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<b>DOCKET</b>	
<b>10-BSTD-01</b>	
DATE	OCT 31 2011
RECD.	OCT 31 2011

October 31, 2011

California Energy Commission  
Dockets Office, MS-4  
1516 Ninth Street  
Sacramento, CA 95814-5512  
Via email: [docket@energy.state.ca.us]

To: Mazi Shirakh

**SUBJECT: Docket Number 10-BSTD-01  
Comments on Proposed 2013 Building Energy Efficiency Standards**

The California Building Industry Association (CBIA) is a statewide trade association representing over 5,000 member-companies involved in residential and light-commercial construction. CBIA-member companies produce over 90% of the new residential dwellings constructed in California on an annual basis.

Please be advised that the California Building Industry Association is strongly opposed to the Draft Residential Building Energy Efficiency Standards as presented at the October 13<sup>th</sup> and 14<sup>th</sup> Staff Workshops.

CBIA's comments will be broken down into three categories; "general comments" focusing on issues related to overall compliance, "specific (technical) comments" associated with individual technical proposals within the standards and "general policy concerns".

Our opposition notwithstanding, CBIA would like to extend a special note of thanks to the CEC Staff, and especially to Mazi Shirakh and Martha Brooks, for their efforts to address CBIA's individual technical concerns and for joining with CBIA in the effort to identify the overall compliance costs associated with the proposed standards.

**General Comments**

CBIA's opposition stems largely from the substantial and unprecedented cost increase associated with the draft proposed Standards. And given the historical and enduring downturn in our economy, CBIA is also deeply concerned with what can only be characterized as remarkably poor timing associated with the implementation of these standards (1/1/14) and the short-term, negative impact these standards will have on jobs.

**Unprecedented Increase in Stringency = Unprecedented Increase in Cost:**

Right now, the CEC Staff is proposing to increase the overall stringency of the mandatory minimum standards by approximately +25%. This is significantly more stringent than the 15% goal as indicated just a year ago. If this +25% goal remains in place, it will be the single largest increase in the stringency in the CEC's 35-year history.

The CEC has been updating the residential energy efficiency standards on a very regular basis. Over the past nine years, the CEC has increased the overall stringency of their standards by 50% {+15% in 2002; +15% in 2005; and +20% in 2008}. This has led to a point of diminishing returns. The cost of getting that next increment (+1%) of energy savings is now costing 2-3 times more than what it did over the previous four updates of the standards. And this will have an especially negative impact on housing affordability in those jurisdictions that choose to adopt “reach codes”.

**Expected compliance costs by region:**

As with past updates of the Residential Energy Efficiency Standards, CBIA has focused a great deal of time and effort determining the estimated cost of compliance as the regulatory proceeding moves forward. To date, we have performed cost impact analysis on five of the sixteen climate zones. It is our goal to have analysis for the remaining eleven climate zones completed within the next 4-6 weeks. To date, our analysis shows the compliance cost ranges for the following regions of the state.

CZ 13: Central Valley (Madera, Fresno, Bakersfield).....	\$5,654 - \$7,290*
CZ 12: Sacramento Valley (Sacramento, Stockton, Modesto).....	\$5,158 - \$6,766*
CZ 10: Riverside County.....	\$4,403 - \$4,956*
CZ 04: Bay Area .....	\$4,298 - \$4,904
CZ 07: San Diego.....	\$3,445 - \$3,800

*\*It is worth noting that UCLA’s School of Economics recently identified California’s Central Valley and Riverside regions as those areas of the state that will take the longest to emerge from the enduring economic downturn confronting the state. This is the same geographical region where compliance costs associated with these standards will be the highest.*

A breakdown of the individual costs is summarized in the following table:

<b><u>Estimated Compliance Cost per Home:**</u></b>	
DOE (Federal) Mandated HVAC Changes:	\$1,238
CEC Mandatory Statewide Measure Changes:	\$200 - \$300
CEC Climate Zone Compliance Package Changes:	<u>\$2,007 - \$5,572</u>
<b>Total Cost per Home:</b>	<b>\$3,445 - \$7,290</b>

*\*\*Please note that these estimates were generated using the draft packages presented at the October 13<sup>th</sup> and 14<sup>th</sup> Workshops. Changes to these estimates will be made as new information becomes available and will be promptly shared with CEC Staff.*

**Bad Timing**

**General State of the Industry:** California’s homebuilding industry is currently in the middle of the worst economic climate since industry began keeping statistics in 1955. Economists predict for the next three to five years there will be an excessive inventory of homes from foreclosures which produces downward pressure on new home pricing from lower appraisal values and excessive supply. Both homebuilders and homebuyers are finding it increasingly difficult to obtain financing from lending institutions. Tightening of credit requirements and excessively large down payments (20% and up) have knocked most homebuyers (including those with good credit ratings) out of the home buying market.

**Major Cost-Cutting Efforts Underway:** All of this has prompted many in the building industry to substantially change the design of the product they are marketing, including large reductions in square footage and (most importantly) **significant cost-cutting measures aimed at reducing standard material and labor costs.** More than ever, industry is focusing on reducing construction costs to a bare minimum.

**Marketing Challenges:** Given the 45%-50% increase in the stringency in California's energy standards over the past nine years, it is becoming extremely difficult to differentiate the "improved energy efficiency" value of a new set of energy standards from the standards they replace. Case in point: A home built to the 2008 Energy Efficiency Standards is a very energy efficient home. Given that California homes must already be built to the most stringent statewide energy standards in the country, how can industry effectively market the **value** of even tighter (and more costly) energy standards to a typical homebuyer who places price and location above all other considerations.

### **More Bad Timing**

**Recent Changes to California's Building Codes:** In the past 18 months, the State of California has implemented new mandatory building standards resulting in the single greatest increase in code-related construction costs in the past 35 years.

- **Energy Efficiency Standards (effective 1/1/10):** The most recent update to our mandatory energy efficiency standards increased the stringency of the state standards by 20% and added approximately **\$2,170** to the cost of a home being built in California.
- **Green Building Standards (effective 1/1/11):** In January of 2011, California implemented the nation's first (and only) set of mandatory residential green building standards. Depending on the method of compliance chosen by the homebuilder, the cost of compliance with these new mandatory standards will range from **\$500 - \$2,000.**
- **Residential Fire Sprinklers (effective 1/1/11):** By far, the most onerous and costly mandate in recent memory is the state mandate for fire sprinklers in all new single-family dwellings. The cost of this new state mandate can vary substantially, especially if the local fire department or water purveyor adds on local code requirements (or fees) on top of what the state already requires. However, just looking at the minimum cost of compliance with the state mandate will add an estimated **\$3,000 - \$6,000** (\$2.00/sq.ft.) to the cost of a new home. Making matters worse, homebuyers generally do not like having these systems installed, which means this additional cost does little (if anything) to increase the marketability of the new home. Only one other state (Maryland) has adopted sprinklers as a mandate for new homes. All of the other 48 states have either delayed implementation of the mandate or they have taken specific action to not adopt sprinklers at all.

<p><b>Summary:</b> In the past 18 months, the State of California has implemented mandatory building standards that have added an estimated <b>\$5,670 - \$10,170</b> to the cost of building a new home.</p>
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## **Specific (Technical) Comments**

### ***Mandatory Insulation levels***

CBIA supports the removal of the R-15 mandatory wall insulation level and returning to the existing R-13 level. This decision helps to promote design flexibility in how builders choose to comply with the standards without affecting the overall energy use of homes. It also keeps from favoring one insulation product over others in the market, and CBIA supports this type of reasonable accommodation for flexibility in the market.

### ***Hot-Water Plumbing Systems: 1" Pipe Length***

During this rulemaking process, the (new) proposed restriction on the length of 1-inch pipe has been changed from 10 feet to 15 feet. The commission needs to understand that neither restriction represents common practice currently. The CEC has expressed in discussions that the restriction is meant to discourage a practice that is actually uncommon in the market currently, and that typically plumbers avoid long runs of 1" pipe. This is not the case. As the total amount of 1" pipe is decreased, a significant increase in the use of 1/2" or 3/4" pipe would occur. As such, the total length of plumbing pipe in the home would be increased because the use of smaller diameter pipe will increase more than the larger will decrease. The total water volume carried in the pipes would stay the same or increase depending on the home. The proposed rule will result in an increase in total pipe length in homes and therefore increased costs. CBIA is still unclear on how the measure will save energy, since it will increase the total length and volume of pipes carrying hot water in a typical home.

### ***Whole House Fans***

We are still looking for clarification on the technical specifications of the proposed "whole house fan" requirement. Without this information, we are unable to accurately estimate the cost of this measure. Clarifications that are needed include power draw, louver insulation, and noise-suppression requirements.

### ***Solar Ready Requirements***

CBIA is concerned about the practical application of requiring 70% of homes in subdivisions to comply with the solar zone requirement, given the problem of two-story homes causing shading of one-story homes in adjacent lots. In addition, we would strongly suggest the 150°-270° orientation requirement to be expanded to 110°-270°. It has been demonstrated in NREL's subdivision Energy Analysis Tool (SEAT) paper to ACEE in 2008 that collector azimuths can differ significantly from south with little reduction in performance. For example, in Fresno, with a collector tilt of 25 degrees (5:12 roof), azimuths up to 75 degrees west of south and 70 degrees east of south suffer only 10% reduction in annual incident radiation. We understand that the TDV energy is impacted more by orientation than the total energy production. However, it may be more beneficial to plan for flat-load-curve energy use, rather than maximum peak production. The power factor is more favorable in such cases, making connection of solar energy to the grid more efficient, a consideration that becomes more important as the amount of solar energy being interconnected with the electricity grid increases. In the drive to achieve ZNE buildings, focusing on flat-load-curve will make such buildings more compatible with the existing energy grid.

## **General Policy Concerns**

### **Cost Effectiveness**

CBIA does not believe that the proposed standards in their entirety are cost effective. The Warren Alquist Act (PRC 25402) requires that the standards “*shall be cost-effective when taken in their entirety and when amortized over the economic life of the structure compared with historic practice*”. CBIA interprets this statute to mean that the entire regulatory package be cost effective over the life of the building as opposed to each individual measure being cost effective.

From what we have seen to date, the CEC has only evaluated cost effectiveness in terms of **individual** measures. When the entire package of energy measures is considered, less energy is saved than the sum of energy saved by each measure implemented individually, due to interactions between envelope, heating and cooling, and lighting measures. When evaluated in this way, we find from a preliminary life cycle cost analysis that most compliant cases in most climate zones are not cost effective over a 30 year life of the building, and those few that are reach positive cash flow only after 20-25 years.

### **Jobs and Housing Affordability**

New housing currently is competing with the foreclosure market. In the most recent Wells Fargo Housing Opportunity index they estimate that California has from three to four years of excess inventory from foreclosed housing. In the Central Valley foreclosures of recently built housing is selling around \$130,000 while entry level new housing starts at \$185,000. Both housing products have been built to stringent energy codes (T-24 2005 or 2008). Given this differential in pricing it is easy to understand why housing starts are at historic lows. The 2013 Standards are adding \$3,400 to \$7,300 of construction costs which exacerbate this differential. In addition, as new home pricing is increased fewer Californians can afford those homes. National Association of Home Builders estimates that for every \$1000 of cost increase 246,000 Americans are priced out the national market. These Standards will unfortunately drive more potential homeowners from purchasing new homes and thus are short-term job-killers.

Simply put: The substantial cost increase attributed to these proposed Standards will add significant, additional “cost pressure” to a new home construction market already facing historically difficult economic conditions. When combined with the cost-impact of the other recently implemented building code cited earlier, this additional cost pressure will clearly slow down, or in some instances, stop new projects that are under consideration. **Either of these outcomes will result in fewer jobs for the short term and further hinder California’s emergence from this enduring economic downturn.**

### **Significant Reduction in Available Compliance Options**

The CEC is proposing to move a substantial number of existing “compliance options” into the “prescriptive packages” which are used to generate the required “energy budget” for the home. And since the CEC is not adding a similar number of “compliance options” to replace those that have been removed, designers are going to have a much harder time finding a set of features that are both marketable and meet the CEC minimum requirements for compliance. This will make the transition from the current standards to the new proposed standards much harder than in previous updates of the regulations.

### Priorities:

- **New homes vs existing homes:** For the past several years and for the foreseeable future, industry is adding only **1/3 of 1%** to the total housing stock each year. However, of the 13,433,728 existing homes and apartments in California, 9,153,400 (68%) were constructed under building standards containing no required provisions for energy efficiency. Simply put, 2 out of 3 homes in California have never had to comply with any energy efficiency mandate whatsoever. Yet, almost all of the regulatory focus exerted by the CEC over the past 12 years has focused almost entirely on the new housing stock. In 2008, a study funded by the California Homebuilding Foundation (CHF) found that retrofitting existing homes with energy-efficient features was four to eight times more carbon- and cost-efficient than adding further energy-efficiency requirements to new housing. This discrepancy has only increased as the standards this cycle are increasingly subject to the problem of diminishing returns. If California is to reach its greenhouse gas reduction goals, the CEC, along with the PUC and ARB will need to significantly reevaluate their priorities and start focusing on the existing building stock.
- **Plug-load and its impact on “zero-net energy”:** Approximately half of the electricity consumed in homes is related to “plug load” and is not covered by the Building Energy Efficiency Standards. Until the CEC (and other agencies) effectively address (and reduce) overall plug load in a home, the cost of achieving “zero net energy” will remain prohibitively high. Numerous studies by very diverse groups estimate the cost of ZNE compliance to range from a low of \$40,000 to a high of \$80,000. CBIA estimates the cost of ZNE compliance in a 2,400 square foot home to be \$58,000 with 2/3’s of that cost attributed to the large PV solar unit needed to provide the annual energy needs of the dwelling. Unfortunately, implementation of the proposed Energy Efficiency Standards will do very little to reduce the significant “plug load” in these homes.

### **Other Policy Points:**

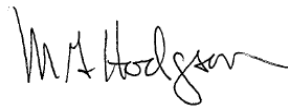
- **Alternative Prescriptive Packages:** CEC Staff has made reference to several Alternative Prescriptive Packages that will be part of the upcoming standards. In particular, staff has referred to a “marketable” prescriptive package that includes PV solar as a tradeoff measure and another that includes some manner of “plug load” strategy as a tradeoff. Industry is very interested in seeing these packages as soon as possible.
- **Simplification of compliance documentation:** In short, CBIA strongly support the position of the California Building Officials (CALBO). There has been and remains a great need to simplify compliance documentation required by the CEC.
- **Availability of Certified Compliance Software:** CBIA supports having certified compliance software readily available at least 9-12 months prior to the effective date of the standards.

- **Reach Standards/New Solar Home Partnership and diminishing returns:** In terms of unintended consequences, the significant increase in stringency (and the related increase in cost) of the proposed minimum standards will have a very negative impact on the local adoption of “reach standards” as well as overall industry use of the New Solar Home Partnership. Given that the incremental cost in achieving the next (+1%) increase in energy efficiency has more than doubled, the cost of implementing local “reach codes” will prompt strong opposition by most local industry groups. This will be in stark contrast to industry’s general response to such proposals in recent years past.

Sincerely,



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**California Building Industry Association**



**Mike Hodgson**  
**Energy Committee Chair**  
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