

INITIAL STATEMENT OF REASONS
FOR
PROPOSED BUILDING STANDARDS
OF THE
CALIFORNIA BUILDING STANDARDS COMMISSION (CBSC)

**REGARDING THE CALIFORNIA GREEN BUILDING STANDARDS CODE,
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 11**

The Administrative Procedure Act (APA) requires that an Initial Statement of Reasons be available to the public upon request when rulemaking action is being undertaken. The following information required by the APA pertains to this particular rulemaking action:

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS:

(Government Code Section 11346.2(b)(1) requires a statement of specific purpose of each adoption, amendment, or repeal and the problem the agency intends to address and the rationale for the determination by the agency that each adoption, amendment, or repeal is reasonably necessary to carry out the purpose and address the problem the agency intends to address for which it is proposed. The statement shall enumerate the benefits anticipated from the regulatory action, including the benefits or goals provided in the authorizing statute.)

This proposed action by CBSC adopts mandatory and voluntary green building standards for occupancies within its authority, building upon a framework of voluntary measures adopted by CBSC in 2008 and make modifications and clarifications to the 2013 code. The intent of the code continues to (1) reduce greenhouse gas (GHG) emissions from buildings, (2) promote environmentally responsible, cost-effective, healthier places to live and work; and (3) respond to the directives by the Governor in the 2008 to develop a green building code.

CBSC's proposed action will support the implementation of the Governor's Executive Order B-16-2012 to achieve a benchmark for having over 1.5 million zero-emission vehicles on California roadways by 2025. In October 2013 Governor Brown announced an initiative to put 3.3 million zero-emission vehicles on the roadways within a dozen years. This initiative is a memorandum of understanding signed by the governors of California, Connecticut, Maryland, Massachusetts, New York, Oregon, Rhode Island and Vermont. These states comprise nearly 25 percent of the U.S. vehicle market and the initiative demonstrates commitment to support a successful and growing market for electric vehicles, an important influence on climate change, and to support reducing dependence on oil. CBSC's proposed amendments to the 2013 California Green Building Standards (CALGreen) Code will support the executive order memorandum of understanding.

The proposed changes to the building standards with statewide application will lead to substantial environmental benefits through reduction in the use of energy, water, and raw materials; improved public and building occupant health due to improved indoor air quality; and overall reduced detrimental environmental impacts.

Specific Proposed Regulatory Actions: CBSC proposes to amend the 2013 CALGreen during the intervening cycle. It is CBSC's intent to provide clarity to the code user in consistent reference nomenclature to other parts of Title, 24. The rationale for each adoption by chapter, division, and section is listed below.

1. CBSC Proposes to amend Chapter 3, Section 301 General

Section 301.3 Nonresidential additions and alterations [BSC].

Rationale: CBSC is proposing to clarify the application of the additions and alterations by fixing the banner to a single [A] to signify that it applies to either an addition and/or an alteration. This change will be consistent with the current [A] banner used in the current CALGreen Code.

Section 301.3.1 Nonresidential additions and alterations that cause updates to plumbing fixtures only:

Rationale: CBSC is proposing to add a new code section to act as a "pointer" to the newly effective Civil Code Section 1101.1, *et seq* provisions. This code change will align with the Department of Housing and Community Development's (HCD) 2013 code change for a similar code provision.

2. CBSC Proposes to amend mandatory regulations in Chapter 2 Definitions and Division 5.1, Section 5.106 Site Development as related items

Purpose and rationale for mandatory Electric Vehicle charging provisions: The new mandatory building standard is proposed to further promote EV use as directed in Governor Brown's Executive Order B-16-2012 to achieve a benchmark for having over 1.5 million zero-emission vehicles on California roadways by 2025. In addition, Assembly Bill 1092 (Chapter 410, Statutes of 2013) authored by Assembly Member Levine directs CBSC to develop mandatory EV standards for non-residential development for adoption during the next triennial code adoption cycle.

In support of the Governor's Executive Order B-16-2012, CBSC conducted workshops in the fall of 2013 with the Electric Vehicle community and other interested parties, including investor-owned utilities, municipal utilities, manufacturers, local building officials, and commercial building owners to discuss the possibility of adding mandatory EV language to the 2013 CALGreen Code during the 2013 intervening code adoption cycle. The workshops were successful and CBSC developed proposed language which will transition current voluntary EV infrastructure requirements in Section A5.106.5.3 to mandatory requirements. CBSC proposes to adopt the voluntary EV charging regulations, with modifications, as mandatory measures and increase the voluntary Tier 1 and 2 measures.

In addition to following the Executive Order directives and Assembly Bill 1092, the proposal will enable future charging capability at non-residential facilities and increase EV charging opportunities. This effort will further encourage the use of EVs for transportation and would result in significant cost savings for future installation of EV charging stations at non-residential occupancies.

CBSC's proposed regulation also supports the California Air Resources Boards' (CARB) goal of reducing greenhouse gas (GHG) emissions in California. CARB's "Cleaner Transportation – Proposed First Update to the Climate Change Scoping Plan: Building on the Framework" states that California's transportation system accounts for approximately 38 percent of California's greenhouse gas (GHG) emissions and is the primary source of smog-forming and toxic air pollution.

The Plan further states that part of reducing California's GHG emission goals will require improving vehicle efficiency and developing zero emission technologies, planning and building communities to reduce vehicular GHG emissions, and provide more transportation options. CBSC's proposed regulation, which provides EV infrastructure to encourage the use of EVs for transportation, helps further this goal.

Section 202 Definitions - Electric Vehicle (EV)

Rationale: The purpose of this amendment is to add *electric motorcycles* to the list of automotive-type vehicles listed in the definition. This proposal would make the definition consistent with the "Electric Vehicle" definition in Article 625 of the 2013 California Electrical Code.

Section 5.106.5.3 Electric vehicle (EV) charging. [N]

Rationale: CBSC proposes this section for adoption to clarify mandatory EV charging requirements in new construction; provides a reference to the California Building Code and the California Electric Code.

Section 5.106.5.3.1 Single charging space requirements. [N]

Rationale: CBSC proposes to adopt this section which requires specified criteria to be included in construction plans and specifications to ensure infrastructure will be capable of supporting EV chargers at the 40-amp or greater level.

This proposed language is based on the voluntary tier measure and is amended by incorporating comments received from stakeholders at the two EV workshops conducted by CBSC in the fall of 2013. In addition this language has been coordinated to the extent possible with the Department of Housing and Community Development (HCD) for consistency.

This proposed section would require that a raceway be installed at the time of construction, and would include suitable listed equipment. A minimum 1" raceway trade size is required which would allow some flexibility to install future EVSE greater than the minimum 40 amperes. Preplanning for EV charging would minimize future retrofit costs.

Cost analysis: CBSC's proposal only requires installation of the raceway (conduit), sufficient panel electrical capacity (amperage) to accommodate a 40-ampere minimum branch circuit and overcurrent protective device (circuit breaker). The raceway shall terminate into a listed suitable cabinet, box, enclosure or equivalent equipment. An electrical panel is already required pursuant to the 2013 California Electrical Code for purposes of controlling circuits for a building. The EV raceway design would be part of the electrical plan, bid and permit for a newly constructed non-residential building.

Based on the above, CBSC estimates cost for a single installation as approximately \$1300.00 with components similar to those discussed in Section 5.106.5.3.1 Single charging space requirements for new construction. This is less than .07% of the overall construction cost. Appendix A, at the end of this document, contains an EVSE Infrastructure Estimated Cost table which reflects the cost reasoning.

Section 5.106.5.3.2 Multiple charging spaces requirements. [N]

Rationale: CBSC proposes to adopt this section which requires specified criteria to be included in construction plans and specifications to ensure infrastructure will be capable of supporting multiple EV chargers at 40 amperes or greater and simultaneous charge all EV's at future charging spaces. This proposed section would require that raceway(s) be installed at the time of construction. This section also requires construction plans to indicate the future location of EVSE's, and location of the raceway(s) termination point. The proposed language specifies the electrical calculation requirements for plan design. This proposed language was based on the voluntary measure and amended by incorporating comments received from interested parties at the EV workshops conducted by CBSC in the fall of 2013. In addition this language has been coordinated to the extent possible with HCD for consistency. Preplanning for EV charging would significantly minimize future retrofit costs.

Cost analysis: CBSC's proposal only requires installation of the raceway (conduit), sufficient panel electrical capacity (amperage) to accommodate the required number of dedicated branch circuits, and electrical calculations to substantiate the design for multiple 40-ampere minimum branch circuits and any on-site distribution transformers. The raceway shall terminate into listed suitable cabinets, boxes, enclosure or equivalent equipment as described in the section.

Based on the above, CBSC estimates the infrastructure cost for multiple chargers as approximately \$2000.00 each with components similar to those discussed for Section 5.106.5.3.2 Multiple charging space requirements for new construction. The overall cost would vary depending on the amount of future required chargers. This is less than .02% of the overall construction cost. Appendix A, at the end of this document, contains an EVSE Infrastructure Estimated Cost table which communicates the cost reasoning.

Section 5.106.5.3.3 EV charging space calculation. [N] and Table 5.106.5.3.3 [N]

Rationale: This section and table specify the minimum number of required parking spaces to be used to design the electrical infrastructure for future EVSE capability. The minimum numbers are based on industry research, comments received from interested parties and comments received during the two (2) EV workshops conducted by CBSC.

CBSC was unable to obtain documentation to determine the percentage of 100% dependent electric vehicles verses plug-in hybrid electric vehicles. The research available varies as rebate incentives for EV purchases have increased all electric vehicle sales. Hybrids sales have declined, but now that much of the rebate incentives have been depleted, it's difficult to project future sales. Subsequently, CBSC used Section 5.106.5.2 "Designated parking" as a benchmark and created a sliding table similar to the designated parking section.

The intent of this section is to have raceway(s) installed for future EVSE installation at sites having a higher concentration of vehicles. Generally there are longer parking duration times at parking facilities with a greater concentration of vehicles.

Research has also indicated there are specific communities which have a higher amount of EV's and PHEV's. Much of the research is specific to those communities and indicates a need for an increase in the availability of EV charging. However this research doesn't represent California as a whole. In an effort to provide a balanced regulation for all of California, CBSC proposes regulations which would include planning for EV infrastructure in new non-residential construction having 51 or more parking spaces as a minimum. Communities wanting greater EV charging measures can adopt, through the ordinance process, a tier offered in the voluntary measures on any more restrictive EV regulation.

This section provides exceptions to allow the local enforcing agency to determine on a case-by-case basis if EV charging and infrastructure is not feasible for a particular project. The exception language incorporates comments received from interested parties at the EV workshops. The exception criteria's applicability will be evaluated during the 18-month effective period of the 2013 CALGreen Code cycle. As public charging opportunities increase and technology advances the exceptions may be unnecessary and could be repealed as necessary in a later code adoption cycle. This language has been coordinated to the extent possible with HCD for consistency.

Section 5.106.5.3.4 [N] Identification.

Rationale: CBSC proposes to adopt this section requiring the identification of the reserved overcurrent protective device space assigned to the EV charging circuit at the service panel or subpanel as "EV CAPABLE." The title of this section has been changed from "Labelling requirement," in the existing voluntary measure, to differentiate it from the formal labelling by organizations or manufacturers. There is minimum cost impact for implementation since the California Electrical Code only requires identification at the circuit directory in panels or subpanels to be durably marked without specificity for method or material. This language has been coordinated with HCD for consistency.

Section 5.106.5.3.5 [N]

Rationale: CBSC proposes to adopt this section clarifying that future EV charging spaces qualify as designated parking for fuel efficient vehicles. Comments received from interested parties at the EV workshops have been incorporated into this section.

Section Notes:

Rationale. CBSC proposes to adopt the "Notes" applicable to Section 5.106.5.3. These "Notes" are located at the end of Section 5.106.5.3.5 and provide resources related to EV charging signage, guidelines, accessibility recommendations, etc. These notes are a list of resources for the code user. The Governor's Office of Planning and Research developed a Zero-emissions Vehicle Community Readiness Guidebook to further assist local jurisdictions with the planning and installation of EV charging stations. The California Department of Transportation updated their Manual on Uniform Traffic Control Devices to include signage for EV charging stations. The notes have been coordinated with HCD for consistency.

3. CBSC Proposes to amend mandatory regulations in Division 5.3 Water Efficiency and Conservation

Section 5.303.2 Water Reduction.

Rationale: CBSC is proposing to repeal this section along with the exception for performance calculation method for indoor water use and also repeal the Water Use Baseline Table 5.303.2.2. This code change will align with HCD's 2013 code change for similar "prescriptive only" code provisions. The benefit from the proposed code change will be to add uniformity and consistency between the residential and nonresidential codes and simplify the code by removing code sections and calculation worksheets.

Section 5.303.2.1 Areas of addition or alteration.

Rationale: CBSC is proposing to relocate and renumber this code section to section 5.303.4 with editorial amendments. The relocation will add clarity that this section applies to all “water conserving plumbing fixtures and fittings” under section 5.303.3.

Table 5.303.2.3

WATER REDUCTION FIXTURE FLOW RATES

Rationale: CBSC is proposing to move all the plumbing fixture types out of Table 5.303.2.3 and into individual code subsections under the main heading Section 5.303.3.4 “Faucets and Fountains” listed below. These subsections will be under the “water conserving plumbing fixtures and fittings” code section 5.303.3. This formatting change will be consistent with HCD’s 2013 code change for similar code provisions.

Section 5.303.3.4 Faucets and Fountains.

Rationale: CBSC is proposing to add this new section for faucets and fountains and serve as the main heading for the fixture types that are being moved out of Table 5.303.2.3 and into individual code sections all under the “water conserving plumbing fixtures and fittings” code section.

Section 5.303.3.4.1 Nonresidential Lavatory faucets.

Rationale: Editorial change: This new section for nonresidential lavatory faucets is being added since lavatory faucets are currently only listed in the Water Use Baseline Table 5.303.2.2 which is being repealed. Once the Water Use Baseline Table is repealed there would be no reference to lavatory faucet flow rates. This new section will be under the “water conserving plumbing fixtures and fittings” code section. This formatting change will be consistent with HCD’s 2013 code change for similar code provisions. As per the Code Advisory Committee comment and Addendum #1 which was submitted at the Code Advisory Committee meeting: the word “Nonresidential” has been added to provide clarity.

Section 5.303.3.4.2 Kitchen faucets.

Rationale: This new section is being added since the kitchen faucets and other fixture types are being moved out of Table 5.303.2.3 and into individual code sections.

CBSC is proposing an allowance for a temporarily increase in the flow above the maximum rate for pot filling with a default back to the baseline. This new section will be under the “water conserving plumbing fixtures and fittings” code section. This proposed code change and format change will be consistent with the HCD’s 2013 code change for similar code provisions.

Section 5.303.3.4.3 Wash fountains.

Rationale: Editorial change: This new section is being added since the wash fountains and other fixture types are being moved out of Table 5.303.2.3 and into individual code sections.

This new section will be under the “water conserving plumbing fixtures and fittings” code section. This formatting change will be consistent with HCD’s 2013 code change for similar code provisions.

Section 5.303.3.4.4 Metering faucets.

Rationale: Editorial change: This new section is being added since the metering faucets and other fixture types are being moved out of Table 5.303.2.3 and into individual code sections.

This new section will be under the “water conserving plumbing fixtures and fittings” code section. This formatting change will be consistent with HCD’s 2013 code change for similar code provisions.

Section 5.303.3.4.5 Metering faucets for wash fountains.

Rationale: Editorial change: This new section is being added since the Metering faucets for wash fountains and other fixture types are being moved out of Table 5.303.2.3 and into individual code sections. This new section will be under the “water conserving plumbing fixtures and fittings” code section. This formatting change will be consistent with HCD’s 2013 code change for similar code provisions.

Note: Where complying faucets...

Rationale: CBSC is proposing to add a note for faucets that allows for aerators or other means to be used where complying faucets are not available. This proposed code change will be consistent with HCD's 2013 code change for similar code provisions.

Section 5.303.2.1 Areas of addition or alteration.

Rationale: CBSC is proposing to relocate the existing code section from section 5.303.2.1 and renumber as 5.303.4 with editorial amendments. The relocation will add clarity that this section applies to all water conserving plumbing fixtures and fittings.

Section 5.303.4 Wastewater reduction. [N]

Rationale: Subsequent to the Green Code Advisory committee review, CBSC discovered a conflict between Section 5.303.4 Wastewater reduction and the new proposed prescriptive only approach for indoor potable water use. The new proposed requirements will automatically meet the wastewater reduction requirement by simply complying with the new sections added for reduced fixture flow rates. Therefore, the existing Section 5.303.4 Wastewater reduction is no longer needed and is being proposed to be repealed.

4. CBSC Proposes to amend mandatory regulations in Division 5.4 Material Conservation and Resource Efficiency, Section 5.408 Construction Waste Reduction, Disposal and Recycling

Section 5.408 Construction Waste Reduction, Disposal and Recycling.

Rationale: CBSC is proposing to increase the standard from 50% to 65%. This proposed change is moving the current tier 1 voluntary measure of 65% to the mandatory measure. This code provision has gone un-amended for three years and the market has now had an opportunity to implement the requirement and it appears that 65% is an achievable percent for construction waste reduction/disposal/recycling. *Note: This proposed code change was **withdrawn** by CBSC at the Code Advisory Committee held on March 13, 2014. However, the intent is to bring the proposed code changes back during the 2015 code cycle.*

5. CBSC Proposes to amend mandatory regulations in Division 5.4 Material Conservation and Resource Efficiency, Section 5.410 Building Maintenance and Operation

Section 5.410.2 Commissioning. The rationale and benefit of this action is to clarify the language for the commissioning exceptions. CBSC has received several calls from building officials and commissioning agents asking for clarification of the term "dry storage warehouse". The term "dry storage warehouse" has no specific definition. The intent of the exception is to exempt a warehouse or storage facility from being commissioned when its contents is not required to be conditioned. However, standard California Energy Code requirements still apply. CBSC proposes to replace the term "dry storage warehouse" with "unconditioned warehouse" to better express the intent of the exception. A suggestion was made at the Green Building Focus Group meeting August 20, 2013 that open parking garages be added to the exception for building commissioning as open parking garages are unconditioned spaces. In an effort to be grammatically consistent, CBSC proposes to replace the word "under" with "less than". For consistency, CBSC proposes to repeal the 2013 year reference to the California Energy Commission from exception 4.

A non-regulatory reference note is added at the end of this section, providing reference to a document which may be of assistance to the local authority having jurisdiction when determining qualification of persons completing commissioning.. During the March 13, 2014 Green Building Code Advisory Committee meeting, suggestions were made to better clarify the functional performance testing information provided. CBSC worked with interested parties to coordinate the proposed language reflected in the 45-day Express Terms document.

6. CBSC Proposes to amend mandatory regulations in Division 5.5 Environmental Quality, Section 5.504 Pollutant Control

Section 5.504.4.4 Carpet systems.

Rationale: Editorial; This code section is being updated to reflect the new naming system for EQ. 2.2. The new name is now EQ. 7.0 and EQ. 7.1. There is no intended change in regulatory effect or fiscal impact. As per the Code Advisory Committee comment: NSF/ANSI 140 at a gold level is the current standard.

Section 5.504.4.6 Resilient flooring systems.

Rationale: Editorial; The standard, Greenguard Children's & Schools Program, has a modified title and is now "UL GREENGUARD Gold". There is no fiscal impact due to the proposed regulation although there may be costs related to Underwriters Laboratory requirement for manufacturers to use the new designation.

7. CBSC Proposes to amend Chapter 8 Compliance Forms and Worksheets WS-1, WS-2, WS-3 (WORKSHEET (WS-1)

BASELINE WATER USE

Rationale: CBSC is proposing to update the HCD reference to sample forms on their behalf. Additionally, the Worksheet (WS-1) is being modified to repeal all references to residential items including related footnotes as HCD did not adopt this form and repealed the performance calculation method during the 2013 code cycle. Also, the flow rates for kitchen faucets, wash fountains, metering faucets, metering faucets for wash fountains are being modified to align with the mandatory reduced fixture flow rates for those fixture types found in Table 5.303.2.3. Basically, table 5.303.2.3 sets the new water use baseline for those fixtures. As per the Code Advisory Committee comment and addendum#1: the word "Nonresidential" has been retained to maintain clarity. Additionally, the existing flow rates for replacement aerators and if they are only applicable to kitchen faucets is currently being reviewed and will be addressed in the 2017 code cycle.

(WORKSHEET (WS-2)

WATER USE REDUCTION

Rationale: CBSC is proposing to repeal Worksheet (WS-2) and footnotes. The worksheet is for a 20-percent reduction in flow rate calculation which will become obsolete once this calculation method option is repealed in Section 5.303.2 Water Reduction and will no longer be referenced in the code. This code change will also coincide with the repeal of Section 5.303.2 Water Reduction and the Water Use Baseline Table which repeals the performance calculation.

(WORKSHEET (WS-3)

WATER USE REDUCTION

Rationale: CBSC is proposing to amend WS-3 as follows:

Renumber WS-3 to WS-2 as WS-2 is being repealed. Repeal all references to residential items including related footnotes as HCD did not adopt this form and repealed the performance calculation method during the 2013 code cycle. Modify the footnote numbers in the form to coordinate the repealed footnotes. Amend the 30 % to 12%, 35% to 20% and 40% to 25%. The reduced percentages for the water reduction calculations is necessary because during the 2013 code adoption cycle, CBSC reduced the fixture flow rates for plumbing fixtures by 20% but did not reduce the Tier 1-30% and Tier 2-35% & 40% to the percentages that correlate with the 20% reduction. Basically, CBSC made the 20% reduction the new water use baseline during the 2013 code cycle and the Tier1 and Tier2 need to be adjusted accordingly. As per the Code Advisory Committee meeting and addendum#1: the word "Nonresidential" has been retained in the table for lavatory faucets to maintain clarity and "HET efficiency toilet" is being repealed from the table because it is no longer applicable based on the new reduced flow rates for water closets.

8. CBSC Proposes to amend voluntary regulations in Division A5.1, Section A5.106 related to EV Charging

Section A5.106.5.3 Electric Vehicle (EV) Charging.

Rationale: CBSC proposes to amend the above referenced section by providing general requirements and a reference to the California Electrical Code. This language was amended to align with the new mandatory Section 5.106.5.3.

Section A5.106.5.3.1 ~~Single charging space requirements.~~ Tier 1.

Rationale: CBSC proposes to repeal the single charging space requirements and point to the mandatory language for consistency. A suggestion was made at the March 13, 2014 Green Building Code Advisory Committee meeting to merge the single and multiple charge regulations with the tier tables. The sections were merged and renumbered to reflect this suggestion.

CBSC proposes to increase the Tier 1 provision from 3% to 4% in an effort to further encourage the potential for EV preparedness. The Tier 1 provision has been modified to incorporate a sliding scale similar to the mandatory measure, but enhanced. Tier 1 would capture parking facilities that have less than 50 stalls which is consistent with the previous Tier 1 language of "not less than one". This section has been updated to incorporate comments received from interested parties at the EV workshops. There is no fiscal effect since it was a voluntary measure available for adoption by local agencies.

Exception:

Rationale: The exception has been repealed because the Authority Having Jurisdiction already has authority in the California Green Building Standards Code to approve alternative materials, design and methods of construction and equipment.

Section A5.106.5.3.2 ~~Multiple charging space requirements.~~ Tier 2.

Rationale: CBSC proposes to amend the above referenced section by providing specificity to the raceway provisions. This language was amended to point to the mandatory section for consistency. CBSC proposes to increase the Tier 2 provision from 5% to 6%. The Tier 2 provision has been modified to incorporate a sliding scale similar to the mandatory and Tier 1 measures, but enhanced. Tier 2 would require parking facilities having less than 50 stalls, require 2 spaces which are consistent with the previous Tier 2 language of "not less than two". This section has been updated to incorporate comments received from interested parties at the EV workshops. There is no fiscal effect since it was a voluntary measure available for adoption by local agencies.

Section A5.106.5.3.3 Tier 1.

Rationale: CBSC merged the Tier 1 provisions into Section A5.106.5.3.1 as noted above.

Section A5.106.5.3.4 Tier 2.

Rationale: CBSC merged the Tier 2 provisions into Section A5.106.5.3.2 as noted above.

Section A5.106.5.3.5 Identification. [Renumbered to A5.106.5.3.3]

Rationale: CBSC proposes to amend this section from *labeling requirements* to *identification* to align with the new mandatory identification language. There is no fiscal effect since it was a voluntary measure available for adoption by local agencies. This section was renumbered to trail the number sequence from above.

Section A5.106.5.3.4

Rationale: CBSC proposes to adopt this section clarifying that future EV charging spaces qualify as designated parking for fuel efficient vehicles. This is consistent with the mandatory measure.

Section Notes:

Rationale. CBSC proposes to adopt the "Notes" at the end of Section A5.106.5.3, following Section A5.106.5.3.4, providing resources related to EV charging signage, guidelines, accessibility recommendations, etc. These Notes are a list of resources for the code user. This is consistent with the mandatory measure.

9. CBSC Proposes to amend voluntary regulations in Division A5.1, Section A5.106 related to Cool Roof

A5.106.11.2.3 Solar reflectance index alternative.

Rationale: CBSC is proposing to amend Table A5.106.11.1 for Tier1 and Tier2. As a result of the California Energy Commission's (CEC) Solar Reflectance Index (SRI) value increase, CBSC is proposing to increase the SRI values found on the voluntary measure Table A5.106.11.2.1. The Tier 1 increase will align with CEC's Section 140.3 (a) 1A (i), Part 6, California Energy Code, Title 24, California Code of Regulations and match the CEC's SRI values in their prescriptive calculation. CBSC is also proposing to increase the current Tier 2 SRI values to an appropriate increased value from the new Tier 1. As per the Code Advisory Committee meeting: Climate zones in the tables were verified with the California Energy Commission.

10. CBSC Proposes to amend voluntary regulations in Division A5.1, Section A5.303 related to Indoor Water Use

Section A5.303.2.3.1 Tier 1 – ~~30~~ 12 percent savings. [BSC]

Rationale: CBSC is proposing to amend section A5.303.2.3.1 Tier 1 from 30 % to 12%,the reduced percentages for the water reduction calculations is necessary because during the 2013 code adoption cycle, CBSC reduced the fixture flow rates for plumbing fixtures by 20% but did not reduce the Tier 1-30% to the percentages that correlate with the 20% reduction. Basically, CBSC made the 20% reduction the new water use baseline during the 2013 code cycle and Tier1 needs to be adjusted accordingly. Additionally, Methods 1 and 2 need to be modified accordingly along with an editorial correction to the table references noted in Method 1. As per the Code Advisory Committee meeting: Additional editorial corrections were made.

Section A5.303.2.3.2 Tier 2 – ~~35~~ 20 percent savings.

Rationale: CBSC is proposing to amend section A5.303.2.3.2 Tier 2 from 35 % to 20%,the reduced percentages for the water reduction calculations is necessary because during the 2013 code adoption cycle, CBSC reduced the fixture flow rates for plumbing fixtures by 20% but did not reduce the Tier 2-35% to the percentages that correlate with the 20% reduction. Basically, CBSC made the 20% reduction the new water use baseline during the 2013 code cycle and Tier 2 needs to be adjusted accordingly. As per the Code Advisory Committee meeting: Additional editorial corrections were made.

Section A5.303.2.3.3 – ~~40~~ 25 percent savings.

Rationale: CBSC is proposing to amend section A5.303.2.3.3 from 40% to 25%,the reduced percentages for the water reduction calculations is necessary because during the 2013 code adoption cycle, CBSC reduced the fixture flow rates for plumbing fixtures by 20% but did not reduce the 40% to the percentages that correlate with the 20% reduction. Basically, CBSC made the 20% reduction the new water use baseline during the 2013 code cycle and 40% reduction needs to be adjusted accordingly.

A5.303.2.3.4 Nonpotable water systems for indoor use.

Rationale: Editorial; CBSC is proposing to amend section A5.303.2.3.4 water reduction percentages from 20% to 12%, 30% to 20% and 40% to 25% to align with the corresponding reduced percentages for the water reduction calculations in sections A5.303.2.3.1, A5.303.2.3.2, and A5.303.2.3.3. As per the Code Advisory Committee meeting: Additional editorial corrections were made.

Table A5.303.2.2 WATER USE BASELINE

Rationale: CBSC is proposing to amend Table A5.303.2.2. The flow rates for kitchen faucets, wash fountains, metering faucets, metering faucets for wash fountains are being modified to align with the mandatory reduced fixture flow rates for those fixture types found in Table 5.303.2.3. Basically, table 5.303.2.3 sets the new water use baseline for those fixtures. As per the Code

Advisory Committee meeting: The word “Nonresidential” has been retained in the table for lavatory faucets to maintain clarity.

Table A5.303.2.3.1

FIXTURE FLOW RATES

Rationale: CBSC is proposing to amend Table A5.303.2.3.1. All references to nonresidential verbiage is being repealed because the residential items are being removed from this form and the form will only be for nonresidential applications. Also, the flow rates for kitchen faucets, wash fountains, metering faucets, metering faucets for wash fountains are being modified to align with the mandatory reduced fixture flow rates for those fixture types found in Table 5.303.2.3. Basically, table 5.303.2.3 sets the new water use baseline for those fixtures. The urinal flow rate is being modified to show a 12% reduction. Additionally, footnote 2 table reference is being corrected. As per the Code Advisory Committee meeting: The word “Nonresidential” has been retained in the table for lavatory faucets to maintain clarity.

11. CBSC Proposes to amend voluntary regulations in Division A5.1, Section A5.408 related to Construction Waste Reduction, Disposal and Recycling

Section A5.408.3.1 Enhanced construction waste reduction – Tier 1 [BSC].

Rationale: CBSC is proposing to increase the voluntary standard for Tier1 from 65% to 80%, This proposed change is basically moving the current tier 2 voluntary measure of 80% to the Tier1 measure. This code provision has gone un-amended for three years and the market has now had an opportunity to implement the requirement.

*Note: This proposed code change was **withdrawn** by CBSC at the Code Advisory Committee held on March 13, 2014. However, the intent is to bring the proposed code changes back during the 2017 code cycle.*

Section A5.408.3.1.1 Enhanced construction waste reduction – Tier 2 [BSC].

Rationale: CBSC is proposing to increase the voluntary standard for Tier2 from 80% to 90%, This proposed change is basically increasing the current tier 2 voluntary measure of 80% to the correlate with the appropriate increase from the proposed Tier1 measure. This code provision has gone un-amended for three years and the market has now had an opportunity to implement the requirement.

*Note: This proposed code change was **withdrawn** by CBSC at the Code Advisory Committee held on March 13, 2014. However, the intent is to bring the proposed code changes back during the 2017 code cycle.*

12. CBSC Proposes to amend voluntary regulations in Division A5.1, Section A5.504 related to Pollutant Control

Section A5.504.4.7 Resilient flooring systems, Tier 1. [BSC]

Rationale: CBSC is proposing to amend item 3 to align with the equivalent mandatory provision item of section 5.504.4.6 which has an editorial name changes. Additionally, CBSC is proposing to amend item 4 as the standard, Greenguard Children’s & Schools Program, has a modified title and now is “UL GREENGUARD Gold”. There is no fiscal impact due to the proposed regulation although there may be costs related to UL’s requirement for manufacturers to use the new designation.

Section A5.504.4.7.1 Resilient flooring systems. Tier 2. [BSC]

Rationale: CBSC is proposing to amend item 3 to align with the equivalent mandatory provision item of section 5.504.4.6 which has an editorial name changes. Additionally, CBSC is proposing to amend item 4 as the standard, Greenguard Children’s & Schools Program, has a modified title and now is “UL GREENGUARD Gold”. There is no fiscal impact due to the proposed regulation although there may be costs related to UL’s requirement for manufacturers to use the new designation.

13. CBSC Proposes to amend Table A5.601 Green Building Standards Code Proposed Performance Approach

Section A5.601.2.4 (2) (a) Voluntary measures for CALGreen Tier 1.

Rationale: Editorial; CBSC is proposing to amend Section A5.601.2.4 (2) (a) by changing the Tier 1 from 30 percent to 12 percent reduction for indoor potable water use. See item 10 for a complete explanation on the percentage reduction.

Section A5.601.3.4 (2) (a) & (b) Voluntary measures for Tier 2.

Rationale: Editorial; CBSC is proposing to amend Section A5.601.3.4 (2) (a) by changing the Tier 2 from 35 percent to 20 percent reduction for indoor potable water use and by correcting the section reference from A5.303.2.3.1 to A5.303.2.3.2. See item 10 for a complete explanation on the percentage reduction. Additionally, CBSC is proposing to amend Section A5.601.3.4 (2) (b) by correcting the Section reference from A5.304.4.1 to A5.304.4.2 for outdoor potable water use.

Table A5.601

Rationale: CBSC is proposing to amend Table A5.601 Green Building Standards Code Proposed Performance Approach. The table is being updated to reflect changes made in both the mandatory provisions of Chapter 5 and voluntary provisions of Appendix A5 as they pertain to Electric vehicle charging, cool roofs to reduce heat island effect, indoor water use and construction waste reduction. Note: The proposed code change to construction waste reduction was **withdrawn** by CBSC at the Code Advisory Committee (CAC) held on March 13, 2014 so the proposed percentage changes to the table will also be withdrawn. Additionally, as per the CAC meeting, some editorial modifications are being made to the table footnotes to clarify that footnotes 2 and 3 are exceptions to newly constructed restaurant solar water heating requirements with a code reference to those requirements.

14. CBSC Proposes to amend Table A5.602 Nonresidential Occupancies Application Checklists

Table A5.602

Rationale: CBSC proposes to amend the above referenced checklist. The Nonresidential Occupancies Application Checklist is being updated to reflect changes made in both the mandatory provisions of Chapter 5 and voluntary provisions of Appendix A5. Additionally, there are editorial updates to the checklist to reflect current supplements and errata items along with coordinating the code language in both the mandatory and voluntary code provisions. The Nonresidential Occupancies Application Checklist is a reference document and may be modified and used as a template by local enforcing agencies. This checklist reflects mandatory and Tier 1 and Tier 2 prerequisites and is not by itself a regulatory document. As per the Code Advisory Committee meeting: This checklist will be updated to reflect actions taken at the meeting.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

(Government Code Section 11346.2(b)(3) requires an identification of each technical, theoretical, and empirical study, report, or similar document, if any, upon which the agency relies in proposing the regulation(s).

American Council for Energy-Efficient Economy (ACEEE), *2012 Summer Study on Energy Efficiency in Buildings, Reducing Barriers to Electric Vehicle Adoption through Building Codes*, Jordan Shackelford, Alex Chase and Michael McGaraghan, Energy Solutions; Stuart Tartaglia, Pacific Gas and Electric Company. <<http://www.aceee.org/files/proceedings/2012/start.htm>>

California Plug-in Electric Vehicle Collaborative. *Amping up California workplaces: 20 case studies on plug-in electric vehicle charging at work*, November 2013 <<http://www.evcollaborative.org/workplace-charging>>

Governor's Office of Planning and Research, *Zero-Emission Vehicles in California: Community Readiness Guidebook, fall 2013* <http://opr.ca.gov/s_zero-emissionvehicles.php>

Luskin Center for Innovation, *South Bay Cities Plug-in Electric Vehicle Deployment Plan*, June 2013

<http://innovation.luskin.ucla.edu/content/south-bay-cities-plug-electric-vehicle-plan>>

EV Studio, *Construction Cost per Square Foot for Office Buildings*, November 4, 2013

<http://evstudio.com/construction-cost-per-square-foot-for-office-buildings/>>

REED Construction Data, RS MEANS, *Retail Store Construction Cost Estimates*

<http://www.reedconstructiondata.com/rsmeans/models/retail-store/list/>>

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS:

(Government Code Section 11346.2(b)(4) requires a statement of the reasons why an agency believes any mandates for specific technologies or equipment or prescriptive standards are required.)

California's building standards codes have historically been a mix of performance and prescriptive provisions and reference standards. This code is no different, and wherever possible, a performance option is included to provide flexibility to the code user.

CONSIDERATION OF REASONABLE ALTERNATIVES

(Government Code Section 11346.2(b)(5)(A) requires a description of reasonable alternatives to the regulation and the agency's reasons for rejecting those alternatives. In the case of a regulation that would mandate the use of specific technologies or equipment or prescribe specific action or procedures, the imposition of performance standards shall be considered as an alternate. It is not the intent of this paragraph to require the agency to artificially construct alternatives or describe unreasonable alternatives.)

The modifications that CBSC proposes during this intervening cycle are intended to clarify and correct as necessary the provision of the mandatory code being used in California. The amendments are responsive to directives and comments received in the previous and current code adoption cycles and to address concerns raised at various training events held by CBSC across the state. No alternative to this responsive action were considered. Wherever possible, a performance option is included to provide flexibility to the code user.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

(Government Code Section 11346.2(b)(5)(B) requires a description of any reasonable alternatives that have been identified or that have otherwise been identified and brought to the attention of the agency that would lessen any adverse impact on small business.)

No alternatives were identified to lessen any adverse impact on small business, however most of the modifications to the code are proposed for facilitation of understanding and compliance by the code user. The proposals that are new to the code or are made more stringent have been thoroughly vetted through stakeholder participation and recommendations, and have been justified by proposing parties as to cost/benefit.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

(Government Code Section 11346.2(b)(6)(A) requires the facts, evidence, documents, testimony, or other evidence on which the agency relies to support an initial determination that the action will not have a significant adverse economic impact on business)

CBSC has determined that this regulatory action would have no significant adverse economic impact on California business enterprises and individuals, including the ability of California businesses to compete with businesses in other states.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

(Government Code Section 11346.2(b)(6)(B) states if a proposed regulation is a building standard, the initial statement of reasons shall include the estimated cost of compliance, the estimated potential benefits, and the related assumptions used to determine the estimates.)

- No increased cost of compliance for those regulations that make technical, nonsubstantive or clarifying changes.
- The estimated cost of compliance for regulations pertaining to EVSE infrastructure is outlined in Item 2 of this document. The estimated costs of compliance to install EVSE infrastructure is not considered a major regulation as defined in Government Code 11342.548.
- Potential benefits include providing the groundwork for new green technology, encouraging use of electric vehicles, cost savings to property owners that choose to install future EVSE services for their customers or employees, reduction of greenhouse gas emissions and conservation of natural resources.

- Protection of public health and safety, worker safety and the environment.
- General welfare of California residents through the reduction of greenhouse gas.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

(Government Code Section 11346.2(b)(7) requires a department, board, or commission within the Environmental Protection Agency, the Resources Agency, or the Office of the State Fire Marshal to describe its efforts, in connection with a proposed rulemaking action, to avoid unnecessary duplication or conflicts with federal regulations contained in the Code of Federal Regulations addressing the same issues. These agencies may adopt regulations different from these federal regulations upon a finding of one or more of the following justifications: (A) The differing state regulations are authorized by law and/or (B) The cost of differing state regulations is justified by the benefit to human health, public safety, public welfare, or the environment.)

These regulations do not duplicate nor conflict with federal regulations.

APPENDIX A

Provided for Item 2, Section 5.106.5.3.1 and 5.106.5.3.2

EVSE Infrastructure Estimated Cost for Non-residential New Construction

Examples	Number of required EV spaces per Table 5.106.5.3.3 (note 1)	Estimated Average Cost for EV Infrastructure (note 2)	Average Retail & Office Construction Cost (note 3)	Percentage of EV Infrastructure Cost
Example 1	1 for 12,750 sf of floor area (51-75 parking stalls)	\$1,300.00	\$1,912,500.00	less than 0.07%
Example 2	6 for 50,250 sf of floor area (201 or more parking stalls)	\$2,000.00	\$10,050,000.00	less than 0.02%

NOTES:

- 1) The average parking ratio per various zoning ordinances is 1 space per 250sf (square feet) of floor area. This average was obtained from researching various local jurisdictions.
- 2) See the EVSE Infrastructure Cost Examples A and B listed below.
- 3) Assumed average cost for retail and office construction is \$200 per square foot. Average cost derived from several sources; EV Studio, *Construction Cost per Square Foot for Office Buildings*, November 4, 2014; RS MEANS <http://www.reedconstructiondata.com/rsmeans/models/retail-store/list/>

EVSE INFRASTRUCTURE COST EXAMPLE A

Above grade install

EVSE Infrastructure Cost Example A

Spreadsheet Report

DGS, RESD, PSB, CES

Spreadsheet Level	Takeoff Quantity	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Amount
EV Charging station							
Electrical							
1 Station							
Conduit hangers, steel, 1" diameter, incl bolt & 12" rod	13.00 ea	88	136	-	-	-	224
Electric metallic tubing (EMT), 1" diameter, to 15' high, incl 2 terminations, 2 elbows & 11 beam clamps per 100 LF	100.00 lf	792	330	-	-	-	1,123
EMT elbows, 1" diameter, to 15'H	3.00 ea	88	45	-	-	-	113
Pull boxes, sheet metal, type SC, 6" W x 6" H x 4" D, NEMA 1	1.00 ea	114	26	-	-	-	140
1 Station		1,062	537	-	-	-	1,600
12 Stations							
Conduit hangers, steel, 1" diameter, incl bolt & 12" rod	156.00 ea	1,053	1,633	-	-	-	2,686
Electric metallic tubing (EMT), 1" diameter, to 15' high, incl 2 terminations, 2 elbows & 11 beam clamps per 100 LF	1,200.00 lf	9,510	3,963	-	-	-	13,473
EMT elbows, 1" diameter, to 15'H	36.00 ea	820	536	-	-	-	1,356
Pull boxes, sheet metal, type SC, 6" W x 6" H x 4" D, NEMA 1	12.00 ea	1,367	317	-	-	-	1,684
12 Stations		12,750	6,449	-	-	-	19,199
5 Stations							
Conduit hangers, steel, 1" diameter, incl bolt & 12" rod	65.00 ea	439	681	-	-	-	1,119
Electric metallic tubing (EMT), 1" diameter, to 15' high, incl 2 terminations, 2 elbows & 11 beam clamps per 100 LF	500.00 lf	3,962	1,651	-	-	-	5,613
EMT elbows, 1" diameter, to 15'H	15.00 ea	342	223	-	-	-	565
Pull boxes, sheet metal, type SC, 6" W x 6" H x 4" D, NEMA 1	5.00 ea	570	132	-	-	-	702
5 Stations		5,312	2,687	-	-	-	7,999
EV Charging station		19,125	9,673	-	-	-	28,798

NOTE:
Doesn't include \$2000 transformer cost. See Example B

NOTE:
Average cost for multiple conduit material and installation + transformer is \$2000.00.

Estimate Totals

Description	Amount	Totals	Hours	Rate
Labor	19,125		167,853 hrs	
Material	9,673			
Subcontract				
Equipment				
Other	28,798	28,798		
Total		28,798		

EVSE INFRASTRUCTURE COST EXAMPLE B

Below grade install

THIS ESTIMATE WAS PROVIDED BY PHIL HAUPT ELECTRIC

916-782-3128

Scenario 1 - Install up to two EVSEs within 100' of electrical panel \$220 / 2 = \$110 EACH (labor not included)

- Assumption – The following Infrastructure already considered when building therefore will add no additional costs
 - Engineering, drawings, permitting, and inspections
 - Electrical panel has the appropriate capacity to handle the load of the EVSEs
 - Trenching already completed
 - ~~Wheelstops~~
- Installation Material Needed

○ Two (2) 40-AMP 240v breakers	\$100.00
○ 110' of ¾" conduit	\$110.00
○ 400' of #8 THHN	\$280.00
○ 200' of 10# THHN	\$120.00
- Additional hours
 - 20-24 hours

Scenario 2 - Install three –five EVSEs within 100' of electrical panel \$3,820 / 4 - \$955 EACH (labor not included)

- Assumption – The following Infrastructure already considered when building therefore will add no additional costs
 - Engineering, drawings, permitting, and inspections
 - Trenching already completed
 - ~~Wheelstops~~
- Installation Material Needed

○ 200amp panel	\$1,000.00
○ 45kva transformer	\$2,000.00
○ Three - five 40-AMP 240v breakers	\$600.00
○ 110' of 2" conduit	\$220.00
○ 1,000' of #8 THHN	\$700.00
○ 500' of 10# THHN	\$120.00
- Additional hours
 - 60-80 hours