

2014 REPORT TO THE LEGISLATURE

Status of the California Green Building Standards Code



**State Department of Housing and
Community Development**

September 2014

A Report on: **CALGreen**[®]

The California Green Building Standards Code

This report provides the California State Legislature information on updates proposed to the California Green Building Standards Code by the Department of Housing and Community Development during fiscal year 2013-2014, which ended on June 30, 2014.



State of California

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TABLE OF CONTENTS

Background.....2

Introduction3

Preface4

Summary of HCD Activities.....6

Upcoming Activities.....9

Exhibit A – Summary of Rulemaking Activity 10

Background

California Code of Regulations, Title 24, Part 11, the California Green Building Standards Code, commonly known as “CALGreen”, was a first-in-the-nation state-adopted green building code. The 2008 California Green Building Standards Code was a voluntary code first authorized by the Department of Housing and Community Development (HCD) and approved by the California Building Standards Commission (CBSC) in January 2008, with an effective date of August 2009.

During fiscal year 2009-2010, HCD proposed during the 2009 Triennial Code Adoption Cycle, to make the 2010 version of the CALGreen Code mandatory throughout the State. During this process, HCD solicited public input and reviewed, analyzed and evaluated the 2008 version of the California Green Building Standards Code for necessary updates. CALGreen works in harmony with California’s other mandatory construction codes and became effective throughout California on January 1, 2011.

There were several noteworthy changes to the 2010 CALGreen beyond its reorganization allowing users to easily distinguish low-rise residential provisions from the nonresidential provisions. The most significant amendment was the establishment of mandatory minimum requirements. This is a clear change from the 2008 CALGreen, which was a voluntary code, unless adopted as a mandatory requirement by a local enforcing agency. The mandatory provisions of CALGreen have also been identified in the scoping plan developed by the California Air Resources Board (ARB) as one of the tools to implement Chapter 488, Statutes of 2006 (AB 32). The scoping plan also contains guidance to encourage local jurisdictions to go above the mandatory code minimum.

A voluntary component was carried forward in the 2010 CALGreen, which coincided with the introduction of tiers. Tier 1 and Tier 2 were added to the 2010 CALGreen providing local enforcing agencies the ability to adopt consistent and streamlined methods to further enhance their local environment through green building construction measures beyond the mandatory minimum code requirements.

The voluntary portion of CALGreen has become increasingly popular in more progressive jurisdictions that desire to go above the mandatory code minimum. CALGreen contains voluntary tiers which may be used by local jurisdictions to further reduce greenhouse gas (GHG) emissions and promote even more sustainable construction practices.

Note: There are no extra fees required to use CALGreen, unlike some rating systems, such as LEED, GreenPoint Rated, or the Green Globes system which have additional licensing, certification, rating and/or verification costs. CALGreen is enforced by existing local enforcing agencies similar to California’s other building codes.

Introduction

During fiscal year (FY) 2013-2014, HCD built upon the foundation of CALGreen successes achieved over the past two Triennial Code Adoption Cycles. The 2013 CALGreen Code became effective January 1, 2014.

HCD's regulations are intended to provide the most overall impact and benefit while being mindful of housing conditions and enforcement challenges faced by local government. The expanded scope and application of CALGreen during the previous FY demonstrated a balance in responsible leadership and, at the same time, continued to advance California green building standards.

HCD maintained its leadership role during FY 2013-2014 by focusing on key administration to help achieve important greenhouse gas (GHG) reduction goals, including electric vehicle (EV) charging, the ZEV Action Plan, OPR's Streamlined Solar Photovoltaic (PV) Permitting, and Hydrogen Station Permitting. Additionally, HCD revised its commentary and companion document, which is now entitled *A Guide to the 2013 California Green Building Standards Code (Residential)*.

During the 2013 Intervening Code Adoption Cycle, the most significant change to the California Green Building Standards Code was HCD's proposal to relocate voluntary measures related to EV charging into mandatory requirements. In the case of multifamily development, it exceeded the January 1, 2016 implementation date mandated in Chapter 410, Chapter of 2013 (AB 1092) by eighteen (18) months.

HCD also answered the challenges of leadership to think "outside the box" proposing voluntary requirements for a streamlined solar PV permitting process. This voluntary measure challenges local jurisdictions that adopt enhanced green building measures to step-up their efforts by making streamlined PV permitting a CALGreen prerequisite measure for those who adopt Tier 1 or Tier 2 enhanced green standards. These proposals are reflected in Exhibit A.

Preface

The following report is prepared in accordance with Health and Safety Code Section 17928(b), which requires HCD to submit a report to each house of the California State Legislature no later than September 1 of each year. Health and Safety Code Section 17928 has been included below for reference and convenience. The following items one and two indicate the specific topic areas discussed in this report:

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

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 2013 California Green Building Standards Code (CALGreen), including any updates, HCD's rulemaking documents and this report can be viewed on HCD's website at <http://www.hcd.ca.gov>.

Hard copies are available upon request. Should you have any questions or require clarification, please contact HCD's State Housing Law staff at (916) 445-9471.

HCD reviewed the following green building guidelines, programs and resources related to proposed building standards during the past FY:

- 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 – 2011 “Standard for the Design of High-Performance Green Buildings”
- ANSI/ASHRAE Standard 62.2 – 2010 “Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings”
- 2012 ICC 700, National Green Building Standard
- 2012 International Green Construction Code (IgCC)
- IAPMO 2012 Green Plumbing and Mechanical Code Supplement

HCD used an open and transparent process holding focus group meetings on November 14, 2013 and January 23, 2014 to solicit additional input regarding proposed building standards. Numerous State agencies and various other stakeholder groups participated. HCD staff also attended the 2014 Green California Summit and Exposition and provided public outreach and training at other venues throughout the State. A brief summary of participants is listed below:

- Building officials
- Design professionals
- Representatives from the construction industry
- Representatives from building product manufacturers
- Representatives from model code writing bodies
- Representatives from the environmental community
- State agency representatives
- Public members
- Public utility representatives
- Representatives from the disabled access community

Summary of HCD Activities

Since its inception, HCD has participated in the Solar Permitting Guidebook Task Force convened by the Governor's Office of Planning and Research (OPR). As an active task force member, HCD and other stakeholders are currently reviewing the 1st edition (June 2012 version) of the *California Solar Permitting Guidebook* for updates to current standards. As part of this updating process, the task force is evaluating and intends to include standard structural and electrical plans for small solar PV systems and eligibility checklists for systems appropriate for a streamlined permitting and inspection process. This task force will be continuing its efforts into FY 2014-2015.

HCD has been actively working with the Governor's Office and other State agencies on updating the Governor's 2013 ZEV (Zero-Emission Vehicle) Action Plan. As part of the ZEV Action Plan directive, HCD has proposed mandatory electric vehicle charging infrastructure requirements. Multifamily housing includes a specified percentage (3 percent) of multifamily parking spaces to have capability for future EV charging (see Section 4.106.4.2 for details on the proposed rulemaking). The ZEV Action Plan committee will be continuing its efforts into FY 2014-2015, and HCD will be updating the committee on the status of HCD's proposed requirements related to EV charging after the 2013 Intervening Code Adoption Cycle ends in October 2014.

HCD has also been working with the Governor's Office of Business and Economic Development on the Interagency Hydrogen Station Workgroup. HCD is in the process of determining where it can help guide the successful roll-out of hydrogen fueling stations and fuel-cell electric vehicles (FCEVs). Although the major efforts for hydrogen fueling stations are commercial stations, and fuel-cell electric vehicles are primarily concentrated in the Southern California region at present, HCD will continue to participate in the Workgroup in anticipation of the expansion of statewide fueling stations and increased use of fuel-cell vehicles by private residents.

HCD has participated in PG&E sponsored training on energy efficiency in residential hot water systems such as "Best Practices in Residential Hot Water Systems" and "Water Heaters: Past, Present, & Future."

Additionally, HCD has been closely involved in the California Air Resources Board (ARB) meetings on the status of the United States Environmental Protection Agency (EPA) regulations and ARB's amendments. HCD also attended ARB meetings on composite wood regulations and a workshop on "Kitchen Ventilation Solutions to Indoor Air Pollution Hazards from Cooking." HCD staff attended the 2014 Green California Summit and Exposition and answered questions from the public at the California Building Standards Commission (CBSC)/HCD booth. HCD staff were presenters for the "CALGreen Update" workshop. Other State Housing Law Program staff also attended the following meetings:

- Conservation Strategies for Landscape Irrigation
- Grey, Purple, Green: Water from Policy to Pipe
- The Last Mile: Energy Goals, Building Codes and Local Enforcement
- Zero Net Energy Buildings: Practices, Policies, and Performance
- Sustainable Communities: Solar and Solar Job Training for Low-Income Communities

HCD had the opportunity to work with the California Energy Commission (CEC) and attend staff workshops on the effort to develop a roadmap for inclusion of additional water heater efficiency requirements in future updates to the Building Energy Efficiency Standards. HCD participated in the draft reviews of the *2016 Building Energy Efficiency Standards* and *Zero Net Energy Action Plan*. HCD consulted with CEC on the delayed effective date of the 2013 California Energy Code and the energy requirements in the 2013 CALGreen.

HCD staff attended various meetings including the BayREN May Forum on Regional Best Practices in Green Building Policy and the Public Utility Commission's Zero Net Energy. HCD continued with its outreach by presenting updates to CALGreen as part of the ICC TriChapters' series of classes to assist building officials, architects, contractors, and other industry stakeholders to prepare for enforcing the new 2013 California Building Standards Code. HCD completed activities related to the review and publication of the *Housing and Community Development Electric Vehicle Readiness Study* which was funded by the California Energy Commission, Fuels and Transportation Division and developed by Consol as a subcontractor/consultant with HCD oversight. HCD held focus group meetings and asked for stakeholder input throughout the process of developing electric vehicle (EV) charging regulations for one- and two-family homes, townhouses, and multifamily housing. These proposed regulations were presented to the CBSC Code Advisory Committee for review and recommendations.

HCD held multiple meetings with the CBSC on electric vehicle charging regulations. HCD also consulted with the Green Building and Mechanical Engineering Section, Los Angeles Department of Building and Safety and the New York City Sustainability Office regarding electric vehicle charging issues.

During the 2013-2014 California Legislative session, HCD staff continued to review and analyze proposed legislation related to green building standards. Due to the broad scope of CALGreen, the issues that were analyzed varied considerably, e.g., sub-metering of potable water in multifamily dwellings, mandates for recycled water piping in residential dwellings, electric vehicle use and charging. Two significant legislative measures were approved by the Governor during FY 2013-2014.

AB 1092 required HCD to propose mandatory building standards for the installation of infrastructure for future EV charging for multifamily dwellings. This bill also required HCD to use specified CALGreen provisions as the starting point for these regulations. The proposed regulations were to be submitted to CBSC for adoption, approval, codification and publication as part of the next triennial version (2016) of the California Building Standards Code. HCD developed proposed regulations for EV charging in one- and two-family homes, townhouses, and multifamily housing and submitted these proposed regulations to the CBSC on July 22, 2014 where the regulations were approved as amended. HCD is still finalizing the regulations and will go before the CBSC again in October 2014. HCD's rulemaking documents are available at <http://www.hcd.ca.gov/calgreen.html>.

Chapter 585, Statutes of 2013 (AB 341) allows State agencies which have expertise in green building subject areas, other than State agencies that routinely propose green building standards, to submit input related to green building standards. AB 341 also required the development of a regulatory process for this provision. AB 341 clarified that funds from the Building Standards Administration Special Revolving Fund may be used for training for local building officials in jurisdictions that adopt Tier 1 or Tier 2 green building standards.

Chapter 587, Statutes of 2009 (SB 407) established requirements that after January 1, 2014, all building alterations or improvements to single-family residential real property, replace noncompliant plumbing fixtures with water-conserving plumbing fixtures. These requirements were added to the Civil Code. HCD developed and proposed amendments to the California Plumbing Code and CALGreen which inserted “notes” that directed the code user to the Civil Code for these plumbing requirements. Below is a summary of changes proposed during the 2013 Intervening Code Adoption Cycle (effective during FY 2014-2015):

- Proposed amendment to the definition of “ELECTRIC VEHICLE (EV)” by adding electric motorcycles to the list of automotive-type vehicles for on-road use. *[Refer to Exhibit A, Item No. 2]*
- Added new definitions for “ELECTRIC VEHICLE CHARGING STATION(S) (EVCS)” and SMALL SOLAR PHOTOVOLTAIC (PV) SYSTEM.” *[Refer to Exhibit A, Item No. 2]*
- Proposed adoption of mandatory “Electric vehicle charging and infrastructure requirements for new construction.” *[Refer to Exhibit A, Items No.3, 4, 5, 6, 7, 8, 9, 10, 11]*
- Proposed Tier 1 and Tier 2 requirements for a streamlined permitting and inspection process for Small Solar Photovoltaic (PV) Systems. *[Refer to Exhibit A, Item No. 21]*

Note: See Exhibit A for complete rulemaking activity

Upcoming Activities

During the remainder of FY 2014-15, HCD will continue to perform the following activities:

- Evaluate necessary amendments to CALGreen for the 2015 Triennial Code Adoption Cycle based on enacted legislation, executive orders, new technology, completed studies and stakeholder input.
- Continue outreach and education to the general public, local enforcing agencies, industry professionals, and other stakeholders throughout the State.

Include articles in HCD's internal and external newsletters about CALGreen, solar permitting, ZEV action plans and other related topics.

- Consult with local enforcing agencies to verify implementation and enforcement as well as the successes and challenges of CALGreen as the economy continues to improve and demand for single and multifamily dwellings increase.
- Continue working with OPR as an active participant in the Solar Permitting Guidebook Task Force.
- Continue working with the Governor's Office and other State agencies on updating the Governor's 2013 ZEV (Zero-Emission Vehicle) Action Plan.
- Continue to participate in the Governor's Office Interagency Hydrogen Station Workgroup and provide support in anticipation of the expansion of the charging stations statewide and increased use of fuel-cell EV by private residents. HCD will also continue to participate in the Workgroup's development of the *H2 Permitting Guidebook*, which provides guides, resources and best practices for planning or permitting hydrogen fueling stations.
- Monitor the EV industry as new technology emerges to determine how best to develop building standards for EV charging in single- and multi-family dwellings.
- Develop and finalize proposed adoption of CALGreen regulations related to EV charging station dimensions and locations.

Exhibit A

Summary of Rulemaking Activity

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
2013 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN)
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 11

Rationale for Necessity

The 2013 California Green Building Standards Code (CALGreen) became effective on January 1, 2014. HCD has developed amendments to the 2013 CALGreen Code to incorporate updates and corrections to regulations, which will benefit the health, safety and general welfare of California residents by continuing to reduce greenhouse gas emissions, promote a reduction in detrimental environmental impacts, and 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 with an emphasis on zero-emission vehicles and supporting infrastructure.

The proposed changes to the 2013 CALGreen Code are necessary to provide clarity and consistency for enforcement and application with regard to statewide needs and to address conditions unique to California.

Specific Proposed Regulatory Actions:

HCD proposes to amend the 2013 CALGreen Code. The rationale for each amendment is listed below.

1. CHAPTER 1 ADMINISTRATION

SECTION: 104.1 Scope.

Rationale: HCD proposes to amend the above referenced section by adding a title to the section and deleting an outdated reference to the Matrix Adoption Table. This proposal is consistent with the format of prior proposals related to section titles and deletion of references to the Matrix Adoption Tables in the Building Standards Codes. There is no intended change in regulatory effect.

2. CHAPTER 2 DEFINITIONS

SECTION: 202 Definitions.

Rationale: HCD proposes to amend the definition of "ELECTRIC VEHICLE (EV)" by adding electric motorcycles to the list of automotive-type vehicles for on-road use. This proposal would provide consistency in definitions between the 2013 CALGreen Code and the 2013 California Electrical Code.

HCD proposes to adopt the definition "ELECTRIC VEHICLE CHARGING STATION(S) (EVCS)". The term is used in Sections 4.106.4.2 and A4.106.8.2 to define a common-use area that is intended to facilitate future common-use electric vehicle charging.

HCD also proposes to adopt a definition for "SMALL SOLAR PHOTOVOLTAIC (PV) SYSTEM", which is referenced in the proposed new Section A4.107.2. The definition informs the code user as to the maximum electrical output capacity in kW of the PV system referenced in the proposed new section.

3. CHAPTER 4 RESIDENTIAL MANDATORY MEASURES

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

Rationale: HCD proposes to adopt the above referenced section bringing forward provisions from Section A4.106.8 (voluntary measures) as a mandatory requirement with additional revisions.

HCD's proposed regulations facilitate implementation of the Governor's Executive Order B-16-2012 and benchmark of putting over 1.5 million zero-emission vehicles on California roadways by 2025. In addition, the Governor's Interagency Working Group on Zero-Emission Vehicles, "2013 ZEV Action Plan," designates HCD as the lead agency for considering amendments to the California Building Standards Code to ensure new residential buildings are ZEV-ready and requiring multi-unit buildings to dedicate a portion of their parking lots for EV charging.

HCD's proposal facilitates EV charging capability (infrastructure) incentivizing the purchase and use of EVs for transportation purposes. Requiring infrastructure reduces impediments such as a lack of ability to quickly charge EVs at home. The HCD proposal will result in significant cost savings for homeowners and mitigate retroactive installation of supply equipment in existing dwellings. This can be seen positively by a consumer and increase confidence in the decision to purchase an EV. To meet the Administration's goals, multifamily developments will need to accommodate tenants who require EV charging services. This proposal will result in similar benefit and savings in multifamily dwellings.

Additionally, the California Air Resources Board's "Cleaner Transportation – Proposed First Update to the Climate Change Scoping Plan: Building on the Framework" states that California's transportation system accounts for approximately 38 percent of California's greenhouse gas (GHG) emissions and is the primary source of smog-forming and toxic air pollution in the State. The Plan further states that part of reducing California's GHG emission goals will require improving vehicle efficiency and developing zero emission technologies, planning and building communities to reduce vehicular GHG emissions, and provide more transportation options. HCD's proposed regulations help to further these goals.

Research on California's readiness for EV charging was conducted with funding from the California Energy Commission's Alternative and Renewable Fuel and Vehicle Technology Program. This funding enabled HCD to establish a steering committee to develop scope of work, hire a subcontractor (ConSol) to conduct research, compile and evaluate data, and formulate conclusions on EV charging technology, code requirements, costs for various levels of installations, and identify conditions which may not support EV charging. This information is included in a report called the "Electric Vehicle Readiness Study" (as prepared for HCD) and is available on HCD's website at http://www.hcd.ca.gov/codes/calgreen/EV_Readiness_Report_Complete.pdf.

Cost information will be derived from the study unless otherwise indicated.

HCD proposes to adopt Section 4.106.4, mandatory EV charging requirements in new construction. Section 4.106.4 references the California Electrical Code, Article 625, which addresses requirements for installation of electrical equipment associated with EV charging.

HCD proposes two exceptions. The exceptions were identified by stakeholders and the Electric Vehicle Readiness Study prepared for HCD by ConSol. Exceptions will need continued evaluation based upon advances in technology and as public charging opportunities increase.

Exception 1 "Where there is no commercial power supply".

Exception 2 "Where there is evidence substantiating that meeting the requirements will alter the local utility infrastructure decision requirements on the utility side of the meter so as to increase the utility side cost to the homeowner or the developer by more the \$400 per dwelling unit."

4. CHAPTER 4 RESIDENTIAL MANDATORY MEASURES

SECTION: 4.106.4.1 New one- and two-family dwellings and townhouses with attached private garages.

Rationale: HCD proposes to adopt the above referenced section bringing forward provisions from Section A4.106.8.1 (voluntary elective) as a mandatory requirement with additional revisions. Proposed Section 4.106.4.1 is a mandatory requirement in residential new construction, which also includes townhouses with attached private garages; specifies the voltage of the future branch circuit as 208/240-volt; and specifies that the service panel or subpanel shall have sufficient space and capacity to accommodate a 40-ampere minimum dedicated branch circuit, including an overcurrent protective device (circuit breaker).

The proposed EV charging requirement for one- and two-family dwellings and townhouses with attached private garages is only for a raceway (no wiring) with a specified minimum size. The minimum size ensures that conductors (wiring) of up to 80 amperes may be accommodated if desired by the EV user or for EV vehicles capable of faster recharge rates. This raceway-only requirement is being proposed to accommodate situations in which a resident selects EV use several years after the structure is built. Although comments have been received that the size of EV batteries may not change considerably during the effective period of the 2013 CALGreen, the buildings are intended to last much longer. The raceway option literally provides a conduit for supporting appropriately sized conductors when EV charging becomes a need for the resident. In addition, the conduit also facilitates easy replacement of any conductors that have been installed if the conductors are damaged or need to be upgraded. A raceway-only installation eliminates concerns for live unused wires or wasted copper wiring. The service panel or subpanel requirements ensure that the panel or subpanel will have sufficient space for the overcurrent protective devices and ampacity to support future EV charging of at least 40-ampere minimum.

Cost analysis: The raceway-only option has minimal cost with minor variations depending on distances from the panel to the proposed location of EV charging. HCD's proposal only requires installation of the raceway (conduit); and sufficient panel electrical capacity (amperage) and physical capacity to accommodate a 40-ampere minimum branch circuit and overcurrent protective device (circuit breaker). An electrical panel is already required pursuant to the 2013 California Electrical Code for purposes of controlling circuits for a building. The panel will be selected according to the service load to the dwelling and the number of spaces required for the number of branch circuits and associated overcurrent protective devices. The EV charging infrastructure requirements would not, in most cases, require upsizing of a panel from a typical 200-ampere panel. Since the 2013 California Electrical Code no longer limits the number of spaces in panels (42 spaces maximum in prior codes), a panel with the appropriate amperage and number of spaces would be selected to accommodate the planned circuits, overcurrent protective devices, extra space for solar zone if required by the California Energy Code, and the circuit and overcurrent protective devices designated for future EV charging. The EV raceway would be part of the electrical plan, bid and permit for the residence. Based on all of the above, HCD estimates some components costs for a single-family home to be approximately \$50.00 as illustrated in the table below. It should be noted that costs may be lower depending on quantity discounts for materials.

Item	Cost	Quantity	Total
1" conduit 10' long	6.77	2	13.54
1" set screw, pack of 10; \$4.23 per box	.43	1	.43
2-1/8" deep, 4-11/16" square box, pack of 25, \$91.25 per box, \$3.65 each	3.65	1	3.65
1" threadless compression conduit connector	6.60	2	13.20
4" box cover plate/50 amp plate	1.20	1	1.20
Labor to mount j-box and run conduit ¼ hour @ 73.00 per hour	18.25	1	18.25
			53.15
Source: ConSol, 2013, "Electric Vehicle Readiness Study," as prepared for Dept. of Housing & Community Department.			

HCD recognizes that full implementation for EV charging, which will include plug-in ready components, will necessitate additional costs, including permit fees, labor costs for installation of conductors, receptacles and overcurrent protective devices. However, the proposed installation of conduit and panel sizing has the potential to result in significant cost savings compared to retroactive installation of this infrastructure for EV charging as detailed by ConSol's report. Some builders have offered EV charging capability as a separate \$250.00 option for new homes. The typical cost to facilitate EV charging (Level 2 @ 40 amperes) after construction of the home has been estimated at approximately \$3,500.00; however, the cost could be higher depending on the need to increase the utility service to the dwelling, panel upgrades, distances from the panel to the vehicular area, need for removing materials and pulling wiring through enclosed spaces, possible trenching, possible costs related to inadequate utility infrastructure, etc.

5. CHAPTER 4 RESIDENTIAL MANDATORY MEASURES

SECTION: 4.106.4.1.1 Identification.

Rationale: HCD proposes to adopt the above referenced section. This section requires identification of the proposed or reserved overcurrent protective device (circuit breaker) space(s) assigned to the EV charging circuit at the service panel or subpanel as "EV CAPABLE." Identification is also required at the termination point. The title of this section has been changed from "Labeling requirement," in the existing voluntary measure to differentiate it from the formal "labeling" by organizations or manufacturers. There is minimal cost impact for implementation (e.g., permanent ink marker or durable pencil) due to existing requirements in the California Electrical Code, Sections 110.22 and 408.4, which, in part, requires identification at the circuit directory in panels or subpanels to be durably marked without requiring a specific method or material. A similar method of identification could also be used at the raceway termination point.

**6. CHAPTER 4
RESIDENTIAL MANDATORY MEASURES**

SECTION: 4.106.4.2 New multifamily dwellings.

Rationale: HCD proposes to adopt the above referenced section bringing forward provisions from Section A4.106.8.2 (voluntary) as a mandatory requirement with additional revisions. In addition to the background information discussed for Section 4.106.4, Assembly Bill 1092 (Chapter 410/Statutes of 2013) directed HCD to propose mandatory building standards for installation of future EV charging infrastructure for parking spaces in multifamily dwellings. The statute directed HCD to use existing measures in CALGreen (Section A4.106.8 as corrected) as a “starting point” for the proposed standards. The proposed building standards would be available for adoption in the next triennial edition (2016 version effective January 1, 2017) of the building standards code; therefore, HCD’s current proposal is in advance of the statutory directive.

Section 4.106.4.2 clarifies application to only projects with 17 or more multifamily dwelling units. This section requires the number of electric vehicle charging stations (EVCS) to be based on 3 percent of the total number of all parking spaces in all types of parking facilities. A design minimum of one EVCS is required.

This section clarifies that EVCS are to be provided in addition to the number of parking spaces required by local parking regulations. Parking space provisions may also be addressed in local zoning ordinances, development agreements or other similar local policies.

It is important to note that HCD’s proposal does not mandate construction of the EVCS or installation of an EV charger. The primary intent is to provide infrastructure to facilitate EV charging, as a service, to multifamily dwellings. Multifamily dwellings accommodate 34 percent of Californians and are faced with unique criteria related to EV charging including parking access, electrical service access, installation and operation costs and agreements between property owners/managers and tenants. (Source: November 2013, California Plug-In Electric Vehicle Collaborative, “Plug-in Electric Vehicle Charging Infrastructure Guidelines for Multi-unit Dwellings.”)

**7. CHAPTER 4
RESIDENTIAL MANDATORY MEASURES**

SECTION: 4.106.4.2.1 Electric vehicle charging station (EVCS) dimensions and slope.

Rationale: HCD proposes to adopt the above referenced section, which clarifies minimum dimensions for EVCS.

The HCD proposal requires EVCS to have a length of 18 feet to provide adequate distance for working space in front of the vehicle and the charging equipment. A minimum width of 9 feet is required (wider than standard smaller parking space size) to provide EV users sufficient room to detach the EV connector from the charger, attach/detach it to and from the vehicle, and reattach it to the charger unit. Depending on the EV being charged, the charge ports may be located on either side, towards the front or rear, or directly on the front of the vehicle. This uncertainty is compounded by the unknown width of the EV being charged, which may be as wide as 6 feet 10 inches. Therefore, HCD believes the 9-foot width is the minimum to facilitate usability, especially since the trend is for mid-sized or larger EVs.

HCD proposes that one in every 25 EVCS, but not less than one space, be a wider location than the “standard” EVCS capable of being used by all users. For this EVCS, an adjacent 5-foot aisle is required, making the total EVCS width, including the aisle, 14 feet. Additionally, HCD’s proposal requires this universal EVCS, including the aisle, have a slope of not greater than 2.083 percent which is capable of being used by all users. This EVCS would provide persons with or without disabilities the same opportunity to use the EV charger. The proposed ratios for the larger EVSC vs. “standard” EVCS were recommendations from ECOTality North America’s 2011 document “EV Project: Accessibility at Public EV Charging Locations”, which considered design requirements from the 2010 Americans with Disabilities Act.

**8. CHAPTER 4
RESIDENTIAL MANDATORY MEASURES**

SECTION: 4.106.4.2.2 Electric vehicle charging station (EVCS) locations.

Rationale: HCD proposes to adopt the above referenced section, which identifies additional considerations and requirements when EV chargers (off-board) are installed in EVCS complying with Section 4.106.4.2.1, including aisle and slope requirements. At least one EVCS is required to be located and available for use by all residents in common use areas. An EVCS requiring aisle and slope requirements shall be located on an accessible route; preferably adjacent to an accessible parking space, which would facilitate use of the charger from the accessible parking space or universal EVCS.

HCD's proposal provides access to both persons with or without disabilities pursuant to requirements of Fair Housing laws (Federal Fair Housing Act, State Fair Employment and Housing Act, and the Unruh Civil Rights Act design requirements) because the housing development would be on private property and not open to the general public. If an EVCS is located in compliance with Item 1, the EV charger, when installed, would be usable from the accessible parking space, however, the adjacent EVCS would also have the dimensions, including access aisle, and slope to accommodate persons with disabilities. Therefore, two locations would be available for use of the EV charger. If an EVCS is located in compliance with Item 2, the EVCS would be located on an accessible route meeting CBC Chapter 11A requirements. HCD believes that the proposal provides access, as the EVCS would be available to the first person present to use the EVCS. The EVCS discussed in this section would be available for all EV users, therefore, would not require any special signage as required by CBC, Chapter 11A.

This section does not require the actual construction of EVCS in the common use location. This section only requires that construction documents demonstrate that the EVCS can be accommodated on the site when it becomes fully functional with an EV charger installed. This section also does not mandate that the EV charger be installed, but only provides requirements if and when the EV charger is installed. There are no fiscal impacts associated with implementation of this section.

9. CHAPTER 4 RESIDENTIAL MANDATORY MEASURES

SECTION: 4.106.4.2.3 Single EVCS required.

Rationale: HCD proposes to adopt the above referenced section, which requires only a raceway, as specified, for future EV charging purposes when only a single charging location is required. This section clarifies that approved construction plans would indicate the location of the termination of the raceway. The service panel or subpanel requirements ensure that the panel or subpanel will have sufficient space for the overcurrent protective device(s) and amperage to support future EV charging at a 40-ampere minimum level.

Cost analysis: The raceway-only option has minimal cost with minor variations depending on distances from the panel to the proposed location of the EV charging service. HCD's proposal only requires installation of the raceway (conduit); and sufficient panel electrical capacity (amperage) and physical capacity to accommodate a 40-ampere minimum branch circuit and overcurrent protective device (circuit breaker). An electrical panel is already required pursuant to the 2013 California Electrical Code for purposes of controlling circuits for a building. The panel will be selected according to the service load to the area of the proposed EV charging service and the number of spaces required for the number of branch circuits and associated overcurrent protective devices. The 2013 California Electrical Code no longer limits the number of spaces in panels (42 spaces maximum in prior codes), a panel with the appropriate amperage and number of spaces would be selected to accommodate the planned circuits, overcurrent protective devices, extra space for solar zone if required by the California Energy Code, and the circuit and overcurrent protective devices designated for future EV charging. The EV raceway would be part of the electrical plan, bid and permit for the multifamily building.

Based on all of the above, HCD estimates some components costs for a single installation (not per dwelling unit) as \$110.00 with components similar to those discussed for Section 4.106.4.1 (1- and 2-family dwellings), with a possibility of longer raceway runs and possibly requiring a dedicated panel depending on the number of installations.

In rare cases, EV charging loads may necessitate additional transformers with sub-surface transformers having twice the impact of pad-mounted transformers. However, according to ConSol's EV Readiness Study, the addition of Level 2 EV chargers (mid-Level 2 is 40 amperes) will have minimal cost impact to the utility infrastructure. The main cost would result from updating electrical service from 200 amperes to 400 amperes; however, this should not be necessary for only one EVCS. Depending on the number of these installations, a dedicated panel may be required. Costs may be lower than identified depending on quantity discounts for materials.

HCD recognizes that full implementation for EV charging services, which will include plug-in ready components, will necessitate additional costs, including permit fees, labor costs for installation of conductors, receptacles and overcurrent protective devices. However, the proposed installation of conduit and panel sizing has the potential to result in significant cost savings compared to retroactive installation of this infrastructure for EV charging as detailed by ConSol's report. This proposal also reduces some impediments for EV charging such as might be faced by residents in multifamily dwellings, especially if EV charging services are requested by a small number of residents in existing buildings.

Some builders have offered EV charging capability as a separate \$250.00 option for new homes. The typical cost to facilitate EV charging (Level 2; 40 amperes) after construction of the home has been estimated at approximately \$3,500.00; however, the cost could be higher depending on the need to increase levels of service to the dwelling, panel upgrades, distances from the panel to the vehicular area, need for removing materials and pulling wiring through enclosed spaces, possible trenching, possible costs related to inadequate utility infrastructure, etc.

**10. CHAPTER 4
RESIDENTIAL MANDATORY MEASURES**

SECTION: 4.106.4.2.4 Multiple EVCS required.

Rationale: HCD proposes to adopt the above referenced section, which requires specified criteria to be included in construction documents to ensure infrastructure will be capable of supporting future EV chargers and simultaneous EV charging at full amperage of the EVSE at all EVCS. This section requires plan design to be based on a 40-ampere minimum branch circuit and that construction documents indicate the location of the termination of the raceway. This section requires that only raceways and related components (underground, overhead, through firewalls) are required to be installed at the time of construction to avoid future retrofit costs, e.g., trenching or tunneling in surfaced areas or demolition.

EV and EV charging technology is rapidly evolving so much so that charger technology, capability and demand may change by the time that an actual EV charger is installed on a building site. It is acknowledged that due to these rapidly changing technologies, codes cannot address every possible design configuration or type of equipment, e.g., multi-port EV chargers. The code authorizes enforcing agencies some discretion for these situations with the ability to evaluate each situation on a case-by-case application.

Cost analysis: Unlike the previous section, this section requires installation of raceways when they are planned to be installed underground, inaccessible, or within concealed areas and spaces for final installation of EV chargers. This helps avoid additional costs associated with installing these components after construction of a paved parking lot, landscaping or structural/architectural elements.

This section primarily focuses on ensuring that the multifamily building has sufficient electrical capacity to facilitate EV charging for all required EVCS. The configuration of these buildings varies considerably from low rises (up to three stories) or high rises (above 3 stories) with parking underground, parking on an adjacent lot, parking in a separate single story or multistory structure, on-street parking, etc.

HCD recognizes that full implementation for EV charging services, which will include plug-in ready components, will necessitate additional costs, including permit fees, labor costs for installation of conductors, receptacles and overcurrent protective devices. The typical cost to facilitate EV charging (Level 2; 40 amperes) after construction has been estimated at approximately \$3,500.00; however, the cost could be higher depending on the need to increase levels of service to the dwelling, panel upgrades, distances from the panel to the vehicular area, need for removing materials and pulling wiring through enclosed spaces, possible trenching, possible costs related to inadequate utility infrastructure, etc.

**11. CHAPTER 4
RESIDENTIAL MANDATORY MEASURES**

SECTION: 4.106.4.2.5 Identification and “Notes”

Rationale: HCD proposes to adopt the above referenced section. The section requires identification of the proposed or reserved overcurrent protective device (circuit breaker) space(s) assigned to the EV charging circuit at the service panel or subpanel as “EV CAPABLE.” The title of this section has been changed from “Labeling requirement,” in the existing voluntary measure, to differentiate it from the formal “labeling” by organizations or manufacturers. There is minimal cost impact for implementation (e.g., permanent ink marker or durable pencil) due to existing requirements in the California Electrical Code, Sections 110.22 and 408.4, which, in part, requires identification at the circuit directory in panels or subpanels to be durably marked without specificity for method or material.

HCD also proposes to adopt the above referenced “Notes” at the end of Section 4.106.4, directly following Section 4.106.4.2.5, providing resources related to EV charging signage, guidelines, accessibility recommendations, etc. These Notes are a listing of resources only. There is no cost for implementation.

**12. CHAPTER 4
RESIDENTIAL MANDATORY MEASURES**

TABLE 4.504.3 VOC Content Limits for Architectural Coatings

Rationale: HCD proposes to amend the above referenced Table 4.504.3 by deleting the column with an outdated effective date of January 1, 2012, deleting references to effective dates, and changing the VOC content limits for “rust preventative coatings” and “specialty primers, sealers, and undercoaters” to reflect current requirements. There is no fiscal impact since proposed changes are editorial and standards are currently in effect.

**13. CHAPTER 4
RESIDENTIAL MANDATORY MEASURES**

SECTION: 4.504.4 Resilient Flooring Systems.

Rationale: HCD proposes to amend the above referenced section to clarify the criteria used by the Collaborative for High Performance Schools (CHPS) as the California Department of Public Health’s “Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers”, Version 1.1, February 2010 (also known as Specification 01350). There is no intended change in regulatory effect or fiscal impact.

The changes also reflect a name change from GREENGUARD Children & Schools program to UL GREENGUARD Gold. This is a name change only that occurred in early 2013; however, the standards on which certification is based remain the same. (The GREENGUARD Gold Certified products also must comply with the California Department of Public Health’s “Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers”, Version 1.1, February 2010 (also known as Specification 01350). According to UL, manufacturers have three years to comply with the change. There is no intended change in regulatory effect. There is no fiscal impact due to the proposed regulation although there may be costs related to UL’s requirement for manufacturers to use the new designation.

**14. APPENDIX A4
RESIDENTIAL VOLUNTARY MEASURES**

SECTION: A4.106.8 Electric Vehicle Charging for New Construction.

Rationale: HCD proposes to repeal existing Section A4.106.8, which provides a summary of requirements for voluntary measures related to EV charging.

HCD proposes to adopt a new Section A4.106.8, which clarifies application to new construction and provides general requirements and a reference to the California Electrical Code, specifically Article 625, addressing EV charging. This section is an introduction to the voluntary EV charging measures available for adoption by local agencies and has no mandatory fiscal effect.

**15. APPENDIX A4
RESIDENTIAL VOLUNTARY MEASURES**

SECTION: A4.106.8.1 New One- and Two-Family Dwellings and Townhouses with Attached Private Garages.

Rationale: HCD proposes to repeal existing Section A4.106.8.1 addressing raceway-only installation for future EV charging purposes in one- and two-family dwellings. This repeal is related to the new mandatory residential provisions for EV charging in the proposed new Section 4.106.4.1. This repeal has no mandatory fiscal effect since it was a voluntary measure available for adoption by local agencies.

HCD proposes to adopt a new Section A4.106.8.1, which provides a Tier 1 and Tier 2 prerequisite measure for EV charging for one- and two-family dwellings and townhouses with attached private garages. This Tier 1/Tier 2 measure, if adopted by a local enforcing agency, will require a 208/240-volt dedicated branch circuit of 40-ampere minimum and associated overcurrent protective device. Panel sizing will be pursuant to the California Electrical Code to accommodate the required dedicated branch circuit and overcurrent protective device. This section also clarifies that other related electrical components to EV charger use be installed in accordance with the California Electrical Code.

This is a voluntary measure available for adoption by local agencies and has no mandatory fiscal effect. (See Section 4.106.4 for additional history.)

**16. APPENDIX A4
RESIDENTIAL VOLUNTARY MEASURES**

SECTION: A4.106.8.1.1 Identification.

Rationale: HCD proposes to amend the above referenced section requiring the identification of the overcurrent protective device for the branch circuit at the service panel or subpanel as “EV READY” and also at the receptacle or blank cover. The title of this section has been changed from “Labeling requirement,” in the existing voluntary measure, to differentiate it from the

formal “labeling” by organizations or manufacturers. There is minimal cost impact for implementation (e.g., permanent ink marker or durable pencil) due to existing requirements in the California Electrical Code, Sections 110.22 and 408.4, which, in part, requires identification at the circuit directory in panels or subpanels to be durably marked without specificity for method or material. A similar method could also be used for identification at the receptacle or blank cover, whichever is used.

17. APPENDIX A4 RESIDENTIAL VOLUNTARY MEASURES

SECTION: A4.106.8.2 New Multifamily Dwellings and “Notes”

Rationale: HCD proposes to amend the above referenced section addressing EV charging services for multifamily dwellings, which includes a requirement for 3 percent of parking spaces, but not less than one, to be capable of supporting EV charging equipment. HCD proposes to identify this section as a Tier 1 and Tier 2 measure and to increase the required percentage of EVCS to 5 percent of total parking spaces. This section would reference the similar mandatory Section 4.106.4.2 for additional requirements. This amendment has no mandatory fiscal effect since it was and will remain a voluntary measure available for adoption by local agencies.

HCD also proposes to adopt the above referenced “Notes” at the very end of Section A4.106.8 providing resources related to EV charging signage, guidelines, accessibility recommendations, etc. These Notes are a listing of resources only. There is no cost for implementation.

18. APPENDIX A4 RESIDENTIAL VOLUNTARY MEASURES

SECTION: A4.106.8.2.1 Single Charging Space Required.

Rationale: HCD proposes to repeal existing Section A4.106.8.2.1 addressing a single charging space. This repeal is related to the new mandatory residential provisions for EV charging in proposed new Section 4.106.4.2.3. This repeal has no mandatory fiscal effect since it was a voluntary measure available for adoption by local enforcing agencies.

19. APPENDIX A4 RESIDENTIAL VOLUNTARY MEASURES

SECTION: A4.106.8.2.2 Multiple Charging Spaces Required.

Rationale: HCD proposes to repeal existing Section A4.106.8.2.2 addressing multiple charging spaces. This repeal is related to the new mandatory residential provisions for EV charging in proposed new Section 4.106.4.2.4. This repeal has no mandatory fiscal effect since it was a voluntary measure available for adoption by local enforcing agencies.

20. APPENDIX A4 RESIDENTIAL VOLUNTARY MEASURES

SECTION: A4.106.8.2.3 Labeling Requirement.

Rationale: HCD proposes to repeal the above referenced section. This repeal is related to the mandatory residential provisions for EV charging in proposed new Section 4.106.4.2.5. There is no mandatory fiscal effect since it was a voluntary measure available for adoption by local agencies.

**21. APPENDIX A4
RESIDENTIAL VOLUNTARY MEASURES**

SECTION: A4.107 SOLAR PHOTOVOLTAIC (PV) SYSTEMS
SECTION: A4.107.1 General.
SECTION: A4.107.2 Small Solar Photovoltaic Systems Streamlined Permitting Process.

Rationale: HCD proposes to renumber existing Section A4.107 to Section A4.108 and adopt new Sections A4.107, A4.107.1 and A4.107.2, which introduce Tier 1 and Tier 2 requirements for a streamlined permitting and inspection process for Small Solar Photovoltaic (PV) Systems as defined in Chapter 2. Certain provisions are based upon the recommendations in the *California Solar Permitting Guidebook*, published June 2012, which was developed by the Governor's Office of Planning and Research (OPR), Solar Permitting Work Group.

Jurisdictions that adopt Tier 1 have a choice of either developing their own local streamlined permitting process, which contains some of the elements in the *California Solar Permitting Guidebook*, or they may choose to adopt the streamlined permitting process and forms contained in the *California Solar Permitting Guidebook*. Adoption of Tier 1 will require jurisdictions to implement 3 basic elements of permit streamlining, which include: a standard checklist identifying the required documentation to be submitted with the permit application; a standard plan for describing the proposed solar PV system; and an inspection checklist identifying all elements of the solar PV system to be inspected before final approval.

Jurisdictions that adopt Tier 2 will have an additional requirement to implement a web-based permit application and issuance system and a streamlined inspection process of their own design, or based upon the *California Solar Permitting Guidebook*.

This is a voluntary measure available for adoption by local agencies and has no mandatory fiscal effect.

**22. APPENDIX A4
RESIDENTIAL VOLUNTARY MEASURES**

SECTION: A4.108 INNOVATIVE CONCEPTS AND LOCAL ENVIRONMENTAL CONDITIONS
SECTION: A4.108.1 Innovative Concepts and Local Environmental Conditions.

Rationale: HCD proposes to renumber existing Sections A4.107 and A4.107.1 to new Sections A4.108 and A4.108.1 to accommodate the adoption of new Section A4.107 "Solar Photovoltaic (PV) Systems", which contains provisions for photovoltaic systems and is more appropriately located after Section A4.106 "Site Development". This is an editorial renumbering only.

**23. APPENDIX A4
RESIDENTIAL VOLUNTARY MEASURES**

SECTION: A4.504.2 Resilient Flooring Systems.

Rationale: HCD proposes to amend the above referenced section to clarify the criteria used by the Collaborative for High Performance Schools (CHPS) as the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers", Version 1.1, February 2010 (also known as Specification 01350).

The changes also reflect a name change from GREENGUARD Children & Schools program to UL GREENGUARD Gold. This is a name change only that occurred in early 2013; however, the standards on which certification is based remain the same. (The GREENGUARD Gold Certified products also must comply with the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers", Version 1.1, February 2010 (also known as Specification 01350). According to UL, manufacturers have three years to comply with the change. There is no intended change in regulatory effect. There is no fiscal impact due to the proposed regulation although there may be costs related to UL's requirement for manufacturers to use the new designation.

**24. APPENDIX A4
RESIDENTIAL VOLUNTARY MEASURES**

SECTION: A4.504.3 Thermal Insulation.

Rationale: HCD proposes to amend the above referenced section to clarify the criteria used by the Collaborative for High Performance Schools (CHPS) as the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers", Version 1.1, February 2010 (also known as Specification 01350).

The changes also reflect a name change from GREENGUARD Children & Schools program to UL GREEN-GUARD Gold. This is a name change only that occurred in early 2013; however, the standards on which certification is based remain the same. (The GREENGUARD Gold Certified products also must comply with the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers", Version 1.1, February 2010 (also known as Specification 01350).

According to UL, manufacturers have three years to comply with the change. There is no intended change in regulatory effect. There is no fiscal impact due to the proposed regulation although there may be costs related to UL's requirement for manufacturers to use the new designation.

**25. APPENDIX A4
RESIDENTIAL VOLUNTARY MEASURES**

SECTION: A4.601.4.2 Prerequisite and Elective Measures for Tier 1.

Rationale: HCD proposes to amend the above referenced section to reflect proposed changes for Tier 1 measures for EV charging in Section A4.106.8 and solar photovoltaic streamlined permitting in Section A4.107.2. Section A4.601.4.2 provides a listing of Tier 1 requirements as specified in Appendix A4.

This section is only a listing of voluntary measures available for adoption by local agencies and has no mandatory fiscal effect.

**26. APPENDIX A4
RESIDENTIAL VOLUNTARY MEASURES**

SECTION: A4.601.5.2 Prerequisite and Elective Measures for Tier 2.

Rationale: HCD proposes to amend the above referenced section to reflect the adoption of Tier 1 measures for EV charging in Section A4.106.8. Listing of these measures in Tier 2 provisions would ensure that Tier 2 includes the EV charging measures although they are the same as for Tier 1.

HCD also proposes to amend the above referenced section to reflect proposed changes for a Tier 2 measure for solar photovoltaic streamlined permitting in Section A4.107.2. This section provides a listing of Tier 2 requirements as specified in Appendix A4.

This section is only a listing of voluntary measures available for adoption by local agencies and has no mandatory fiscal effect.

**27. APPENDIX A4
RESIDENTIAL VOLUNTARY MEASURES**

SECTION: A4.602 RESIDENTIAL OCCUPANCIES APPLICATION CHECKLIST

Rationale: HCD proposes to amend the above referenced checklist. The Residential Occupancies Application Checklist is being updated to reflect changes made in both the mandatory provisions of Chapter 4 and voluntary provisions of Appendix A4. The Residential Occupancies Application Checklist is a reference document and may be modified and used as a template by local enforcing agencies. This checklist reflects mandatory and Tier 1 and Tier 2 prerequisites and is not by itself a regulatory document.

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).)

HCD and a subcontractor, ConSol, have completed a feasibility study for electric vehicle charging in California. The report, "Department of Housing and Community Development Electric Vehicle Readiness Study", was funded by the California Energy Commission.

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS

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

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. In the case of the California Green Building Standards Code (CALGreen), there is no model code to be adopted. However, Health and Safety Code Section 17928 mandates HCD to review relevant green building guidelines and to propose green building features that are cost effective and feasible as mandatory building standards.

CONSIDERATION OF REASONABLE ALTERNATIVES

(Government Code Section 11346.2(b)(5)(A) requires a description of reasonable alternatives to the regulation and the agency's 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.)

None. There were no alternatives available to HCD. HCD is required by statute to propose green building features that are cost effective and feasible as mandatory building standards.

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

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

None. There were no alternatives available to HCD. HCD is required by statute to propose green building features that are cost effective and feasible as mandatory building standards.

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

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

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.

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

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

- No increased cost of compliance for those regulations that make technical, nonsubstantive or clarifying changes.
- The estimated cost of compliance related to infrastructure for future installation of electric vehicle charging station equipment (EVSE) is expected to be less than \$500 per dwelling unit; however, since costs are spread across the different types of residential housing affected by this rulemaking package (i.e., single-family, multifamily dwelling units), \$100 per unit is a more likely estimate.
- See Item Numbers 4, 9 and 10 above for additional cost analysis information.
- Potential benefits include providing the groundwork for new green technology, encouraging use of electric vehicles, cost savings to homeowners who choose to use EVs for transportation, reduction of greenhouse gas emissions and preservation of natural resources.
- Protection of public health and safety, worker safety and the environment.
- General welfare of California residents.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

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

These regulations do not duplicate nor conflict with federal regulations.