Beyond Energy Savings with SPF

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Beyond Energy Savings with Spray Polyurethane Foam

We are all familiar with the energy savings benefits of adding insulation to a home's walls, attic, and crawlspaces. Yet the benefits of using insulation products that not only insulate but help eliminate air leaks or add structural strength go well beyond the satisfaction of lower monthly energy bills. Learn how to communicate these benefits to homeowners so they understand the full benefits of investing in SPF.

Speaker: Thomas Kline, Johns Manville

Agenda

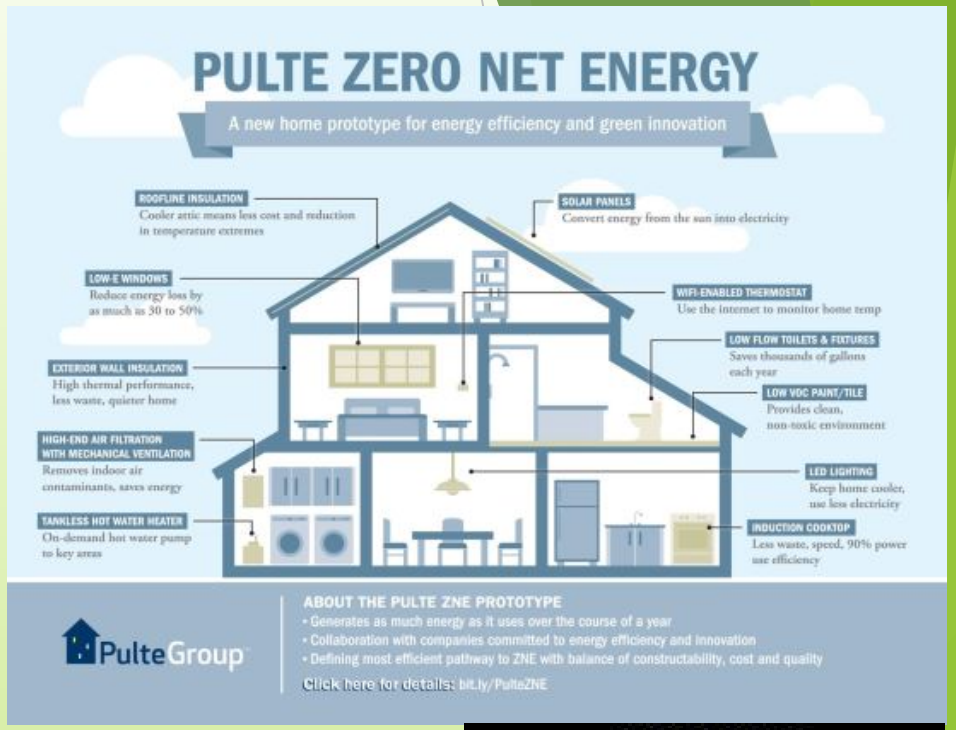
- Advantages of SPF
- Building Code Changes
- Challenging Areas to Air Seal and Insulate
- Builder Trends
- Marketing the SPF Advantages to the Homeowner – Comfort
- Options
- How to Communicate the Benefits of Spray Foam

Builder Message to Homeowners

- "A new home construction comes with energy-saving features that are as kind to your wallet as they are to the environment."
- "The question isn't 'are we causing climate change?', it's 'how can we slow it down?'"
- EnergySaver homes are built tighter, smarter and are constructed using the principles of building science.
- There are a number of financial incentives that you can take advantage of to help you make your home more energy efficient. From energy tax credits to energy mortgages, there's never been a better time to invest in energy efficiency improvements.

Builders Message?

- Net 0 Home
- Energy Star (Grade 1-3)
- HERS Rated
- LEED Certified
- DOE Zero Energy Ready
- National Green Building Standard
- EarthCraft House
- Safety
- Stronger
- Other



Open Cell vs Closed Cell Foam

- **High Density**: often used for exterior and roofing applications

- **Medium Density**: often used for continuous insulation, interior cavity fill, and unvented attic applications
  - Vapor and Moisture Control
  - Adhesion
  - Limited space – higher R-value
  - Structural

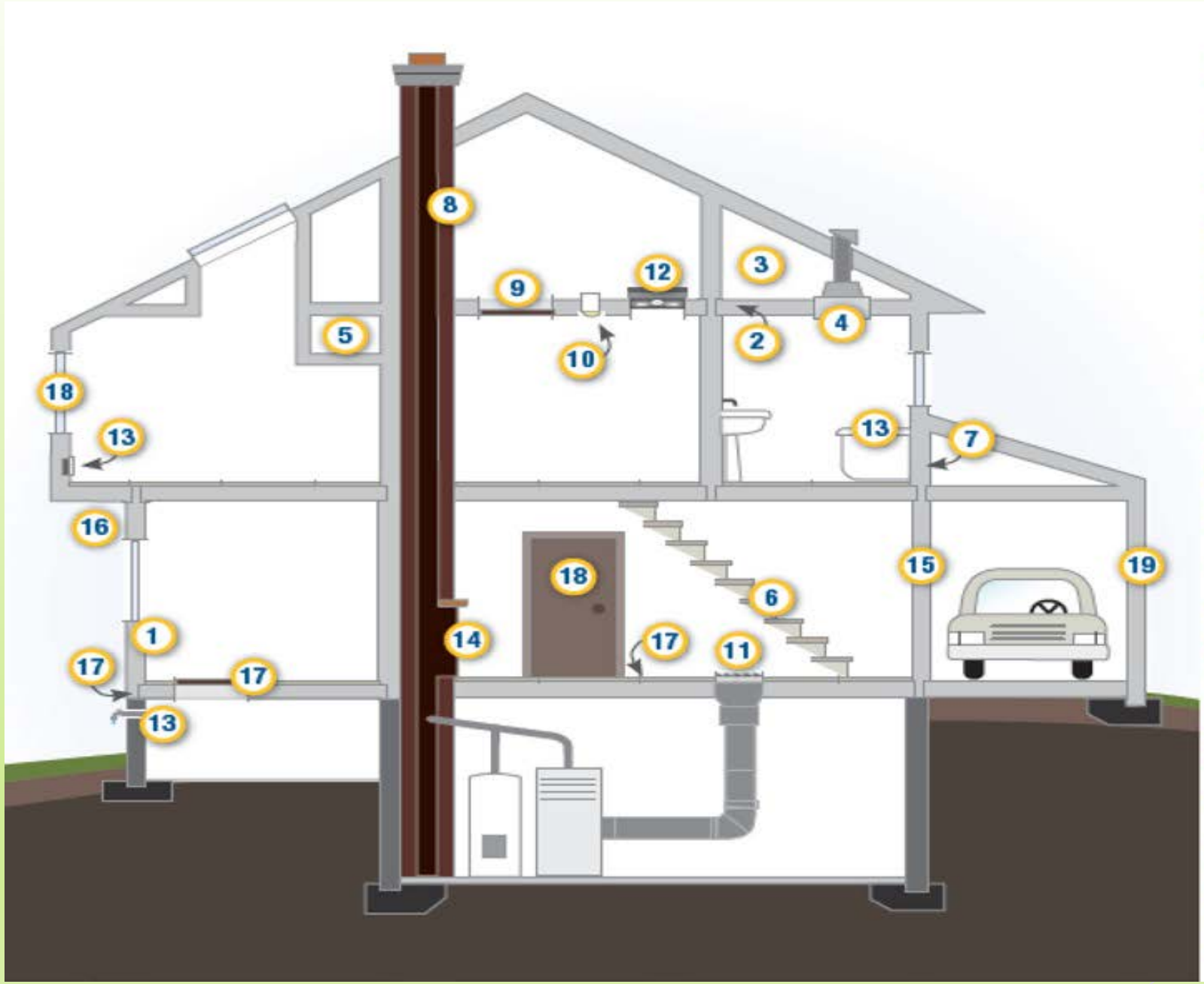
- **Low Density**: often used for interior cavity fill and unvented attic applications
  - Best Value per R-value
  - Limited exothermic

Today's Insulation Business

- The 2015 IECC ***NOW*** requires all new construction and additions be visually inspected AND pressure tested as mandatory requirements. Three options to demonstrate compliance
  - Whole-house pressure test
  - Prescriptive compliance
  - Assembly
- **Climate Zone 2009 IECC vs. 2012/2015 IECC**
  - 1 - 2 < 7 ACH @ 50 Pascal's<_ 5 ACH @ 50 Pascal's
  - 3 - 8 < 7 ACH @ 50 pascals <_ 3 ACH @ 50 Pascal's

SPF “Not Just for Insulation” Options to Air Seal a Home

- Building Wraps
- Interior Sealants
- Exterior Liquid Applied
- Factory Bonded Membrane to Sheathing
- Closed Cell SPF
- Open Cell SPF



Air Sealing Trouble Spots

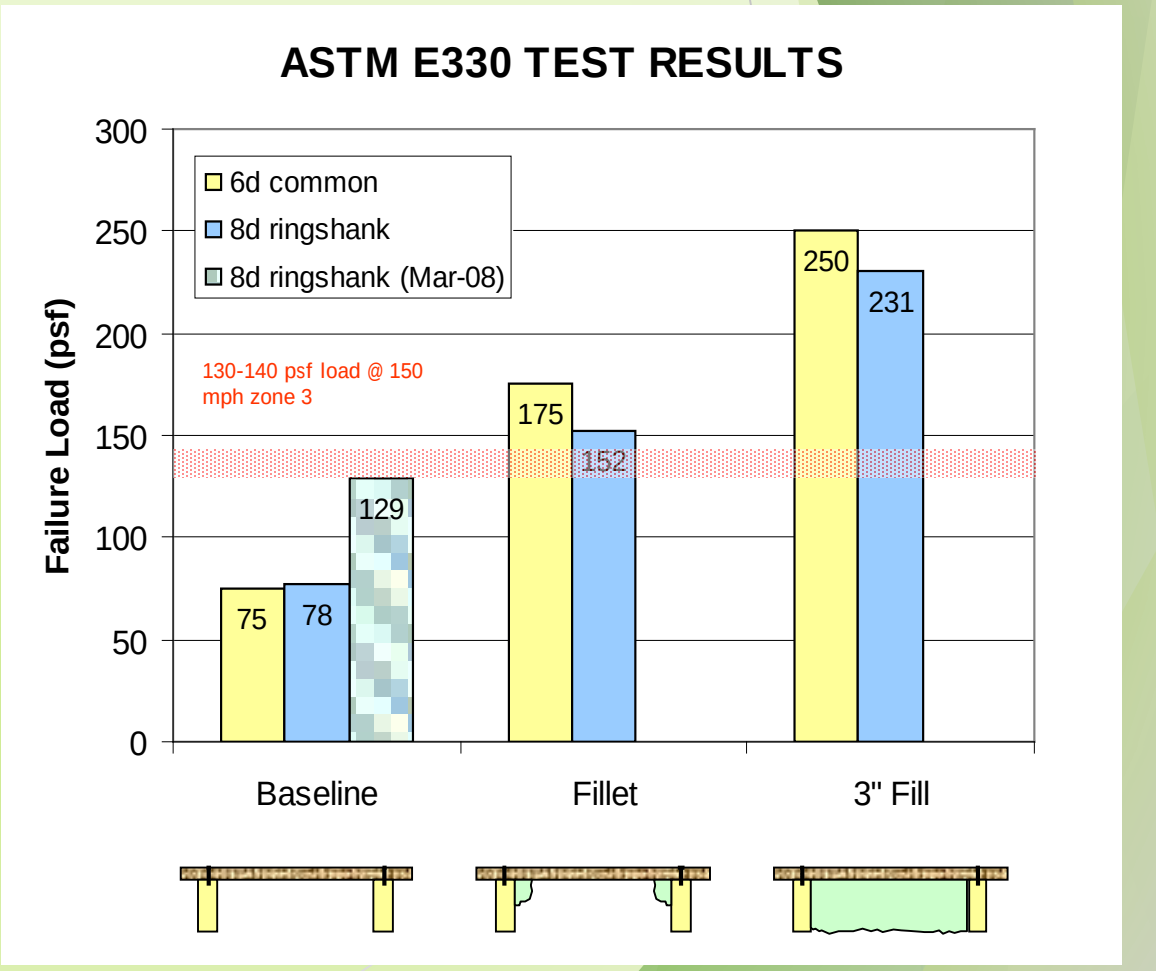
1. Air Barrier and Thermal Barrier Alignment
2. Attic Air Sealing
3. Attic Kneewalls
4. Shaft for Piping or Ducts
5. Dropped Ceiling/Soffit
6. Staircase Framing at Exterior Wall
7. Porch Roof
8. Flue or Chimney Shaft
9. Attic Access
10. Recessed Lighting
11. Ducts
12. Whole-House Fan
13. Exterior Wall Penetrations
14. Fireplace Wall
15. Garage/Living Space Walls
16. Cantilevered Floor
17. Rim Joists, Sill Plate, Foundation, Floor
18. Windows & Doors
19. Common Walls Between Attached Dwelling Units

Spray Foam Solution for Roof Deck Uplift

Unvented Attics with Closed Cell SPF

- 2009 Study at University of Florida (Prof D. Prevatt)
- SPF can meet the 140 PSF wind uplift requirement

170 MPH wind exerts 139 PSF uplift (ASCE7)
150 MPH wind exerts 130 PSF uplift (IRC)



BUILDING CODES - INTERNATIONAL ENERGY CONSERVATION CODE - 2012

Material C402.4.1.2.1	Assembly C402.4.1.2.2	Building Test C402.4.1.2.3

• ASTM 2178
• 0.004 cfm / ft^2
• List of 15 materials that are acceptable – *provided joints are sealed and installed as an air barrier*
	• ASTM 2357, 1677 or 283
	• 0.04 cfm / ft^2
	• List of 2 assemblies deemed to comply, if joints are sealed
	  • Concrete Masonry Walls (coated with block filler or two coats of a paint or sealant)
	  • Portland Cement / sand parge, stucco or plaster (min ½ inch)
		• ASTM 779
		• 0.40 cfm/ft^2
		• Or equivalent method approved by code official

Prescriptive

Insulation & Fenestration Only 402.1.1

U-Factor & "UA" Alternatives

U-Factor 402.1.3 Total Building UA 402.1.4

Simulated Performance (software)

Simulated Performance Alternative 405

Trends

- In 2008 98% of all Insulation applied in Residential Buildings were Prescriptive. (Stated R-Value)
- In 2016 70% was Prescriptive, 25% Performance, and 5% U-Factor
- In 2020 20% will be Prescriptive R-value and 70% U-Factor, and 10% Performance.
- U Factor and Performance Ratings from Manufacturer and Software – Building Science (Energy Pro, CBECC-RES, Rite-Energy)

Today's Builder and Insulation Contractor

Beyond Insulation

- Building Science
- Product Selection
- System Selection
- Value Proposition
- Air Sealing
- Understanding Complex Building Codes
- Manufacturer Alignment

Meritage Homes

Meritage Homes was the first national builder to make every home built 100% ENERGY STAR® certified. We consistently exceed the minimum ENERGY STAR® requirements, build homes that achieve HERS scores as low as 61*, and introduced the first cost-effective NET ZERO home by a national builder.

Devoted Builders

- Spray foam is used to insulate and air seal the “lid” or ceiling deck and any ducts located in the attic in Devoted Builders’ homes in Pasco, Washington.

- The spray foam is covered with more than 12 inches of blown cellulose for the equivalent of R-49 of attic insulation.

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Nelson Construction

- Sprayed urethane closed-cell foam provided a critical seal along floor joists separating the garage from the living space above. Further insulation was provided by un-faced batt.

- Nelson Construction sealed the rim joists with spray foam to air seal and insulate from foundation wall to subfloor.

Custom Builder Orlando Trial February 2017

Stick Pin Applied Prior to SPF

How to communicate the benefits of Spray Foam:

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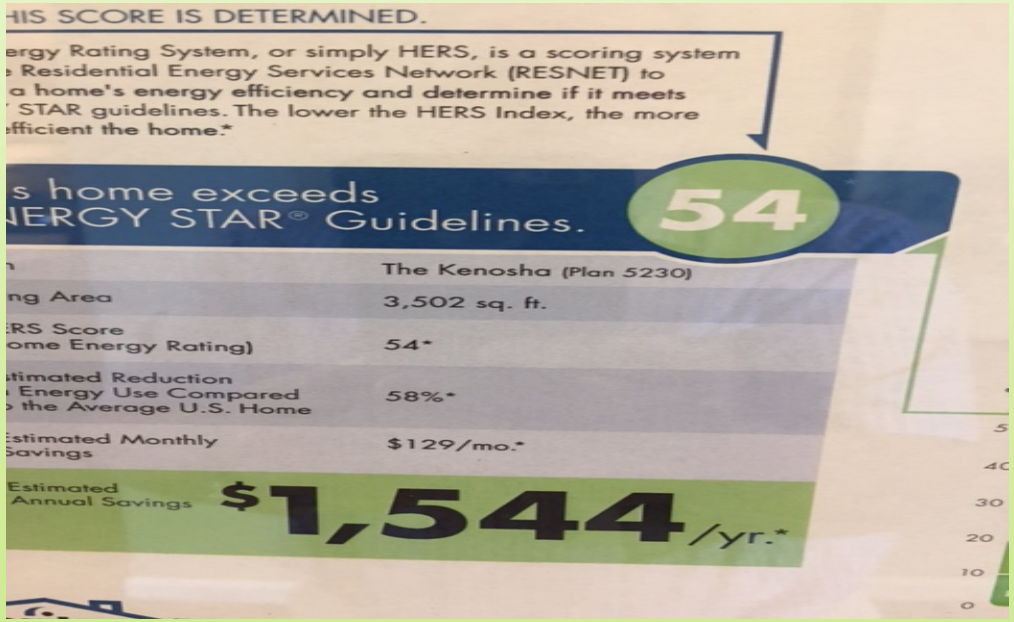
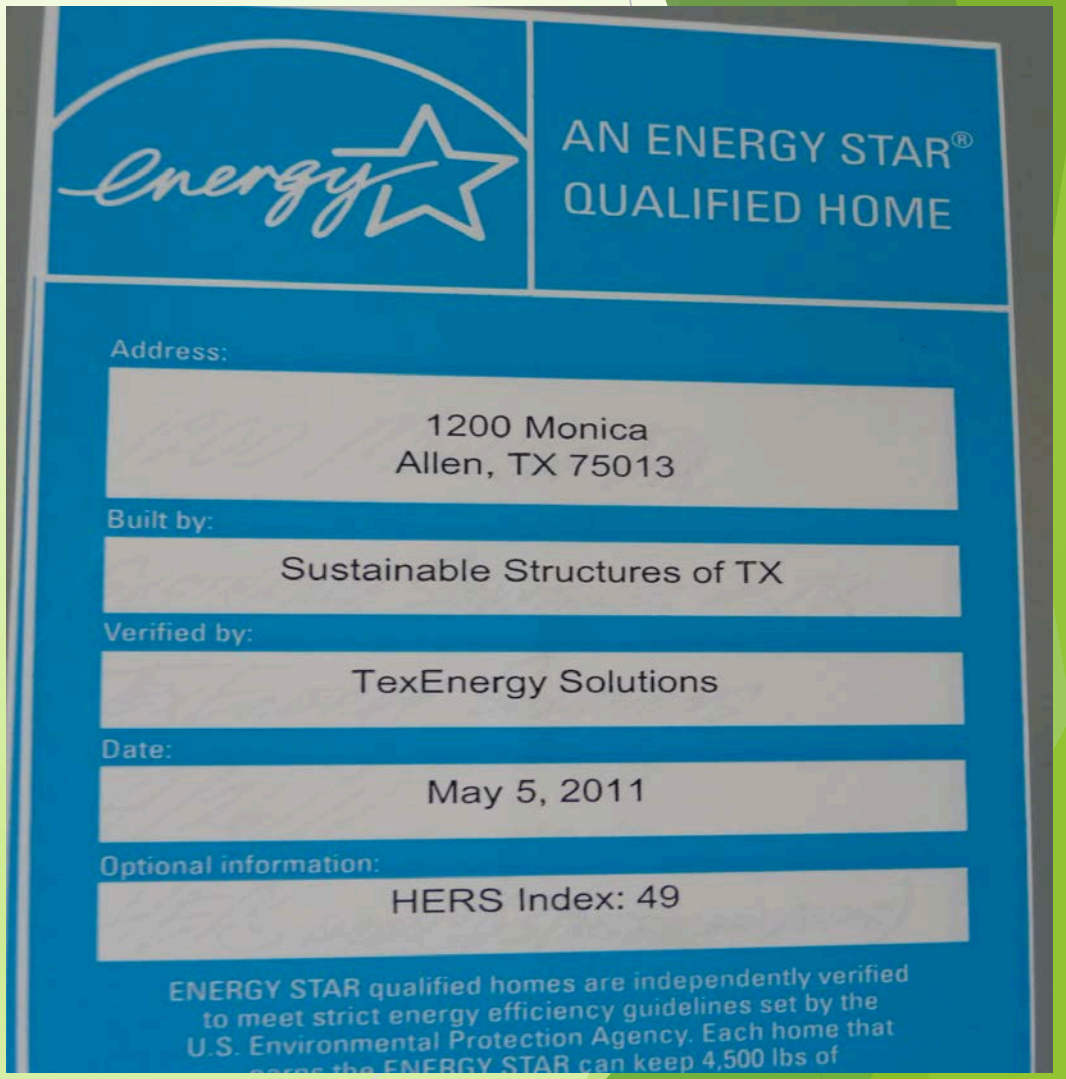
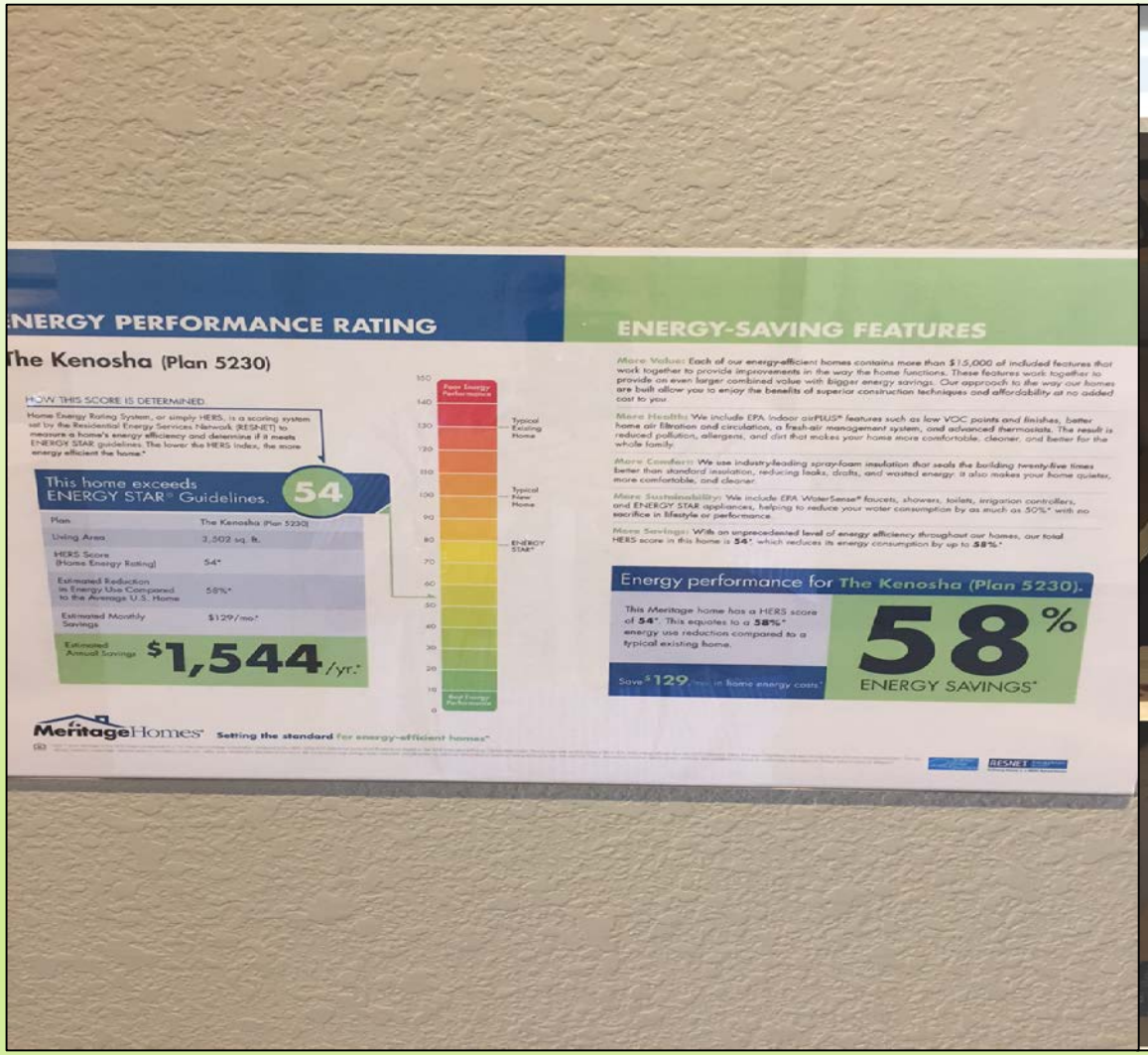
- Need additional photos





Customize Your Message - Examples



Customize Your Message

Questions?