

2017 REPORT TO THE LEGISLATURE

Status of the California Green Building Standards Code



**California Department of Housing and
Community Development**

September 2017

A Report on:

The California Green Building Standards Code

This report provides the California State Legislature information on updates proposed to the California Green Building Standards Code and related activities conducted by the Department of Housing and Community Development during the fiscal year 2016-2017.



Cover and above: State Housing Law Program Staff Photos – Factory-Built Housing in Sacramento, CA



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Abbreviations and Acronyms

ANSI	American National Standards Institute
ACCA	Air Conditioning Contractors of America
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
CALGreen	California Green Building Standards Code
CBSC	California Building Standards Commission
CHPS	Collaborative for High Performance Schools
CPC	California Plumbing Code
DWR	Department of Water Resources
HCD	Department of Housing and Community Development
IAPMO	International Association of Plumbing and Mechanical Officials
IECC	International Energy Conservation Code
IgCC	International Green Construction Code
LEED	Leadership in Energy and Environmental Design
MWEL	Model Water Efficient Landscape Ordinance
NSF	National Sanitation Foundation
SHL	State Housing Law Program
SWRCB	State Water Resources Control Board

Preface

The following report is prepared in accordance with Health and Safety Code (HSC) section 17928(b), which requires the Department of Housing and Community Development (HCD) to submit a report to each house of the California State Legislature no later than September 1 of each year. HSC section 17928 has been reprinted below for reference and convenience. The following are the specific topic areas discussed in this report:

1. Green building features proposed as building standards during the prior fiscal year; and
2. Green building guidelines or resources reviewed during the development of green building measures proposed as building standards during the prior fiscal year.

Health and Safety Code section 17928

17928. (a)(1) The Department of Housing and Community Development shall, for building standards submitted to the California Building Standards Commission for adoption in the 2010 California Building Code or later, do all the following:

(A) Review relevant green building guidelines as deemed necessary by the department when preparing proposed building standards for submittal.

(B) Consider proposing as mandatory building standards those green building features determined by the department to be cost effective and feasible to promote greener construction.

(2) Nothing in this subdivision shall be construed to supplant or otherwise change the existing process for approval and adoption of building standards through the California Building Standards Commission.

(b)(1) The department shall also summarize in a report to the Legislature no later than September 1 of each year, both of the following:

(A) Green building features proposed as building standards during the prior fiscal year.

(B) Green building guidelines reviewed pursuant to subdivision (a) during the prior fiscal year.

(2) For those items required by this subdivision already included in other reports provided to the Legislature or generally available, the department may fulfill this requirement by citing where that information can be found.

Note: The California Green Building Standards Code (CALGreen), including updates, current rulemaking documents, and the current and previous CALGreen reports can be viewed on HCD's website at <http://www.hcd.ca.gov>.

Hardcopies are available upon request. Please contact HCD's State Housing Law Program (SHL) staff at (916) 445-9471.

HCD reviewed the following green building guidelines, programs and resources related to proposed building standards over the past fiscal year:

- Collaborative for High Performance Schools (CHPS)
- U.S. Green Building Council – Leadership in Energy and Environmental Design (LEED)
- Build it Green – GreenPoint Rated Program
- Green Building Initiative – Green Globes Program
- ANSI/ASHRAE Standard 189.1 – 2014 “Standard for the Design of High-Performance Green Buildings”
- ANSI/ASHRAE Standard 62.2 – 2016 “Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings”
- 2015 International Code Council (ICC) 700, National Green Building Standard
- 2015 International Green Construction Code (IgCC)
- IAPMO 2015 Green Plumbing and Mechanical Code Supplement
- NSF/ANSI Standard 350: “On-site Residential and Commercial Water Reuse Treatment Systems”
- NSF/ANSI Standard 350-1: “On-site Residential and Commercial Graywater Treatment Systems for Subsurface Discharge”
- 2015 International Energy Conservation Code (IECC)
- Chapter 476, Statutes of 2011 (AB 341) Report to the Legislature: CalRecycle’s 75% Initiative, CalRecycle, August 2015
- Chapter 606, Statutes of 2014 (AB 2282) Building standards: recycled water systems
- 2016 California Energy Commission’s Appliance Efficiency Regulations

HCD uses an open public process when developing consequential changes to CALGreen. Public focus group meetings gather stakeholder input regarding proposed building standards. Relevant state agencies, concerned stakeholder groups and others commonly participate, including:

- Building officials
- Design professionals
- Construction industry representatives
- Building product manufacturer representatives
- Model code writing representatives
- Environmental community representatives
- Federal and state agency representatives
- Interested individuals
- Public utility representatives
- Disabled access community representatives

I. Background and History

California, a longtime leader in green and sustainable building practices, developed the California Green Building Standards Code (CALGreen) in order to improve public health, safety, and general welfare by enhancing the design and construction of buildings. By using building concepts that reduce negative environmental impacts and/or increase positive impacts, CALGreen encourages sustainable construction practices through:

- Planning and design
- Energy efficiency
- Water efficiency and conservation
- Material conservation and resource efficiency
- Environmental quality



State Housing Law Program Staff Photo: EV Charging Station at McKinley Village in Sacramento, CA

Enacted as a Voluntary Code, 2008

The 2008 CALGreen Code (California Code of Regulations, Title 24, Part 11), approved by the California Building Standards Commission (CBSC) in January 2008, took effect in August 2009. This first edition of CALGreen was initially a voluntary code authorized by HCD.

No Fees

Unlike some rating systems -- such as Leadership in Energy and Environmental Design (LEED) or the Green Globes system -- that have additional licensing, certification, rating and/or verification costs, there are no fees required to use CALGreen.

Enforcement

CALGreen, like other building codes, is enforced by existing local enforcement agencies.



State Housing Law Program Staff Photo: Single-Family Drought Tolerant Landscape in Sacramento, CA

Updates to 2008 CALGreen Code

HCD updated the original 2008 CALGreen during the 2009-2010 fiscal year through the 2009 Triennial Code Adoption Cycle, a process that involved soliciting public input and reviewing and analyzing necessary changes. Most noteworthy, however, was an update proposed by HCD to establish "mandatory minimum requirements." Whereas CALGreen was originally *voluntary*, unless adopted as a mandatory requirement by a local enforcement agency, the 2010 CALGreen became the **nation's first state-mandated green building code**. Subsequently, the mandatory provisions of the 2010 CALGreen (under development at that time) were discussed in the California Air Resources Board's (ARB) Climate Change Scoping Plan (first published in 2009) as one of the tools to implement the California Global Warming Solutions Act of 2006, Chapter 488, Statutes of 2006 (AB 32).

This scoping plan contains additional guidance encouraging local jurisdictions to go above and beyond the mandatory minimum requirements.

Also in the 2009-2010 updates, a tiered system was added to the 2010 CALGreen to give local enforcement agencies the ability to adopt consistent and streamlined methods for green building construction above and beyond the mandatory minimum requirements. The tiered system, a voluntary portion of CALGreen, has become increasingly popular in jurisdictions that wish to further reduce greenhouse gas emissions and promote additional sustainable construction practices.

Updates to 2010 CALGreen Code

During the 2011-2012 fiscal year, HCD updated the 2010 CALGreen through the 2012 Triennial Code Adoption Cycle. HCD conducted a comprehensive evaluation of mandatory and voluntary updates before expanding the scope of CALGreen to include all residential buildings, rather than only low-rise residential buildings (three stories or less). HCD also expanded the scope to include additions and alterations that increase the conditioned area, volume or size of a building. This requirement now captures many additions and alterations to existing buildings, thereby increasing the effectiveness of CALGreen in implementing enforceable, sustainable building standards that have a positive impact on the environment.

Updates to 2013 CALGreen Code

During the 2015-2016 fiscal year, HCD proposed emergency amendments to the 2013 CALGreen. Facing historic drought conditions, the State of California and HCD were charged with finding additional ways to further reduce the use of potable water. The directives of Governor's Executive Order B-29-15, issued on April 1, 2015, stressed the importance of continuing actions to conserve California's water resources. In coordination with other state agencies, HCD proposed the emergency adoption of building standards requiring a water budget for landscape irrigation that conforms to the local water efficient landscape ordinance, or to the California Department of Water

Resources' (DWR) Model Water Efficient Landscape Ordinance (MWELo), whichever is more stringent. HCD's emergency provisions in CALGreen also included a modification to the formula for calculating water use for residential landscaped areas, thereby further reducing the allowable use of potable water for landscaped areas beyond the MWELo requirements. These emergency provisions were made permanent by the CBSC on January 20, 2016.

Outdoor residential water use is a significant portion of overall residential water use. The emergency amendment requiring a water budget for landscape irrigation and compliance with MWELo helped to conserve potable water, but HCD identified an additional opportunity for water use reduction and proposed emergency regulations for reduced flow faucets and reduced flush volume urinals. These emergency provisions were also made permanent by the CBSC on January 20, 2016.

2016 CALGreen Code

During the 2016-2017 fiscal year, HCD updated CALGreen through the 2015 Triennial Code Adoption Cycle. HCD adopted three new definitions related to electric vehicle charging regulations. These definitions provided clarity to the code user as to the differences between an electric vehicle charging space and an electric vehicle charging station. HCD replaced the term "electric vehicle charging stations" with "electric vehicle charging spaces" since the term "electric vehicle charging space" better describes a space available for future installation of electric vehicle supply equipment, but with no electric vehicle charger installed. The proposed modification in terminology is in alignment with the terminology used by the Division of the State Architect in Chapter 11B of the California Building Code.

HCD also increased the required construction waste reduction from 50 percent to 65 percent of the total building site waste. This increase aids in meeting CalRecycle's statewide solid waste recycling goal of 75 percent for 2020 as stated in Chapter 476, Statutes of 2011 (AB 341). Based on information from CalRecycle and local enforcing agencies, 65 percent is an achievable number which furthers meeting California's goal of 75 percent.

HCD adopted new regulations requiring recycling areas for multifamily projects of five or more dwelling units. This regulation requires developers to provide readily accessible areas adequate in size to accommodate containers for depositing, storage and collection of non-hazardous materials (including organic waste) for recycling. This requirement assists businesses that were required as of April 1, 2016, to meet the requirements of Chapter 727, Statutes of 2014 (AB 1826).

HCD adopted new regulations to require information on photovoltaic systems and electric vehicle chargers to be included in operation and maintenance manuals. Currently, CALGreen section 4.410.1 Item 2(a) requires operation and maintenance instructions for equipment and appliances. Photovoltaic systems and electric vehicle chargers are systems that play an important role in many households in California, and

their importance is increasing every day. HCD incorporated these two terms in the existing language in order to provide clarity to code users as to additional systems requiring operation and maintenance instructions.

HCD updated the reference to Clean Air Standards of the United States Environmental Protection Agency applicable to woodstoves and pellet stoves. HCD also adopted a new requirement for woodstoves and pellet stoves to have a permanent label indicating they are certified to meet the emission limits. This requirement provides clarity to the code user and is consistent with the United States Environmental Protection Agency's New Source Performance Standards.

HCD updated the list of standards which can be used for verification of compliance for exterior grade composite wood products. This list now includes four standards from the Canadian Standards Association (CSA): CSA O121, CSA O151, CSA O153 and CSA O325.

HCD updated heating and air-conditioning system design references to the ANSI/ACCA 2 Manual J, ANSI/ACCA 1 Manual D, and ANSI/ACCA 3 Manual S to the most recent versions approved by ANSI.

HCD adopted a new elective measure for hot water recirculation systems for water conservation. The amount of potable water wasted while waiting for hot water to arrive to the point of use in a sink or other plumbing fixture depends upon numerous factors: the distance between the point of use and the water heater, the water heater temperature setting, the location of the fixtures, internal pipe diameter, effective length, pipe insulation and user behavior. The United States Department of Energy estimates that 3,600 to 12,000 gallons of water per year can be saved by the typical household (with four points of hot water use) if a hot water recirculation system is installed.



State Housing Law Program Staff Photo: Tankless Water Heater in New Single-Family Home

II. Introduction

CALGreen, the nation's first state-mandated green building code, has been in effect since January 1, 2011. CALGreen is written as a building standards code with both mandatory and voluntary measures. CALGreen provides for environmentally responsible and resource-efficient activities, from new building design and sustainable construction to full operational use for the built environment.

HCD staff improves CALGreen by analyzing new technologies to complement current building practices that aid in conservation and reduce overall ecological impacts.

Updates to CALGreen require detailed evaluation analysis of alternatives and proposed changes; historical knowledge of the code, and information on new developments in sustainable building, related standards, and other codes. Changes in state law and regulations must also be evaluated. Sound rationale must accompany all proposed changes.

As green building practices become more routine and with technology changes, the public becomes aware of additional benefits of sustainable building. As a result, CALGreen must be continuously evaluated. This ensures its validity, cost effectiveness, and feasibility to improve both indoor and outdoor environments for current and future Californians and to meet the environmental and conservation goals of CALGreen.

Because CALGreen is an evolving code and new technologies and methods will continue to advance in the building industry, continued training is necessary to ensure that an up-to-date knowledge base is established and maintained within HCD and the industry.

III. HCD Accomplishments (2016-2017)

Recycled Water Infrastructure

Chapter 606, Statutes of 2014 ([AB 2282](#)) directed HCD to conduct research to assist in the development of mandatory building standards for the installation of recycled water systems for newly constructed single-family and multifamily residential buildings. HCD worked with CBSC staff, in consultation with DWR, State Water Resources Control Board (SWRCB), and other stakeholders and interested parties, to research, evaluate, and develop the standards. As a result, HCD's proposed new measures to the 2016 CALGreen and the 2016 California Plumbing Code were approved by the CBSC on June 20, 2017.

Amendment to the 2016 CALGreen

SHL Program staff developed amendments to the 2016 CALGreen proposals in consultation with other state agencies, local enforcement agencies, environmental groups, and other stakeholders and interested parties. During the 2016 Intervening Code Adoption Cycle, HCD proposed the following new or modified provisions to the 2016 CALGreen which will be effective July 1, 2018:

- New definition of “hotel or motel.”
- Amended definition of “reclaimed (recycled) water.”
- New requirements for Electric Vehicle (EV) charging in hotels and motels (new construction). The technical requirements for EV charging in hotels and motels are consistent with the requirements for multifamily dwellings.
- Editorial modifications to existing measures for EV charging for multifamily dwellings.
- Amended the maximum flow rate of showerheads from 2.0 gallons per minute (gpm) to 1.8 gpm to align with Title 20, California Code of Regulations – Appliance Efficiency Regulations. This amendment is estimated to save 1.4 billion gallons of water for the first year the standard is in effect.
- New requirement for recycled water supply systems to be installed if recycled water is available from a municipal source.
- Editorial modifications to Section A4.303.4 (Nonwater urinals and waterless toilets).
- Amended the Residential Occupancies Application Checklist to correspond with changes in Chapter 4 and Appendix A4.



State Housing Law Program Staff Photo: CALGreen construction waste reduction depicted in photo

IV. List of Activities

Code Development Work during the 2016-2017 Fiscal Year

HCD continued to evaluate and research possible amendments to the 2016 CALGreen during the 2016 Intervening Code Adoption Cycle based on enacted legislation, executive orders, new technology, completed studies, and stakeholder input. HCD also continued its effort to provide educational outreach to stakeholders and assistance to code users throughout the State.

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- July 28-29: SHL Program staff participated in stakeholder committee meetings for AB 2282, related to recycled water systems.
- August: SHL Program staff coordinated with the International Code Council to finalize edits to the Guide to the 2016 California Green Building Standards Code, Residential.
- August 1: SHL Program staff met with the CBSC to discuss comments received during the July 28 and 29 subcommittee meetings for AB 2282.
- August 4: SHL Program staff participated on the CBSC Coordinating Council, discussing issues related to the 2016 Intervening Code Adoption Cycle.
- August 8: SHL Program staff and legislative staff from HCD met with CBSC, DWR and the SWRCB to discuss statutory conflict of authority between HCD and DWR, related to AB 2282.
- August 30: SHL Program staff conducted a stakeholder meeting to discuss HCD's proposals related to AB 2282 in the 2016 California Plumbing Code (CPC) and the 2016 CALGreen.
- September 2: SHL Program staff discussed staff proposals for the 2016 CALGreen, related to mandatory electric vehicle charging for hotels and motels, with Air Resources Board staff.
- September 14: SHL Program staff discussed with CBSC and DWR issues related to the AB 2282 proposals.
- September 19: SHL Program staff discussed with CBSC and DWR potential statutory and regulatory conflicts identified during the research and development of HCD's proposal for recycled water supply systems (pursuant to AB 2282).
- September 20: SHL Program staff participated at the Bay Area Regional Energy Network (BayREN) Forum in Oakland and presented modifications to the 2016 CALGreen.
- October 5: SHL Program staff presented an educational seminar for the Greenbuild International Conference and Expo. This seminar, held in conjunction with the CBSC, provided updates to the 2016 CALGreen.
- October 5 and 7: SHL Program staff discussed the AB 2282 proposals in the 2016 CPC and 2016 CALGreen with the CBSC and DWR.
- October 19: SHL Program staff attended a meeting where the conflict between statutes and regulations that are impacting the implementation timeline for AB 2282 was discussed with the Governor's Office, DWR and SWRCB.

- November 1: SHL Program staff discussed the AB 2282 draft express terms with the CBSC and DWR. This was the last coordinating meeting before the Focus Group Meeting on November 4.
- November 4: SHL Program staff and CBSC conducted a stakeholder's Focus Group Meeting for AB 2282.
- November 16: SHL Program staff met with CBSC and DWR to discuss coordination of AB 2282 proposals.
- November 18: SHL Program staff conducted a CALGreen stakeholder's Focus Group Meeting.
- November 18: SHL Program staff attended the CALGreen stakeholder's Focus Group Meeting conducted by the CBSC.
- November 30: SHL Program staff attended a webinar conducted by DWR where changes to the Model Water Efficient Landscape Ordinance (MWELO) and the New Normal for California Landscaping were discussed.
- December 2: HCD attended the Sustainable Silicon Valley's Winter Water Workshop Collaboration and Connection in Mountain View. The workshop featured opportunities for exposure to new ideas and connecting with water leaders; e.g., water finance, local model ordinances, urgent water topics and networking, etc.
- December 8: SHL Program staff discussed AB 2282 proposals in the 2016 CPC and the 2016 CALGreen with the CBSC and DWR.
- December 30: SHL Program staff submitted rulemaking packages for the 2016 Intervening Code Adoption Cycle, including CALGreen.

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- January 12: SHL Program staff members attended the Desert Valley Builders Association's General Membership Luncheon to present updates to the 2016 California Building Standards Code, including CALGreen.
- February 10: SHL Program staff members attended the Sacramento Valley Association of Building Officials (SVABO) meeting in Davis to present an update on the SHL Program, including a summary of the 2015 Triennial Code Adoption Cycle, summary of the 2017 emergency rulemaking, proposals for the 2016 Intervening Code Adoption Cycle, AB 2282, Title 25 State Housing Law Regulations, updates on info related to tiny homes, and accessory dwelling units.
- March 6: SHL Program staff discussed the future of water efficient plumbing fixtures in California with a representative from Lixil and American Standard.
- March 17: SHL Program staff submitted to the CBSC the express terms and initial statement of reasons for the 2016 CPC and the 2016 CALGreen for the 45-day Public Comment Period.
- March 28-30: HCD attended the IAPMO WE•Stand Technical Committee in Ontario, California.
- April 12: SHL Program staff met with stakeholders to discuss the update of the CALGreen Residential Mandatory Measures Checklists.
- April 19: SHL Program staff attended a demonstration on hot water systems in Modesto.

- April 19: SHL Program staff met with DWR and CBSC to coordinate the agencies' proposals for the 45-day Public Comment Period.
- April 25-26: SHL Program staff attended the 2017 Green California Summit and Expo with two CALGreen presentations. SHL Program staff also participated in the Green California Expo with a booth at the expo.
- May 1-4: Shawn Huff, Assistant Deputy Director, attended and testified at the International Association of Plumbing and Mechanical Officials Technical Committee Meeting in Anaheim.
- May 3: HCD staff met with DWR and CBSC to review and discuss comments received during the 45-day public comment period, and to coordinate sufficiently related changes for the 15-day public comment period for the CPC.
- May 24: SHL Program staff conducted a "Listen and Learn" session for HCD employees on CALGreen.
- June 2: Shawn Huff presented changes to the building codes, including CALGreen, to the International Code Council Tri-Chapter Annual Meeting in Santa Cruz.
- June 7: SHL Program staff met with the CBSC and DWR regarding the code adoption schedule for the 2019 CALGreen and possible changes to DWR's Model Water Efficient Landscape Ordinance.
- June 20: SHL Program staff attended the CBSC meeting for approval and adoption of the 2016 Intervening Code Adoption Cycle proposals for CALGreen.
- June 21: SHL Program staff met with an electric vehicle manufacturer to discuss potential changes for the 2019 CALGreen.



State Housing Law Program Staff Photo: Recycled Water for Landscape Irrigation

V. Planned Actions and Activities

During the 2017-2018 fiscal year, HCD anticipates the following actions and activities:

- Continue participation in the technical committee for a national water-efficiency and sanitation standard called WE•Stand. The International Association of Plumbing and Mechanical Officials (IAPMO) intends to publish the standard in December 2017.
- Evaluate and propose necessary amendments to CALGreen for the 2018 Triennial Code Adoption Cycle based on enacted legislation, executive orders, new technology, completed studies and stakeholder input. This will result in the 2019 CALGreen, effective January 1, 2020.
- Continue outreach and education to the general public, local enforcement agencies, industry professionals and other stakeholders throughout the state.
- Consult with local enforcing agencies to verify implementation and enforcement, as well as the successes and challenges of CALGreen within their communities as the economy continues to improve and construction of single and multifamily dwellings increases in those communities.
- Continue to update forms and worksheets associated with compliance of CALGreen: including the Residential Occupancies Application Checklist, Residential Mandatory Measures Installation Certificate, Residential Mandatory Measures Checklist, Tier 1 Residential Measures and Tier 2 Residential Measures.



State Housing Law Program Staff Photo: Recycling Area for Building Occupants

Exhibit A

Summary of Rulemaking Activity

Exhibit A

Summary of Rulemaking Activity

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT 2016 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN) CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 11

1) Rationale for Necessity

The 2016 CALGreen was adopted by the California Building Standards Commission, and becomes effective on January 1, 2017. HCD has developed amendments to implement, interpret, and make specific provisions of state and federal law and/or to incorporate provisions that benefit the health, safety and general welfare of the people of California.

Specific Proposed Regulatory Actions:

HCD proposes to amend the 2016 edition of CALGreen. The proposed amendments are intended to provide clarity, specificity and direction to the code user, and to implement and make specific existing state laws and regulations. The rationale for each amendment is listed below.

1. CHAPTER 2 DEFINITIONS

HCD proposes to amend Chapter 2 of the 2016 CALGreen Code as follows:

SECTION 202 – DEFINITIONS

HOTEL OR MOTEL.

Rationale: HCD proposes to adopt the above referenced definition to provide clarification of the application of Section 4.106.4.3. The terms “Hotel” or “Motel” are used in Section 4.106.4.3, which HCD proposes to adopt. The newly proposed definition is identical to the definition used in the 2016 California Building Code, which provides sufficient information on what type of buildings are considered hotels or motels. The 2016 California Energy Code also provides a definition for “hotel/motel;” however, the definition is based on conditioned spaces within the building and related to energy use.

RECLAIMED (RECYCLED) WATER.

Rationale: HCD proposes to amend the above referenced definition. In 2014 the Department of Public Health released the drinking water standards to the State Water Resources Control Board to mandate regulations for recycled water. It is necessary to correctly identify the state entity who establishes the criteria for recycled water. The newly proposed amendment is consistent with the amendment proposed in the 2016 California Plumbing Code. There is no intended change in regulatory effect.

2. SECTION 4.106 SITE DEVELOPMENT

HCD proposes to amend Section 4.106 of the 2016 CALGreen Code as follows:

Section: 4.106.4 Electric vehicle (EV) charging for new construction.

Rationale: HCD proposes to amend the above referenced section. The proposed amendment is necessary to incorporate the requirements for hotels/motels, newly proposed in Section 4.106.4.3.

Section: 4.106.4.2.3 Single EV space required.

Rationale: HCD proposes an editorial modification to Section 4.106.4.2.3. There is no intended change in regulatory effect.

Section: 4.106.4.2.4 Multiple EV spaces required.

Rationale: HCD proposes to amend the above referenced section. HCD proposes to add the word “required” to clarify that the underground installation of raceways and related components is required at the time of original construction. The proposed amendment provides clarity to the code user. There is no intended change in regulatory effect.

- Sections:**
- 4.106.4.3 New hotels and motels.**
 - 4.106.4.3.1 Number of required EV spaces.**
 - 4.106.4.3.2 Electric vehicle charging space (EV space) dimensions.**
 - 4.106.4.3.3 Single EV space required.**
 - 4.106.4.3.4 Multiple EV spaces required.**
 - 4.106.4.3.5 Identification.**
 - 4.106.4.3.6 Accessible EV spaces.**

Rationale: HCD proposes to adopt the above referenced sections, requiring installation of electric vehicle (EV) charging infrastructure for newly constructed hotels and motels. This proposal was submitted to HCD by the Air Resources Board (ARB) in September 2016 for inclusion in the 2016 Intervening Code Adoption Cycle.

The number of parking spaces required to have capability for EV charging mirrors the requirement for non-residential structures in Section 5.106.5.2. The space dimensions, identification and design is similar to the requirements for multifamily charging infrastructure.

A reference to Chapter 11B of the California Building Code is also added to direct the code user to the accessibility provisions related to EV chargers and use. References in “Notes” have been updated.

According to ARB, EV charging infrastructure in CALGreen supports the California’s Zero Emission Vehicle Program, which aims to improve air quality and reduce greenhouse gas emissions. Although CALGreen has increased the required parking spaces, including EV charging infrastructure, from 3 percent (2013 code) to 6 percent (2016 code) for nonresidential uses, and requires EV charging infrastructure in 100 percent of new one- and two-family homes and 3 percent of multifamily homes (2013 and 2016 codes); there is no requirement to facilitate EV charging for hotels and motels. The availability of EV charging (when installed) at hotels and motels provides charging service to EV users traveling between their homes and vacation or other travel locations. This will help reduce range anxiety for some EV users and also provide charging while in a safe and comfortable location or even overnight. This proposal provides for infrastructure to accommodate the actual chargers when they are determined to be necessary and a needed service for the hotel/motel customers. There is no language requiring the installation of EV spaces or EV chargers; however, EV spaces and chargers may be installed depending on the needs. Providing this infrastructure at the time of construction is economical and avoids deconstruction and other more expensive changes, e.g., increasing electrical service, to accommodate EV charging retroactively.

Based upon the cost estimates, provided by the ARB, the cost to install a raceway with an adequate panel capacity is approximately \$800 per EV charging space. This represents a cost increase of only 0.1 percent. By installing EV charging infrastructure in new construction a retrofit cost of \$3,750 to \$6,975 per charging space could be avoided. Statewide, a retrofit cost of \$9.6–\$21.3 million can be avoided by installing EV charging infrastructure in new construction, which results in a benefit of \$7.5–\$18.8 million.

The technical and cost analysis, provided by ARB, is based on the need for California’s Zero Emission Vehicle (ZEV) infrastructure to support up to 1 million vehicles by 2020. ARB staff used the National Renewable Energy Laboratory (NREL) plug-in electric vehicle (PEV) infrastructure assessment as the source of information on projected EV charging needs. ARB staff also gathered information on existing, funded and proposed EV charging infrastructure to determine the gap in needed charge points remaining for 2020.

**3. SECTION 4.303
INDOOR WATER USE**

HCD proposes to amend Section 4.303 of the 2016 CALGreen Code as follows:

Sections: **4.303.1.3 Showerheads.**
 4.303.1.3.1 Single showerhead.
 4.303.1.3.2 Multiple showerheads serving one shower.

Rationale: HCD proposes to amend the above referenced sections. HCD proposes to change the required maximum flow rate of showerheads to 1.8 gallons per minute at 80 psi. Currently Sections 4.303.1.3.1 and 4.303.1.3.2 mandate a maximum flow rate of 2.0 gallons per minute.

The newly proposed amendment is consistent with the maximum flow rate adopted by the California Energy Commission (CEC) in Title 20 (Appliance Efficiency Regulations). The CEC’s new mandate is based on the Governor’s Executive Order B-29-15, issued on April 1, 2015.

**4. SECTION 4.305
WATER REUSE SYSTEMS**

HCD proposes to amend Section 4.305 of the 2016 CALGreen Code as follows:

Section: **4.305.1 Recycled water supply systems.**

Rationale: HCD proposes to adopt the above referenced section. The newly proposed section refers to Chapter 15 of the California Plumbing Code (CPC), which contains the requirements for alternate water sources for nonpotable applications. Pursuant to Assembly Bill 2282 (Chapter 606/Statutes of 2014), HCD is concurrently proposing adoption of mandatory measures for installation of recycled water supply systems in Chapter 15 of the CPC. This infrastructure requirement will facilitate the use of recycled water in residential landscape irrigation systems.

HCD also proposes to delete “reserved,” currently located below the title of Section 4.305.

**5. SECTION A4.303
INDOOR WATER USE**

HCD proposes to amend Section A4.303.4 of the 2016 CALGreen Code as follows:

Section: **A4.303.4 Nonwater urinals and waterless toilets.**

Rationale: HCD proposes to amend the above referenced section. HCD proposes to modify the title and the text in Section A4.303.4 by replacing the terms “nonwater supplied urinals” and “waterless urinals” with “nonwater urinals.” The proposed modification is consistent with HCD’s proposals in the 2016 California Plumbing Code and ASME A112.19.19-2016, which use the term “nonwater urinal.”

The proposed modification provides clarity and consistency to the code user. There is no intended change in regulatory effect.

**6. SECTION A4.602
RESIDENTIAL OCCUPANCIES APPLICATION CHECKLIST**

HCD proposes to amend Section A4.602 of the 2016 CALGreen Code as follows:

Section: **A4.602 Residential occupancies application checklist.**

Rationale: HCD proposes to amend the above referenced section. HCD proposes to modify the Residential Occupancies Application Checklist to correspond with the changes proposed in Chapter 4 and Appendix A4.

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).)

None.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS

(Government Code Section 11346.2(b)(1) requires a statement of the reasons why an agency believes any mandates for specific technologies or equipment or prescriptive standards are required.)

HCD is statutorily required to adopt by reference model building codes, which contain prescriptive standards. Prescriptive standards provide the following: explicit guidance for certain mandated requirements; consistent application and enforcement of building standards while also establishing clear design parameters; and ensure compliance with minimum health, safety and welfare standards for owners, occupants and guests.

Performance standards are permitted by State law; however, they must be demonstrated to the satisfaction of the proper enforcing agency.

There are no model codes addressing green building standards specific to California. However, the proposed changes follow a similar prescriptive format for consistency with other parts of the California Building Standards Code and the Title 20, Appliance Efficiency Regulations.

CONSIDERATION OF REASONABLE ALTERNATIVES

(Government Code Section 11346.2(b)(4)(A) requires a description of reasonable alternatives to the regulation and the agency's reason 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 an alternative. It is not the intent of this paragraph to require the agency to artificially construct alternatives or describe unreasonable alternatives.)

There were no alternatives available to HCD. HCD is required by statute to adopt model codes by reference, however, there are no model codes addressing green building standards specific to California. HCD's proposals expand facilitation for electric vehicle use and needed charging; recognize new technology; and provide consistency within the California Building Standards Code and with the Title 20, Appliance Efficiency Regulations.

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

(Government Code Section 11346.2(b)(4)(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.)

HCD has determined that this regulatory action would have no significant adverse economic impact on California small businesses.

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

(Government Code Section 11346.2(b)(5)(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.)

HCD 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.

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION.

(Government Code Sections 11346.3(b)(1) and 11346.5(a)(10)).

HCD has assessed whether or not and to what extent this proposal will affect the following:

- The creation or elimination of jobs within the State of California.

These regulations may create jobs for installation, maintenance and manufacturing of Electric Vehicle Supply Equipment (EVSE). No jobs are expected to be eliminated within the State of California.

- The creation of new businesses or the elimination of existing businesses within the State of California.

These regulations may create some special trade construction businesses. No business is expected to be eliminated within the State of California.

- The expansion of businesses currently doing business with the State of California.

These regulations will likely promote the expansion of businesses currently involved in EV manufacturing, installation, maintenance, use and technology development.

- The benefits of the regulations to the health and welfare of California residents, worker safety, and the state's environment.

These regulations will update and improve minimum existing building standards, which will provide increased protection of public health and safety, worker safety and the environment.

The increase in EV charging access will promote greater EV use, cleaner air by reducing greenhouse gas (GHG) emissions, and reduce CA dependency on fossil fuels. This will also provide the necessary infrastructure to support an expected 1 million ZEVs on the road by 2020.

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

(Government Code Section 11346.2(b)(5)(B)(i) states if a proposed regulation that is a building standard impacts housing, 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.)

- There is a minimal cost (approximately \$1600, per EV charging space) for compliance with the new requirements for Electric Vehicle Supply Equipment in hotels/motels. Statewide costs are estimated at \$2.1 to 2.5 million from mid-2018 to the end of 2020. The cost is much less during original construction than it would be to retrofit a project later.
- Other potential benefits include, but are not limited to:
 - Continue to reduce greenhouse gas (GHG) emissions.
 - Continue the Administration's directive to adopt green building standards for residential, commercial, and public building construction as part of the building code adoption process.
 - Protection of public health and safety.
 - Environmental benefits through reduced use of energy, water, and raw materials; improved public and building occupant health due to improved indoor air quality; and overall reduction in detrimental environmental impacts.
 - General welfare of California residents.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

(Government Code Section 11346.2(b)(6) 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.