

**FINAL STATEMENT OF REASONS  
FOR  
PROPOSED BUILDING STANDARDS  
OF THE  
DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
REGARDING THE 2010 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN)  
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 11  
(HCD 01/10)**

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The Administrative Procedure Act requires that every agency shall maintain a file of each rulemaking that shall be deemed to be the record for that rulemaking proceeding. The rulemaking file shall include a Final Statement of Reasons. The Final Statement of Reasons shall be available to the public upon request when rulemaking action is being undertaken. The following are the reasons for proposing this particular rulemaking action:

**UPDATES TO THE INITIAL STATEMENT OF REASONS**

(Government Code Section 11346.9(a)(1) requires an update of the information contained in the initial statement of reasons. If update identifies any data or any technical, theoretical or empirical study, report, or similar document on which the state agency is relying that was not identified in the initial statement of reasons, the state agency shall comply with Government Code Section 11347.1)

No data or any technical, theoretical or empirical study, report, or similar document on which the state agency is relying has been added to the rulemaking file that was not identified in the Initial Statement of Reasons.

HCD has made sufficiently related changes and/or editorial corrections to the following sections after the 45-day comment period that ended on June 6, 2011: Table 4.303.2, Sections 4.408.2, 4.506.1, A4.106.6, A4.405.3, A405.3.1.4, A4.405.4, A4.504.2, A4.601.4.2, A4.601.5.2, Table A4.405.3, and Section A4.602 "Residential Occupancies Application Checklist" (Section A4.405.3.)

HCD has made sufficiently related changes and/or editorial corrections to the following sections after the subsequent 15-day comment period that ended on June 30, 2011: Section A4.602 "Residential Occupancies Application Checklist" (A4.405.3 deleted and A4.504.4 corrected).

Some of the sufficiently related changes do the following:

- Add clarifying language in Section A4.405.3 that components of the structural frame of buildings are not included in the calculation of recycled content of building materials.
- Clarify and editorially correct Table A4.405.3 Square Foot Valuation to provide consistency with ICC Building Valuation Data source reference.
- Add clarifying language in Sections A4.405.3.1.3 and A4.405.3.1.4 regarding identification of recycled content as a single value. When recycled content values are not separately identified as pre-consumer and post-consumer recycled content, the recycled content of the material shall be deemed to be half pre-consumer recycled content and half post-consumer recycled content.
- Delete proposed Section A4.405.3.2 proposing combined recycled content and renewable materials threshold levels for meeting Tier 1 and Tier 2 requirements. This section was originally proposed to address perceived preferential recognition of recycled content in materials versus materials from renewable sources. However, the clarification proposed in Section A4.405.3 deleting components of the structural frame from the recycled content calculation addresses the concern of using materials specifically with recycled content value over renewable sources.
- Correct Section A4.405.4 to delete wood products from the list of rapidly renewable sources. This correction was made to reflect the longer growth period for wood species, which is outside the 10-year growth period identified for "rapidly renewable" products.

### **MANDATE ON LOCAL AGENCIES OR SCHOOL DISTRICTS**

(Pursuant to Government Code Section 11346.9(a)(2), if the determination as to whether the proposed action would impose a mandate, the agency shall state whether the mandate is reimbursable pursuant to Part 7 of Division 4. If the agency finds that the mandate is not reimbursable, it shall state the reasons for the finding(s))

The Department of Housing and Community Development has determined that the proposed regulatory action would not impose a mandate on local agencies or school districts.

### **OBJECTIONS OR RECOMMENDATIONS MADE REGARDING THE PROPOSED REGULATION(S)**

(Government Code Section 11346.9(a)(3))

The following is HCD's summary of and response to comments specifically directed at the agency's proposed action or to the procedures followed by the agency in proposing or adopting the actions or reasons for making no change.

In each case, HCD has evaluated the submitted comments and provided the responses below.

**NOTE:** *The complete text of each comment may be reviewed at the following internet address:*  
[http://www.bsc.ca.gov/prpsd\\_chngs/pc\\_10\\_comment.htm](http://www.bsc.ca.gov/prpsd_chngs/pc_10_comment.htm)

### **COMMENTS RECEIVED DURING THE 45-DAY PUBLIC COMMENT PERIOD ARE LISTED BELOW.**

(The text with proposed changes clearly indicated was made available to the public from April 22, 2011, until June 6, 2011.)

**1. COMMENTER:** Mark Pawlicki, Director (**EM-1**)  
Corporate Affairs and Sustainability  
Sierra Pacific Industries  
P.O. Box 496028  
Redding, CA 96049-6028

**COMMENT: EM-1. Sections A4.405.3, A4.405.3.2 and A4.405.4:** The commenter expresses support for the recognition of renewable materials, especially wood, which require less energy to produce than non-renewable products. The commenter also notes that the proposed language in CALGreen provides an alternative which meets the state's green building objectives while helping to secure jobs in the forest products industry.

Section A4.405.3.2. The commenter supports the proposed addition of a renewable materials section. However, the proposed combination of recycled content and renewable materials compared to the existing recycled content-only provision favors recycled materials over renewable products. These materials should be on an equal basis for structural components. The commenter suggests that builders be given a choice of choosing between recycled and renewable products.

Section A4.405.4. The commenter objects to the inclusion of rapidly renewable materials in CALGreen. Commenter states that these materials are typically plants commonly grown overseas and shipped to the United States and are inferior to solid wood. According to the commenter, the U.S. Green Building Council is proposing to drop the rapidly-renewable "point" from its 2012 LEED rating system. Commenter further states that it is unlawful to replant native timberlands with non-native short rotation crops and to harvest until after a 50- to 80-year growing period. Use of timberland for rapidly renewable materials would require state approval for land conversions which are frowned upon by the state. Additionally, farmland is much more valuable for food crops than for short-rotation building materials, therefore, farmers are unlikely to convert farmland. Lastly, inclusion of this provision would encourage the import of materials from overseas and associated transportation carbon emissions and uncertain growing conditions for the materials. Commenter urges the CBSC to drop this provision in its entirety.

### **HCD RESPONSE:**

HCD has modified Section A4.305.3.1 in response to this comment and has added language specifying that components of the structural frame not be included in the calculation of recycled content. This change removes possible interpretation of CALGreen incentivizing or promoting use of recycled content products versus wood which does not include recycled content. This modification removes the need for

Section A4.405.3.2, which proposed a combined recycled content and renewable materials for Tier 1 and Tier 2 levels to provide a more balanced requirement between building materials with recycled content and building materials from renewable sources.

HCD has modified Section A4.405.4 to make a technical correction to remove references to wood products in the list of rapidly renewable sources or agricultural by-products. This correction was due to the longer growth period required prior to harvest for wood products. HCD will re-evaluate the inclusion and recognition of rapidly renewable building materials sources in CALGreen during the next triennial code adoption cycle.

**2. COMMENTER:** Gary C. Rynearson, RPF #2217 (**EM-2**)  
Manager, Forest Policy and Sustainability  
Green Diamond Resource Company  
California Timberlands Division  
P.O. Box 68  
Korbel, CA 95550-0068

**COMMENT: EM-2. Sections A4.405.3, A4.405.3.2 and A4.405.4:** The commenter thanks HCD for the opportunity to comment on the proposed rulemaking and notes that they fully support the requirement for renewable materials to meet the objectives of CALGreen. Wood is a renewable building product that uses less energy to produce and has a smaller carbon footprint in comparison with other building materials. Commenter also notes that they support the use of recycled materials, however, the recycled materials requirement should not apply to the structural components of a building.

Commenter also notes their concern with the "rapidly renewable" provision in CALGreen. Rapidly renewable materials are not native to California and often originate overseas where native forests were converted to grow these materials. Green Diamond Resource Company supports the use of California-grown renewable products such as their lumber products. Commenter also notes that they have reviewed the Sierra Pacific Industries May 9, 2011, letter submitted to the Building Standards Commission and concur with their comments and recommendations. Commenter respectfully requests that the Commission consider the recommended changes.

**HCD RESPONSE:**

HCD acknowledges and appreciates the comments received. (See responses to **EM-1.**)

**3. COMMENTER:** Edward R. Osann (**EM-3**)  
National Resources Defense Council (NRDC)  
1314 Second Street  
Santa Monica, CA 90401

**COMMENTS: EM-3. Table 4.303.1:** The commenter proposed changes to Table 4.304.1, more specifically to remove the row entitled "Replacement aerators". The commenter also expressed the opinion that the language in this section is too vague to be of value for code compliance or enforcement; no duration factors or daily usage factors are provided.

**HCD RESPONSE:**

HCD acknowledges the comment received pertaining to the proposed amendments to the California Green Building Code (CGBC). Although HCD has proposed amendments to Table 4.303.1 to be consistent with the BSC for nonresidential lavatory faucets, HCD has not proposed any amendments to the row containing the text "Replacement aerators." This comment is outside the scope of this rulemaking package. HCD may take the proposed amendment, recommendations and/or concerns expressed under consideration in future rulemaking packages.

No code changes have been proposed to HCD's rulemaking package.

**4. COMMENTER:** Edward R. Osann (**EM-4**)  
National Resources Defense Council (NRDC)  
1314 Second Street  
Santa Monica, CA 90401

**COMMENT: EM-4. Table 4.303.2:** The commenter suggested modifications to Table 4.303.2 to remove the words "or other means" from Footnote 2. The commenter expressed an opinion that these words are too vague and may not be of any value to code enforcement personnel

**HCD RESPONSE:**

HCD appreciates the commenter's opinion; however, the proposed language is intended to allow other means of achieving the reduced water flow values shown in Table 4.303.2.

No code changes have been proposed to HCD's rulemaking package.

**5. COMMENTER:** Edward R. Osann (**EM-5**)  
National Resources Defense Council (NRDC)  
1314 Second Street  
Santa Monica, CA 90401

**COMMENT: EM-5. Table 4.303.2:** The commenter suggested modifications to Table 4.303.2 to revise the reduced flow rate for lavatory faucets from 1.5 gpm maximum to 1.0 gpm maximum. The commenter expressed an opinion that the proposed IGCC only allows a flow rate of 1.0 gpm in residential lavatory faucets, and further expressed the opinion that CALGreen should be at least as restrictive as the IGCC unless there are specific reasons not to.

**HCD RESPONSE:**

HCD appreciates the commenter's opinion; however, HCD has not proposed any amendments to the flow rates in Table 4.303.2 for residential lavatory faucets as a part of this rulemaking package.

No code changes have been proposed to HCD's rulemaking package.

**6. COMMENTER:** Kenneth Bland, P.E. (**EM-6**)  
Vice President Codes and Regulations  
American Wood Council  
803 Sycolin Road, Suite 201  
Leesburg, VA 20175

**COMMENT: EM-6. Sections A4.405.3 and A4.405.4:**

Section A4.405.3. The commenter expresses support, in principle, for the addition of renewable resources as an option to recycled content, however, the user should have an option of choosing either renewable or recycled products, based on equal material thresholds. Commenter further notes that the proposal still contains a bias for structural steel which can easily achieve the recycled content value and be the only recycled product needed to meet the section requirement. The commenter requests that consideration be given to limiting qualifying products to those that serve a nonstructural function. If the focus on the section is changed to non-structural components, other items such as carpeting, shingles, drywall and other innovative recycled products may be developed and selected. Commenter submitted a preferred modification for Section A4.405.3.1 to apply to nonstructural products and for Section A4.405.3.2 to reflect equal values of 10% and 15% for Tiers 1 and 2, respectively. A second, less preferred, alternative would be to retain the language in Section A4.405.3.2, but limit the material to "non-structural" recycled products.

Section A4.405.4. Commenter notes that recognition of "rapidly" renewable resources is consistent with goals of sustainability and green building rating systems. Agricultural practices for production so "rapidly" renewable resources or products are far more detrimental to the environment than the pro-longed life-cycles associated with natural or managed forest resources. A copy of the report, and an excerpt was provided.

**HCD RESPONSE:**

HCD has considered the above comments and modified Section A4.405.3 to limit the materials considered in this section to those outside the structural frame. HCD has also provided language to specify the types of building components considered as part of the structural frame for guidance. HCD has deleted proposed Section A4.405.3.2, which provided combined renewable and recycled content percentages to meet Tier requirements and eliminated the issue relevant to choosing between the types of materials in specified percentages.

(See responses to **EM-1**.)

**7. COMMENTER:** Joe Loyer (**EM-7**)  
Mechanical Engineer, California Energy Commission  
1516 Ninth Street, Sacramento, CA 95814  
[jmloyer@energy.state.ca.us](mailto:jmloyer@energy.state.ca.us)

**COMMENT: EM-7.** The California Energy Commission staff thanks HCD for the opportunity to review and comment on the proposed amendments to the 2010 CALGreen, and appreciates the opportunity to be involved in the working group effort sponsored by HCD. The commenter states that after careful consideration, the Energy Commission staff has no further comments to add to the previously submitted comments regarding the proposed amendments, and looks forward to future opportunities to work with HCD on projects and activities of mutual interest.

**HCD RESPONSE:**

HCD acknowledges and appreciates the supportive comments.

**8. COMMENTER:** Timothy M. Serie (**EM-8**)  
American Coatings Association  
1500 Rhode Island Ave.  
Washington DC 20005

**COMMENT: EM-8. Sections 4.504.2, and 4.504.2.2:** The commenter suggested modifications to these sections to be consistent with proposed modifications by commenter in Division 5.7, Section 5.714.4.4. This modification refers to California Air Resources Board (CARB) Suggested Control Measure (SCM) for Architectural Coatings. The commenter expressed an opinion that the reference to SCM should include the date of 2007 to be clearer to the code user. The commenter also suggested adding the term “regulated” to the phrase “coatings that do not meet the definitions” in Section 4.504.2.2 to ensure that the provisions of this section do not apply to non-regulated coatings. Lastly, the commenter expressed an opinion that Section 4.504.2 only applies to the interior finishes of a building and proposed a modification to Section 4.504.2 to this effect.

**HCD RESPONSE:**

HCD appreciates the comments received; however, HCD has not proposed any amendments to these sections as part of this rulemaking. Additionally the CBSC has proposed a new Division 5.7 “Additions and Alterations to Existing Nonresidential Buildings.” HCD has not proposed to include additions and alterations in the scope of Chapter 4 Residential Mandatory Measures as part of this rulemaking. Furthermore, the provisions of Division 4.5 “Environmental Quality” and more specifically Section 4.504 “Pollutant Control” apply to interior and exterior finish materials. HCD may take the proposed amendments, recommendations and/or concerns expressed under consideration in future rulemaking packages.

No code changes have been proposed to HCD’s rulemaking package.

**9. COMMENTER: EM-9.** *The comment concerns CBSC Section 5.714.4.4 and was directed to the CBSC for response.*

**10. COMMENTER:** Jamy Bacchus (**EM-10**)  
Staff Engineer, Energy Program  
National Resources Defense Council (NRDC)  
111 Sutter Street, 20<sup>th</sup> Floor  
San Francisco, CA 94104

**COMMENT: EM-10. Sections 4.408.1, 4.504.4, and A4.203.1:** The commenter expressed an opinion that the terms “reasonably close” and “isolated” are too vague and may make Section 4.408.1 difficult to enforce. The commenter also expressed an opinion that Exception 3 of Section 4.408.1 did not need to be stated because the local enforcing agencies already have authority to provide this exemption. The commenter also expressed an opinion in Section 4.504.4 that 100 percent of the floor areas receiving resilient flooring should comply with the requirements of Section 4.504.4. The commenter also expressed an opinion that the year should be removed from the reference to the Energy Code in Section A4.203.1.

**HCD RESPONSE:**

HCD appreciates the comments received; however, HCD believes that it is important to inform the local enforcing agencies to use their discretion when enforcing the requirements of this section when no local diversion facilities exist. HCD believes that without this exception, enforcing agencies in locations without local diversion facilities may require construction waste to be hauled long distances which may offset the benefit of waste diversion. HCD believes the requirement of Section 4.504.4, which specifies the requirements for 50 percent of the floor area is appropriate and allows building owners some freedom of choice in design while still requiring reduced VOC flooring materials. HCD intended to specify the 2010 California Energy Code for the purpose of setting a baseline to be exceeded by either 15 or 30 percent depending upon the tier adopted. When a new edition of the Energy Code takes the place of the 2010 Energy Code, the application of Tier 1 and Tier 2 levels will need to be reassessed for feasibility.

No code changes have been proposed to HCD’s rulemaking package.

**11. COMMENTER:** Dan Bowermaster (**EM-11**)  
Manager, Electric and Natural Gas Vehicles  
Customer Energy Solutions  
Pacific Gas and Electric Company (PG&E)  
1 Market, Ste 400, San Francisco, CA 94105-5103

**COMMENT: EM-11. Section A4.106.6:** The commenter expresses support, in principle, for the adopting of voluntary provisions for electric vehicle (EV) charging infrastructure, and applauds HCD for including Section A4.106.6 in the Express Terms. Commenter believes the proposed provisions would help local jurisdictions to prepare their communities for future electric transportation options and avoid expensive retrofit requirements for residences without appropriate charging infrastructure. However, the commenter suggested modifications to the language.

The commenter expresses an opinion that the term “conduit” should be removed from the language in Section A4.106.6.1, as conduit is often not used in single family residential construction. The commenter also suggests the term “wiring” to be included in Section A4.106.6.2, so that the requirement is not ambiguous as to whether or not wiring is required.

The commenter feels that it is not necessary for Section A4.106.6.2 to refer to the stalls equipped with EV charging circuits as “reserved stalls”, as this may be construed to mean that only electric vehicles can park at these stalls. The commenter further notes that the required label should not read “EV Ready” as that may be misleading to residents, and proposes a more accurate label “Electric Vehicle Charging Circuit”.

In addition, the commenter expresses an opinion that 240V/40A circuit for Level 2 charging will be sufficient for overnight charging for almost all EV cases now and in the future, and believes that based upon typical residential loads, reserving 40A capacity on the electric panel for EVs will not necessary require an upgrade in single family residential panel size from 200A to 400A.

**HCD RESPONSE:**

HCD proposed amendment of Section A4.106.6 after much of discussion with state agencies, stakeholders, manufacturers, enforcing agencies, and the building industry. On May 17, 2011, midway through the 45-day public comment period, HCD held an interested parties work group to address the proposed Express Terms and solicit additional input. HCD’s initial proposal was based on language provided by the California Air

Resources Board. After receiving additional comments and further internal review, HCD proposes to make modifications to the initial proposal.

In the opinion of many stakeholders, HCD needed to provide more flexibility in the proposed regulations to accommodate changes in technology. A pre-wired dedicated 40A circuit is sufficient for the future charging of some vehicles, but not nearly all. Additionally, the language, as initially proposed, did not provide flexibility to builders and could limit a consumer's choice in the purchase of a new electric vehicle. The requirement for a pre-wired 40A dedicated branch circuit can create additional expenses necessary for compliance with the California Electrical Code. Based upon load calculations completed by HCD, installation of a 40A branch circuit would generally require upgrading the electrical service panel from 200A to 400A in homes that are 2000 square feet and larger. Installation of a trade size 1 raceway is an economical method that allows consumers and builders more options for installation of Electric Vehicle Supply Equipment (EVSE). It would not require advanced load calculations or an expensive service panel upgrade. A trade size 1 raceway is adequate for installation of a 40A branch circuit, but also allows for branch circuits larger than 40A. Installation of some Level 3 EVSE's may also be possible. The new language allows other pre-installation methods to be utilized, including pre-wiring, if sufficient conductors and service capacity are provided, and clarifies that the raceway need not be continuous in accessible locations such as attic spaces, crawl spaces, and open walls.

For multi-family dwellings, additional considerations such as ownership, infrastructure, location, number and type of charging spaces were taken into account. The measures allow more flexibility for design however, a justification of sufficient electrical system capacity is required prior to construction. The intent is that pre-installation of raceways without an adequately designed electrical system would result in additional expenses for homeowners or tenants who may want to install EVSE at a future date. Only underground raceways and related equipment, if part of the design, are required to be installed at the time of initial construction.

HCD agreed with the commenter's note regarding the accuracy of the label "EV Ready", and proposes a more accurate label "EV Capable".

**12. COMMENTER:** Mike Moore, P.E. (EM-12)  
Newport Ventures, representing Broan/Nu Tone  
23 Jay St.  
Schenectady, NY 12305

**COMMENT: EM-12. Section 4.506.1:** The commenter expressed concern that the proposed amendments are overly restrictive by setting a maximum upper limit of 80 percent relative humidity. The commenter expressed the opinion that this limit is too low and would cause occupant frustration if the fan operated automatically without being turned on by the occupant. The commenter expressed concern that the requirements in this section may cause difficulty for builders to find products that meet the requirements of the section. The commenter also expressed an opinion that the section is inconsistent with Section 5.2 of ASHRAE 62.2.

**HCD RESPONSE:**

The commenter referenced changes to Section 5.507.4, however, inserted proposed changes to Section 4.506.1 "Bathroom exhaust fans." HCD will assume the reference to Section 5.507.4 is a typographical error and respond to the proposed changes to Section 4.506.1. HCD appreciates the comments received; however, HCD has not proposed amendments that change the relative humidity from the adopted maximum value of 80 percent relative humidity as published in the 2010 CALGreen Code. HCD believes that this set point is justified based on research by the World Health Organization *et al.* on appropriate indoor humidity levels. HCD is cognizant of an ever increasing body of scientific evidence that indicates humidity levels higher than 80 percent can readily support mold growth and/or cause damage to interior finishes, and may also cause health hazards to building occupants. HCD acknowledges that the requirements of Section 4.506.1 are more restrictive than ASHRAE 62.2 with regard to control of the fan; however, the purpose of this section addresses moisture control, and is not limited to occupant activation of fans for odor control. The intent of this section is to protect building occupants from poor indoor air quality due to mold growth caused by condensation of excessive moisture on interior building materials.

No code changes have been proposed to HCD's rulemaking package.

**13. COMMENTER:** Anne Kelsey-Lamb, Director (**EM-13**)  
Regional Asthma Management & Prevention(RAMP)  
180 Grand Avenue, Suite 750  
Oakland, CA 94612

**COMMENT: EM-13.** The commenter noted that RAMP is happy to see that 2010 CALGreen continues to have significant indoor air quality provisions as specified. The commenter also encourages HCD to apply the current standards to all residential construction and not just buildings four stories or less.

**HCD RESPONSE:**

HCD thanks the commenter for supporting the residential environmental quality provisions in the CALGreen code. As a note of correction, CALGreen currently applies to low-rise residential structures, three stories or less. HCD is currently in the process of evaluating provisions in the CALGreen code in preparation for the 2013 code and is considering the application of CALGreen to residential structures higher than three stories.

**14. COMMENTER:** Devi Eden (**EM-14**)  
Energy Specialist, California Energy Commission  
1516 Ninth Street, Sacramento, CA 95814  
[DEden@energy.state.ca.us](mailto:DEden@energy.state.ca.us)

**COMMENT: EM-14. Section A4.106.6:** The commenter requests amendments to the proposed language, and submits preferred modification for Section A4.106.6. The commenter proposes new language, clarifying that for each single family residence, an empty conduit with pull string shall be installed, and a double pole circuit breaker space in an electrical panel shall be reserved for future installation of EVSE. The commenter recommends similar provisions for 3 percent of the parking capacity of multi-family dwellings.

As an option, the commenter proposes language from LEED V3.0 for new construction, which does not favor EV over other types of alternative fuel, fuel efficient or low emitting vehicles, and requires alternative fueling vehicle stations for 3 percent of total vehicle parking capacity, or preferred parking for low emitting and fuel efficient vehicles for 5 percent of total vehicle parking capacity.

The commenter believes either proposal would have higher probability of adoption as mandatory by cities or counties, in a local ordinance than what was originally proposed, and would better serve developers, the EV, alternative fuel, and low emitting vehicles industries, as well as promote cities/counties/developers to continue to move toward meeting state greenhouse gas (GHG) emission reduction goals, while offering the greatest amount of flexibility.

**HCD RESPONSE:**

HCD proposes the amendment of Section A4.106.6 after long discussion with state agencies, stakeholders, manufacturers, enforcing agencies, and the building industry. On May 17, 2011, midway through the 45-day public comment period, HCD held an interested parties work group to address the proposed Express Terms and solicit additional input. After receiving additional comments and further internal review, HCD proposes modifications to the initial proposal.

In the opinion of many stakeholders, the language as initially proposed did not provide flexibility to builders and could limit a consumer's choice in the purchase of a new electric vehicle. HCD believes that installation of a trade size 1 raceway is an economical method that allows consumers and builders more options for future installation of EVSE, not requiring advanced load calculations or an expensive service panel upgrade.

The initial proposal required at least 10 percent of the parking spaces in multi-family dwellings to be capable of supporting future EVSE. HCD received comments, including the above written comment from the California Energy Commission (CEC), suggesting that this number was too high. Based upon the current roll-out of electric vehicles, HCD agreed with the CEC proposal; three percent is an acceptable starting point. As more vehicles enter the market in the coming decade, HCD can revisit the requirements.

HCD appreciates the comment and the commenter's proposal for alternative fueling stations for 3 percent of total vehicle parking capacity, or preferred parking for low emitting and fuel efficient vehicles for 5 percent of total vehicle parking capacity. HCD reviewed Section A4.106.6.2, but finds that fueling stations, other than EVSE, are not feasible for residential applications at this moment, and therefore, does not propose further modification.

**15. COMMENTER:** Wes Sullens (**EM15**)  
Green Building in Alameda County  
A Program of [StopWaste.Org](http://StopWaste.Org)  
1537 Webster Street  
Oakland, CA 94612

**COMMENT: EM-15. Sections A4.405.3, A4.405.3.1.3 and A4.405.3.1.4:** The commenter attended the May 17, 2011, stakeholders' meeting and provided both verbal and written comments to HCD. The commenter noted that allowing single recycled content values to be deemed as entirely post-consumer content should be lowered to at least a 50 percent value. In addition, a prescriptive list of items with minimum threshold levels of recycled content should be considered. Commenter submitted proposed amendments to Section A5.405.4 (corresponds to Section A4.405.3 for low-rise residential) establishing a point-based tier structure, proposed table for recycled content component thresholds and a sample Recycled Content Worksheet.

**HCD RESPONSE:**

HCD appreciates the comments received. HCD reviewed the comment on incomplete reporting of recycled content and recognized that the proposed language may provide incentive or an advantage for relying on incomplete reporting of recycled content. Therefore, HCD amended the proposed language (Section A4.405.3.1.3 Note 2 and Section A4.405.3.1.4 Note) to deem recycled content reported as a single value as 50 percent pre-consumer and 50 percent post-consumer recycled content. This would translate to 75 percent of the single reported recycled content value versus 100 percent of the reported value.

HCD also recognizes the utility of a prescriptive list of construction materials with specified minimum recycled content thresholds as proposed by the commenter. Although it may provide convenience to code users for verifying whether a material qualifies according to the list, HCD does not have authority or staffing to develop a comprehensive list of building materials and recycled content thresholds for the products. In addition, CALGreen focuses on the value of the recycled materials used on a project as compared to the total cost of the materials for the project. However, local agencies may exercise their authority to adopt or develop similar lists of products for implementation of this portion of CALGreen.

**16. COMMENTER:** Bill Mattinson (**EM-16**)  
Soldata Energy Consulting  
401-C College Ave.  
Santa Rosa, CA 95401

**COMMENT: EM-16. Section A4.405.3:** The commenter expressed an opinion that this section should not be included as a CALGreen Tier 1 prerequisite and further stated his opinion that there are not enough building materials available with recycled content to achieve the 10% recycled content value.

**RESPONSE:** HCD acknowledges receipt of this comment and notes that it was received after the public comment period that ended on June 6, 2011. (See **EM-E.**)

**COMMENTS RECEIVED DURING THE 15-DAY PUBLIC COMMENT PERIOD.**

(The text with proposed changes clearly indicated was made available to the public from June 16, 2011, until June 30, 2011.)

**NOTE:** *The complete text of each comment may be reviewed at the following internet address:*  
[http://www.bsc.ca.gov/prpsd\\_chngs/pc\\_10\\_comment.htm](http://www.bsc.ca.gov/prpsd_chngs/pc_10_comment.htm)

**A. COMMENTER:** Don Stevens (**EM-A**)  
Panasonic Home and Environment Co.  
P.O. Box 398/1800 Pacific Ave.  
Keyport, WA 98345-0398

**COMMENT: EM-A. Section 4.506.1:** The commenter expressed appreciation for the opportunity to comment on the proposed language regarding humidity controls, and supports the change of the term from "humidistat" to "humidity control." The commenter additionally expressed support for a maximum setpoint of 80 percent relative humidity and expressed the opinion that this maximum level of 80 percent relative humidity is better to minimize moisture related problems. The commenter lastly expressed support for the additional change to allow either manual or automatic adjustment of the humidity control.

**HCD RESPONSE:**

HCD acknowledges and appreciates the supportive comments.

**B. COMMENTER:** Mark Pawlicki, Director (**EM-B**)  
Corporate Affairs and Sustainability  
Sierra Pacific Industries  
P.O. Box 496028  
Redding, CA 96049-6028

**COMMENT: EM-B. Sections A4.405.3 and A4.405.4:**

**Section A4.405.3.** The commenter expresses support for limitation of recycled content calculations to non-structural elements of a building. This change allows ample opportunity for renewable wood products to be used as structural components. CALGreen, therefore, offers builders an alternative that meets the state's overall green building objectives while helping to secure jobs in California's forest products industry.

**Section A4.405.4.** The commenter strongly objects to the inclusion of rapidly renewable sources in CALGreen. The commenter notes that these products are commonly grown overseas and shipped to the United States and are inferior to solid wood from both a structural and environmental standpoint. In recognition of this fact, the U.S. Green Building Council is proposing to drop the rapidly-renewable "point" from its 2012 LEED rating system.

In addition, California's rigorous forest practice regulations prohibit substitution of non-native short-rotation crops on harvested timberland. These land use conversions are frowned on by the state due to removal of acreage from the timberland base which provide related benefits not found with growing short-rotation crops. California farmland is also much more valuable for food crops than for short-rotation building materials, thus, farmers are highly unlikely to convert their lands for these purposes. CALGreen would be encouraging the use of overseas products and attendant carbon emissions.

**HCD RESPONSE:**

HCD appreciates the comments received. HCD has modified Section A4.405.4 to make a technical correction to remove references to wood products in the list of rapidly renewable sources or agricultural by-products. This correction was due to the longer growth period required prior to harvest for wood products. HCD will re-evaluate the inclusion and recognition of rapidly renewable building materials sources in CALGreen during the next triennial code adoption cycle.

**C. COMMENTER:** Wes Sullens **(EM-C)**  
Green Building in Alameda County  
A Program of [StopWaste.Org](http://StopWaste.Org)  
1537 Webster Street  
Oakland, CA 94612

**COMMENT: EM-C. Section A4.405.3:** The commenter expressed disagreement with the proposed amendments and expressed his belief that 50/50 split for pre-consumer content and post-consumer content is unfair to the manufacturers whose products are broken down the actual quantity of post-consumer and pre-consumer recycled content. The commenter also expressed the opinion that materials made with post-consumer recycled content should be rewarded more than products made with pre-consumer content due to the fact that the post-consumer content uses materials at the end of their life and represent a 'closed loop' process.

**HCD RESPONSE:**

HCD's original treatment of recycled content reported as a single value was to deem the amount to be 100 percent post-consumer recycled content. However, comments were received that this would be unfair to those submitting complete reports on pre-consumer and post-consumer recycled content, therefore, HCD amended its proposal to deem single reported values as one-half pre-consumer and one-half post-consumer. Although the assignment of these values may be construed as arbitrary, unfair or capricious, it would be equally so to deem a single recycled content value as wholly pre-consumer. The objective of CALGreen at the Tier 1 and Tier 2 levels is to encourage and ensure the use of materials with recycled content. HCD realizes that manufacturers will need time to adjust to complete reporting or full value of the recycled content may not be recognized; we are not encouraging the use of single recycled content values. Using the proposed 50/50 proportions, some products may incur a benefit and other products may be penalized on recycled content. HCD believes that this section will encourage many more manufacturers of building materials to accurately report recycled content and report both pre-consumer and post consumer content. HCD hopes that in the future the building materials industry will collectively endorse a reporting standard which requires both pre-consumer and post-consumer values to be reported for products to be certified.

HCD does not propose any further changes to Section A4.405.3.

**D. COMMENTER:** Tom Lent **(EM-D)**  
Health Building Network  
2464 West St.  
Berkeley, CA 94702

**COMMENT: EM-D. Sections A4.405.3, A5.405.3 and A5.405.4:** The commenter notes agreement with comments filed by StopWaste.Org that the 50/50 default split between pre-consumer and post-consumer is an arbitrary assumption and unfair to those products for which manufacturers have determined the true quantity of post-consumer recycled content materials. Commenter further notes that postconsumer recycled content is a higher and better use of amaterials than pre-consumer recycled materials because they represent a "close loop" of taking a product back at end of life and is generally a more difficult material to use compared to virgin materials. Therefore, post-consumer recycled content building materials are a priority for waste reduction strategies in their county and beyond and should be rewarded above and beyond pre-consumer recycled content materials. This is demonstrated in CALGreen by the greater valuation of post-consumer recycled content (100 percent) versus pre-consumer (50 percent). Commenter included proposed amendments to clarify that single recycled content reported values be treated as all pre-consumer recycled content for purposes of pushing for accuracy in reporting and discouraging a convenient "out" for inaccurate reporting and possibly "rewarding" products that contain no post-consumer recycled content.

**HCD RESPONSE:**

HCD's original treatment of recycled content reported as a single value was to deem the amount to be 100 percent post-consumer recycled content. However, comments were received that this would be unfair to those submitting complete reports on pre-consumer and post-consumer recycled content, therefore, HCD amended its proposal to deem single reported values as half pre-consumer and half post-consumer.

Although the assignment of these values may be construed as arbitrary, unfair or capricious, it would be equally so to deem a single recycled content value as wholly pre-consumer. The objective of CALGreen at the Tier 1 and Tier 2 levels is to encourage and ensure the use of materials with recycled content. HCD realizes that manufacturers will need time to adjust to complete reporting or full value of the recycled content

may not be recognized; we are not encouraging the use of single recycled content values. Using the proposed 50/50 proportions, some products may incur a benefit and other products may be "shortchanged" on recycled content.

HCD does not propose any further changes to Section A4.405.3.

**E. COMMENTER:** Bill Mattinson (**EM-E**)  
SOLDATA Inc.  
401-C College Avenue  
Santa Rosa, CA 95401

**COMMENT: EM-E. Sections A4.601.4.2:** The commenter recommends that Section A4.405.3 be removed in its entirety from Section A4.601.4.2 "Prerequisites and elective measures for Tier 1." Commenter notes that homebuilders cannot find building products capable of achieving the required 10 percent recycled content by cost. In addition, building departments have no guidelines to determine compliance with the measure, and builders do not know how to calculate the recycled content values required. Commenter further notes that the California Building Standards Commission (CBSC) and HCD have not provided any sample calculations or template worksheets for documentation purposes.

**HCD RESPONSE:**

HCD appreciates the comments received. HCD researched available building materials at the retail level, available information on the CalRecycle recycled content materials database, and other sources to verify the availability of building materials with recycled content. In addition, a commenter (StopWaste.Org) submitted a preliminary prescriptive list of building materials/components including industry standards for recycled content. The preliminary information was based on research into the residential construction industry and review of other green building rating systems (GreenPoint Rated and LEED). Although HCD does not have the authority or staffing to establish, adopt or maintain a similar list of products and recycled content requirements per product, the list does support the availability of building products with recycled content.

HCD is aware of difficulties that builders may have in calculating recycled content in building materials and assembly items consisting of several building materials with varying recycled content. This issue was identified by the CBSC, and HCD has worked in concert with the CBSC to provide clarifying calculations for recycled content when reported in various formats by manufacturers and as components of assembly items. In addition, HCD has worked with the CBSC on simplified methods to identify material costs of projects, which is the basis for determining recycled content value (RCV) for a project. Although the clarifying calculations are detailed and initially daunting, the calculations are built into interactive template worksheets developed for users that help calculate and document the use of materials with recycled content for purposes of documenting RCVs for projects. These worksheets and accompanying instructions will be posted on our website as well as published in our next "A Guide to the California Green Building Standards Code (Low-Rise Residential)." HCD provided a demonstration of these worksheets at a May 17 2011, interested parties meeting.

HCD does not propose any further changes to Section A4.601.4.2.

**F. COMMENTER:** Kenneth Bland (**EM-F**)  
Vice President, Codes and Regulations  
American Wood Council  
803 Sycolin Road, Suite 201  
Leesburg, VA 20175

**COMMENT: EM-F. Sections A4.405.3 and A4.405.4:**  
Section A4.405.3 (Identified as Section A4.405.4). The commenter expresses support for the clarification in this section, which identifies and excludes components of the structural frame from the recycled content provision. Commenter further notes that the prior proposed language achieved a clearer environmental objective by recognizing products made from renewable resources, however, the revised proposed language is still an improvement over the existing language and places renewable and recycled materials on an even plane.

The commenter made two observations: (1) the tier threshold limits remained the same at 10 percent and 15 percent; however, it was not clear whether structural products are included in the total material value; and (2) are seismic and wind force resisting systems that brace the structural frame considered "components"?

Section A4.405.4. The commenter notes that the American Wood Council objects to the inclusion of rapidly renewable sources as a preferential environmental product. In addition, the commenter points out science-based evidence demonstrating unfavorable environmental consequences associated with short-rotation crop management and that rating systems have moved away from rotation duration as a metric. The current criteria would also encourage the use of overseas products produced quickly without environmental control.

**HCD RESPONSE:**

As currently proposed, "total material cost" using the simplified calculation method includes all building materials, including those used in the structural frame. The detailed calculation method for evaluating total material cost (total project cost minus fees, labor, installation and overhead costs) also includes a specific reference to costs of the structure (steel, concrete, wood or masonry) as part of the cost.

HCD acknowledges that the use of the 45 percent of project costs or project square footage; or itemized estimates does not include adjustments for exclusion of the structural frame. At this time, it is not possible to derive a reasonable estimate of total materials costs minus the structural frame applicable to the unlimited variables in low-rise construction design, material use and occupancies.

HCD does not intend to exclude materials used for seismic and wind force-resisting systems which brace the structural frame from the recycled content calculations. For this reason, the components of the structural frame listed in Section A4.405.3 do not reference typical components of seismic- or wind-load resisting systems.

HCD has modified Section A4.405.4 to make a technical correction to remove references to wood products in the list of rapidly renewable sources or agricultural by-products. This correction was due to the longer growth period required prior to harvest for wood products. HCD will re-evaluate the inclusion and recognition of rapidly renewable building materials sources in CALGreen during the next triennial code adoption cycle.

**G. COMMENTER:** Jane Koechlin (**EM-G**)  
Technical Department  
Earthcore Industries, L.L.C.  
6899 Phillips Industrial Boulevard  
Jacksonville, FL 32256

**COMMENT: EM-G. Section 4.503:** The commenter submitted comments on Section 4.503, which is not subject to amendments addressed in the current rulemaking package. The commenter notes that the 2010 CALGreen currently addresses woodstoves, pellet stoves and fireplaces as though they are qualified with the same U.S. Environmental Protection Agency (EPA) Phase 2 qualification. Commenter further requests that CALGreen be amended to recognize the separate standards EPA has outlined for woodstoves and pellets stoves versus fireplaces.

**HCD RESPONSE:**

HCD appreciates the comments received; however, the commenter's proposed amendments fall outside the scope of this rulemaking. HCD will be re-evaluating the commenter's suggestions and incorporating changes currently considered by EPA for purposes of the 2013 CALGreen code.

**H. COMMENTER:** Wayne Stoppelmoor (EM-H)  
Schneider Electric  
3700 6<sup>th</sup> Street SW  
Cedar Rapids; IA 52404  
[wayne.stoppelmoor@schneider-electric.com](mailto:wayne.stoppelmoor@schneider-electric.com)

**COMMENT: EM-H. Section A4.106.6:** The commenter expressed support for HCD proposals that advance the installation of electric vehicle charging infrastructure. However, the commenter requested that HCD consider three key elements: multiple options permitting the most cost effective installation to encourage future installation; requiring the National Electrical Code (NEC) to serve as the electrical infrastructure installation requirement document; and the application of an energy management system with the EVSE. To comply with the above three elements listed, the commenter requested further amendments to the proposed language, and submitted his preferred modifications to Section A4.106.6.

The commenter provided suggested revisions to clarify that the raceways must be installed in accordance with the California Electrical Code (CEC); and added another option allowing for the installation of 240V/40A branch circuit instead of trade size 1 raceway; and suggested that the circuit breaker and cable instead of a raceway be clearly permitted.

The commenter also stated that the original EVSE location requirement (within 5 feet of residential parking area) must have been deemed to be too restrictive; however, noted that it is import to establish the desired location rather than guide users to run a conduit into the attic when they could have more easily placed a box on the wall of the garage a few feet from the service panel. The commenter supports the newly proposed language (allowing a raceway to terminate in an attic or other approved accessible location), but as an exception; and also suggests that it must be made clear that the maximum ampere rating of a level 2 charger is 80A for the second exception.

The commenter questioned how HCD made the determination that a 40A circuit may require a home over 2000 sq ft to need a larger main service and further suggested that since the EV charging load is considered continuous, then the 40A EV charging circuit is a 32A load to the home, and this rating must be taken into consideration. The commenter also thought "that homeowners should be given the option to consider the installation of a circuit or raceway as the load calculation is simply being pushed off that will require a service change which means even if you have an EV Capable circuit, you do not have an EV Capable" service panel."

The commenter is of the opinion that Energy Management Systems in homes or as a feature of the EVSE may permit the EV charging to be reduced or even shut down while other loads are active in the home or business, and that the energy management system must be recognized for not only new installations but to address concerns on the existing electrical infrastructure. The commenter further notes that load managing the EVSE for multi-family and other installations is a foreseeable technology that must be included in order to support safe, cost effective implementation of EV infrastructure installation.

#### **HCD RESPONSE:**

HCD proposed amendments to Section A4.106.6 after lengthy discussion with state agencies, stakeholders, manufacturers, enforcing agencies, and the building industry. On, May 17, 2011, midway through the 45-day public comment period, HCD held an interested parties work group to address HCD proposed Express Terms and solicit additional input. HCD's initial EV proposal was based upon language provided by the California Air Resources Board. After receiving additional comment and further internal review, HCD decided to make modifications to the initial proposal.

In the opinion of our stakeholders HCD needed to offer more flexibility in our proposed regulations to accommodate changes in technology.

Currently, the approved connector (J1772) for Level 2 EVSE allows for currents as high as 80A. HCD believes a pre-wired dedicated 40A circuit is sufficient for the charging of some electric vehicles, but not nearly all. The language initially proposed, did not provide flexibility and could potentially limit consumer choice in the purchase of a new electric vehicle based upon charging system capability.

HCD removed proposed language requiring termination of EVSE 5 feet from the parking area not to add confusion, but in recognition that homes have multiple design configurations. Adding language to allow raceways to terminate in an accessible area is providing cost effective guidance. HCD believes the most efficient method of compliance is to run a raceway from the bottom of a service panel to an enclosure inside the garage but must allow flexibility in design.

HCD staff completed load calculations for an “average” 2000 square feet single family residence and it showed that the installation of a 40A dedicated branch circuit (the minimum rating for Level 2 EVSE) would generally require upgrading the electrical service panel from 200A to 400A. Installation of a trade size 1 raceway was preferred as an economical way to allow consumers and builders more options for installation of EVSE as it would not require advanced load calculations and expensive service panel upgrades. A trade size 1 raceway is adequate for installation of a 40A branch circuit, but also allows for branch circuits larger than 40A. Installation of some Level 3 EVSE’s may also be possible. The language in the exception allows other approved pre-installation methods to be utilized, which would include pre-wiring, if sufficient conductor and service capacity is provided. Electric vehicle charging is an elective measure. HCD is proposing a minimum standard of compliance that is economical and practical. It is not intended to restrict or discourage a homeowner or developer from providing a 40A receptacle, circuit breaker and conductors if that is the method or option they wished to utilize. Design choice is in the hands of the developer and/or homeowner and these provisions are not intended to restrict design choice.

Raceways must be installed in accordance with the California Electrical Code. HCD believes that Section 101.5.2 of CALGreen, clearly states that the provisions of the California Electrical Code shall apply to the installation of electrical systems and repeating this requirement in Section A4.106.6 is not necessary.

Energy Management Systems (EMS) for multi-family and other installations may support safe, cost effective implementation of EV infrastructure installation, but because EMS was not part of any initial discussion or proposal by HCD, there is not sufficient time to discuss the merit of those systems with our stakeholder or propose any additional modifications regarding that type of system. However, there is nothing in the proposed regulations that preclude such systems. HCD believes that the electrical load calculations, either with or without energy management systems, shall be based on the current edition of the California Electrical Code.

HCD appreciates and thanks the commenter, but is not proposing to make other modifications at this time.

**I. COMMENTER:** Armando Romero (**EM-I**)  
Los Angeles Department of Water and Power (LADWP)  
111 North Hope St.  
Los Angeles, CA 90012

**COMMENT: EM-I. Section A4.106.6.2:** The commenter approves HCD’s proposed amendment to Section A4.106.6, but suggests HCD modify the language in Section A4.106.6.2. The commenter proposes to include language clarifying that when the application of the 3 percent results in a fraction, the number of charging spaces required shall be round up to the next whole number. The commenter further notes that this language is included in the City of Los Angeles amendments to the 2010 CALGreen, and expresses an opinion that the proposed amendment would be useful for owners or designers.

**HCD RESPONSE:**

HCD appreciates and thanks the commenter for taking time to share his opinion. HCD believes that the part of this section covering the number of charging spaces required is sufficiently clear as written, and is not proposing to make any change at this time.

Section A4.106.6.2 states that at least 3 percent of the total parking spaces, but not less than one, shall be capable of supporting future electric vehicle supply equipment (EVSE). If the calculation of the 3 percent results in a fraction, the number of charging parking spaces shall be round up to the next whole number; otherwise, it won’t be in compliance because the number of charging spaces will be less than 3 percent.

**J. COMMENTER:** Michael Wolfe (**EM-J**)  
Scientific Certification Systems (SCS)  
2000 Powell Street, Suite 600  
Emeryville, CA 94608

**COMMENT: EM-J. Section A4.405.3:** The commenter notes that there is no scientific basis for assuming the 50/50 pre- and post-consumer balance reflects reality. SCS has over 15 years experience certifying recycled content claims and notes that nothing supports developing such a ratio. SCS notes that standard auditing protocols used by SCS and other certifying bodies call for the classification of material that cannot be verified as post-consumer default to classification as pre-consumer.

**HCD RESPONSE:**

HCD appreciates the comments received, but is not proposing to make other changes. HCD's original treatment of recycled content reported as a single value was to deem the amount to be 100 percent post-consumer recycled content. However, comments were received that this would be unfair to those submitting complete reports on pre-consumer and post-consumer recycled content; therefore, HCD amended its proposal to deem single reported values as half pre-consumer and half post-consumer. Although the assignment of these values may be construed as arbitrary, unfair or capricious, it would be equally so to deem a single recycled content value as wholly pre-consumer. The objective of CALGreen at the Tier 1 and Tier 2 levels is to encourage and ensure the use of materials with recycled content. HCD realizes that manufacturers will need time to adjust to complete reporting or full value of the recycled content may not be recognized; we are not encouraging the use of single recycled content values. Using the proposed 50/50 proportions, some products may incur a benefit and other products may be "shortchanged" on recycled content and values are not scientifically or technically supported. HCD also recognizes that as a certifying organization, SCS would need to adhere to strict standards based on the ISO guidelines to provide consistency in certification and maintain quality control and organizational integrity. It is understood that without complete data only the verifiable portion of recycled content can be recognized for SCS certification purposes.