“The family home for the 21st century will not result from 20th century valuation metrics and financial vehicles, 19th century development and infrastructure models, 18th century materials and building techniques and 17th century energy sources and resource management. We have a tremendous opportunity to create new solutions for the future of sustainable living for families everywhere.”

– Ron Jones, President and Founder of Green Builder Media
Imperatives Defining the “New Way”

2015 Building Codes

And preventing rollback of recent energy efficiency code wins
National Spotlight:

IECC-R (The Two Biggest Debates: Mechanical Equipment Tradeoff and ERIs)

Executive Summary

Homebuilders and energy efficiency advocates squared off in two key debates at the 2015 IECC-R Final Action Hearing. It took hours to decide these two issues, but in the end, the residential energy code retained its level of energy efficiency, while adding an alternative compliance path that may prove to be historically pivotal.
For those unfamiliar with code hearing protocol, here is a quick synopsis: Each person who wishes to speak gets up to 2 minutes to state their case. The moderator tries to prevent repetitive testimony, but it can be difficult to do. Then, after each person on each side of the debate gets their 2 minutes, each person on each side then gets 1 minute of rebuttal testimony, if they so choose. Witnesses are only supposed to rebut something that was said during the other side’s 2 minutes, but sometimes people simply repeat what they already said in their 2 minutes. Finally, a witness cannot allocate any of their time to anyone else.

Also, a little history is in order: for over two decades, homebuilders were able to hold triennial residential efficiency gains in the energy codes to extremely modest 1% or 2% levels. However, the tables turned when energy efficiency advocates were able to win an 11% gain in the 2009 IECC and a 21% gain in the 2012 IECC (according to DOE). Because of these significant increases in the past 2 code cycles, homebuilder advocates have been trying to minimize any further progress.
Mechanical Equipment Tradeoffs

Knowing that, there was an understandable undercurrent of contention during the entire residential energy code process. The most contested proposal involved mechanical equipment tradeoffs. If it passed, it would allow builders to “trade off” building envelope measures for installing higher-than-minimum-efficiency equipment. The inherent problem with this tradeoff is that builders are already installing higher (than minimum) efficiency equipment, due to widespread marketplace availability and outdated DOE standards. A tradeoff, which was removed from the code in 2009 and kept out in 2012, would have given homebuilders an efficiency credit that they could then use to reduce insulation or window efficiency below the current code minimum. Energy efficiency advocates viewed this as a major loophole and set their sights on defeating it. The stakes were high, as so much pivoted on that vote (hereafter referred to as RE166, the proposal’s assigned number).
The builders, and a couple code officials, spoke first, and there were more people on their side of the podium than any other side of any other proposal. For the less experienced, it could have been viewed as intimidating. They had 26 witnesses, but their testimony centered on four themes:

- Equipment trade-offs don’t roll back the efficiency of the code
- First cost-affordability/Need for builder flexibility
- A few jurisdictions already allow tradeoffs
- Adoptability (Translation: If you don’t allow this, we will continue to contest the code in every jurisdiction that typically experiences resistance)
Twenty-five energy efficiency advocates, including a couple code officials, responded. They countered with statements from all angles, offering an array of perspectives on the benefits of building efficiency, the flaws of roll-back proposals, and who will be hurt most. Testimony included:

- This proposal represents the most significant backsliding on energy efficiency
- The severe impact on low-income families
- EECC’s analysis (conducted by ICF International) that showed adoption of the proposal could reduce a new home’s efficiency by a minimum of 6-9% and by as much as 22%, effectively wiping away the efficiency gains of the 2012 IECC and even some of the gains of the 2009 IECC
- The proposal would hamper a state’s ability to meet the 2009 IECC 90% compliance requirement, a condition of accepting ARRA funding, by 2017
- Widespread adoption of the 2009 and 2012 IECC, neither of which includes tradeoffs
• Many state energy officers strongly opposed the proposal
• Green builders have seen their businesses grow since 2009, while regularly exceeding the model energy code
• Weakened envelopes reduce new home quality and comfort, as well as increase energy demand for mechanical systems
• The proposal would create a 2015 IECC with unequal compliance paths
• Surveys show that 90+ AFUE furnaces are the norm, so the proposal would create a huge “free ridership” problem
• The State of Hawaii supports trade-offs, but not free ridership

• Boulder County opposes the proposal because it will slow the county’s climate goals

• The State of Washington has an equipment trade-off, but unlike the proposal, builders must improve home efficiency by 11% to take advantage of it

• Critics citing local amendments to the 2012 IECC are attacking the I-Code’s greatest strength – the fact that the national model code is a **guide** for localities and states, not a **mandate**

• The City of Austin found that its equipment trade-off reduced long-term energy savings from new homes

• Growth of the industry, both in overall housing starts and publicly traded production builders’ stock prices, since tradeoffs have been eliminated

• Potential that DOE could make a negative determination, which influences government funding to jurisdictions that adopt such a code

After a 2-hour debate, the code officials in the hearing room voted 79-49 in favor of keeping the tradeoffs out of the code for a 3rd consecutive code cycle.
Energy Rating Index Alternative Compliance Path

The other major story of the residential energy code was the energy rating index (ERI) alternative compliance path proposal, also known as RE188. Here is a summary of the proposal from one of the proponents, Meg Waltner of NRDC:

“This new path would allow the builder to comply (with the energy code) by getting a third-party inspection of the home to assess its efficiency using an energy rating index (ERI), such as the RESNET HERS index. The ERI is a measure of the home’s efficiency on a 0 to 100 scale where 0 is equivalent to a net-zero energy home and 100 is equivalent to a home compliant with the 2006 version of the IECC. Homebuilders choosing this path would have to meet or exceed a specific ERI score, in addition to meeting minimum envelope requirements and other mandatory measures, such as insulating hot water pipes.

... Furthermore, the energy rating index is certified by a third party, reducing the burden on code officials and increasing code compliance which adds to overall energy and cost savings. Finally, many builders will likely highlight their excellent energy ratings to the home buyer as a marketing tool, promoting competition and likely incentivizing some builders to build beyond code.”

^4
This debate took an hour to get through, and it was mostly because it had 6 public comments on it. Three comments made a minor tweak to the original proposal, which was already approved by the hearing committee. The other three comments were for disapproval.

This proposal’s debate featured something not often seen at code hearings. Depending on the details of the public comment being debated, sometimes witnesses would switch sides of the debate. There were times when energy efficiency advocates were speaking against the measure, and homebuilders speaking in favor of it. Other times, the two groups reversed sides.

Ultimately, the voting body wanted the original proposal, so that’s what passed. The voting result was 70% in favor, easily exceeding the 50% needed.
Here are the pertinent details on the new compliance path:

A builder can use a HERS rating to comply with the 2015 IECC. The adopted new performance path also requires that a builder must meet the mandatory envelope requirements of the 2009 IECC.

The ERI scores that were adopted (by climate zone) in the 2015 IECC are:

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<thead>
<tr>
<th>Zones</th>
<th>Score</th>
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<tbody>
<tr>
<td>Zones 1 &amp; 2</td>
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<td>54</td>
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<tr>
<td>Zones 7 &amp; 8</td>
<td>53</td>
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**Commentary**

In the end, the code mostly stayed the same in regards to energy efficiency. The new compliance path created through RE188 does give homebuilders a more flexible way to achieve energy efficiency, and in a format that is familiar to many. Fortunately, it maintains the spirit of the 2012 IECC efficiency levels. While there are logistical/implementation issues for the ICC to address, the result of the RE188 vote could someday be viewed as a landmark decision.
The weaker the energy codes are, the less advantage SIPs have.

The stronger they are, the harder it will be for stick-frame to meet the higher performance levels (that SIPs can already achieve).

Be prepared for groups (state HBAs) playing games with a state’s respective HERS index.

It might be easy to fool a group of politicians, especially ones with no (or ancient) housing industry background.
Are Structural Insulated Panels and other building systems adequately participating in the code process?

How can we work together to solve this?

*We have some ideas…*
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