

**Commentary to
California Green Code
45-Day Comment Period**

To

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By

Build It Green

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Comments to California Green Code 45-day Language

Introduction

Build It Green has been a leading provider for residential green training, tools and resources in California since 2004. Having managed the development and implementation of a third party rating, GreenPoint Rated, since mid 2006, Build It Green has experience with the application of green building best practices; the reasonableness of implementation, the method and ease of verification, as well as the relative benefits.

Build It Green submits the following comments to the Building Standards Commission (BSC) and Housing and Community Development (HCD). Build It Green has been working diligently to transform the residential construction industry and bring green building to everyday construction. We are proud of California and its forward thinking to develop a green code. Our hope is that California will be a leader to the rest of the nation in developing a clear, concise and feasible green building code. We appreciate that BSC and HCD have opened discussions with interested stakeholders as we believe with our collected efforts and experience a strong green building code can be accomplished. We also wish that all the BSC, HCD and stakeholders see this code as an evolving process and understand the need to make consistent practical steps which help move the entire industry forward together.

Build It Green also supports and has signed onto comments made by the US Green Building Council.

With permission, many of Build It Green's specific technical comments are incorporated into the comments submitted by the California Building Industry Association (CBIA). With our experience the CBIA asked us to provide commentary on the proposed California green building code, with particular attention to the feasibility of construction, based on, among other issues, clarity of code language, verification requirements and availability of product and knowledge to the fulfill the measure.

General Comments

Green building, as a comprehensive building practice, is still very new to the industry and to the general public. At Build It Green, we believe that it is important, if not imperative that the leaders of the construction industry set standards which will effectively guide the changes with as much clarity, integrity and feasibility as possible to keep confusion and frustration to a minimum.

Our experience has shown that consistent and practical steps backed by credibility and clarity are critical in making the necessary changes. We caution against enforcement of practices if those qualities are lacking, as it leads to confusion and ultimately a more difficult pathway forward.

In developing our third party verification program, GreenPoint Rated, we employ a set of criteria to determine which green building practices will be included in the program. Once it is determined that a practice has clear environmental benefits, it is scrutinized to determine if a best practice measure can be defined and verified. The following criteria are used:

- Clear – obvious in intent and associated environmental benefits
- Concise – clear / concise / understandable requirements
- Doable – reasonable / feasible in requirements
- Documentable - not requiring extraordinary effort to document conformance
- Verifiable - easily determine the intent is achieved

An explicit example of the criteria in use is relative to the practice of on-site storm water retention. While the benefits of the practice have been undeniable for years, up until now, there has been no storm water retention measure in GreenPoint Rated. It was not until this year that we were able to write a measure with clearly defined criteria and verification protocols.

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In our review and critique of the 45-day language for the California green code, we applied the same scrutiny as we do to our own program. We found that measures in the California green code 45-day language vary widely in their clarity and definition. The feasibility of some measures may depend on the final measure definition which is in many cases missing and unfortunately appear to be a task to for a later date. Poorly defined mandatory measures for Tier 1 and Tier 2 could be most troublesome in that differing interpretations will have great influence on the feasibility of the measure.

Local jurisdiction building officials will be tasked with interpretation and enforcement of the code. While some compliance of the code measures could be verified through site inspection, many of them require interpretation and documentation. Green building knowledge is a specialty expertise that, like any other discipline, requires education and experience. Lack of expertise will lead to confusion, inconsistency and falling short of the intended goals and benefits.

Recommendations

Build It Green strongly supports the well defined measures and thresholds relative to energy efficiency, water efficiencies, many of the indoor air quality measures, and especially the formaldehyde limits. We advise and support a strong well-defined code that addresses our most pressing issues and is practical for all users.

Build It Green supports the majority of the mandatory code section, but cautions that low VOC residential carpet still has limited availability in the marketplace. We discourage mandatory measures that do not meet our stated criteria above or are not well-defined practices within the industry. At the very least, questionable measures should be excluded as a requirement within the Tiered structure of the code. This allows the identified practice to be introduced into the marketplace while builders, building officials and code developers advance their understanding and clarity on code issues.

Build It Green's GreenPoint Rated manuals very explicitly define many of the intended measures in the code and have been vetted by state and nation experts commensurate to each measure. We encourage referencing this manual for clearer definition of questionable measures.

Technical Comments by Division

Division 4.1 – Planning and Design

General Comments

In general, the measures in the planning and design section of the Green Code are not well defined and could be problematic for builders planning and implementing their projects as well as for local jurisdictions trying to enforce them. It has been our experience that it is common for verification requirements to vary from jurisdiction to jurisdiction as well as within different departments of the same jurisdiction

Mandatory Measures

Build It Green supports the mandatory measures.

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Tier 1 and 2 Requirements

- The Tier 2 requirement of 5 planning and design measures could be quite difficult to achieve in some situations, due to lack of clarity in the measure description, as well as limited site applicability of many of the measures. The landscape measures are consistently doable but will have varying benefits dependent on the amount of landscaping installed by the builder and whether a project is in an urban, suburban or rural setting.
- Regarding, the Tier 1 mandatory measure A4.1.6.2.3 for stockpiling of topsoil, it is rare, in Build It Green's experience to find topsoil worthy of implementing this measure and a very difficult practice to implement even when the possibility exists. Identification of horticulturally suitable top soil versus simple "dirt" makes this measure even more problematic, as identification is not within the expertise of most building inspectors or builders. This requirement will easily lead to confusion among the affected parties without realizing the benefits. Furthermore, benefits of the measure will not be realized unless additional criteria language is included which limits stockpiling to 6' in height. The GreenPoint Rated system contains clear language for specification and verification.
- The Tier 2 mandatory measure A4.1.6.2.4 regarding delineating the construction area is a difficult and rarely implemented measure, except on very large custom lots. Without clear definition, the benefits inherent in this practice will likely not be realized. The GreenPoint Rated system contains clear language for specification and verification.
- Tier 1 and Tier 2 mandatory measures A4.1.6.4 requiring permeable paving should be closely reviewed. Issues of handicapped access and walking safety could be of concern for builders. Site applicability and best practices will need to be understood and incorporated into any permeable paving measure, whether mandatory or voluntary. Measurement of percentage of perviousness also requires better definition.

Voluntary Measures

- Voluntary measure A4.1.6.3.1, which calls for restoration of a site is poorly defined and not well suited for building official verification.

Division 4.2 – Energy Efficiency

General Comments

No comments

Mandatory Measures

Build It Green supports the mandatory measures.

Tier 1 and 2 Requirements

Tier 2 mandatory requirements include building 30% above the Title 24 Energy code and implementing 8 additional measures. While it will be costly for builders to meet this threshold, it appears that many of the code measures for getting to 30% above code, are also given credit within the 8 additional requirements. Verification of many measures would be completed by a HERS raters and therefore not create an extra burden to the builder.

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Voluntary Measures

A few measures are poorly defined and could easily cause confusion or fail to be effective in generating the intended benefits.

- Voluntary measure A4.2.7.1 – Alternative Space Heating. The options for alternative are limited yet also boundless. Secondly, just because the system is “alternative” to the norm, does not guarantee that it is more effective or efficient. Most building officials do not have the expertise to make this determination.
- Voluntary measure A4.2.8.3 – Hot water system minimizing wait time. Engineering and installing plumbing systems to realize savings calls for detailed information, specifications, performance requirements, and installation direction. GreenPoint Rated clearly defines practices identified by CEC research and under the consultation of former CEC research specialist Gary Klein. In Mr. Klein’s research studies and experience, many so called water systems do not realize the benefits claimed. Few builders have been able to implement a system that complies with the criteria identified by Mr. Klein. Just reducing the size of plumbing pipe will not guarantee water savings as installed flexible piping systems often far exceed the necessary length of line to housing fixtures.
- While planning for future solar in measure A4.2.11.3 is applauded, it is Build It Green’s experience that roof penetrations for the future solar are not a best practice. Build It Green recommends that all utility lines associated with such a system be terminated in the attic or made at a future date for best water resistant practices. Furthermore, it is our experience that solar installers have different preferences for where they choose to run their utility lines. The GreenPoint Rated system contains clear language for specification and verification.

Division 4.3 – Water Efficiency and Conservation

General Comments

The water conservation practices outlined in the green code are comprehensive and should lead to measurable benefits. Most of the water efficiency benefits will be gained in the mandatory measures and the mandatory measures included in the Tiers.

Mandatory Measures

Build It Green supports the mandatory measures and applauds the efforts to reduce indoor water use.

Tier 1 and 2 Requirements

The additional 2 required measures in Tier 2 may be difficult to accomplish as most practical water efficiency practices are addressed in the Mandatory code section and Planning and Design section. Some measures that could lead to confusion or problems are:

- The mandatory measure A4.3.3.1 for Tier 1, calling for a 1.5 gal per minute kitchen faucet may not achieve the intended benefit. It is Build It Green’s experience that, as much of the work done at a kitchen sink involves filling of containers, low flow fixtures create customer complaints.

Voluntary Measures

- Voluntary measure A4.3.4.1, for low flow irrigation systems is not well defined and may not lead to the intended benefits unless there is clear definition on emitter flow rates, number of emitters, and design of emitter layout with respect to plant needs.

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The water budget is the more appropriate section for addressing this practice.

Division 4.4 – Material Conservation and Resource Efficiency

General Comments

No comments

Mandatory Measures

No comments

Tier 1 and 2 Requirements

The Material Conservation and Resources section of the code could be the most problematic for builders, especially under Tier 2. Measures are poorly defined and contain difficult compliance thresholds. Both qualification for some individual measures and meeting the required quantity of measures (5 total) could be very challenging under Tier 2.

- The Mandatory measures for Tier 1 and Tier 2, A4.4.5.3 regarding recycled content material is difficult if not impossible to accomplish, depending on how it is interpreted. The measure could be interpreted to mean that the builder must include one product with 10% recycled content on the project or it could be interpreted to mean that 10% of all products used on the project must be recycled content. It is Build It Green's experience that the second interpretation would be nearly impossible to meet except in very unusual circumstances.
- The mandatory Tier 1 and 2 measure A4.4.8.1, requiring 65% and 80% waste diversion could be very problematic to achieve. In Build It Green's experience, it is only the most sophisticated builders along with a very sophisticated waste hauling firm operating within a jurisdiction that is well established for efficient and effective waste diversion, measurement and documentation that can comply with these thresholds, especially the higher, 80% tier. Verification has proven itself to be difficult and complicated.

Voluntary Measures

- Voluntary measure A4.4.4.1, Minimize beams, headers and trimmers may seem simple, but it is very poorly defined and to truly meet the intended benefits requires framing in a very unconventional practice.
- Voluntary measure A4.4.5.4 regarding renewable resources is also poorly defined, difficult to meet and even more difficult to verify. Two of the products listed, engineered wood products and solid wood products do not fit the stated criteria of products harvested within a 10 year limit.
- Voluntary measure A4.4.7.4 regarding protecting building materials from rain and moisture is an impossible requirement as building materials delivered to the site always experience rain and will be problematic and prone to varying compliance requirements

Division 4.5 – Environmental Quality

General Comments

Many of the code measures in this section are well defined and follow familiar thresholds already established in the State.

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Mandatory Measures

- Build It Green strongly supports and applauds the inclusion of indoor air quality measures, with particular acknowledgement for the inclusion of Measure 4.5.4.6 for reduction formaldehyde in composition woods.
- The mandatory measure 4.5.4.4 regarding carpet systems includes a requirement to meet CRI Green Label Plus, SCS Indoor Advantage Gold, or Department of General Services California Gold Sustainable Carpet Standard. Recent research affirms the importance of installing low emitting products in tight homes. Product availability is a limiting factor to producing homes with lower emission products and such is the case with this measure. There are a several issues worth mentioning relative to this measure.
 - The SCS Indoor Advantage Gold is a designation specifically for commercial grade carpet. There are 29 certified individual commercial products from 7 manufacturers with this label.
 - The California DGS's California Gold Sustainable Carpet Standard is specifically for commercial products and has been able to certify 18 individual commercial products from 7 manufacturers
 - Green Label Plus product availability is still quite limited at this time. The entry level thresholds and certifications of CRI Green Label represents less stringent requirements, but may have more residential product availability. Further research would be recommended.
- Mandatory measure A4.5.3.1 regarding fireplaces gives options for sealed gas fireplaces, but also a technically illogical option for a sealed wood-burning fireplace or sealed wood-stove. Such stoves cannot be sealed or they would not be able to be loaded with wood. Furthermore, wood burning fireplaces are not considered a green alternative. A definition, or better, removal of wood burning fireplaces would be more helpful for this measure.
- Mandatory measure 4.5.5.3 requiring all framing to meet 19% moisture content prior to enclosure will be challenging to meet during wet seasons or along the coast. Green lumber is typically higher than 20% moisture content already and may or may not dry out below 19%. Kiln dried lumber (an expensive option) can also easily acquire higher moisture during the inevitable rain experienced in the construction process.

Tier 1 and 2 Requirements

No comments

Voluntary Measures

No comments