TRENDS AND OPPORTUNITIES IN THE U.S. HOME AND REMODELING MATERIALS MARKET

Pro Dealer Industry Summit
October 18, 2018
Home Innovation Research Labs

- Founded in 1964 as wholly-owned subsidiary of NAHB
- Independent, for-profit researchers assisting development and commercialization of new building technologies
  - Engineering research & development
  - Market & field research
  - Laboratory testing
- Leader in green home building movement (NGBS)
- Key role in building codes and standards development
- Partnership with ICC-ES to fast-track issuance of ESRs
Home Innovation has been tracking annual materials purchases since 1995
  - Builder Practices Survey of 1,500 U.S. Builders
  - Consumer Practices Survey of 100,000 households

Decades of custom market research, sponsored by hundreds of building materials manufacturers

Observational research of materials installation issues
U.S. New Housing Mix
(based on annual starts)

Source: Annual Builder Practices Reports and NAHB Housing Starts
### Characteristics of New U.S. Homes, 2017 – Size, Price, and Value

<table>
<thead>
<tr>
<th></th>
<th>Average Living Area</th>
<th>Average Price</th>
<th>Total Sq.Ft. Added (millions)</th>
<th>Total Sales (billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOWNHOUSE/DUPLEX</td>
<td>1,702 sf</td>
<td>$332,742</td>
<td>172</td>
<td>$32</td>
</tr>
<tr>
<td>APARTMENTS/CONDOS</td>
<td>1,136 sf</td>
<td>$171,149</td>
<td>414</td>
<td>$62</td>
</tr>
<tr>
<td>SFD STARTER</td>
<td>1,674 sf</td>
<td>$187,728</td>
<td>384</td>
<td>$42</td>
</tr>
<tr>
<td>SFD MOVEUP</td>
<td>2,435 sf</td>
<td>$356,829</td>
<td>862</td>
<td>$127</td>
</tr>
<tr>
<td>SFD LUXURY</td>
<td>3,647 sf</td>
<td>$777,181</td>
<td>583</td>
<td>$126</td>
</tr>
</tbody>
</table>

Source: Annual Builder Practices Reports
### Average Annual Growth Forecast of Housing Starts, 2017 - 2022

<table>
<thead>
<tr>
<th>Region</th>
<th>SFD Starts</th>
<th>MF Starts</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEW ENGLAND</td>
<td>2%</td>
<td>-1%</td>
</tr>
<tr>
<td>MID-ATLANTIC</td>
<td>2%</td>
<td>1%</td>
</tr>
<tr>
<td>EAST NORTH CENTRAL</td>
<td>3%</td>
<td>1%</td>
</tr>
<tr>
<td>WEST NORTH CENTRAL</td>
<td>2%</td>
<td>-1%</td>
</tr>
<tr>
<td>SOUTH ATLANTIC</td>
<td>5%</td>
<td>2%</td>
</tr>
<tr>
<td>EAST SOUTH CENTRAL</td>
<td>3%</td>
<td>0%</td>
</tr>
<tr>
<td>WEST SOUTH CENTRAL</td>
<td>4%</td>
<td>0%</td>
</tr>
<tr>
<td>MOUNTAIN</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
<td>PACIFIC</td>
<td>5%</td>
<td>0%</td>
</tr>
</tbody>
</table>

*Source: NAHB Housing Starts + Forecast (May 2018)*
Shares of New Home Builders Purchasing at Lumber Yards

- Plywood & OSB: 84%
- Sawn (Dimension) Lumber: 84%
- Engineered Lumber & I-joists: 81%
- House Wrap: 74%
- Trusses: 59%
- Trim & Other Millwork: 55%
- Siding: 42%
- Windows & Doors: 40%
- Roofing: 21%
- Hand & Power Tools: 16%
- Gypsum Wallboard: 14%
- Insulation: 8%
- Cabinets: 6%
- Masonry & Masonry Supplies: 3%
- Countertops: 3%
- Other Flooring: 1%
- Ceramic Tile: 1%

Source: NAHB HMI Survey, Special Questions Nov. 2015

Remodeling General Contractor responses in similar NAHB survey mirror this graph.
Shares of Purchase Decisions Made by Home Builder

- House Wrap: 86%
- Plywood & OSB: 84%
- Sawn (Dimension) Lumber: 83%
- Windows & Doors: 82%
- Trusses: 81%
- Engineered Lumber & I-joists: 80%
- Siding: 80%
- Trim & Other Millwork: 79%
- Roofing: 73%
- Cabinets: 69%
- Masonry & Masonry Supplies: 67%
- Hand & Power Tools: 67%
- Countertops: 65%
- Appliances: 59%
- Insulation: 58%

Source: NAHB Remodeler Survey, 4th Quarter 2015
Single Family Detached (SFD)
Above-Grade Wall Construction, 2017

- Site built - light frame: 79.4%
- Panelized - light frame: 9.4%
- Concrete block: 5.2%
- Poured concrete: 2.1%
- Post & beam: 1.4%
- Modular - light frame: 1.3%
- Insulated concrete forms: 0.4%
- Structural insulated panels: 0.3%
- Other concrete or masonry: 0.2%
- Logs: 0.2%
- Precast concrete: 0.1%
- Autoclaved aerated concrete: 0.1%

Source: Annual Builder Practices Reports
Trends in SFD Above-Grade Wall Construction

Source: Annual Builder Practices Reports
## 2018 Builder Survey on Anticipated Adoption of Labor-Saving Alternatives

<table>
<thead>
<tr>
<th>Product</th>
<th>Haven't used, Don't plan to</th>
<th>Plan to use it less often</th>
<th>Plan to use it about the same</th>
<th>Plan to use it more often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roof trusses</td>
<td>12%</td>
<td>6%</td>
<td>65%</td>
<td>17%</td>
</tr>
<tr>
<td>Pre-cut framing package</td>
<td>66%</td>
<td>6%</td>
<td>20%</td>
<td>8%</td>
</tr>
<tr>
<td>Factory-built open wall panels</td>
<td>67%</td>
<td>8%</td>
<td>20%</td>
<td>5%</td>
</tr>
<tr>
<td>Factory-built closed wall panels</td>
<td>73%</td>
<td>7%</td>
<td>18%</td>
<td>3%</td>
</tr>
<tr>
<td>Panelized, pre-assembled floors</td>
<td>75%</td>
<td>7%</td>
<td>14%</td>
<td>4%</td>
</tr>
<tr>
<td>Modular</td>
<td>77%</td>
<td>6%</td>
<td>13%</td>
<td>4%</td>
</tr>
<tr>
<td>Turn-key framing</td>
<td>51%</td>
<td>10%</td>
<td>33%</td>
<td>6%</td>
</tr>
<tr>
<td>Precast floor, wall, or roof panels</td>
<td>73%</td>
<td>6%</td>
<td>18%</td>
<td>4%</td>
</tr>
</tbody>
</table>

Question: CONSIDERING ONLY THE NEW HOMES YOUR COMPANY BUILDS, WHICH OF THE FOLLOWING DO YOU PLAN TO USE LESS OFTEN, ABOUT THE SAME, OR MORE OFTEN IN THE COMING YEAR COMPARED TO LAST YEAR?

Source: Home Innovation Research Labs Survey
## 2018 Survey of Builders Sheds
### Light on Labor Saving Alternatives

**Large Builders Only—25 or more Starts/Year**

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</tr>
</thead>
<tbody>
<tr>
<td>Roof trusses</td>
<td>7%</td>
<td>7%</td>
<td>61%</td>
<td>25%</td>
</tr>
<tr>
<td>Pre-cut framing package</td>
<td>53%</td>
<td>7%</td>
<td>26%</td>
<td>14%</td>
</tr>
<tr>
<td>Factory-built open wall panels</td>
<td>53%</td>
<td>16%</td>
<td>26%</td>
<td>5%</td>
</tr>
<tr>
<td>Factory-built closed wall panels</td>
<td>53%</td>
<td>11%</td>
<td>35%</td>
<td>2%</td>
</tr>
<tr>
<td>Panelized, pre-assembled floors</td>
<td>63%</td>
<td>9%</td>
<td>21%</td>
<td>7%</td>
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<tr>
<td>Modular</td>
<td>61%</td>
<td>7%</td>
<td>25%</td>
<td>7%</td>
</tr>
<tr>
<td>Turn-key framing</td>
<td>40%</td>
<td>14%</td>
<td>37%</td>
<td>9%</td>
</tr>
<tr>
<td>Precast floor, wall, or roof panels</td>
<td>60%</td>
<td>9%</td>
<td>26%</td>
<td>5%</td>
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</tbody>
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**Question:** CONSIDERING ONLY THE NEW HOMES YOUR COMPANY BUILDS, WHICH OF THE FOLLOWING DO YOU PLAN TO USE LESS OFTEN, ABOUT THE SAME, OR MORE OFTEN IN THE COMING YEAR COMPARED TO LAST YEAR?

**Source:** Home Innovation Research Labs Survey
Exterior Wall Framing in SFD Homes: 2 x 6 vs. 2 x 4 Studs

Source: Annual Builder Practices Reports
Exterior Wall Framing In Multifamily Homes: 2 x 6 vs. 2 x 4 Studs

Source: Annual Builder Practices Reports
Exterior Wall Sheathing Materials for New SFD Homes
Includes Primary & Secondary Layers

Among foam, Polyiso leads secondary sheathing market, and XPS leads primary sheathing market

Source: Annual Builder Practices Reports
Shares of Insulating Foam Wall Sheathing in New SFD Homes

Source: Annual Builder Practices Reports
Exterior Foam Wall Sheathing by Thickness, New SFD Homes

Source: Annual Builder Practices Reports
Trend in Wall Height of New SFD Homes

Source: Annual Builder Practices Reports

- 8' or Less
- 8.5' or 9'
- 10' or More
Ceiling Heights in New SFD Homes, 2017

- **8' or Less**: 26% (Upper Floors), 52% (First Floor)
- **8.5' or 9'**: 42% (Upper Floors), 52% (First Floor)
- **10' or More**: 10% (Upper Floors), 23% (First Floor)

Source: Annual Builder Practices Reports
Wood Trusses Trending Upward (Again) in New SFD Homes

Source: Annual Builder Practices Reports
Trend in Roof Shapes in New SFD Homes (based on sq.ft. roof footprint)

Source: Annual Builder Practices Reports
Trend in Roof Shapes in New Multifamily Homes (based on sq.ft. roof footprint)

Source: Annual Builder Practices Reports
Roof Sheathing on New SFD Homes

Source: Annual Builder Practices Reports
Shares of Structural Floors in New SFD Homes (based on sq.ft. of floor space)

Source: Annual Builder Practices Reports
Floor Joist Depth in New SFD Homes

Source: Annual Builder Practices Reports
Premium & Commodity OSB Subflooring in New SFD Homes, 2017

- AdvanTech (Huber), 34%
- EdgeGold (Weyerhaeuser), 24%
- Pinnacle (Norbord), 3%
- Durastrand PointSix (Norbord), 1%
- TopNotch 350 or 450 (LP), 8%
- Others, 5%
- Commodity Panels, 29%

Source: Annual Builder Practices Reports
Insulation Usage in New SFD Homes
(based on sq.ft. area insulated of walls, floors and roof)

Source: Annual Builder Practices Reports
Spray Foam Insulation Market Share by Assembly in New SFD Homes, 2017

Source: Annual Builder Practices Reports
Shares of Housewrap, in New SFD Homes, 2017

- DuPont Tyvek: 53%
- TYPAR: 10%
- Others: 10%
- CertainTeed: 9%
- DOW: 4%
- Barricade Building Products: 3%
- Green Guard: 3%
- Owens Corning: 3%
- Grace: 2%
- REX Wrap: 1%
- James Hardie: 1%
- Grip-Rite: 1%
- Perma R Products: 0.3%
- Benjamin Obdyke: 0.3%
- Tremco Barrier Solutions: 0.2%
- Kimberly-Clark: 0.1%

Homes with Housewrap: 78%
...with Self-Adhered Wrap: 16%
...with Liquid-Applied: 4%

Source: Annual Builder Practices Reports
Is the Remodeling Market Opportunity Primarily for Pros or DIYers?

**DIY Share of Remodeling Materials Purchases**

- Interior Paint: 69%
- Appliances: 58%
- Deck & Porch Rails: 58%
- Faucets: 53%
- Fences/Landscape Walls: 50%
- Exterior Decking: 47%
- Exterior Doors: 45%
- Siding: 39%
- Cabinets: 38%
- Structural Walls, Floors & Roofs: 32%
- Roofing: 18%

**Source:** Annual Consumer Practices Reports
Residential Roofing: New Homes and Home Replacements/Additions, 2017

(millions of sf)

Asphalt--architectural
- New Homes: 1,832
- Remodeling: 4,819

Asphalt--3-tab
- New Homes: 338
- Remodeling: 5,963

Metal
- New Homes: 1,615

Clay or Concrete Tile
- New Homes: 328
- Remodeling: 577

Cedar shingles & shakes
- New Homes: 1,048

Single Ply
- New Homes: 333

Slate
- New Homes: 252

Composite
- New Homes: 150

Residential Roofing is about an 18 billion sq.ft. per-year market

Source: Annual Builder & Consumer Practices Reports
Roofing Materials Installed in New SFD Homes

Source: Annual Builder Practices Reports
Roofing Material Installed in Home Replacements

Source: Annual Consumer Practices Reports
Siding in New SFD Homes

Source: Annual Builder Practices Reports
Siding in Home Remodeling

Source: Annual Consumer Practices Reports
An estimated 58 million windows were installed in residential properties in 2017.

Source: Annual Builder & Consumer Practices Reports
Trends in New SFD Home Window Frame Materials

Source: Annual Builder Practices Reports
Window Purchases by New Home Price-Point

Source: Annual Builder Practices Reports
New Home Window Purchases by Size of Home Builder

Source: Annual Builder Practices Reports
Trends in Home Remodeling Window Frame Materials

Source: Annual Consumer Practices Reports
Source: Annual Builder Practices Reports
Exterior Door Purchases in New Homes, 2017 (thousands)

- Fiberglass: 673 (Front Entry) + 786 (Other Entry)
- Steel -- flush: 218 (Front Entry)
- Steel -- raised panel: 293 (Front Entry) + 570 (Other Entry)
- Wood -- flush: 100 (Front Entry)
- Wood -- raised panel: 253 (Front Entry) + 149 (Other Entry)
- Other: 

An estimated 8 million entry doors were installed in residential properties in 2017 (new homes + remodel) and 3 million in new homes.

Source: Annual Builder Practices Reports
Exterior Entry Door Purchase Trends, New Homes

Source: Annual Builder Practices Reports
Front Entry Doors, New U.S. Homes 2017

- Fiberglass, 50%
- Steel -- raised panel, 22%
- Steel -- flush, 2%
- Wood -- raised panel, 19%
- Wood -- flush, 4%
- Other, 2%

Source: Annual Builder Practices Reports
Other Entry Doors, New U.S. Homes 2017

- Fiberglass, 42%
- Steel -- raised panel, 31%
- Steel -- flush, 12%
- Wood -- raised panel, 8%
- Wood -- flush, 5%
- Other, 1%

Source: Annual Builder Practices Reports
Front Entry Doors by Builder Size,
New SFD Homes, 2017

Source: Annual Builder Practices Reports
Front Entry Doors by Price-Point of New SFD Homes, 2017

Source: Annual Builder Practices Reports
Front Entry Doors, Home Repair & Remodeling, 2017

Source: Annual Consumer Practices Reports
Other Entry Doors, Home Repair & Remodeling, 2017

Source: Annual Consumer Practices Reports
About 1.2 billion square feet of decking was installed on residences in 2017, ~85% for remodeling.
Shares of Raised Porch and Decking Material in New SFD Homes

Source: Annual Builder Practices Reports
Shares of Raised Porch and Decking Material in Residential Remodeling

- Treated lumber: 50%
- Untreated Lumber: 23%
- Composite: 17%
- PVC & Other Plastic: 2%

Source: Annual Consumer Practices Reports
THANK YOU

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