



California Building Industry Association

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In the matter of:)
)
Pre-Rulemaking -)
2016 Building Energy Efficiency)
Standards Update)
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Introduction:

The California Building Industry Association (CBIA) is a statewide trade association representing over 3,000 member-companies involved in residential and light commercial construction. CBIA member-companies are responsible for over 90% of the new production-style homes built in California each year. CBIA would like to make the following comments regarding the Pre-Rulemaking workshops and meetings for the 2016 Residential Building Energy Efficiency Standards.

General Comments:

The California Energy Commission's 2013 Building Energy Efficiency Standards (BEES) are historically the greatest increase in stringency (27%) since the beginning of the California energy code dating back to 1978. The proposed 2016 Standards are following with a 30%+ increase in stringency from significant changes in roof and wall construction. The construction industry is slow to change due to the significant financial risk from construction defect liability. Large increases in energy code stringency require changes in proven construction practices. CBIA expresses strong reservations to any changes in construction practice that are not market proven, accepted in the building code, and use readily available products that have been vetted for their intended use by the building and inspection trades.

CBIA's preliminary review of costs for the proposed 2016 changes to the Standard exceeds \$5,500. CBIA believes there are modifications to the proposals and possible modifications to the building code that can reduce this very high, unacceptable incremental cost. The rising cost of regulation is making homes unaffordable. NAHB's State and Metro House Price Study¹ released August 1, 2014 estimates that each \$1,000 of incremental cost to new housing prices over 14,400 California families out of the new home market. And it goes without saying that the 2016 proposed set of changes will have a far greater (and negative) impact on small- and medium-size construction companies.

A primary goal of California Long-Term Energy Efficiency Strategic Plan is to reduce greenhouse gas through energy efficiency. The greatest opportunity to reduce energy consumption in housing is to improve the energy efficiency of existing housing. A California Homebuilding Foundation study in 2008² demonstrated it was five to eight times more cost effective to reduce energy consumption in existing homes than new homes. There are over 13 million existing homes in California; the majority of which were built prior to the 1980s (before any energy code). CBIA supports efforts to cost effectively improve energy efficiency in California's housing and emphasizes that the CEC should focus their efforts on the existing housing stock where significant energy reduction can occur.

Over the past nine changes to the energy code we have reached diminishing returns in terms of the savings available from building envelopes, mechanical equipment and water heating equipment. Over half of the energy consumption in new homes is unregulated loads. As the 2016 Standards are developed, CBIA will work with the CEC staff to develop a variable credit for photovoltaic (PV) systems. This variable credit should be allowed against the total energy budget. CBIA agrees that there should be a minimum envelope standard (e.g., 2013 mandatory requirements), after which any trade-off should be allowed. This will result in further encouraging PV in new construction. With the historically downward slope of the PV cost-curve now flattening and the NSHP buy-down terminating as early as the summer of 2015, a variable PV credit would allow the continued growth of PV in new construction and assist in the march toward the State's zero net energy homes goal.

¹ Housing Economics.com; State and Metro Area Prices: the "Priced Out" Effect; Natalia Siniavskaia, August 1, 2014

² Meeting AB 32 – Cost Effective Green House Gas Reductions in the Residential Sector, August 2008, California Homebuilding Foundation

Technical Comments:

The following are CBIA's Technical Comments to the Four Basic Proposals (Attics, Walls, Water Heating and Lighting)

High Performance Attics

CBIA agrees that reducing attic temperature is crucial to improving the cooling energy performance of the home. The proposed options for insulating above or below the roof deck are either not cost effective, an unproven change in building practice, or not allowed by code. Insulating above the roof deck with rigid foam insulation requires an additional layer of OSB to provide roofing product a solid nailing substrate. The cost for insulation above the roof deck and adding an additional layer of OSB for nailing of roofing tiles or asphalt shingles exceeds \$3,000. One could insulate below the roof deck with rigid foam insulation; however, the cost for the labor to cut and adhere the insulation to the underside of the roof deck makes this option cost-prohibitive.

Spray foam is an alternative to insulate under the roof deck. The cost to add R-30 or R-38 under roof deck spray foam insulation is two and one-half times the expense of traditional means of insulation. Under roof deck blown insulation seems to be a promising alternative; however, it violates current California Building Code unless an additional layer of foam sheathing is added between the roof deck and the permeable, blown insulation (CRC Section 806.5).

Other options to reduce the temperature that the HVAC system is exposed to, such as ducts in condition space, are not acceptable to the buying public. CBIA will work with CEC staff to find alternate, cost effective options to reduce attic temperatures.

High Performance Walls

The CEC staff proposal of a 0.05 u-value wall will require significant changes to standard wall construction. The most active source of construction defect litigation is water penetration through walls. The building industry, stucco contractors and window manufacturers and installers have significantly improved installation practices over the last decade, and litigation from water intrusion has greatly diminished. The CEC staff's options to achieve this $u=0.05$ wall are to increase the wall foam sheathing from one inch to two inches, or to install one-inch R-8 foam sheathing.

Increasing the exterior wall foam sheathing to two inches changes the way windows are attached and sealed to walls. Altering the window frame to accept two-inch exterior foam sheathing changes the center of gravity which puts stress on the window at installation. Window manufacturers report that window may bend, warp, or disturb the flashing seal. All of these issues increase the potential for water intrusion.

Another problem from increasing exterior foam sheathing to two inches is the increase in the width of new homes. Currently most lots are built on 35 feet, 40 feet and 45 feet lot widths. Increasing the width of the house by two inches will cause the existing subdivision maps and/or the home construction plans to be redrawn to accommodate the larger width of homes.

The other exterior foam sheathing alternative is to use one-inch R-8 foam sheathing. R-8 foam sheathing of this dimension does not exist in the market today and according to most high density foam sheathing

manufacturers cannot be made. It is problematic to suggest code changes that rely on products that do not exist in the market.

One-inch exterior foam sheathing made from polyisocyanurate achieves an R-6 rating. Polyisocyanurates are faced and need to be protected from stucco. Adding a layer of building paper to the exterior of the foam sheathing, or moving the building paper to the exterior of the wall assembly prior to stucco application may allow for the use of R-6 one-inch foam. Either is a change in construction practice for sealing walls for water intrusion and needs to be vetted by the industry.

CBIA proposes that the wall assembly u-value be based on R-15 batts and R-6 foam sheathing. This would allow the exterior foam thickness to remain close to one inch and not change proven construction practices that prevent water intrusion.

High Efficiency Water Heaters (minimum Energy Factor of 0.82)

Tankless water heaters are commonly installed in production housing. CBIA is concerned whether or not an Energy Factor of 0.82 violates the Federal preemption for storage water heaters. The NAECA Standards specifies a 0.62 EF for storage water heaters effective in 2015.

Lighting

The proposal to move towards Edison-based high-efficacy (LED) lighting is positive. CEC staff and consultants have addressed concerns about efficacy, color quality, dimability, flicker and longevity by proposing strong quality and performance standards in Joint Appendix 8 (JA-8). CBIA is exploring whether these proposed standards are supported by the lighting industry and that an adequate selection of fixtures and bulbs that meet these standards will be available to the housing market.

CBIA believes that prohibiting Edison bases for recessed lighting is an unjustified and costly proposal. CBIA urges the CEC to consider allowing Edison-based recessed cans with JA-8 compliant bulbs as an option to meet the proposed 2016 lighting requirements.

Green Building Standards:

CBIA appreciates the CEC's desire and intent to update its Green Building Standards (Title 24, Part 11), however a couple of administrative comments are in order.

- As indicated by CBIA at the August 6th workshop and supported by several of the CEC staff, CBIA strongly urges the CEC to consider including a "NOTE" similar to that already in use by the Department of Housing & Community Development which explains to the code user that compliance with Tier 2 provisions are very costly and should be considered on a case by case basis.
- As indicated by CBIA at the August 6th workshop, we would prefer the CEC describe and/or define what a Zero-Net Energy home is without formatting it as a third "Tier 3" for the reasons stated at the workshop. Primarily, many jurisdictions will assume that the CEC has already performed the "cost-effectiveness" analysis required by Health & Safety Code 25402.1(h)(2), which is not the case at all. While well intended, the adoption of a ZNE mandate within a local jurisdiction could easily cripple housing affordability on entry level-homes.

- CBIA would urge the commission to strongly consider the development of its Part 11 provisions in a proceeding separate from its Part 6 update. CEC Staff resources are spread very thin as are those of most stakeholders. All of the other state agencies are updating their Part 11 provisions in a process that will see adoption sometime in the first six weeks of 2016 while the CEC is seeking their adoption in May of 2015, a full 7-8 months ahead of all the other agencies.
- As indicated at the August 6th Workshop, CBIA joins with the Pipe Trade Council and others in suggesting any proposed changes to the California Plumbing Code and/or water conservation measures of Part 11 be vetted with interested parties prior to consideration by the CEC as proposed code changes. This includes industry, labor, manufacturers, building officials and, most importantly, the three agencies which currently adopt plumbing related green building provisions (HCD, BSC and DSA).

Conclusion:

CBIA's comments are meant to be part of the constructive dialog in formulating the 2016 Standards. CBIA looks forward to working with staff to resolve outstanding issues and move towards a rapid adoption of the 2016 Standards.

Along those lines and similar to the cooperative efforts between CBIA and Energy Commission staff during the development of the 2013 Update, CBIA looks forward to working with staff in comparing our estimated cost of compliance with those produced by the energy commission for similar types of buildings.