least stored on site with the ability to be verified. The inspector may review data on material containers or specifications provided with products or accept a self-certification form.

New changes are found on page 114 of the Guidebook

A5.106.5.3 Electric vehicle (EV) charging. Construction shall comply with Section A5.106.5.3.1 and A5.106.5.3.2 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* Section 406.9, the *California Electrical Code* and as follows:

A5.106.5.3.1 Tier 1. Table A5.106.5.3.1 shall be used to determine if single or multiple charging space

requirements apply for future installation of EVSE. When a single charging space is required per Table A5.106.5.3.1, refer to Section 5.106.5.3.1 for design requirements. When multiple charging spaces are required, refer to Section 5.106.5.3.2 for design requirements.

A5.106.5.3.2 Tier 2. Table A5.106.5.3.2 shall be used to determine the number of multiple charging spaces required for future installation of EVSE. Refer to Section 5.106.5.3.2 for design space requirements.

TABLE A5.106.5.3.1

TOTAL NUMBER OF PARKING SPACES	TIER 1 NUMBER OF REQUIRED EV CHARGING SPACES
0-50	1
51-75	2
76-100	3
101-200	5
201 and over	4% ¹

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

TABLE A5.106.5.3.2

TOTAL NUMBER OF PARKING SPACES	TIER 2 NUMBER OF REQUIRED EV CHARGING SPACES
0-50	2
51-75	3
76-100	4
101-200	7
201 and over	6% ¹

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

A5.106.5.3.3 Identification. The service panel or subpanel 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.”

A5.106.5.3.4 Future charging spaces qualify as designated parking as described in Section A5.106.5.1 Designated parking.

Notes:

1. The California Department of Transportation adopts and publishes the California Manual on Uniform Traffic Control Devices (California MUTCD) to provide uniform standards and specifications for all official traffic control devices in California. Zero Emission Vehicle Signs and Pavement Markings can be found in the New Policies & Directives number 13-01. www.dot.ca.gov/hq/traffops/policy/13-01.pdf.
2. See Vehicle Code Section 22511 EV charging spaces signage in off street parking facilities and for use of EV charging spaces.
3. The Governor’s Office of Planning and Research published a Zero-Emission Vehicle Community Readiness Guidebook which provides helpful information for local governments, residents and businesses. www.opr.ca.gov/docs/ZEV_Guidebook.pdf.

Intent:

The intent of these provisions is to encourage the use of electric vehicles as an alternate means of transportation. These vehicles can help to reduce the amount of greenhouse gas emission released into the environment and can assist in reducing personal transportation expenses.

Change for the July 1, 2015 supplement: Existing voluntary code sections have been updated to increase the Tier 1 and Tier 2 requirements for future Electric vehicle parking stall locations.

Existing Law or Regulation:

The *California Building Code* has provisions in Chapter 4 regarding electric vehicle charging requirements and also in the *California Electrical Code*. Check to see if local jurisdiction ordinances exist and incorporate whichever is stricter.

Compliance Method:

Include on the site plan the location and the appropriate number of parking stalls required to be dedicated for future electric vehicle charging stations. Indicate on the plans the 40-amp minimum service panel with raceway to the approximate location of the future EV parking stalls as required in the code sections A5.106.5.3.1 Tier 1 or A5.106.5.3.2 Tier 2.

Enforcement:

Plan intake: The reviewer and/or plan checker should review the construction documents to confirm compliance with sections A5.106.5.3.1 Tier 1 or A5.106.5.3.2 Tier 2 as applicable.

On-site enforcement: The inspector should review the permit set of plans and verify on-site that the service panel, raceway and parking stalls have been installed per the permitted set of construction documents.

New changes are found on pages 118 of the Guidebook

A5.106.11.3 Verification of compliance. If no documentation is available, an inspection shall be conducted to ensure roofing materials meet cool roof aged solar reflectance and thermal emittance or SRI values.

TABLE A5.106.11.2.1
VALUES OF SOILING RESISTANCE, B, BY PRODUCT TYPE

PRODUCT TYPE	CRRS PRODUCT CATEGORY	B
Field-applied coating	Field-applied coating	0.65
Other	Not a field-applied coating	0.70

TABLE A5.106.11.2.2 [BSC]
TIER 1

ROOF SLOPE	CLIMATE ZONE	Minimum Aged Solar Reflectance	Thermal Emittance	SRI
≤ 2 : 12	1–16	0.63	0.75	75
> 2:12	1–16	0.20	0.75	16

TABLE A5.106.11.2.3 [BSC]
TIER 2

ROOF SLOPE	CLIMATE ZONE	Minimum Aged Solar Reflectance	Thermal Emittance	SRI
≤ 2 : 12	1-16	<u>0.68</u>	0.85	<u>82</u>
> 2:12	1-16	<u>0.28</u>	0.85	<u>27</u>

Intent:

The intent of these provisions is to minimize the creation of non-roof and roof heat islands in new construction to reduce the energy load for building cooling and to moderate atmospheric temperature. Additionally, cool roof installations are included in Tier 1 and Tier 2 provisions for adoption by cities and counties wishing to go beyond the minimum mandatory requirements for their communities.

Change for the July 1, 2015 supplement: The existing voluntary code tables have been updated to increase the Tier 1 and Tier 2 requirements for Minimum Aged Solar Reflectance values and Solar Reflective Index values.

Existing Law or Regulation:

California Energy Code, Part 6, Title 24, California Code of Regulations regulates the energy efficiency of the building envelope.

Compliance Method:

Show on the site/landscape plan the application of hardscape material with a calculation that represents at least a 50-percent area for alternatives to hardscape material.

For cool roof application include with the energy calculations a Solar Reflective Index Calculation Worksheet (SRI-WS) and specifications for cool roof materials selected to comply with the cool roof provisions shown in Table A1.506.11.2.2 or A1.506.11.2.3.

Suggestion:

Contractor: Maintain product data sheets for roofing materials for on-site verification by the enforcing agency and for the operation and maintenance manual.

Enforcement:

Plan intake: The reviewer and/or plan checker should review the construction documents for the hardscape design calculations; and energy compliance forms and specifications for compliance with the cool roof provisions.

On-site enforcement: The inspector should review the permit set of plans and verify that hardscape alternatives are constructed as calculated. He or she should check product data sheets for the roofing materials for compliance with cool roof values. If no documentation is available, he or she should inspect the project to ensure materials selected meet the SRI values.

**TABLE A5.303.2.2
WATER USE
BASELINE³**

FIXTURE TYPE	BASELINE FLOW RATE	DURATION	DAILY USES	OCCUPANTS²
Showerheads	2.0 gpm @ 80 psi	5 min.	1	X ^{2a}
Lavatory faucets nonresidential	0.5 gpm @ 60 psi	.25 min.	3	X
Kitchen faucets	1.8 gpm @ 60 psi	4 min.	1	X ^{2b}
Replacement aerators	2 gpm @ 60 psi			X
Wash fountains	1.8 gpm/20 [rim space (in.) @ 60 psi]			X
Metering faucets	0.20 gallons/cycle	.25 min.	3	X
Metering faucets for wash fountains	0.20 gpm/20 [rim space (in.) @ 60 psi]	.25 min.	1 male ¹ 3 female	X
Gravity tank type water closets	1.28 gallons/flush	1 flush	1 male ¹ 3 female	X
Flushometer tank water closets	1.28 gallons/flush	1 flush	1 male ¹ 3 female	X
Flushometer valve water closets	1.28 gallons/flush	1 flush	1 male ¹ 3 female	X
Electromechanical hydraulic water closets	1.28 gallons/flush	1 flush	1 male ¹ 3 female	X
Urinals	0.5 gallons/flush	1 flush	2 male	X

1. The daily use number shall be increased to three if urinals are not installed in the room.
2. Refer to Table A, Chapter 4, 2013 *California Plumbing Code*, for occupant load factors.
 - a. Shower use by occupants depends on the type of use of a building or portion of a building, e.g., total occupant load for a health club, but only a fraction of the occupants in an office building as determined by the anticipated number of users.
 - b. Kitchen faucet use is determined by the occupant load of the area served by the fixture.
3. Use worksheet WS-1 to calculate baseline water use.

SECTION A5.303
INDOOR WATER USE

A5.303.2.3.1 Tier 1 – 12-percent savings. [BSC] A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by **12** percent shall be provided. The reduction shall be based on the maximum allowable water use per plumbing fixture and fitting as required by the *California Building Standards Code*. The **12**-percent reduction in potable water use shall be demonstrated by one of the following methods:

1. Prescriptive method. Each plumbing fixture and fitting shall not exceed the maximum flow rate at greater than or equal to **12**-percent reduction as specified in Table A5.303.2.3.1; **or**
2. Performance method. A calculation demonstrating a **12**-percent reduction in the building “water use baseline” as established in Table A5.303.2.2 shall be provided.

TABLE A5.303.2.3.1
FIXTURE FLOW
RATES

FIXTURE TYPE	BASELINE FLOW-RATE ²	MAXIMUM FLOW RATE AT ≥ 12 PERCENT REDUCTION
Showerheads	2.0 gpm @ 80 psi	1.8 gpm @ 80 psi
Lavatory faucets nonresidential ³	0.5 gpm @ 60 psi	0.35 gpm @ 60 psi
Kitchen faucets ³	1.8 gpm @ 60 psi	1.6 gpm @ 60 psi
Wash fountains	1.8 gpm/20 [rim space(in.) @ 60 psi]	1.6 [rim space(in.)/20 gpm @ 60 psi]
Metering faucets	0.20 gallon/cycle	0.18 gallons/cycle
Metering faucets for wash fountains	0.20 gpm/20 [rim space(in.) @ 60 psi]	0.18 [rim space(in.)/20 gpm @ 60 psi]
Gravity tank type water closets	1.28 gallons/flush	1.12 gallons/flush ¹
Flushometer tank water closets	1.28 gallons/flush	1.12 gallons/flush ¹
Flushometer valve water closets	1.28 gallons/flush	1.12 gallons/flush ¹
Electromechanical hydraulic water closets	1.28 gallons/flush	1.12 gallons/flush ¹
Urinals	0.5 gallons/flush	0.44 gallons/flush

1. Includes water closets with an effective flush rate of 1.12 gallons or less when tested per ASME A 112.19.2 and ASME A 112.19.14.
2. See Table **A5.503.2.2** for additional notes and references.
3. Where complying faucets are unavailable, aerators rated at 0.35 gpm or other means may be used to achieve reduction.

A5.303.2.3.2 Tier 2 – 20-percent savings. A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by **20** percent shall be provided. A calculation demonstrating a **20**-percent reduction in the building “water use baseline” as established in Table A5.303.2.2 shall be provided.

A5.303.2.3.3 25-percent savings. A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by **25** percent shall be provided. A calculation demonstrating a **25**-percent reduction in the building “water use baseline” as established in Table A5.303.2.2 shall be provided.

Intent:

The intent of these code provisions is to enhance indoor potable water use reduction beyond the mandatory reduced flow rates. California’s water supply is unpredictable and likely to be stretched by future population growth and drought periods. The provisions also address the energy demands of treating potable water and moving it around the state. A 12-percent reduction is required for the achievement of Tier 1 compliance, and a 20-percent reduction for Tier 2.

Change for the July 1, 2015 supplement: There were some editorial changes made to tables A5.303.2.2 and Table A5.303.2.3.1. Additionally, the tier 1, tier 2 and enhanced tier 2 were revised from 30, 35, and 40 percent to 12, 20 and 25 percent. These changes were done because the mandatory fixture flow rates were reduce by 20 percent during the 2013 code adoption cycle so the corresponding tier percentages needed to be reduced accordingly.

Existing Law or Regulation:

Section 5.303.2 of this code defines the maximum fixture flow rates for indoor potable water use through a prescriptive approach. There may be a local ordinance in place otherwise for a reduction in water usage.

Compliance Method:

Prescriptive approach for tier 1: Specify each fixture or fitting to meet the 12-percent reduction shown on Table A5.303.2.3.1

OR

Performance approach: Use Table A5.303.2.2 to calculate the 12-percent overall reduction for tier 1 and 20- 25 percent water reduction for Tier 2.

Note: It may prove difficult to locate fixtures needed in a project that have reduced flows beyond the 12-percent level; for example, commercial lavatory faucets, widely available at 0.5gpm, are not widely available in an 0.35gpm flow rate (12-percent savings), though aerators are available that can reduce flows to .35gpm. The performance method may be a preferable path of compliance, where, for example, waterless urinals or 1-pint urinals are installed, or recycled water is available for flushing.

Sample worksheets are included in Part 4 of this guide.

Enforcement:

Plan intake: The reviewer and/or plan checker should review the plans and specifications to confirm that either the prescriptive or performance method has been submitted and check for the 12-percent water reduction compliance. If the performance method is used, review the water calculations showing the 12-, 20- or 25-percent reduction.

On-site enforcement: The inspector should review the permit set of plans to verify that the specified water 12-percent efficient plumbing fixtures and fixture fittings are installed. If the performance method was used, the inspector will verify that fixtures or systems used to reduce overall water use by 12, 20 or 25 percent have been installed. The inspector may review the fixture specifications to verify compliance or accept a self-certification form.

A5.303.2.3.4 Nonpotable water systems for indoor use. Utilizing nonpotable water systems (such as captured rainwater, treated graywater and recycled water) intended to supply water closets, urinals, and other allowed uses, may be used in the calculations demonstrating the **12-, 20- or 25-**percent reduction. The nonpotable water systems shall comply with the current edition of the *California Plumbing Code*.

Intent:

The intent of this code provision is to enhance indoor potable water use reduction by utilizing nonpotable water systems (such as captured rainwater, treated gray water and recycled water) intended to supply water closets, urinals and other allowed uses.

Change for the July 1, 2015 supplement: The tier 1, tier 2 and enhanced tier 2 were revised from 30, 35, and 40 percent to 12, 20 and 25 percent. These changes were done because the mandatory fixture flow rates were reduced by 20 percent during the 2013 code adoption cycle so the corresponding tier percentages needed to be reduced accordingly. The 2013 California Plumbing Code may be used to assist in complying with this section.

Existing Law or Regulation:

Section 5.303.2 of this code defines the maximum fixture flow rates for indoor potable water use through a prescriptive approach. If a tier is adopted by your city or county, a 12-, 20-, or 25 percent reduction will likely be required.

Compliance Method:

Comply with the 2013 California Plumbing Code requirements for the use of dual plumbed water systems Enforcement:

Plan intake: The reviewer and/or plan checker should review the plans and specifications to verify that the dual plumbing standards in the 2013 *California Plumbing Code*, Chapter 16, are used in the design.

On-site enforcement: The inspector should review the permit set of plans to verify that the specified nonpotable water system for indoor use is installed.

New changes are found on pages 170 of the Guidebook

A5.504.4.7 Resilient flooring systems, Tier 1. [BSC] For 90 percent of floor area receiving resilient flooring, install resilient flooring that is:

1. Certified under the Resilient Floor Covering Institute (RFCI) FloorScore program;
2. 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 (CA-CHPS) Criteria Interpretation for EQ 7.0 and EQ 7.1 (formerly EQ 2.2) dated July 2012 and listed in the CHPS High Performance Product Database; or
4. Products certified under UL GREENGUARD Gold (formerly the Greenguard Children's & Schools Program).

A5.504.4.7.1 Resilient flooring systems, Tier 2. [BSC] For 100 percent of floor area receiving resilient flooring, install resilient flooring that is:

1. Certified under the Resilient Floor Covering Institute (RFCI) FloorScore program;
2. 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 (CA-CHPS) Criteria Interpretation for EQ 7.0 and EQ 7.1 (formerly EQ2.2) dated July 2012 and listed in the CHPS High Performance Product Database; or
4. Products certified under UL GREENGUARD Gold (formerly the Greenguard Children's & Schools Program).

Exception: Allowance may be permitted in Tier 2 for up to 5-percent specialty purpose flooring.

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 regulations exceed the mandatory provisions in Chapter 5, Division 5.5, as "reach" standards and are components of the tier structure in Division A5.6.

Change for the July 1, 2015 supplement: The reference to the standards for resilient floor systems was updated to align with the mandatory provisions in code section 5.504.4.6.

Existing law or regulation:

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 the *California Code of Regulations*, Title 17, as noted above.

Compliance method:

Specify finish materials that meet the limits of VOC criteria as tested by the listed organizations. Substitutes may be approved by the local enforcing authority if it deems equivalency.

Notes: Some compliant products may be found on the following websites:

CHPS Low-emitting Materials List may be found at: www.chpsreg-istry.com/live or <http://www.chps.net/dev/Drupal/node/381>.

Products certified under the FloorScore program may be found at: http://www.rfci.com/int_FS-ProdCert.htm

Products certified under the Greenguard Children & Schools program and compliant with CHPS criteria may be found at: <http://www.greenguard.org/Default.aspx?tabid=135>.

Suggestion:

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

Sample compliance forms can be found in Part 4 of this guide.

Enforcement:

Plan intake: The reviewer and/or plan checker should review the plans and specifications to confirm that the finishes are specified to meet VOC emission limits.

On-site enforcement: The inspector should review the permit set of plans and product data sheets maintained by the contractor to verify finishes specified on the approved plans and specifications are installed, or at least stored on site with the ability to be verified. The inspector may review specifications provided with products or accept self-certification form.

New changes are found on pages 181& 182 of the Guidebook

APPENDIX A5

NONRESIDENTIAL VOLUNTARY MEASURES

Division A5.6 – VOLUNTARY TIERS

SECTION A5.601 *CALGreen TIER 1 AND TIER 2*

A5.601.1 Scope. The measures contained in this appendix are not mandatory unless adopted by local government as specified in Section 101.7. The provisions of this section outline means of achieving enhanced construction or reach levels by incorporating additional green building measures for newly constructed nonresidential buildings as well as additions. In order to meet one of the tier levels designers, builders or property owners are required to incorporate additional green building measures necessary to meet the threshold of each level.

A5.601.2 CALGreen Tier 1

A5.601.2.1 Prerequisites. To achieve *CALGreen* tier status, a project must meet all of the mandatory measures in Chapter 5 and, in addition, meet the provisions of this section.

A5.601.2.2 Energy performance. For the purposes of mandatory energy efficiency standards in this code, the California Energy Commission will continue to adopt mandatory standards.

A5.601.2.3 Tier 1. Comply with the energy efficiency requirements in Section A5.203.1.1 and Section A5.203.1.2.1.

A5.601.2.4 Voluntary measures for CALGreen Tier 1. In addition to the provisions of Sections A5.601.2.1 and A5.601.2.3 above, compliance with the following voluntary measures from Appendix A5 is required for Tier 1:

1. From Division A5.1,
 - a. Comply with the designated parking requirements for fuel efficient vehicles for a minimum of 10 percent of parking capacity per Section A5.106.5.1 and Table A5.106.5.1.1.
 - b. Comply with thermal emittance, solar reflectance or SRI values for cool roofs in Section A5.106.11.2 and Table A5.106.11.2.1.¹
 - c. Comply with one elective measure selected from this division.
2. From Division A5.3,
 - a. Comply with the **12**-percent reduction for indoor potable water use in Section A5.303.2.3.1.
 - b. Comply with Section A5.304.4.1 for outdoor potable water use not to exceed 60 percent of ETo.
 - c. Comply with one elective measure selected from this division.
3. From Division A5.4,²
 - a. Comply with recycled content of 10 percent of materials based on estimated total cost in Section A5.405.4.
 - b. Comply with the 65-percent reduction in construction and demolition waste in Section A5.408.3.1.
 - c. Comply with one elective measure selected from this division.
4. From Division A5.5,
 - a. Comply with resilient flooring systems for 90 percent of resilient flooring in Section A5.504.4.7.

- b. Comply with thermal insulation meeting 2009 CHPS low-emitting materials list in Section A5.504.4.8.
- c. Comply with one elective measure selected from this division.

5. Comply with one additional elective measure selected from any division.

¹ Cool roof is required for compliance with Tiers 1 and 2 and may be used to meet energy standards in Part 6, exceed energy standards and to mitigate heat island effect.

² Life cycle assessment compliant with Section A5.409.4 in this code may be substituted for prescriptive measures from Division A5.4.

A5.601.3 CALGreen Tier 2.

A5.601.3.2 Energy performance. For the purposes of mandatory energy efficiency standards in this code, the California Energy Commission will continue to adopt mandatory standards.

A5.601.3.3 Tier 2. Comply with the energy efficiency requirements in Section A5.203.1.1 and Section A5.203.1.2.2.

A5.601.3.4 Voluntary measures for Tier 2. In addition to the provisions of Sections A5.601.3.1 and A5.601.3.3 above, compliance with the following voluntary measures from Appendix A5 and additional elective measures shown in Table A5.601.3.4 is required for Tier 2:

1. From Division A5.1,
 - a. Comply with the designated parking requirements for fuel efficient vehicles for a minimum of 12 percent of parking capacity per Section A5.106.5.1 and Table A5.106.5.1.2.
 - b. Comply with thermal emittance, solar reflectance or SRI values for cool roofs in Section A5.106.11.2 and Table A5.106.11.2.2.¹
 - c. Comply with three elective measures selected from this division.
2. From Division A5.3,
 - a. Comply with the **20**-percent reduction for indoor potable water use in Section A5.303.2.3.**2**.
 - b. Comply with Section A5.304.4.**2** for outdoor potable water use not to exceed 55 percent of ET_o.
 - c. Comply with three elective measures selected from this division.
3. From Division A5.4,²
 - a. Comply with recycled content of 15 percent of materials based on estimated total cost in Section A5.405.4.1.
 - b. Comply with the 80-percent reduction in construction and demolition waste in Section A5.408.3.1.
 - c. Comply with three elective measures selected from this division.
4. From Division A5.5,
 - a. Comply with resilient flooring systems for 100 percent of resilient flooring in Section A5.504.4.7.1.

Exception: Allowance may be permitted in Tier 2 for up to 5-percent specialty purpose flooring.

- b. Comply with thermal insulation meeting 2009 CHPS low-emitting materials list and no added formaldehyde in Section A5.504.4.8.1.
 - c. Comply with three elective measures selected from this division.
5. Comply with three additional elective measures selected from any division.

¹ Cool roof is required for compliance with Tiers 1 and 2 and may be used to meet energy standards in Part 6, exceed energy standards and to mitigate heat island effect.

² Life cycle assessment compliant with Section A5.409.4 in this code may be substituted for prescriptive measures from Division A5.4.

Intent:

Tier 1 and Tier 2 are included in the appendix of the CALGreen Code for cities, counties, and city and county that wish to adopt more stringent standards than the mandatory measures. Because of the increased energy savings and additional provisions that are required for each tier, these standards are meant to assist the state in achieving its greenhouse gas emission and net zero energy goals. Coupled with the energy efficiency savings, cool roofs and enhanced water use reduction and construction waste diversion are examples of this combined approach.

A city, county, or city and county that chooses to adopt a tier will pass an ordinance, like any other ordinance to adopt an appendix chapter or other local amendment to the California Building Standards Code, and must make appropriate findings. Because the tiers contain energy efficiency standards more rigorous than those required by Part 6, the *California Energy Code*, the local agency must submit its amendment package to the California Energy Commission for approval prior to filing it with the California Building Standards Commission as required by Section 101.7.1 of the *CALGreen Code*.

This edition includes guidelines for all of the voluntary measures, including those required to fulfill each tier. A table that simplifies the narrative language from the tier provisions follows.

Change for the July 1, 2015 supplement: Tier 1 Division A5.3 Item “a” was changed from 20 percent to 12 percent and for Tier 2 Division A5.3 Item “a” was changed from 30 percent to 20 percent. Also, some section references were updated. Previously the California Energy Commission amended the 2013 *CALGreen Code* for energy-related voluntary Tier 1 and Tier 2 measures. The performance standard approach requirements were revised and new prerequisites for outdoor lighting and service water heating in restaurants were added. CBSC made some minor changes to include additions and alterations for construction waste reduction in both Tier 1 and Tier 2. Also, BSC increased the percentage of low VOC resilient flooring to be installed for both Tier 1 and Tier 2, with an added exception for specialty purpose flooring. Additionally, Tier 1 and Tier 2 matrix Table A5.601 has been updated to reflect the new code changes from the July 1 2015 supplement

New Changes are found on pages 185 of the Guidebook

**TABLE A5.601 NONRESIDENTIAL BUILDINGS:
Green Building Standards Code Proposed Performance Approach**

Note: This table is intended only as an aid in illustrating the nonresidential tier structure

CATEGORY	ENVIRONMENTAL PERFORMANCE	TIER 1	TIER 2
All	Minimum Mandatory	Meet all of the provisions of Chapter 5	Meet all of the provision of Chapter 5
Planning and Design	Designated Parking for Fuel Efficient Vehicles	10% of total spaces	12% of total spaces
	Electric Vehicle Charging	Approx. 4% of total spaces	Approx. 6% of total spaces
	Cool Roof to Reduce Heat Island Effect	Roof Slope < 2:12 SRI 75 Roof Slope > 2:12 SRI 16	Roof Slope < 2:12 SRI 82 Roof Slope > 2:12 SRI 27
		1 additional Elective from Division A5.1	3 additional Electives from Division A5.1
Energy Efficiency	Energy Performance ^{2a, 2b}	Outdoor lighting power 90% of Part 6 allowance	Outdoor lighting power 90% of Part 6 allowance
		If applicable, solar water-heating system with minimum solar savings fraction of 0.15	If applicable, solar water-heating system with minimum solar savings fraction of 0.15
		If applicable, certain functional areas comply with residential indoor lighting requirements	If applicable, certain functional areas comply with residential indoor lighting requirements
		Energy Budget 95% or 90% of Part 6 calculated value of allowance	Energy Budget 90% or 85% of Part 6 calculated value of allowance
Water Efficiency and Conservation	Indoor Water Use	12% Savings	20% Savings
	Outdoor Water Use	Not to exceed 60% of ETo times the landscape area	Not to exceed 55% of ETo times the landscape area
		1 additional Elective from Division A5.3	3 additional Electives from Division A5.3
Material Conservation and Resource Efficiency³	Construction Waste Reduction	At least 65% reduction	At least 80% reduction
	Recycled Content	Utilize recycled content materials for 10% of total material cost	Utilize recycled content materials for 15% of total material cost
		1 additional Elective from Division A5.4	3 additional Electives from Division A5.4
Environmental Quality	Low-VOC Resilient Flooring	90% of flooring meets VOC limits	100% of flooring meets VOC limits ¹
	Low-VOC Thermal Insulation	Comply with VOC limits	Install no-added formaldehyde insulation and comply with VOC limits
		1 additional Elective from Division A5.5	3 additional Electives from Division A5.5
Additional Measures	Added measures shall be achieved across at least 3 categories	1 additional Elective	3 additional Electives
Approximate Total Measures		14	24

1. Exception: Allowance may be permitted in Tier 2 for up to 5-percent specialty purpose flooring.

2. **Solar water-heating system requirement for newly constructed restaurants as per A5.203.1.1.2.**

Exceptions:

- a. Buildings with a natural gas service water heater with a minimum of 95-percent thermal efficiency.
 - b. Buildings where greater than 75 percent of the total roof area has annual solar access that is less than 70 percent. Solar access is the ratio of solar insolation including shade to the solar insolation without shade. Shading from obstructions located on the roof or any other part of the building shall not be included in the determination of annual solar access.
3. Life cycle assessment compliant with Section A5.409.4 in this code may be substituted for prescriptive measures from Division A5.