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2019 Residential Standards: High Performance Envelope & Domestic Hot Water

Additional submitted attachment is included below.

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June 16, 2017

To: California Energy Commission – Docket No. 17-BSTD-01

Re: 2019 Residential Standards:
High Performance Envelope and Domestic Hot Water Measures

General Comments

As indicated at the June 1st workshop, CBIA cannot fully evaluate the impact of the significant changes proposed for wall, attic and window efficiency and the movement of QII from a compliance measure to a prescriptive measure without a thorough review of the beta version of the 2019 CBECC software. Once this software is made available, CBIA will initiate the usual impact analysis and follow up with further comments. As with previous updates, CBIA will coordinate this impact analysis effort with CEC staff.

Specific Comments

High Performance Walls and Attics:
To date there has been very little field experience with high performance attics (HPA) and high performance walls (HPW) in the California new residential construction market. Based on permit trends with previous updates of the Standards, CBIA estimates that in the third and fourth quarters of 2017 the market will see an increasing level of compliance with the new Standards as builders begin to submit permits under the new regulations. To date, builders are rarely utilizing 2x6 walls for a variety of reasons, including increased costs, a labor shortage of those familiar with 2x6 framing, and the impact of losing 2" of exterior side yard area (or a similar loss of square footage on the interior of the house).

Due in part to the sporadic field application of HPA and HPW, the incremental costs currently being incurred by builders to comply with the 2016 prescriptive requirements are very high. As more builders adopt these measures the costs should stabilize, but CBIA will not have that data until much later in 2017 when the 2019 Standards proceedings will have entered the "45-Day Language" phase, which is very problematic.

Using incremental costs that CBIA received from a few builders who are currently installing HPA and HPW in California, they are incurring costs significantly higher than predicted by the CEC CASE authors. Preliminary data shows that these builders are currently seeing an incremental cost of approximately $2,100 to $2,800 for HPA Option B and an incremental cost of approximately $4,200 to $5,500 for the boxed netting solution. These figures range from 1.7 to 4.5 times the original CASE estimate.

Builders have also reported that the actual cost of HPW is between $1,550 and $1,800, which is 3.3 to 3.9 times the original CASE estimate. In addition, these costs may not consider recent federal and state worker safety requirements related to confined spaces and fall protection, which our data shows may add up to 10% each to the incremental cost.

An additional variable that will increase the cost of these two measures even further includes the imposition of a 20% tariff on Canadian softwood lumber announced April 25th by the Trump Administration. Most framing lumber used in California is Canadian softwood so this will significantly affect the cost of both HPA and HPW measures.

As with any new building standard, it could take another 12-18 months to gain a very clear understanding of these costs and we understand that this timeframe is not in line with the CEC's need to prepare and release 45-Day Language by December of 2017. Unfortunately, this means the additional increases in stringency currently being considered for the attic and wall insulation levels as part of the 2019 standards could be based on flawed cost data assumptions.

Some areas of California have not fully recovered from the economic downturn and will therefore have more difficulty absorbing the increased costs of the proposed measures, especially the significant decrease in the prescriptively required U-value for walls from 0.051 to 0.043 when they are still having difficulty meeting the 2016 requirement for 0.051 walls cost-effectively.
Due to these difficulties, the industry needs a prescriptive solution that will allow builders to continue to use 2x4 framing. Using R-15 batts with an R-7.5 XPS exterior, a U-value of 0.051 can be achieved with 2x4 framing; therefore, **CBIA recommends that the prescriptive requirement for high performance walls remain at 0.051 for the 2019 standards.**

Quality Insulation Installation (QII)
Changing QII from a compliance option to a prescriptive requirement removes a powerful compliance design option for builders. With the significant increase in prescriptive requirements, it is unclear to CBIA what compliance design options will be available for use by builders in 2020. And, as mentioned earlier, we will be unable to gauge the impact of this proposed change on overall compliance until we have had the opportunity to thoroughly examine the beta version of the 2019 CBECC software.

Compact Hot Water Design and Drain Water Heat Recovery (DWHR)
Providing more pathways for builders to comply with the Standards will help lower costs and allow builders design flexibility in the transition to the 2019 Standards. CBIA supports the compliance option for compact hot water design and supports the adoption of the compliance option for DWHR (both horizontal and vertical) once IAPMO adopts test methodology in either configuration.