

# 2021 REPORT TO THE LEGISLATURE

## Status of the California Green Building Standards Code



California Department of Housing and Community Development

September 2021



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 California Department of Housing and Community Development during the 2020-2021 fiscal year.



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*Cover photo: State Housing Law Program staff photo: drought tolerant landscape.*

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# Abbreviations and Acronyms

A2L	Class of refrigerants with lower global warming potential.
ADU	Accessory Dwelling Unit
ANSI	American National Standards Institute
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
CAC	Code Advisory Committee
CALGreen	California Green Building Standards Code
CalRecycle	California Department of Resources Recycling and Recovery
CARB	California Air Resources Board
CBC	California Building Code
CBSC	California Building Standards Commission
CDPH	California Department of Public Health
CEC	California Energy Commission
CHPS	Collaborative for High Performance Schools
CPC	California Plumbing Code
DSA	Division of the State Architect
DWR	Department of Water Resources
EV	Electric Vehicle
EVCS	Electric Vehicle Charging Station
EVSE	Electric Vehicle Supply Equipment
GHG	Greenhouse Gas
HCD	California Department of Housing and Community Development
HSC	Health and Safety Code
IAPMO	International Association of Plumbing and Mechanical Officials
ICC	International Code Council
IECC	International Energy Conservation Code
IgCC	International Green Construction Code
JADU	Junior Accessory Dwelling Unit
LEED	Leadership in Energy and Environmental Design
NSF	National Sanitation Foundation
OSFM	Office of the State Fire Marshal

OSHPD	Office of Statewide Health Planning and Development
SEAC	Sustainable Energy Action Committee
SHL	State Housing Law
UMC	Uniform Mechanical Code
UPC	Uniform Plumbing Code
ZEV	Zero Emission Vehicle

# Preface

This report is prepared in accordance with California Health and Safety Code (HSC) Section 17928, subdivision (b), which requires the California Department of Housing and Community Development (HCD) to submit a report to each house of the California 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.
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 current California Green Building Standards Code (CALGreen), including updates, may be viewed on the [California Building Standards Commission's \(CBSC's\) website](#). The current and previous CALGreen reports can be viewed on the [California Department of Housing and Community Development's \(HCD's\) website](#). Hardcopies are available upon request. Please contact HCD's State Housing Law (SHL) program staff at (800) 952-8356.

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
- California Department of Public Health (CDPH), Indoor Air Quality Section
- American National Standards Institute (ANSI) / American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) Standard 189.1-2017 “Standard for the Design of High-Performance Green Buildings” and International Green Construction Code (IgCC) combined to create: “IgCC Powered by 189.1”
- ANSI / ASHRAE Standard 62.2-2016 “Ventilation and Acceptable Indoor Air Quality in Residential Buildings”
- 2020 International Code Council (ICC) 700, National Green Building Standard
- International Association of Plumbing and Mechanical Officials (IAPMO) 2018 Green Plumbing and Mechanical Code Supplement
- 2018 IAPMO Uniform Mechanical Code (UMC) and Uniform Plumbing Code (UPC) Sustainable Practices Appendices
- 2021 IAPMO UPC Appendix L, Sustainable Practices; and updates to other appendices
- 2021 IAPMO UMC Appendix E, Sustainable Practices; and updates to other appendices
- National Sanitation Foundation (NSF) / ANSI Standard 350-2014: “On-site Residential and Commercial Water Reuse Treatment Systems”
- NSF / ANSI Standard 350-1-2017: “On-site Residential and Commercial Graywater Treatment Systems for Subsurface Discharge”
- 2021 International Energy Conservation Code (IECC)
- Assembly Bill 341 (Chapter 476, Statutes of 2011) Report to the Legislature: California Department of Resources Recycling and Recovery's (CalRecycle's) 75 Percent Initiative, CalRecycle

- California Code of Regulations (CCR), Title 20, California Energy Commission's (CEC's) Appliance Efficiency Regulations
- CCR, Title 24, CEC's Building Energy Efficiency Standards (BEES)

HCD uses an open, public process when developing proposed changes to CALGreen. For example, public focus group meetings are used to 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
- Local government agencies
- Public utility representatives
- Disabled access community representatives



# I. Background and History

The state of California and HCD, longtime leaders in green and sustainable building practices, developed CALGreen to help protect our environment, and improve the health, safety, and general welfare of the public by enhancing the design and construction of buildings. CALGreen encourages sustainable construction practices that use building concepts to reduce negative environmental impacts, and/or increase positive impacts, related to the following:

1. Planning and design
2. Energy efficiency
3. Water efficiency and conservation
4. Material conservation and resource efficiency
5. Environmental quality



## **2008 CALGreen - Enacted as a Voluntary Code**

The 2008 CALGreen (CCR, Title 24, Part 11) was approved by CBSC in January 2008 and went into effect in August 2009. Residential provisions in CALGreen applied to “low-rise residential buildings” which were residential buildings three stories or less. This first edition of CALGreen adopted by HCD was a voluntary code unless adopted as a mandatory requirement by a local enforcement agency.

## **No Fees**

Unlike some rating systems—such as LEED or the Green Globes system—that have additional licensing, certification, rating, and/or verification costs, CALGreen does not require fees.

## **Enforcement**

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



## **2010 CALGreen**

HCD updated the original 2008 CALGreen during the 2009–2010 fiscal year through the 2009 Triennial Code Adoption Cycle resulting in the 2010 CALGreen effective on January 1, 2011. This process involved soliciting public input and reviewing and analyzing necessary changes. The most noteworthy proposed update made by HCD was to establish “mandatory minimum requirements” to the previously voluntary CALGreen. Thus, the 2010 CALGreen became the nation’s first state-mandated green building code.

Furthermore, 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.

## **2013 CALGreen**

During the 2011–2012 fiscal year, HCD updated the 2010 CALGreen through the 2012 Triennial Code Adoption Cycle. This resulted in the 2013 CALGreen effective on January 1, 2014. 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. HCD also expanded the scope to include additions and alterations that increase the conditioned area, volume, or size of a building. The 2013 CALGreen Supplement also added mandatory requirements for electric vehicle (EV) charging infrastructure for one- and two-family homes, townhouses with attached private garages, and multifamily dwellings. An emergency rulemaking added outdoor landscape irrigation water use requirements to the 2013 CALGreen.

### **2016 CALGreen**

During the 2016–2017 fiscal year, HCD updated CALGreen through the 2015 Triennial Code Adoption Cycle. This resulted in the 2016 CALGreen effective January 1, 2017. This process involved soliciting public input and reviewing and analyzing necessary changes. HCD adopted new definitions related to EV charging for coordination between HCD and terminology used by the Division of the State Architect (DSA) in Chapter 11B of the California Building Code (CBC). HCD developed new requirements for EV charging in hotels and motels (new construction). Additionally, construction waste reduction was increased from 50 percent to 65 percent of the total building site construction waste to help meet CalRecycle’s statewide solid waste recycling goal of 75 percent for 2020 as stated in AB 341. HCD also adopted new regulations requiring recycling areas for multifamily projects of five or more dwelling units. Finally, HCD adopted a new elective measure for hot water recirculation systems.

### **2019 CALGreen**

During the 2018-2019 fiscal year, HCD updated CALGreen through the 2018 Triennial Code Adoption Cycle. This resulted in the 2019 CALGreen effective January 1, 2020. This updating process was conducted in consultation with local agencies, environmental stakeholders, and interested individuals. Significant changes for the 2019 CALGreen included a requirement for all projects to submit a completed Residential Occupancies Application Checklist or alternate documentation that includes mandatory measures and any Tier 1 and Tier 2 measures, as applicable. New definitions were added for Accessory Dwelling Unit (ADU); Accessory Occupancies; Accessory Structures; and Junior Accessory Dwelling Unit (JADU) to clarify the meanings of these terms as used within the regulatory text of CALGreen. The EV charging requirements were expanded to all residential projects vs. only projects with 17 or more dwelling units and increased the percentage of required EV capable spaces from 3 percent to 10 percent in coordination with the California Air Resources Board (CARB).

During the 2019 Intervening Code Adoption Cycle, HCD proposed new provisions and modified existing provisions to the 2019 CALGreen, which became effective July 1, 2021. Significant changes for the 2019 CALGreen Supplement include: a new definition for “submeter” and a requirement for submeters to be installed in multifamily dwellings; an exception from required raceway installation when actual branch circuits were installed for EV charging; clarification that EV spaces were considered as standard parking spaces for meeting local parking space requirements; new water flow and spray force requirements for pre-rinse spray valves; required information on defensible space from fire in the operation and maintenance manual; and repealed voluntary standards for allowable backlight, uplight and glare which is addressed by the California Energy Code.

## **Additional Details on Previous CALGreen Codes**

The previous versions of CALGreen involved significant changes in scope to all types of residential structures including high rise buildings. As noted, CALGreen has been updated several times since 2008 during Triennial Code Adoption Cycles and Intervening Code Adoption Cycles. For additional details and history please see the “2020 CALGreen report to Legislature” and previous reports. The 2021 report will focus on the updates to the 2019 CALGreen which will result in the 2022 CALGreen.



*Community charging station in residential neighborhood - Photo taken by Juvoni Sterling*

## **Additional rulemaking activities related to the 2016 and 2019 CALGreen**

HCD repealed Section 4.305.1 Recycled Water Supply Systems from the 2016 and 2019 versions of CALGreen and the California Plumbing Code (CPC) through a “Change without Regulatory Effect” type of rulemaking effective July 1, 2018. This deletion was in response to a Peremptory Writ of Mandate issued by the Superior Court of California, County of Los Angeles, which declared the regulations invalid and ordered HCD to vacate them pursuant to Case No. BS171958—see [Information Bulletin 2019-02: Invalidated AB 2282 Recycled Water Building Standards](#) on HCD's website.

## II. Introduction

CALGreen, the nation's first state-mandated green building code, has been in effect since January 1, 2011. CALGreen was 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 improves CALGreen by analyzing new technologies to complement current building practices that aid in conservation and reduce overall ecological impacts. Due to green building practices becoming more commonly used, technology constantly advancing, and public awareness of the benefits of sustainable building, HCD continues to evaluate and update CALGreen.

Updates to CALGreen require detailed evaluation and 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, regulations and California's goals to address climate change must also be 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. Sound rationale must accompany all proposed changes.

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



*Electrical Set-up for a residential photovoltaic system – Photo by Juvoni Sterling*

### III. HCD Accomplishments (2020–2021)

#### Proposed amendments for the 2022 CALGreen.

Currently, HCD is developing proposals for the 2022 California Building Standards Code in the 2021 Triennial Code Adoption Cycle. SHL program staff developed the 2022 CALGreen proposals after months of research and consultation with local agencies, environmental advocates, EV advocates, other stakeholders, and interested parties. HCD also worked in coordination with CARB for the EV charging proposals. HCD is proposing to carry forward the existing provisions from the 2019 CALGreen for adoption as the 2022 CALGreen except for several new proposals. The most important new proposals include:

#### Chapter 2 Definitions

- HCD proposed new definitions for “AUTOMATIC LOAD MANAGEMENT SYSTEM (ALMS),” “ELECTRIC VEHICLE (EV) CAPABLE SPACE,” “ELECTRIC VEHICLE (EV) READY SPACE,” “LEVEL 2 ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE)” and “LOW POWER LEVEL 2 ELECTRIC VEHICLE (EV) CHARGING RECEPTACLE”. These definitions are needed for newly proposed sections addressing EV charging in CALGreen.
- HCD proposed to modify the term “URINAL, HYBRID” to align with the 2022 CPC.

#### Chapter 3 Green Building

- Section 301.1.1 Additions and alterations. HCD proposed additional language to specify that the EV regulations may apply to additions or alterations of existing parking facilities or to addition of new parking facilities serving existing multifamily buildings.

#### Chapter 4 Residential Mandatory Measures

Division 4.1 Planning and Design was modified as follows:

- Section 4.106.4 Electric vehicle (EV) charging for new construction. HCD proposed a complete overhaul of this section related to EV charging.
- Section 4.106.4 which introduces the EV charging requirements, is proposed to be amended to delete the \$400 limit exception and instead reference adverse costs to construction as a potential exception.
- HCD proposed the repeal of the following existing sections from the 2019 CALGreen and not carry them forward into the 2022 CALGreen:
  - Section 4.106.4.2 New multifamily dwellings and related subsections; and Section 4.106.4.3 New hotels and motels and related subsections. These sections are part of the complete overhaul of the EV regulations and have been replaced with new sections. Some requirements will be carried forward into the 2022 CALGreen with renumbering.

- New Section 4.106.4.2 New multifamily dwellings, hotels and motels and new residential parking facilities. HCD proposed this new section which combines the EV charging requirements for multifamily dwellings, hotels, and motels.
- New Section 4.106.4.2.1 Multifamily development projects with less than 20 dwelling units; and hotels and motels with less than 20 sleeping units or guest rooms; and Section 4.106.4.2.2 Multifamily development projects with 20 or more dwelling units, hotels, and motels with 20 or more dwellings units, sleeping units or guest rooms. HCD proposed these two new sections which specify different EV charging regulations for projects depending on whether the project has less than 20 dwelling units, sleeping units or guest rooms, or 20 or more dwelling units, sleeping units or guest rooms.
  - Requirements for EV charging infrastructure (EV capable spaces) have been retained with a change only for hotels/motels from up to 6 percent to 10 percent.
  - New requirements for installation of low power Level 2 charging receptacles for 25 percent of parking spaces.
  - New requirements for Level 2 EVSE (chargers) for five percent of parking spaces in multifamily/hotel/motel projects with 20 or more units.
- New Section 4.106.4.2.2.1 Electric vehicle charging stations (EVCS) locations; New Section 4.106.4.2.2.2 Electric vehicle charging stations (EVCS) dimensions; and Section 4.106.4.2.2.3 Accessible EV spaces. HCD proposed re-adoption of these three sections as renumbered and for specific application to spaces with chargers. These sections were renumbered to fit the new format of the EV regulations.
- New Section 4.106.4.2.3 Electric vehicle charging for additions and alterations of parking facilities serving existing multifamily buildings. HCD proposed this new section which would require EV charging infrastructure for existing parking facilities under specified permitted conditions. This follows the Governor’s directive in his veto message for Assembly Bill 684 (2019).
- New Section 4.106.4.2.4 EV space requirements and Section 4.106.4.2.5 Identification. HCD proposed re-adoption of these two sections as renumbered to fit the new format of the EV regulations and new requirements.
- New Section 4.106.4.2.6 Electric vehicle ready space signage. HCD proposed this new section in response to stakeholder requests for signage to clearly identify EV charging spaces.

Division 4.4 Material Conservation and Resource Efficiency was modified as follows:

- Section 4.410.1 Operation and maintenance manual. HCD proposed addition of guidance information related to the location of reinforcement in the walls for future grab bar installation. This supports HCD’s proposal for bathroom reinforcement pursuant to Senate Bill 280 (Chapter 640, Statutes of 2019) for the 2022 California Residential Code (CRC).

## Appendix A4 Residential Voluntary Measures

### Division A4.1 Planning and Design

- Section A4.106.8.2 New multifamily dwellings. HCD proposed a new title for this section to reflect similar requirements for both multifamily dwellings and hotels and motels. The existing Tier 1 and Tier 2 provisions are proposed for repeal for reformatting into a new section.
- New Section A4.106.8.2.1 Multifamily development projects and hotels and motels. HCD proposed this new section which requires increased percentages in installation of low power Level 2 receptacles. An additional requirement is added to increase the percentage of chargers to be installed in multifamily residential and hotel and motel projects with 20 or more units.
- Section A4.602 Residential Occupancies Application Checklist. HCD proposed changes in the checklist to correspond with changes made in Chapter 4 and Appendix A4.



*Electrical vehicle charging station on an accessible route - Photo taken by Juvoni Sterling*



## IV. List of Activities

### Code Development Work and Outreach during the 2020–2021 Fiscal Year

HCD continued to evaluate and research possible updates to 2019 CALGreen during the 2021 Triennial Code Adoption Cycle based on enacted legislation, executive orders, new technology, reducing conflict with other parts of the California Building Standards Code and other governmental regulations, completed studies, and stakeholder input. HCD also continued its efforts to provide educational outreach to stakeholders and assistance to code users throughout the state.

#### 2020

- July 9 SHL program staff participated in an Office of the State Fire Marshal (OSFM) A2L refrigerant workshop. (A2L refrigerants are a class of refrigerants that have lower toxicity and flammability than A2 or A3 refrigerants.) Due to the COVID-19 pandemic, this meeting was not well attended. The discussion was focused on various refrigerant system set-ups (packaged units, split systems), pounds of refrigerant required for various systems, flammability and safety of fire-fighters.
- August 13-14 SHL program staff participated in the CBSC's meeting for review and approval of proposals for the 2019 code supplements.
- August 26 SHL program staff participated in the Department of Finance's Form 399, Economic and Fiscal Impact Statement, focus group meeting.
- October 29 SHL program staff met with CARB about EV charging infrastructure.
- November 13 SHL program staff met with CBSC and other state agencies related to CEC's input on model codes.
- December 1 SHL program staff met with CARB about CALGreen proposals for EV charging.
- December 2 SHL program staff met with CARB about proposed electric appliance requirements.
- December 4 SHL program staff met with CBSC to coordinate presentations for the 2022 CPC focus group meeting.
- December 11 SHL program staff, CBSC, and Department of Water Resources (DWR) held a joint focus group meeting for the 2022 CPC.
- December 14 SHL program staff met with CBSC and other state agencies about adoption of additional chapters for the 2022 CEBC.
- December 17 SHL program staff held the first 2022 CALGreen focus group meeting. Stakeholders expressed the desire for Level 1 charging for all multifamily dwelling units.

- December 18 SHL program staff met with CBSC to coordinate proposals for the 2022 CPC.
- December 21 SHL program staff met with CBSC to discuss the 2021 UPC, Chapter 15.

## 2021

- January 5 SHL program staff held a CALGreen work group meeting with California Building Industry Association (CBIA) representatives, CARB staff, the Governor's Office of Business and Economic Development (Go-Biz) staff, and California Public Utilities Commission (CPUC) representatives.
- January 7 SHL program staff attended CBSC's CALGreen Workshop.
- January 12 SHL program staff met with CARB to discuss contents of cost analysis for CALGreen.
- January 11 SHL program staff met with CBSC to coordinate provisions of the 2022 CPC.
- January 20 SHL program staff met with CARB about CALGreen proposals for EV charging.
- January 21 SHL program staff met with CBSC and CEC to discuss the Zero Code and the appropriate agency to address the code.
- January 28 SHL program staff met with CARB to discuss CALGreen proposals for EV charging.
- January 28 SHL program staff attended the Sustainable Energy Action Committee (SEAC) monthly meeting.
- February 1 SHL program staff met with CARB to discuss Multiunit Development proposals for EV charging.
- February 1 SHL staff met with the HCD Legislative Division and ICC to discuss role of codes.
- February 2 SHL program staff met with CARB to discuss Multiunit Development proposals for EV charging.
- February 4-5 SHL program staff attended the CEC's presentation on EV charging infrastructure.
- February 8 SHL program staff met with a representative from Tesla Public Policy and Business Development to discuss changes for residential portions of CALGreen focusing on EV charging.

- February 10 SHL program staff held a second 2022 CALGreen focus group meeting.
- February 12 SHL program staff met with OSFM to discuss mobile food trucks in the 2022 California Fire Code.
- February 18 SHL program staff attended CBSC's meeting to consider Code Advisory Committee (CAC) members.
- February 22 SHL program staff met with CBSC to discuss proposals for EV charging in CALGreen.
- February 22 SHL program staff met with CARB to discuss Multiunit Development proposals for EV charging.
- February 25 SHL program staff attended the SEAC monthly meeting.
- February 26 SHL program staff met with CARB to discuss Multiunit Development and infrastructure costs for EV charging.
- March 3 SHL program staff held a Fall Prevention work group meeting.
- March 4 SHL program staff met with CEC to discuss EV provisions for the 2022 California Energy Code.
- March 8 SHL program staff met with CARB to discuss CALGreen proposals for Multiunit Development proposals for EV charging.
- March 9 SHL program staff held a CBC Chapter 11A and CRC Fall Prevention focus group meeting.
- March 11 SHL program staff met with CARB to discuss CALGreen proposals for Multiunit Development for EV charging.
- March 18 SHL program staff met with a structural engineer, related to balcony load provisions in the 2019 CRC.
- March 24 and 25 SHL program staff presented code adoption packages at the Plumbing, Electrical, Mechanical and Energy CAC.
- March 25 SHL program staff attended the SEAC monthly meeting.
- March 25 SHL program staff participated in the "Codes and Standards Co-Op" co-hosted by the CEC and CPUC to coordinate and prioritize California energy codes and standards programs.
- March 29 SHL program staff held a CBC, CRC, and CEBC focus group meeting.
- March 30 SHL program staff attended CBSC's CALGreen Workshop.

- April 8 SHL program staff presented proposals for the 2022 CALGreen at a joint meeting between HCD, CARB, and the California Transportation Commission related to implementation and coordination of policies that jointly affect transportation, housing, and air quality.
- April 12 SHL program staff met to inform stakeholders of CALGreen proposals to be submitted to CBSC.
- April 16 SHL program staff attended CBSC's meeting to discuss agencies proposed adoption of additional chapters of the CEBC.
- April 22 SHL program staff attended the SEAC monthly meeting.
- April 22 SHL program staff attended CBSC's Commissioner re-appointment meeting.
- April 26 SHL program staff met with CBSC, OSFM, the Division of the State Architect (DSA), and the Office of Statewide Health Planning and Development (OSHPD) to discuss adoption of additional chapters of the CEBC.
- April 28-29 SHL program staff presented CALGreen proposals to the CBSC's CAC.
- May 11 SHL program staff attended a meeting to discuss the CAC's recommendations for HCD's 2022 CALGreen proposals.
- May 12 SHL program staff attended a webinar on A2L refrigerants.
- May 27 SHL program staff attended SEAC's monthly meeting.
- June 2 SHL program staff attended OSFM's Wildland Urban Interface (WUI) Workgroup in preparation for ignition-resistant buildings for the next code adoption cycle.
- June 23 SHL program staff submitted comments to GO-Biz about their Zero Emission Vehicle (ZEV) Pillar Priority Implementation document.
- June 28 SHL staff attended the CEC's Pre-Solicitation Workshop for Light-Duty EV Infrastructure Projects Serving Rural and Multi-Unit Dwelling Residents.

## V. Planned Actions and Activities

During the 2021–2022 fiscal year and following months, HCD anticipates the following actions and activities:

- Submit proposed amendments for updating the 2019 CALGreen to the 2022 CALGreen through a formal 2021 Triennial Code Adoption Cycle as part of the formal rulemaking process. These proposals will be based on enacted legislation, executive orders, new technology, coordination of regulations with other governmental agencies, completed studies, and stakeholder input. This will result in the 2022 CALGreen, with an effective date of January 1, 2023.
- Initiate a 45-day public comment period from August 13 through September 27, 2021. Additional public comment periods may follow if needed. These comment periods allow our stakeholders to review and submit comments on HCD’s proposed amendments.
- Make any subsequent and necessary changes to proposed express terms; present the final proposals at the CBSC approval and adoption meeting in December 2021 or January 2022.
- Work on activities related to publication such as editing and proofing drafts of the 2022 CALGreen.
- Identify needed updates for the 2022 CALGreen supplement which will become effective July 1, 2024. Draft proposed regulatory changes, hold focus groups, and prepare documents in accordance with CBSC’s timeline for the 2023 Intervening Code Adoption Cycle.
- Continue CALGreen outreach and education to the public, local enforcement agencies, industry professionals, and other stakeholders throughout the state.
- Consult with local enforcement agencies to verify implementation and enforcement, as well as the successes and challenges of CALGreen within communities as the economy continues to improve and construction of single and multifamily dwellings increases.
- Continue to analyze CALGreen’s EV charging infrastructure regulations for needed updates to meet technological advances in EVs and EV charging.
- Continue to analyze CALGreen for needed updates and research other sustainable building resources for feasible provisions to be included in CALGreen.
- Continue to coordinate with other state agencies proposing and adopting regulations related to provisions in CALGreen to avoid potential conflicts between regulations.
- Monitor and respond to changes in state goals for climate change and sustainable building. Propose changes in CALGreen to assist in implementation of these goals where reasonable.

- Continue to update forms and worksheets associated with the CALGreen compliance including the: Residential Occupancies Application Checklist, Residential Mandatory Measures Installation Certificate, Residential Mandatory Measures Checklist, Tier 1 Residential Measures Checklist, and Tier 2 Residential Measures Checklist.
- Update the CALGreen Guide to reflect the new changes to the code.
- Update the CALGreen PowerPoint presentations to reflect all new code changes for the Triennial Code Adoption Cycle.

# **Exhibit A.**

## **Summary of Rulemaking Activity**

### **July 1, 2020, through June 30, 2021**

Note: the following information is representative of the rulemaking activity as of June 30, 2021, and is subject to revision subsequent to public comment periods. A final version approved by CBSC will be available after CBSC's approval in December 2021 or January 2022.

**Exhibit A**  
**Summary of Rulemaking Activity**

**CALIFORNIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT**  
**REGARDING THE 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE**  
**CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 1**

**(HCD 03/21)**

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 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.

The specific purpose for each adoption, amendment, or repeal and the problem the agency intends to address and the rationale for the change is summarized below on a section-by-section basis. Due to significant changes, including reformatting, in provisions related to electric vehicle (EV) charging, the California Department of Housing and Community Development (HCD) is providing general background information and need for the changes in the Background and History statement directly below.

**Background, Recommended Solutions and Statutory Requirements related to EV Charging**

The provisions related to EV charging proposed by HCD, as requested in part by the California Air Resources Board (CARB), include mandatory green building standards for occupancies within its authority, building upon a framework of voluntary measures adopted by HCD in 2008 and make modifications and clarifications to the 2019 CALGreen Building Standards (CALGreen) 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 2008 to develop a green building code.

HCD's proposed action will support the implementation of the Governor's Executive Orders B-16-2012, B-48-2018 and N-79-20. These goals include: having over 1.5 million zero-emission vehicles (ZEVs) on California roadways by 2025; 5 million ZEVs on California roadways by 2030, and passenger vehicle and truck sales in California to be 100 percent ZEVs by 2035, respectively. Per the California Energy Commission's



(CEC's) recent Assembly Bill 2127 staff report<sup>1</sup>, California has a projected shortfall in the number of Level 2 chargers needed. This shortfall widens significantly when looking at 2030 and longer time horizons.

The Governor's Executive Orders demonstrate the commitment to support a successful and growing market for EVs, which is a critical strategy to help reduce emissions of criteria air pollutants and GHG, to ensure equitable access to clean transportation, and to reduce dependence on petroleum-based fuels. HCD's proposed amendments for the 2022 CALGreen Code will support these Executive Orders.

The proposed amendments begin to provide comparable access to EV infrastructure that currently exists for one- and two-family dwellings. The current CALGreen Code requires all one- and two-family dwellings and townhouses with attached private garages be equipped with Level 2 capable infrastructure, yet only 10 percent of parking spaces in multi-family dwellings are currently required to be Level 2 capable. Per a CEC assessment on Senate Bill 1000<sup>2</sup>, nearly 30 percent of Californians live in multi-family dwellings, with over 70 percent of these residents located within low-income communities. The assessment indicates that up to 94 percent of EV owners living in single-family homes charge their vehicles from home, whereas 18 to 48 percent of EV owners living in multi-family dwellings charge from their place of residence. Further, the assessment indicates low-income households spend roughly one-third of their take-home income on transportation costs alone. Per data from the Department of Energy<sup>3</sup>, EV fueling costs are roughly half that of comparable gasoline vehicles, with further savings expected from reduced maintenance costs<sup>4</sup>. The reduced costs to operate EVs can greatly benefit low-income households that otherwise spend high proportions of income on transportation expenses, while improving air quality in low-income communities. This is further supported through CARB's Low-Income Barriers Study, Part B: Overcoming Barriers to Clean Transportation Access for Low-Income Residents (Barriers Report)<sup>5</sup> which highlights the challenges transportation affordability has on community mobility and meeting community-identified needs. CARB's Barriers Report assertion that lower costs of EV charging and maintenance relative to gasoline vehicles would greatly benefit low-income groups that currently spend significant amounts of income on transportation related expenses.

Unlike in single-family owner-occupied homes, tenants of multi-family dwellings do not have decision making power, or often landlord support to install EV infrastructure at their place of residence. Adding electrical panel capacity and conduit alone to support

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1. [Assembly Bill 2127 Electric Vehicle Charging Infrastructure Assessment](#)
  2. [California Electric Vehicle Infrastructure Deployment Assessment: Senate Bill 1000 Report](#)
  3. [eGallon | Department of Energy](#)
  4. [Final Sustainable Communities Strategy Appendices \(ca.gov\)](#)
  5. [CARB Barriers Report: Final Guidance Document | California Air Resources Board](#)

Level 2 charging in existing buildings costs \$7,000 - \$8,000 per space, more than six times higher than in new construction. It is therefore critical that CALGreen Code provide strategic charging access in multi-family dwellings. This will provide communities an enhanced ability to access convenient, more affordable, charging infrastructure at their place of residence, therefore, making EV adoption more accessible. HCD's proposed amendments to the 2022 CALGreen Code help provide more equitable access to charging for multifamily residents.

In addition to supporting the Administration's directives, the goal of this proposal is to enable charging capability and immediate charging access at multifamily buildings in an effort to reduce the lack of access to EV charging which currently exists. This effort will further encourage the purchase and use of EVs for routine transportation.

Statewide application of the proposed building standards amendments will also provide substantial environmental and equity benefits through reduction in energy use, GHG emissions, criteria pollutants, and fossil fuel dependency. These benefits lead to improved public health and may result in significant cost savings (avoided costs) associated with future installation of EV charging stations at multifamily dwellings and hotels and motels.

## **Statutory References**

- Under a mandate from Assembly Bill 1092 (Chapter 410, Statutes of 2013) authored by Assembly Member Levine, HCD was directed to develop mandatory EV standards for residential buildings during the 2016 Triennial Code Adoption Cycle.
  - Under a mandate from Assembly Bill 1473 (Chapter 719, Statutes of 2008) authored by Senator Calderon, HCD was given authority to develop green building standards.
  - Health and Safety Code (HSC) Section 18930.5(b) as amended by Assembly Bill 341 (Chapter 585, Statutes of 2013) allows HCD and other state agencies that propose building standards to allow for input by state agencies that have expertise in green building subject areas. CARB has expertise in air quality, climate change, and EV charging infrastructure, as well as mechanisms for meeting community-identified transportation needs.
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## **1. SPECIFIC PROPOSED REGULATORY ACTIONS**

### **Item 1**

#### **CHAPTER 1, ADMINISTRATION**

**Rationale:** HCD proposes to continue adoption of Chapter 1 from the 2019 CALGreen into the 2022 CALGreen with amendments as discussed below:

##### **104.1 Scope. 1. Housing construction.**

**Rationale:** HCD proposes to continue adoption of the above referenced section with modification. The proposed modification provides clarity and consistency with all parts of Title 24 and update authority and references used for HCD 1. There is no intended change in regulatory effect. This change is in compliance with Nine-Point Criteria #2 to identify statutory authority for HCD to adopt regulations.

**CAC Recommendation:**

Approved as submitted.

**Agency Response:**

Accept.

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**Item 2**

**CHAPTER 2, DEFINITIONS**

**Rationale:** HCD proposes to continue adoption of Chapter 2 from the 2019 CALGreen into the 2022 CALGreen with amendments as discussed below:

**AUTOMATIC LOAD MANAGEMENT SYSTEM (ALMS).**

**Rationale:** Pursuant to Section 1-404 of the California Administrative Code (Title 24, Part 1), CARB has requested HCD to propose this definition as related to EV charging to the 2022 CALGreen on behalf of CARB.

HCD proposes to adopt the above referenced new definition to clarify the term as used within CALGreen and in the EV charging industry. This definition refers to ALMS which is allowed for use by the California Electrical Code. This definition is also co-adopted with the California Building Standards Commission (CBSC).

**ELECTRIC VEHICLE (EV) CAPABLE SPACE.**

**Rationale:** Pursuant to Section 1-404 of the California Administrative Code Title 24, Part 1), CARB has requested HCD to propose this definition as related to EV charging to the 2022 CALGreen on behalf of CARB.

HCD proposes to adopt the above referenced new definition to clarify the term as used within CALGreen and in the EV charging industry. This definition refers to a space which has capability or infrastructure to facilitate future EV charging. This definition is also co-adopted with CBSC.

**ELECTRIC VEHICLE (EV) READY SPACE.**

**Rationale:** Pursuant to Section 1-404 of the California Administrative Code (Title 24, Part 1), CARB has requested HCD to propose this definition as related to EV charging for the 2022 CALGreen on behalf of CARB.

HCD proposes to adopt the above referenced new definition to clarify the term as used within CALGreen and in the EV charging industry. This definition refers to a space which is ready for EV charging. As used in the proposed text, the term refers to EV spaces equipped with a receptacle or charger. This definition is also co-adopted with CBSC.

**LEVEL 2 ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE).**

**Rationale:** HCD proposes to adopt the above referenced new definition for residential sections of CALGreen. The new definition clarifies the new term as used within Sections 4.106.4.2. and A4.106.8.2.1 is for a Level 2 EV charger and supporting electrical equipment.

## **LOW POWER LEVEL 2 ELECTRIC VEHICLE (EV) CHARGING RECEPTACLE.**

**Rationale:** HCD proposes to adopt the above referenced new definition to clarify the electrical requirements for this type of receptacle as required in proposed Sections 4.106.4.2.1 and 4.106.4.2.2.

## **NONWATER URINAL WITH DRAIN CLEANSING ACTION.**

**Rationale:** HCD proposes to continue adoption of this definition (previously URINAL, HYBRID) with modification to align with the name of the fixture as referenced in the California Plumbing Code (CPC). The modification has no intended change in regulatory effect.

### **CAC Recommendation:**

Approved as submitted and coordinate with CBSC.

### **Agency Response:**

Accept.

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## **Item 3**

### **CHAPTER 3, GREEN BUILDING**

**Rationale:** HCD proposes to continue adoption of Chapter 3 from the 2019 CALGreen into the 2022 CALGreen with amendment as discussed below:

#### **301.1.1 Additions and alterations.**

**Rationale:** HCD proposes to continue adoption of the above referenced section with amendment. The existing scope of Section 301.1.1 limits the application of CALGreen to additions or alterations which increase a building's conditioned area, volume or size. The proposed amendment clarifies that CALGreen provisions may apply to additions or alterations of existing parking facilities or new parking facilities added to existing multifamily residential buildings. This clarification is needed to accommodate proposed Section 4.106.4.2.3 and to avoid conflict with Section 301.1.1 (Nine-point Criteria #1).

HCD is also proposing a note that is more specific as to the type of repairs that would be excepted from this requirement.

### **CAC Recommendation:**

Further study.

### **Agency Response:**

Accept.

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## **Item 4**

### **CHAPTER 4, RESIDENTIAL MANDATORY MEASURES, DIVISION 4.1, PLANNING AND DESIGN**

**Rationale:** HCD proposes to continue adoption of Chapter 4, Division 4.1, from the 2019 CALGreen into the 2022 CALGreen with amendments as discussed below. Pursuant to Section 1-404 of the California Administrative Code (Title 24, Part 1), CARB

has requested HCD to propose amendments for the 2022 CALGreen on behalf of CARB.

#### **4.106.4 Electric vehicle (EV) charging for new construction.**

**Rationale:** HCD proposes to continue adoption of the above referenced section with amendment. The reference to Section 4.106.4.3 is repealed since that section is no longer proposed for the code. The 2019 CALGreen provides specific exceptions from existing EV charging requirements. In accordance with the existing scope of CALGreen, the exceptions would apply to the requirements related to EV infrastructure (EV Capable spaces).

HCD's current proposal expands the EV charging requirements to installation of EV charging receptacles and EV chargers (EVSE). The CAC recommended consideration of exceptions similar to the nonresidential EV charging requirements. This was related to the expansion in scope for EV charging; and variability in costs of EV capable spaces, spaces with Level 2 receptacles and chargers in various areas of the state. Therefore, HCD modified Exception 1 to address situations in which there is no local utility power supply or when the local utility is unable to supply adequate power.

HCD also proposes to repeal references to specific dollar amounts for exceptions due to variations in utility costs based upon locations

HCD also proposes to include an exception related to adverse impact to construction cost of a project, similar to the provision for nonresidential EV charging. As in the past, the intention of CALGreen is not to inflict unreasonable costs to residential building developers/owners.

#### **CAC Recommendation:**

Further study.

#### **Agency Response:**

Accept.

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#### **4.106.4.2 New multifamily dwellings.**

##### **4.106.4.2.1 Electric vehicle charging space (EV space) locations.**

##### **4.106.4.2.1.1 Electric vehicle charging stations (EVCS).**

##### **4.106.4.2.2 Electric vehicle charging space (EV space) dimensions**

##### **4.106.4.2.3 Single EV space required**

##### **4.106.4.2.4 Multiple EV spaces required.**

##### **4.106.4.2.5 Identification**

**Rationale:** HCD proposes to repeal the above referenced sections and provisions for purposes of reformatting, modifying, and adopting new sections addressing EV charging for multifamily buildings and hotels and motels.

#### **CAC Recommendation:**

Approve as submitted.

## Agency Response:

Accept.

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### **4.106.4.2 New multifamily dwellings, hotels and motels and new residential parking facilities.**

**Rationale:** HCD proposes adoption of the above new referenced section which provides an introduction to the EV charging requirements in subsequent sections addressing both multifamily dwellings and hotels/motels and clarifies that calculations for EV spaces are to be rounded up to the nearest whole number. This section also provides reference to Vehicle Code (VC) Section 22511.2 which allows EV spaces to be counted as parking spaces only for the purposes of meeting parking space requirements at the local level.

#### **4.106.4.2.1 Multifamily development projects with less than 20 dwelling units; and hotels and motels with less than 20 sleeping units or guest rooms.**

**Rationale:** HCD proposes adoption of the above referenced section which addresses EV charging requirements for new smaller residential projects with less than 20 units. This section retains the existing CALGreen requirement for 10 percent of parking spaces to be EV Capable, or have only requirements for infrastructure, to facilitate future EV charging with some exceptions if Level 2 chargers are installed on a voluntary basis by the developer. This section also clarifies that electrical loads be based on simultaneous charging of all EVs at all required EV spaces at a minimum amperage. Notes are also included addressing construction documents and EV space construction. There is no intended change in regulatory effect from existing requirements for EV capable spaces.

HCD proposes a new requirement for installation of low power Level 2 receptacles for 25 percent of parking spaces in all new multifamily developments and clarification that no more than one receptacle must be installed per dwelling unit. The low power Level 2 receptacle requirement was requested by stakeholders who demonstrated a need for actual access to charging in multifamily buildings. The low power Level 2 receptacles would facilitate shorter charging times than using typical household type electric receptacles and meet the needs of EV drivers with longer commutes and/or larger vehicle battery capacity.

Recent analysis shows that only roughly 30 percent of existing EV Capable spaces are currently being converted to EV charging stations. The proposed mandate will provide immediate access to charging through the deployment of receptacles and charging stations. The proposed mandate will provide immediate access to charging through the deployment of receptacles and charging stations, which are ultimately necessary to support the implementation of the state's goals for 5 million ZEVs by 2030, and to achieve the goal of 100 percent of in-state sales of EVs by 2035.

#### **4.106.4.2.2 Multifamily development projects with 20 or more dwelling units, hotels and motels with 20 or more sleeping units or guest rooms.**

**Rationale:** HCD proposes adoption of the above referenced new section which addresses EV charging requirements for new larger residential projects with 20 or more units. The requirements for infrastructure (EV Capable) and low-power Level 2 receptacles (EV Ready) remain the same as for the new smaller projects. Notes are also included addressing construction documents and EV space construction. HCD proposes that the larger projects install Level 2 EV chargers (EVSE) for 5 percent of parking spaces. This provides an actual Level 2 EV charger installed on-site for EV users and faster charge times than the low power Level 2 receptacles. HCD also proposes an exception to all or a portion of the EV Capable requirement if building owners decide to voluntarily install Level 2 chargers in addition to the amount required in the code.

HCD proposes an option to use ALMS when Level 2 EVSE is installed beyond the minimum required. ALMS may be used to reduce the maximum required electrical capacity to each space served by the ALMS. The use of an ALMS is not a requirement and is not considered a mandatory cost.

**Additional comments related to multifamily developments projects (both Sections 4.106.4.2.1 and 4.106.4.2.2)**

In accordance with the Assembly Bill 2127 report, only 64,000 Level 2 public and shared private chargers (including multifamily dwellings and nonresidential chargers) were installed through 2020. In order to support the 5 million ZEV deployment goal in 2030, a total of 180,000 to 268,000 chargers in multi-family buildings alone are needed. The proposed regulation will add an estimated 75,000 low-power Level 2 receptacles and Level 2 chargers in new multifamily buildings between the beginning of 2023 and the end of 2025 (effective period of the 2022 CALGreen Code). Assuming 1 percent of existing buildings will undergo parking facility retrofits requiring Level 2 capable infrastructure installations between the beginning of 2023 and the end of 2025 - the proposed regulation would add an additional 18,000 Level 2 capable spaces.

The changes to the new construction provisions will help improve air quality and reduce an estimated 267,000 metric tons of carbon dioxide equivalent (CO<sub>2</sub>e) annually between 2023 and the end of 2025 in new multifamily buildings.

**Estimated Costs:** \$86.6 million to \$145.8 million (additional costs related to the new requirements for new multifamily developments).

**Additional comments related to hotel projects (both Sections 4.106.4.2.1 and 4.106.4.2.2)**

HCD is moving forward with the CARB suggested changes and proposes to increase the Level 2 EV Capable requirement from 6 percent to 10 percent of parking spaces in new hotels and motels, add a requirement for low-power Level 2 receptacles in 25 percent of new parking spaces, and add a requirement for Level 2 charging stations in 5 percent of new parking spaces for hotel and motel developments with 20 or more units. Recent analysis shows that only roughly 30 percent of existing EV Capable spaces are being converted with EV chargers. The proposed mandate will instead provide immediate access to charging through the deployment of receptacles and charging stations, which are ultimately necessary to support the implementation of goals for 5

million ZEVs by 2030, and to achieve the goals for 100 percent of in-state sales of EVs by 2035.

In addition to supporting the Administration's directives, the goal of this proposal is to enable future charging capability at hotel and motel buildings in an effort to reduce the lack of access to EV charging for travelers which currently exists. HCD and CARB staff believe this effort will further encourage the purchase and use of EVs.

The proposed regulation will add an estimated 2,000 Level 2 EV capable spaces and 15,000 to 19,000 low-power Level 2 receptacles and Level 2 chargers in new hotels and motels between the beginning of 2023 and the end of 2025. This change will help improve air quality and reduce an estimated 60,000 to 72,000 metric tons of carbon dioxide equivalent (CO<sub>2</sub>e) annually between 2023 and the end of 2025 in new hotels and motels.

**Estimated Costs:** \$17.3 million to \$36.8 million (additional costs related to the new requirements for new hotel and motel developments)

**CAC Recommendation:**

Further study.

**Agency Response:**

Accept.

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**4.106.4.2.2.1 Electric vehicle charging stations (EVCS). (formerly 4.106.4.2.1.1)**

**4.106.4.2.2.2 Electric vehicle charging stations (EVCS) dimensions. (formerly 4.106.4.2.2 Electric vehicle charging space (EV space) dimensions)**

**4.106.4.2.2.3 Accessible EV spaces.(formerly 4.106.4.2.1.1 Electric vehicle charging stations (EVCS) and 4.106.4.3.6)**

**Rationale:** HCD proposes re-adoption of the above referenced sections as renumbered and relocated. The requirement for location adjacent to an accessible parking space or on an accessible route apply to spaces with EV chargers. The requirements for dimensions also apply to spaces with EV chargers. The references to the California Building Code (CBC), Chapter 11A, Housing Accessibility or Chapter 11B, Accessibility to Public Buildings, Public Accommodations, Commercial Buildings and Public Housing provide guidance for accessibility requirements depending on whether the project is a privately funded multifamily project, public housing, or public accommodation (hotel or motel).

**CAC Recommendation:**

Approved as submitted.

**Agency Response:**

Accept.

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**4.106.4.2.3 Electric vehicle charging for additions and alterations of parking facilities serving existing multifamily buildings.**



**Rationale:** HCD proposes adoption of the above referenced new section. HCD's proposal is in response to the Governor's veto message of Assembly Bill 684 (2019) which directed HCD to research, develop, and propose adoption of building standards related to installation of future EV charging infrastructure for parking spaces for existing multifamily dwellings. Although the bill was vetoed by the Governor, he stated in the veto message that it would be best to address the issue administratively to balance charging infrastructure objectives with efforts to expand affordable housing. The Governor then directed HCD to develop and propose building standards that would increase the availability of EV charging infrastructure at existing multifamily properties while limiting costs for affordable housing.

HCD proposes requirements for EV infrastructure in existing multifamily buildings when new parking facilities are added; and/or electrical systems or lighting of existing parking facilities are added or altered, e.g., PV systems are installed in parking facilities, and the work requires a building permit. In such instances, 10 percent of the total number of parking spaces added or altered will be EV spaces capable of supporting future Level 2 EVSE (EV Capable Spaces). The majority of California's building stock was constructed prior to when CALGreen EV charging codes were enacted. There is significant potential for existing buildings to support California's 2030 and 2035 ZEV deployment goals through this measure, while ensuring infrastructure deployments are accomplished cost-effectively at the time of other major renovations. A note proposed for Section 301.1.1 also clarifies activities which would not be considered as alterations for the purpose of this section.

HCD and CARB are not able to estimate costs since there are no records of the number of existing residential parking lots or a method to estimate how many new parking lots would be added to existing multifamily buildings, or when existing parking lots would be undergoing permitted upgrades.

**CAC Recommendation:**

Further study.

**Agency Response:**

Accept.

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**4.106.4.2.4 EV space requirements (formerly 4.106.4.2.3 Single EV space required; 4.106.4.3.3 Single EV space required; 4.106.4.2.4 Multiple EV spaces required; 4.106.4.3.4 Multiple EV spaces required)**

**4.106.4.2.5 Identification (formerly 4.106.2.5 and 4.106.4.3.5)**

**Rationale:** HCD proposes re-adoption of the above referenced sections as renumbered and relocated from existing multifamily and hotel/motel requirements. These requirements provide requirements for raceways, construction documents, service panel capacity and service panel directory identification. The existing provisions have been modified to address sites with infrastructure and actual installation of equipment.

**CAC Recommendation:**

Approved as submitted.

**Agency Response:**

Accept.

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**4.106.4.2.6 Electric Vehicle Ready Space Signage.**

**Rationale:** HCD proposes to adopt the above referenced new section for signage to clearly identify EV charging spaces. A reference to a Caltrans policy directive is added which provides samples of regulatory and general information signs and pavement markings to guide and regulate road users who operate zero emission vehicles. These signs may be modified to add more specific information for the type of charging space.

Statewide costs on the EV Ready Space signage cannot be determined due to the variety of options available for implementation and project design. However, page 477 of the 2021 National Construction Cost Estimator has the following information for similar pavement markings and signs:

- Cost (excluding \$75/day rental cost of a compressor, hose and spray gun) for “Mark parking stall with handicapped symbol painted on, including layout, reflectorized stripes and symbol, one color” is \$38.30 per stall.
- Cost for “Parking lot handicapped sign, 12" x 18" laminated aluminum, reflective lettering and handicapped symbol. Sign on 2" galvanized steel pipe post 10' long, set 2' into the ground, includes digging of hole using a manual auger and backfill” is \$147.40. Alternatively, the cost is \$58.30 if the sign is “on walls with mechanical fasteners.”

**CAC Recommendation:**

Further study on signage.

**Agency Response:**

Accepted and developed new section.

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**4.106.4.3 New hotels and motels.**

**4.106.4.3.1 Number of required EV spaces.**

**TABLE 4.106.4.3.1**

**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 repeal the above referenced sections for purposes of reformatting, modifying, and adopting new sections addressing EV charging for multifamily buildings; and hotels and motels.

**CAC Recommendation:**

Approved as submitted.

**Agency Response:**

Accept.

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**Item 5**

**CHAPTER 4, RESIDENTIAL MANDATORY MEASURES, DIVISION 4.3, WATER EFFICIENCY AND CONSERVATION**

**Rationale:** HCD proposes to continue adoption of Chapter 4, Division 4.3, from the 2019 CALGreen into the 2022 CALGreen without amendment and with no intended change in regulatory effect.

**CAC Recommendation:**

Approved as submitted.

**Agency Response:**

Accept.

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**Item 6**

**CHAPTER 4, RESIDENTIAL MANDATORY MEASURES, DIVISION 4.4, MATERIAL CONSERVATION AND RESOURCE EFFICIENCY**

**Rationale:** HCD proposes to continue adoption of Chapter 4, Division 4.4, from the 2019 CALGreen into the 2022 CALGreen with amendments as discussed below:

**4.410.1 Operation and maintenance manual.**

**Rationale:** HCD proposes to continue adoption of the above referenced section with amendment. Pursuant to Senate Bill 280 (Chapter 640, Statutes 2019) HCD is proposing Fall Prevention measures in the 2022 California Residential Code (CRC) which require grab bar reinforcements in certain circumstances. New Item 11 of Section 4.410.1 requires that information and/or drawings identifying the location of grab bar reinforcements to be placed in the building. In addition to reducing the potential for falls, utilization of existing job site construction scrap lumber for reinforcement material promotes resource efficiency and further reduces construction waste.

**CAC Recommendation:**

Further study. Add note as related to construction waste.

**Agency Response:**

Disagree. HCD provided further information in the ISOR to retain format of the code.

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**Item 7**

**CHAPTER 4, RESIDENTIAL MANDATORY MEASURES, DIVISION 4.5, ENVIRONMENTAL QUALITY**

**Rationale:** HCD proposes to continue adoption of this Chapter 4, Division 4.5, from the 2019 CALGreen into the 2022 CALGreen without amendment and with no intended change in regulatory effect.

**CAC Recommendation:**

Approved as submitted

**Agency Response:**

Accept.

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**Item 8**

**CHAPTER 6, REFERENCED ORGANIZATIONS AND STANDARDS**

**Rationale:** HCD proposes to continue adoption of Chapter 6 from the 2019 CALGreen into the 2022 CALGreen without amendment and with no intended change in regulatory effect.

**CAC Recommendation:**

Approved as submitted

**Agency Response:**

Accept.

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**Item 9**

**CHAPTER 7, INSTALLER AND SPECIAL INSPECTOR QUALIFICATIONS**

**Rationale:** HCD proposes to continue adoption of Chapter 7 from the 2019 CALGreen into the 2022 CALGreen without amendment and with no intended change in regulatory effect.

**CAC Recommendation:**

Approved as submitted

**Agency Response:**

Accept.

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**Item 10**

**CHAPTER 8, COMPLIANCE FORM, WORKSHEET, AND REFERENCE MATERIAL**

**Rationale:** HCD proposes to continue non-adoption of Chapter 8.

**CAC Recommendation:**

Approve as submitted.

**Agency Response:**

Accept.

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**Item 11**

**APPENDIX A4, RESIDENTIAL VOLUNTARY MEASURES, DIVISION A4.1, PLANNING AND DESIGN**

**Rationale:** HCD proposes to continue adoption of Appendix A4, Division 4.1, from the 2019 CALGreen into the 2022 CALGreen with amendments as discussed below:

**A4.106.8.2 New multifamily development projects and hotels and motels.**

**Rationale:** Pursuant to Section 1-404 of the California Administrative Code (Title 24, Part 1), HCD is proposing amendments for the 2022 CALGreen on behalf of CARB. HCD proposes to continue adoption of the above referenced section with modification. This is only an introductory section to subsequent sections. The proposed new title references both multifamily development projects and hotels and motels. The Tier 1 and Tier 2 requirements for existing EV capable spaces is repealed and addressed in a new subsequent section.

#### **A4.106.8.2.1 Multifamily development projects and hotels and motels.**

##### **Tier 1 and Tier 2**

**Rationale:** HCD proposes adoption of the above referenced new section. HCD proposes to modify the provisions for Tier 1 and Tier 2 to require increased percentages in installation of low power Level 2 receptacles. An additional requirement is added to increase the percentage of chargers to be installed in multifamily residential and hotel and motel projects with 20 or more units. These measures provide options for increased access to EV charging and increased reliability for EV charging at multifamily buildings and hotels and motels.

##### **Additional comments related to multifamily projects**

HCD proposes to include a voluntary Tier 1 provision for 35 percent of total new parking spaces with low-power Level 2 receptacles in all new multifamily dwellings, along with Level 2 chargers in 10 percent of total new parking spaces in new developments with 20 or more units in an effort to further advance the potential for EV charging access. The Tier 1 provisions do not include requirements for Level 2 EV Capable spaces. There is no fiscal effect since Tier 1 is a voluntary measure available for adoption by local agencies. If all local governments adopted Tier 1 as mandatory, it may add up to 0.5 percent to total costs for multifamily new construction beyond the proposed mandatory provisions. An estimated incremental GHG reduction of 97,000 metric tons CO<sub>2</sub>e emissions could be achieved annually by 2025 through the new Tier 1 provisions compared to the proposed mandatory provisions.

HCD proposes to include a voluntary Tier 2 provision for 40 percent of total new parking spaces with low-power Level 2 receptacles in new multifamily dwellings along with Level 2 chargers in 15 percent of total new parking spaces in new developments with 20 or more units in an effort to further advance the potential for EV charging access. The Tier 2 provisions do not include requirements for Level 2 EV Capable spaces. There is no fiscal effect since Tier 2 is a voluntary measure available for adoption by local agencies. If all local governments adopted Tier 2 as mandatory, it may add up to 0.1 percent to 1.0 percent to total costs for multifamily new construction beyond the proposed mandatory provisions. An estimated incremental GHG reduction of 203,000 metric tons CO<sub>2</sub>e emissions could be achieved annually by 2025 through the new Tier 2 provisions compared to the proposed mandatory provisions.

##### **Additional comments related to hotel/motel projects**

HCD proposes to include a Tier 1 provision for 35 percent of total new parking spaces with low power Level 2 receptacles in all new hotels and motels, along with Level 2 chargers in 10 percent of total new parking spaces in new developments with 20 or

more units in an effort to further advance the potential for EV charging access. The Tier 1 provisions do not include requirements for Level 2 EV Capable spaces. There is no fiscal effect since Tier 1 is a voluntary measure available for adoption by local agencies. If all local governments adopted Tier 1 as mandatory, it may add up to 0.3 percent to total costs for hotel and motel new construction beyond the proposed mandatory provisions. An estimated incremental GHG reduction of 21,000 to 27,000 metric tons CO<sub>2</sub>e emissions could be achieved annually by 2025 through the new Tier 1 provisions compared to the proposed mandatory provisions.

HCD proposes to include a Tier 2 provision for 40 percent of total new parking spaces with low-power Level 2 receptacles in all new hotels and motels, along with Level 2 chargers in 15 percent of total new parking spaces in new developments with 20 or more units in an effort to further advance the potential for EV charging access. The Tier 2 provisions do not include requirements for Level 2 EV Capable spaces. There is no fiscal effect since Tier 2 is a voluntary measure available for adoption by local agencies. If all local governments adopted Tier 2 as mandatory, it may add 0.8 percent to total costs for hotel and motel new construction beyond the proposed mandatory provisions. An estimated incremental GHG reduction of 44,000 to 55,000 metric tons CO<sub>2</sub>e emissions could be achieved annually by 2025 through the new Tier 2 provisions compared to the proposed mandatory provisions.

#### **A4.106.8.2.2 Technical requirements (formerly A4.106.8.2.1)**

**Rationale:** HCD proposes re-adoption of the above referenced section as renumbered and relocated. These requirements provide references to sections including requirements for construction documents, charging station locations and dimensions, single and multiple space requirements, accessibility requirements, required identification of service panels and signage standards. The existing provisions have been modified to address sites with infrastructure and actual installation of equipment.

#### **CAC Recommendation:**

Approved as submitted.

#### **Agency Response:**

Accept.

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#### **A4.106.8.3 New hotels and motels.**

##### **TABLE A4.106.8.3.1**

##### **TABLE A4 4.106.8.3.2**

##### **A4.106.4.8.3.1 Technical Requirements.**

**Rationale:** HCD proposes to repeal the above referenced sections for purposes of reformatting, modifying, and adopting new sections addressing EV charging for hotels and motels.

#### **CAC Recommendation:**

Approved as submitted.

#### **Agency Response:**

Accept.

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**Item 12**

**APPENDIX A4, RESIDENTIAL VOLUNTARY MEASURES, DIVISION A4.3, WATER EFFICIENCY AND CONSERVATION**

**Rationale:** HCD proposes to continue adoption of Appendix A4, Division 4.3, from the 2019 CALGreen into the 2022 CALGreen with amendments as discussed below:

**A4.303.4 Nonwater urinals and waterless toilets the above referenced**

**Rationale:** HCD proposes to continue adoption of section (formerly hybrid urinals) from the 2019 CALGreen into the 2022 CALGreen with modification to align terminology with the CPC. The modification has no intended change in regulatory effect.

**CAC Recommendation:**

Approve as submitted.

**Agency Response:**

Accept.

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**Item 13**

**APPENDIX A4, RESIDENTIAL VOLUNTARY MEASURES, DIVISION A4.4, MATERIAL CONSERVATION AND RESOURCE EFFICIENCY**

**Rationale:** HCD proposes to continue adoption of Appendix A4, Division A4.4, from the 2019 CALGreen into the 2022 CALGreen without amendment and with no intended change in regulatory effect.

**CAC Recommendation:**

Approved as submitted.

**Agency Response:**

Accept.

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**Item 14**

**APPENDIX A4, RESIDENTIAL VOLUNTARY MEASURES, DIVISION A4.5, ENVIRONMENTAL QUALITY**

**Rationale:** HCD proposes to continue adoption of Appendix A4, Division A4.5, from the 2019 CALGreen into the 2022 CALGreen without amendment and with no intended change in regulatory effect.

**CAC Recommendation:**

Approved as submitted.

**Agency Response:**

Accept.

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## Item 15

### APPENDIX A4, RESIDENTIAL VOLUNTARY MEASURES, DIVISION A4.6, TIER 1 AND TIER 2

#### A4.602 RESIDENTIAL OCCUPANCIES APPLICATION CHECKLIST

**Rationale:** HCD proposes to continue adoption of the above referenced section from the 2019 CALGreen into the 2022 CALGreen with amendments. HCD's proposed amendments provide alignment with changes in other chapters and appendices.

**CAC Recommendation:**

Approved as submitted.

**Agency Response:**

Accept.

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#### 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).

- May 2021, Gavin Newsom, Governor, Assembly Bill 2127 Electric Vehicle Charging Infrastructure Assessment, Analyzing Charging Needs to Support Zero-Emission Vehicles in 2030, CEC-600-2021-001-REV.
- 2020, California Energy Commission, California Electric Vehicle Infrastructure Deployment Assessment: Senate Bill 1000 Report, Publication Number: CEC-600-2020-009.
- 2019, California Air Resources Board, Final Sustainable Communities Strategy Program and Evaluation Guidelines Appendices Table 10.
- 2018, California Air Resources Board, Low-Income Barriers Study, Part B: Overcoming Barriers to Clean Transportation Access for Low-Income Residents, Final Guidance Document.
- 2021, U.S. Department of Energy, eGallon Compare the costs of driving with electricity, website: [Department of Energy eGallon](#).

#### 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 for other parts of the California Building Standards Code which contain prescriptive standards. Although CALGreen is not based on a model code, 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. The CALGreen proposals do include a performance standard related to EV charging.

### **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 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.

HCD's proposals during this triennial code cycle are intended to add necessary mandatory provisions in CALGreen to meet EV deployment goals as set forth by Governor's Executive Orders B-48-2018 and N-79-20. The two alternatives considered were to adopt the proposed Tier 1 and Tier 2 provisions as mandatory. These alternatives were rejected at this time because they are more costly to implement. However, local jurisdictions still have the ability to adopt these higher-level thresholds depending on local context.

HCD has considered the use of ALMS for EV chargers that are installed in excess of those required in this code. HCD has also considered a requirement for signage for spaces that have charging equipment for easy identification by EV users. Both provisions are included in HCD's proposal.

### **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.

No alternatives were identified to lessen the adverse impact on small business, but most of the modifications to the code are proposed for facilitation of understanding and compliance by the code user. Those proposals that are new to the code or are made more stringent have been thoroughly vetted through stakeholder outreach 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)(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 increase costs marginally to California business enterprises representing 0.1 -1.4 percent of the total new construction costs of multifamily buildings and 0.5 - 1.1 percent of the total new construction costs of hotels/motels with significant benefits to Californians due to improved air quality and GHG emission reductions.

### **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)

Department of Housing and Community Development has assessed whether or not and to what extent this proposal will affect the following:

**A. The creation or elimination of jobs within the State of California.**

Some jobs may be created for installation, maintenance, and manufacturing of Electric Vehicle Supply Equipment (EVSE). No jobs are expected to be eliminated.

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

Some special trade construction businesses may be created. No business is expected to be eliminated.

**C. The expansion of businesses currently doing business within the State of California.**

The proposal is likely to promote the expansion of businesses currently involved in EV manufacturing, installation, maintenance, use and technology development.

**D. The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.**

Increases the sustainability of California's natural resources, and promotes public health by reducing fuel use, GHG emissions, and criteria pollutants.

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

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

The cost for installing mandatory measures has an estimated cost increase of about 0.1 percent to 1.4 percent for multifamily buildings and 0.5 percent to 1.1 percent for hotels/motels. Initial construction costs in new buildings of \$104 - \$183 million may be incurred between the beginning of 2023 and the end of 2025 due to the adoption of this proposed mandatory measure, or \$35 million to \$61 million annually. Additional costs may be incurred for ADA compliance which can vary greatly from property to property. Installing the same levels of EV infrastructure as required by the proposed mandatory

measure after construction would cost \$648 million to \$771 million over a three-year period if installed exclusively as standalone retrofits in existing buildings. An estimated statewide-avoided cost (benefit) of \$465 million to \$667 million may be achieved by adopting these revisions to the EV charging infrastructure provisions during new construction. Additional costs will be incurred for new requirements for existing buildings, depending on the nature and frequency of retrofit activities.

This measure will protect public health and safety, the environment, and the 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 are neither duplicative of nor conflict with federal regulation.

### **Rationale for Necessity.**

HCD proposed actions will continue to adopt, amend or repeal portions of the 2019 CALGreen into the 2022 CALGreen as part of the 2021 Triennial Code Adoption Cycle established by CBSC. The intent of the 2022 triennial version of CALGreen is to:

- (1) Continue reducing greenhouse gas (GHG) emissions from buildings.
- (2) Result in 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.
- (3) 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.

Proposed amendments in this rulemaking are also intended to provide further clarity, specificity and direction to the code user, and to implement and make specific existing state laws. Proposed amendments are a result of recommendations developed during the public participation period prior to submittal to CBSC. The rationale for each proposed amendment by chapter and section is listed below.

### **Specific Proposed Regulatory Actions:**

HCD proposes to continue adoption of the 2019 CALGreen with amendments into the 2022 CALGreen. The rationale for each regulatory action is listed below.

**Note:** There is no model code language associated with CALGreen; therefore, all language consists of California text.