SIP Obstacles and Opportunities from National HERS Raters to a Colorado Net-Zero Production Builder
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Goals of this Session

• Understand what gets in the way of production builders implementing SIPs in their construction process.
• How can HERs raters be allies in implementing SIPs and other energy efficient products.
Production or Custom Builders?

**Production**
- Largest impact
- Slow to change
- Repetition

**Custom**
- More likely to innovate
- Small number of homes
- Unique projects
What Does it Take for Home Builders to Change?

• **Jokingly** - Lawsuits and Code Changes

• **Seriously** – Lawsuits and Code Changes
Law Suite Example

Step Up from Asphalt to Butyl Based Flashing Tape
Why are Home Builders So Conservative?

- The Development Process
- Trade Shortages
- Homeowner Expectations?
Development Process

- Due Diligence and Land Purchase
- Entitlements and Land Development
- Product Development
- Bid and Buyout
- Vertical Construction

Decisions over Time
Trade Shortages

• Need to meet trades and superintendents where they are
• Experimentation is expensive – Have to pay the dumb tax.
Thrive’s Response to a High-Performance Wall

9.5” Thick Double 2x4 Wall

Any framer can frame a wall, this is just framing two.
Homeowner Expectations?

• Most informed buyers in the history of the industry.
• Most likely to care about energy efficiency and green features.
• Know least about what goes on behind drywall.
How can HERS raters be an asset to SIP implementation?

• The Who and Why of HERS Raters
• What is standing in the way.
• What are the next steps.
Who is RESNET?

• Formed in 1995 by a coalition of mortgage industry professionals and state energy officials.
• Goal of developing a market for home energy rating and energy efficient mortgages.
• Developed and maintains the standard for the HERS Index.
Who are HERS raters?

• Applied building science experts.
• Perform the day to day work of inspecting, testing, and modeling new construction homes.
• Are a trusted form of 3rd Party Quality Assurance and “semi-specifiers” for builders.
What is standing in the way?

• Lack of experience inspecting and testing SIP Homes.
• Limitations in energy modeling software.
Lack of Experience

• Typical HERS raters may be unable to accurately explain the benefits of SIPs.
• Even less have inspected enough to know poor vs. quality install.
Do we need an Insulation Grading Standard for SIPS?

• Current ANSI/RESNET/ICC Standard 301 Appendix A refers to
  • Fibrous Insulation
  • Spray Foam
  • Insulated Sheathing

• Gives raters and energy model guidance on how to grade the quality of the install and its overall performance.
Limitations in Energy Modeling Software

- Current energy modeling based on a standard 4x8 SIP panel.
- No verified resources calculating framing factor on larger panels.

Impacts the Assembly R-Value Dramatically. For a 5.5” EPS Panel
- 48” OC Framing – 16% Calculated Framing Factor: R 19.5
- 96” OC Framing – 15% Calculated Framing Factor: R 19.9
- 10% Recommended Framing Factor: R 21.3
Next Steps

• Develop guidelines and training for the inspecting of SIPs
• Create Insulation Grading guidelines for SIPs
• Work with a 3rd Party to calculate verified framing factors for larger panels
Berthoud, Colorado-based EnergyLogic is a software and building consulting company that has provided expert resources, education and support to new home builders and energy raters involved in the construction of high-performance homes since 2006.