



Home Innovation
RESEARCH LABS

TRENDS AND OPPORTUNITIES IN THE U.S. BUILDING MATERIALS MARKET

2018 International Builders' Show

Finding Innovation a Home

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



Purpose and Outline of Presentation

Aimed primarily at manufacturers and suppliers of building materials to the U.S. market

1. Review of building materials trends in new homes and remodeling
2. Explore issues with offering new building products & services



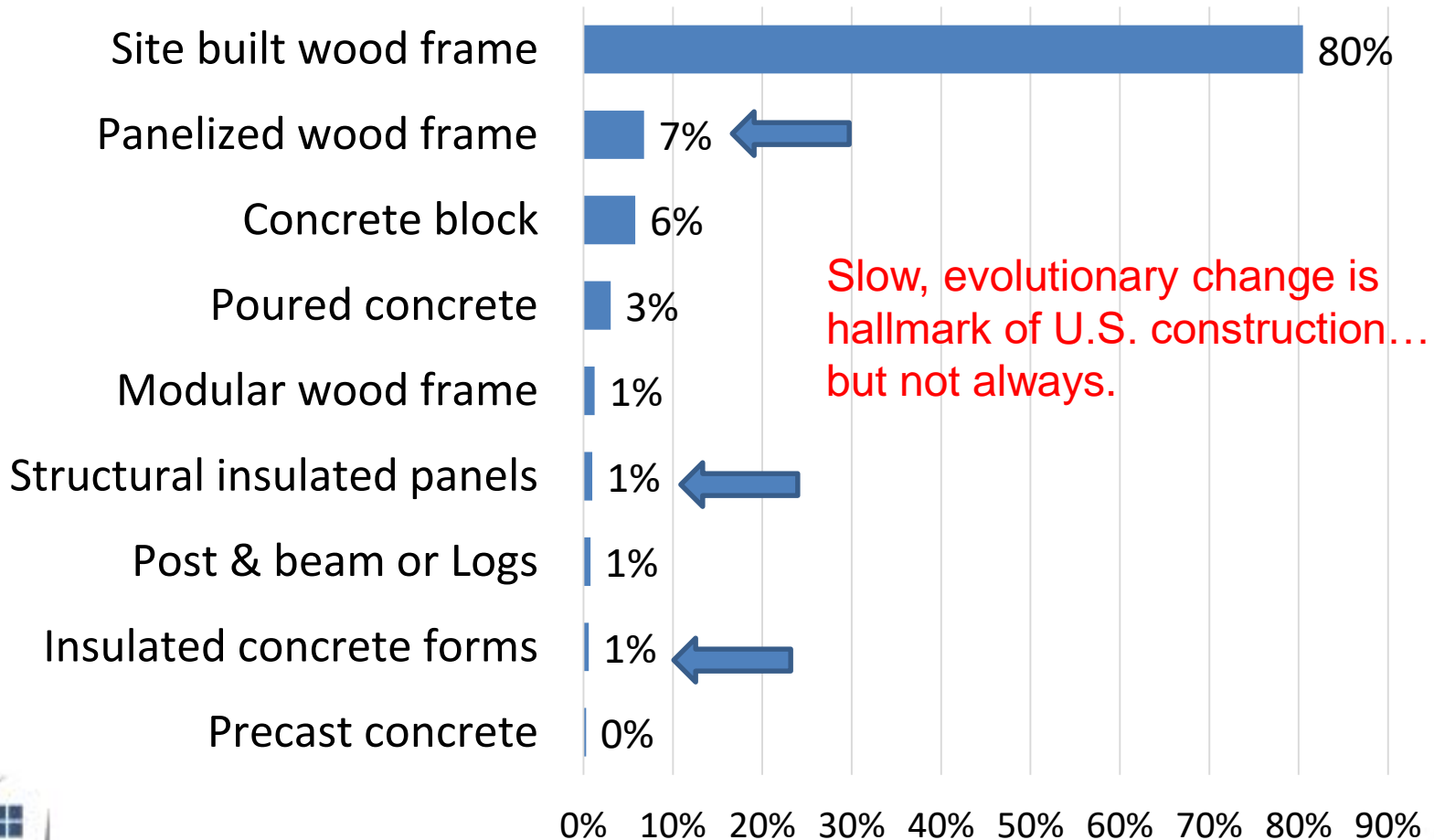
Annual Building Product Tracking, Custom Market Research Studies

- 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 U.S. households
- Decades of custom market research, sponsored by hundreds of building materials manufacturers
- Observational research of materials installation issues

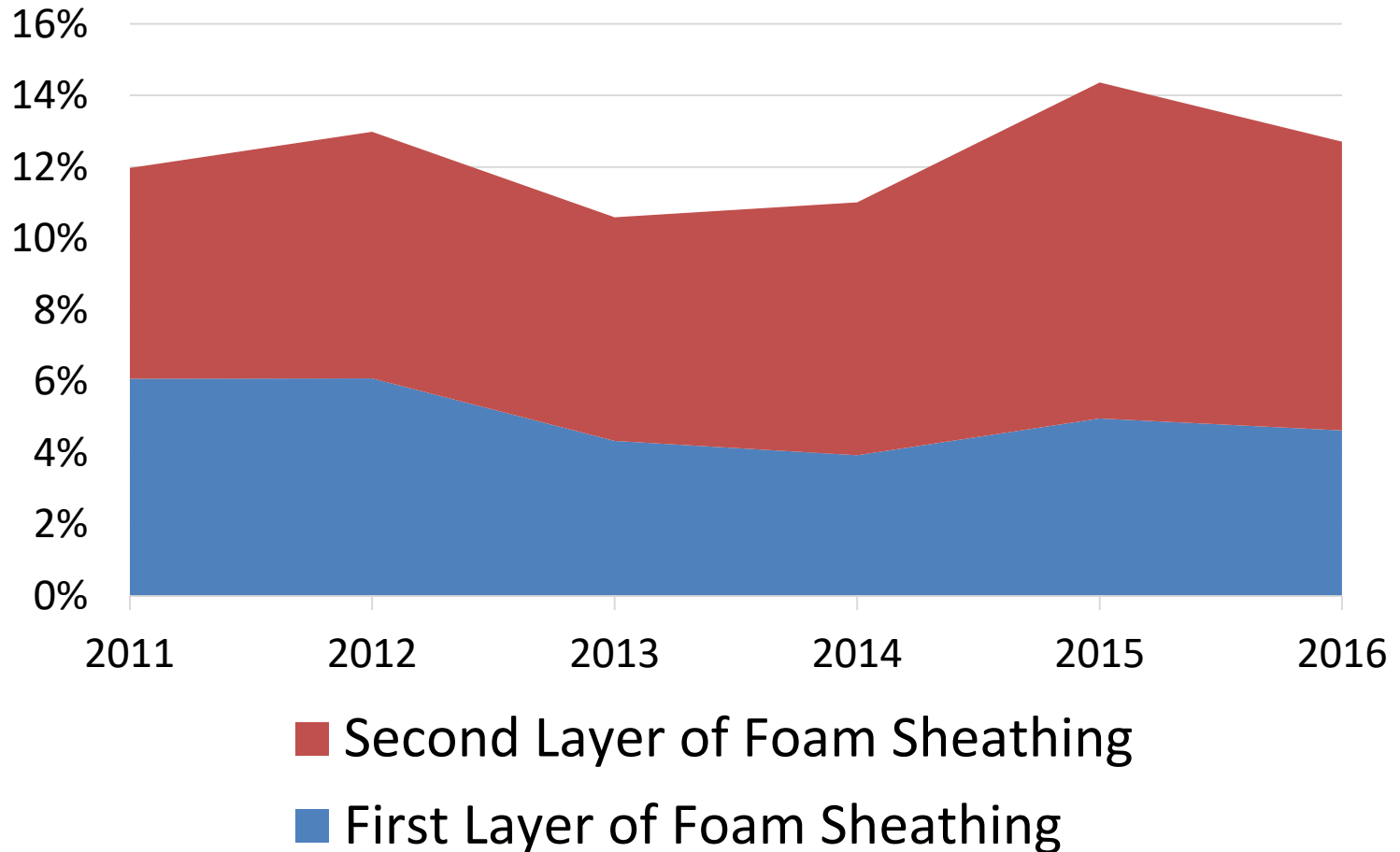


Above-Grade Walls are Largely Site-Built with Wood Products

Shares of Single Family Detached Homes, 2016



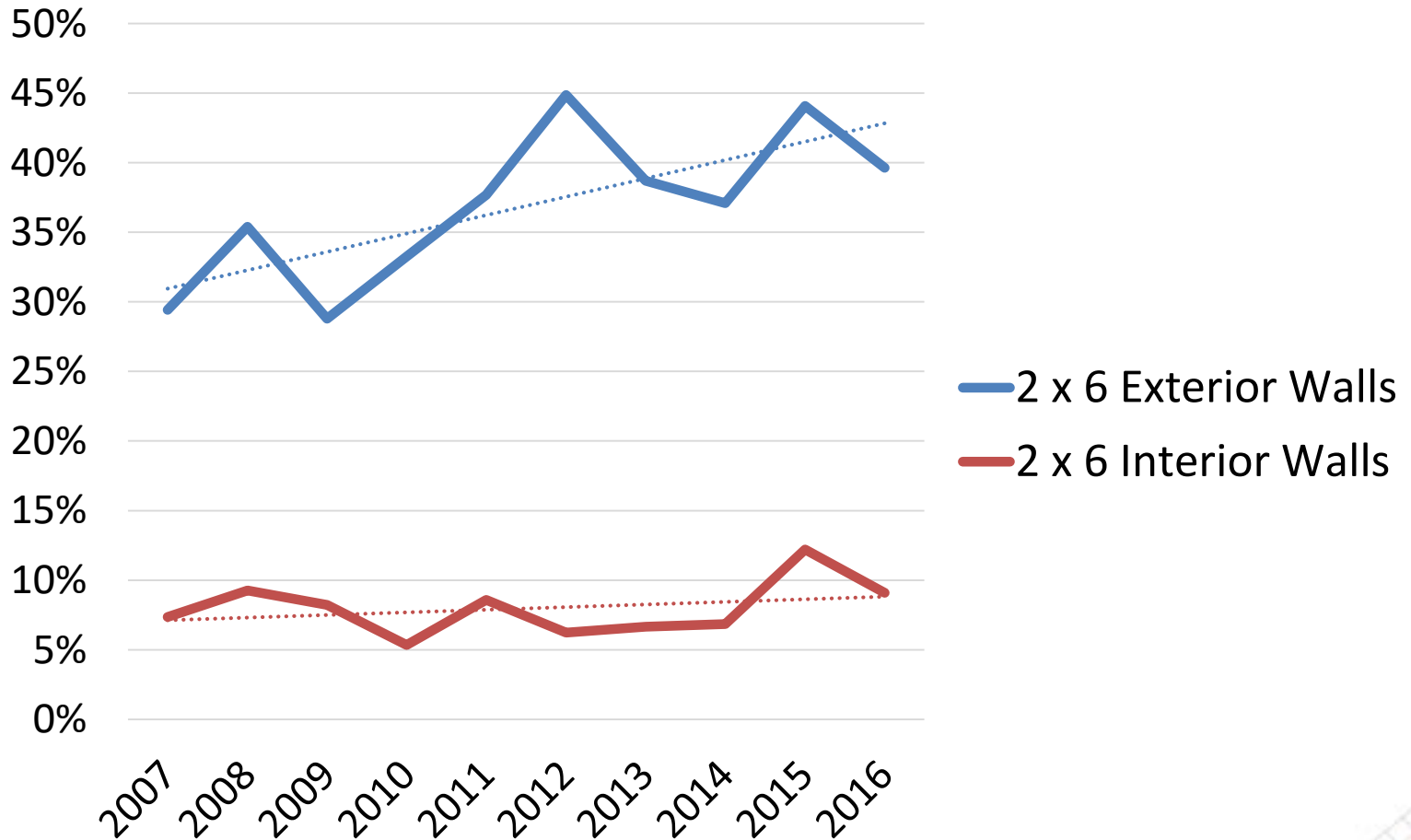
Shares of Insulating Foam Wall Sheathing in New US SFD Homes



Source: Annual Builder Practices Reports

As Energy Efficiency Increases, 2 x 6 Walls (vs. 2 x 4) are More Common

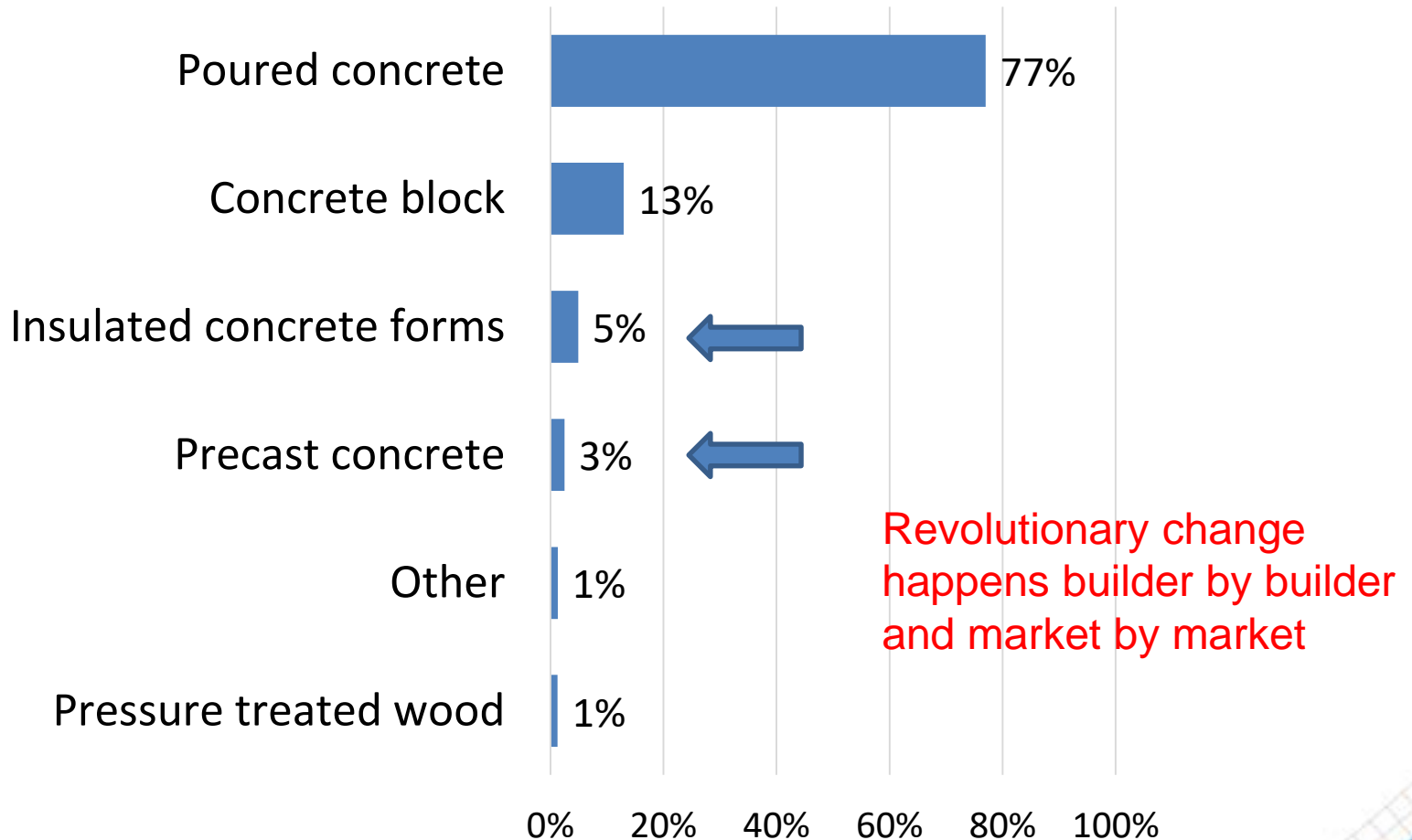
Shares of 2 x 6 Exterior & Interior Walls



Source: Annual Builder Practices Reports

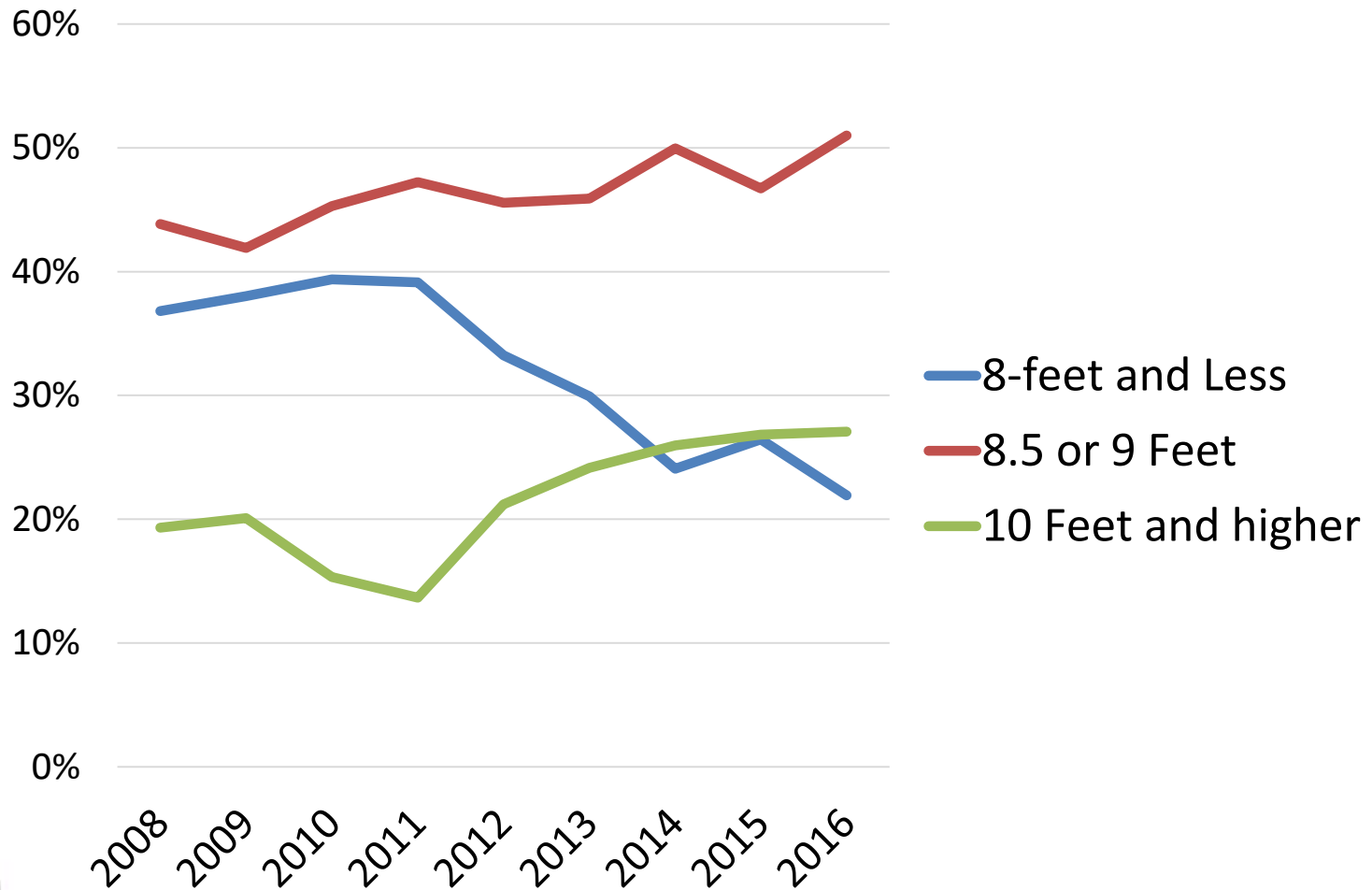
Industry Favors Evolutionary Change, Drop-In Replacements

Basement Wall Materials, New Homes in 2016

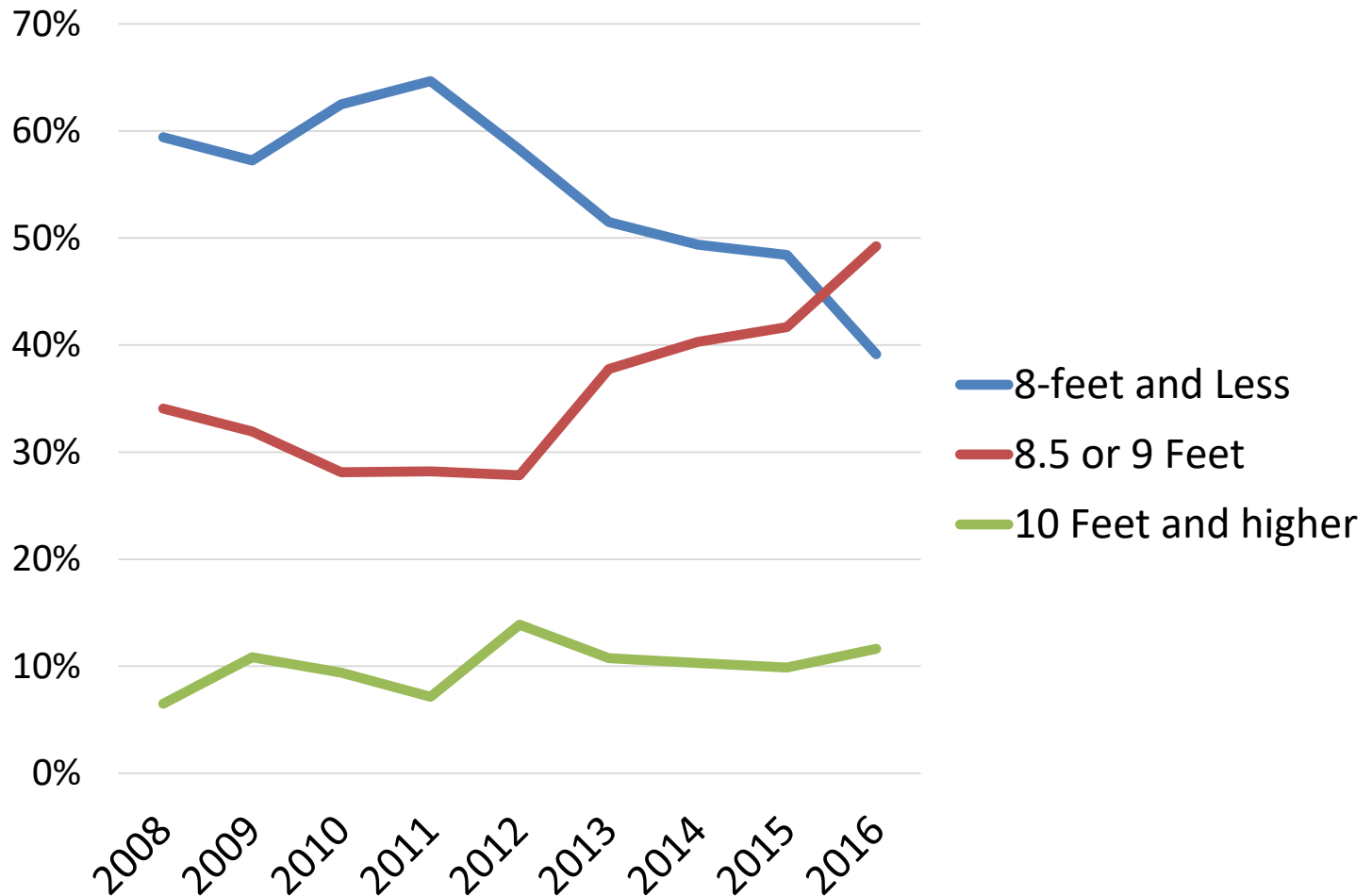


Source: Annual Builder Practices Reports

Ceiling Height of New SFD Homes, First or Main Floor

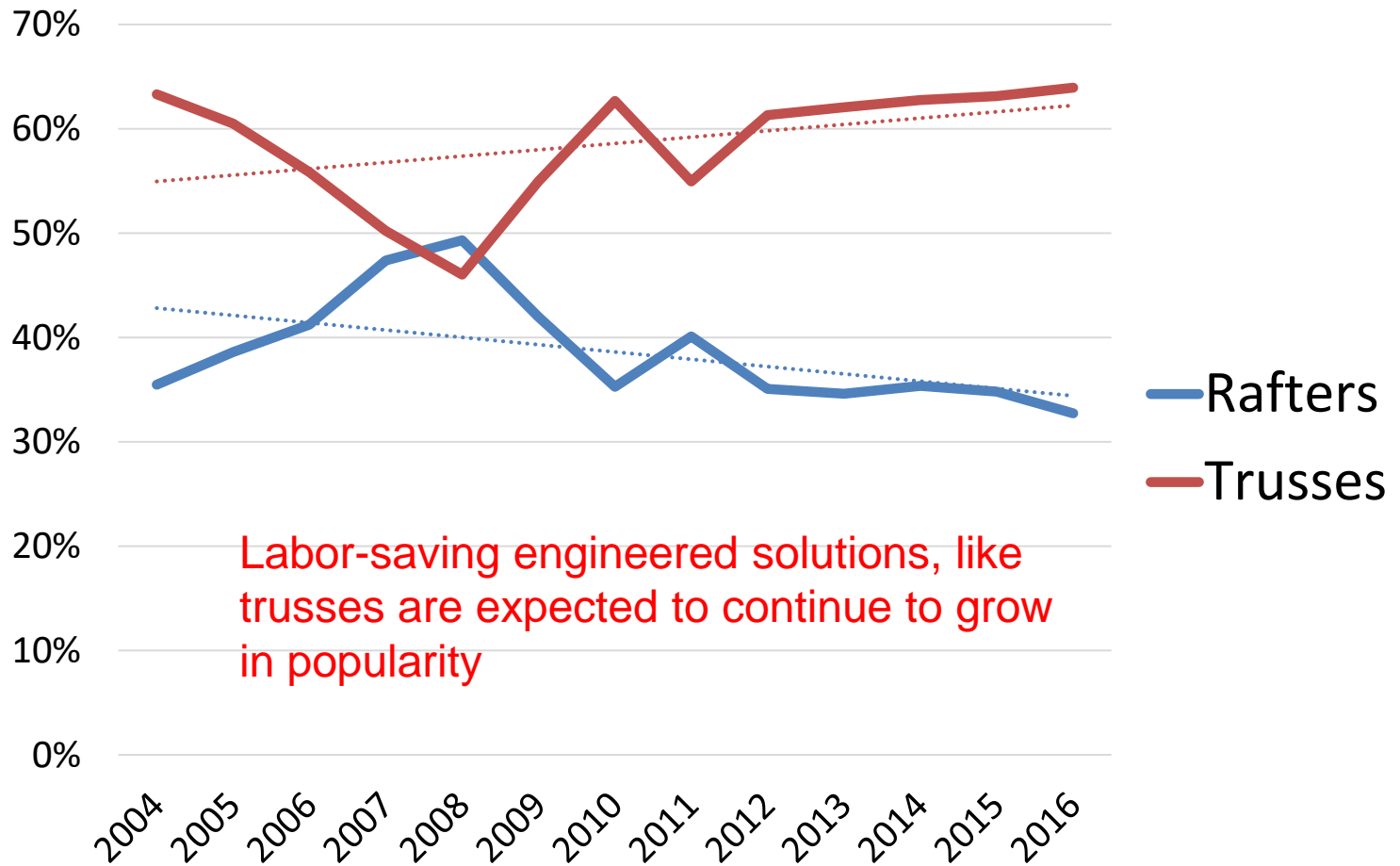


Ceiling Height of New SFD Homes, Second and Upper Floors



Source: Annual Builder Practices Reports

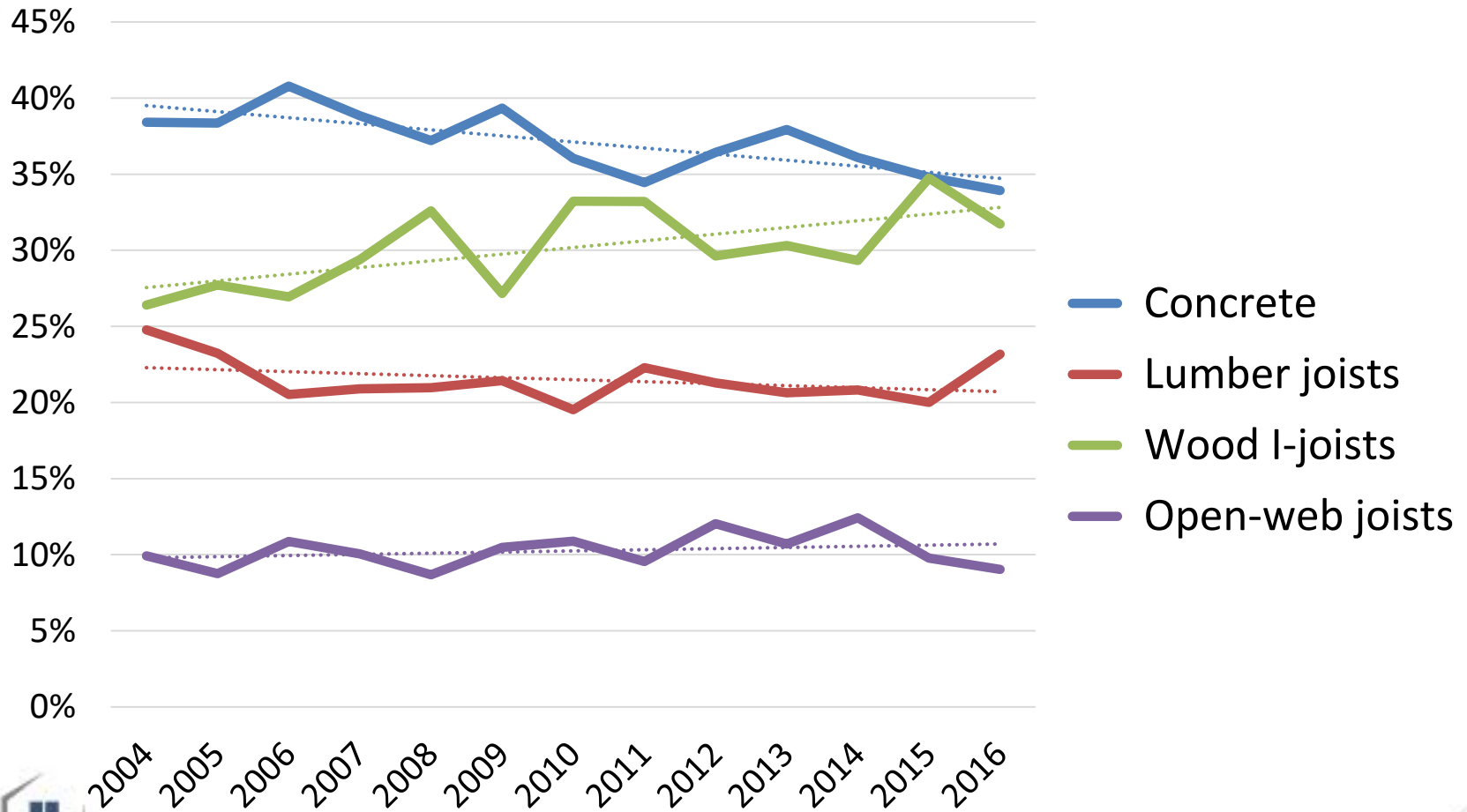
Wood Trusses Trending Upward



Source: Annual Builder Practices Reports

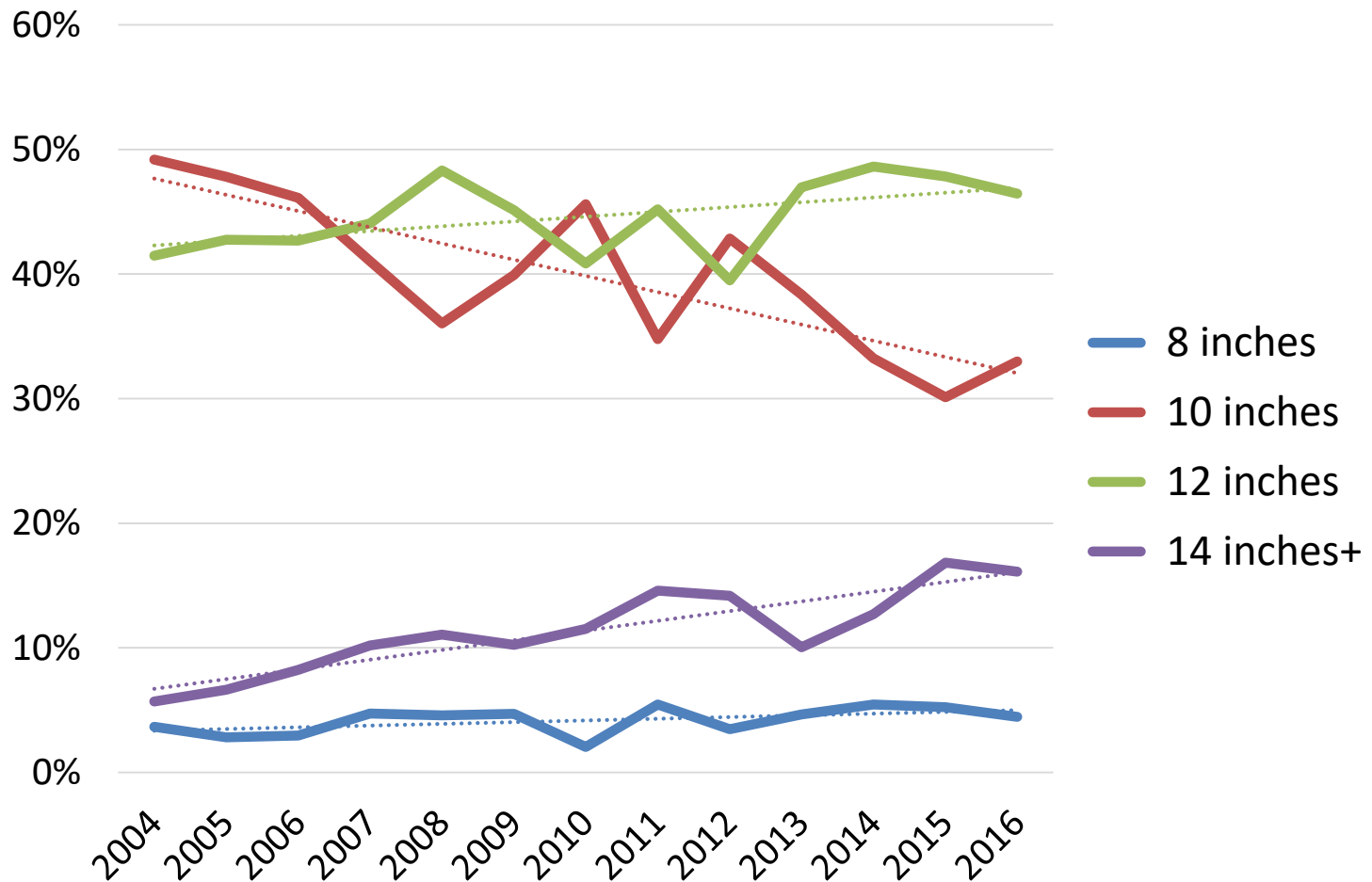
Trus-Joist Successfully Introduced a Better Structural Floor

Shares of Floors in Single Family Homes



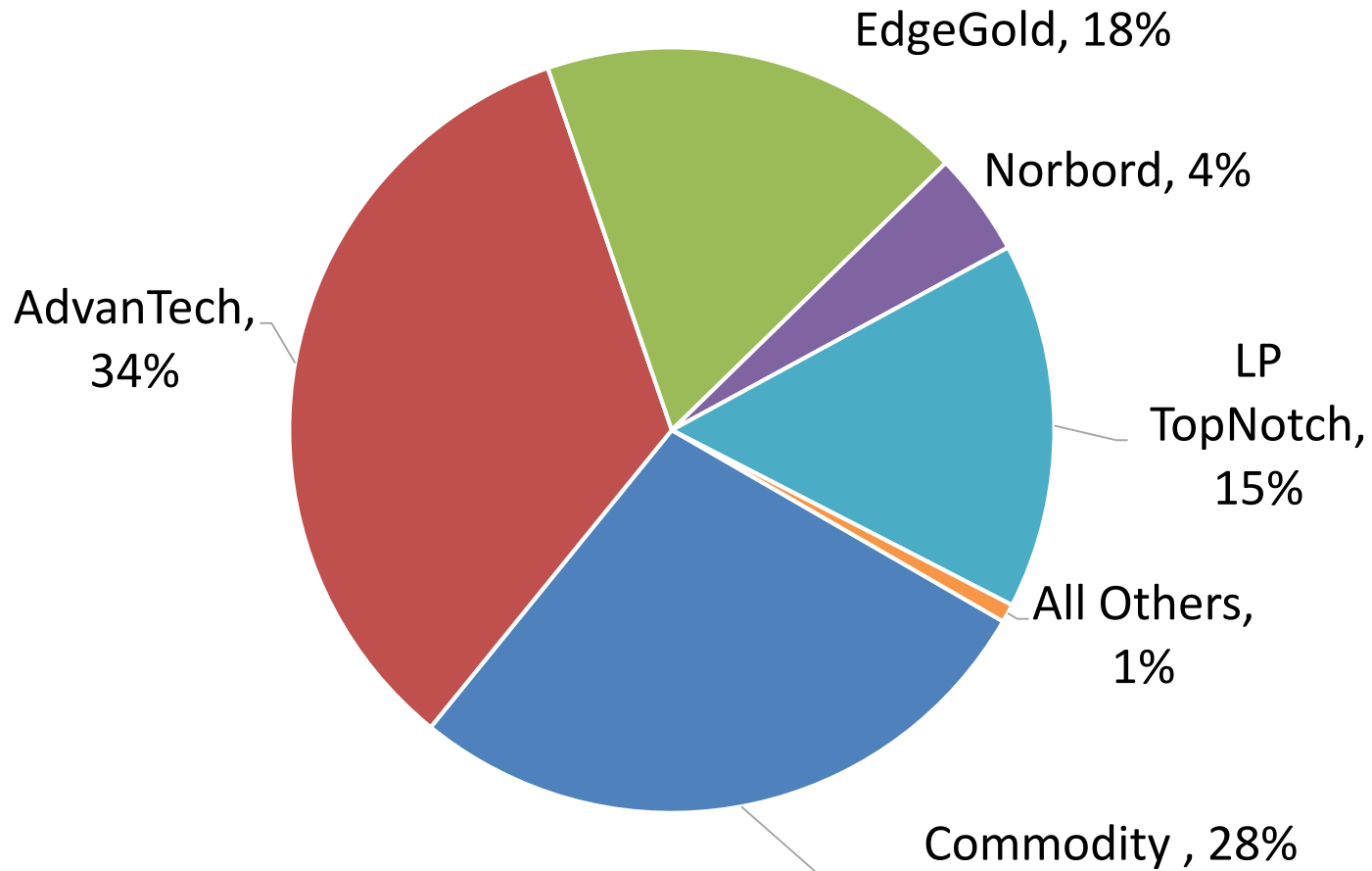
Floors Now Have Less Bounce and Total \$ Spend per New Home is Up

Floor Joist Depth in New U.S. Homes



Source: Annual Builder Practices Reports

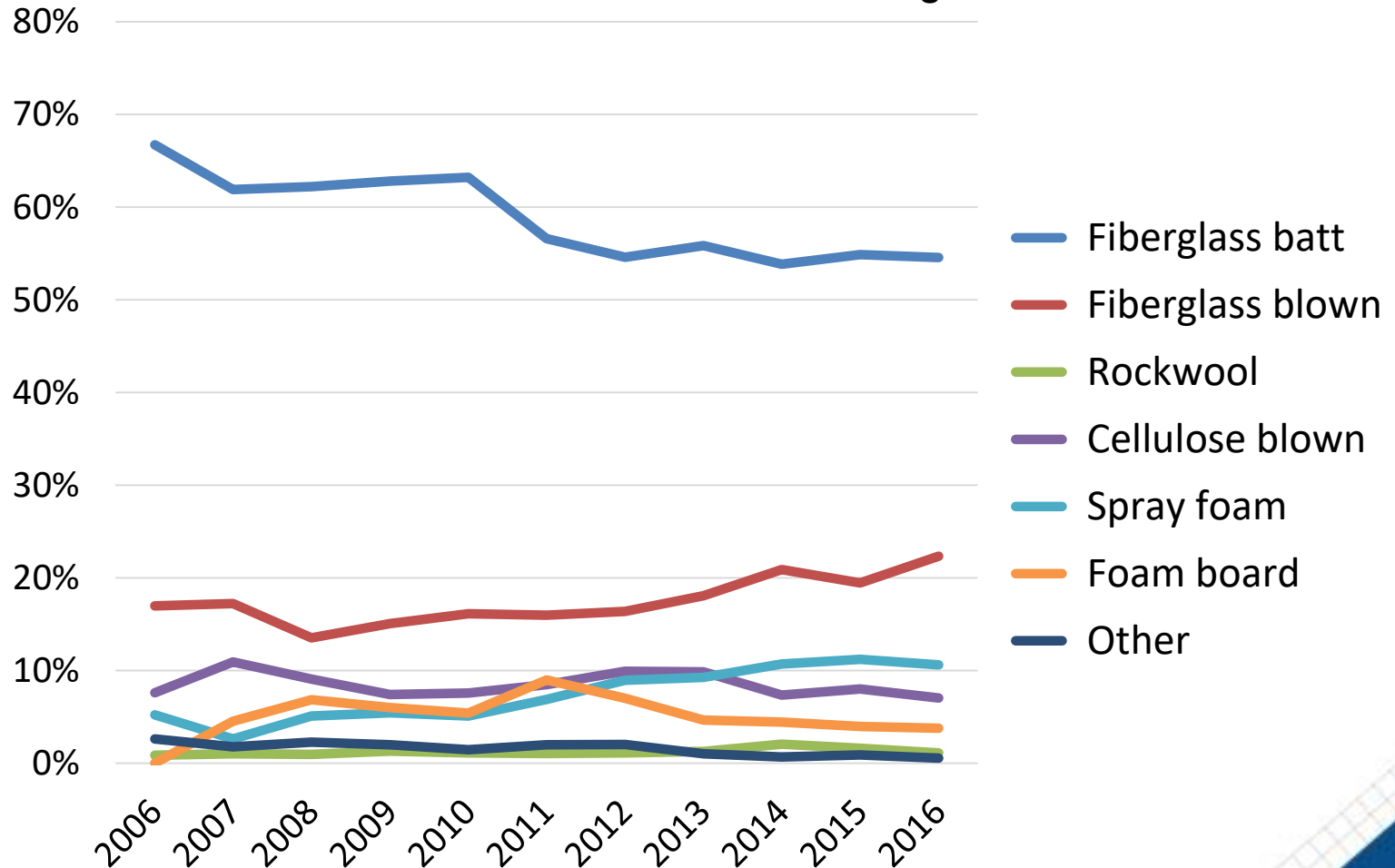
Differentiation in a Commodity Market— Shares of Premium & Commodity OSB Subflooring



Source: Annual Builder Practices Reports

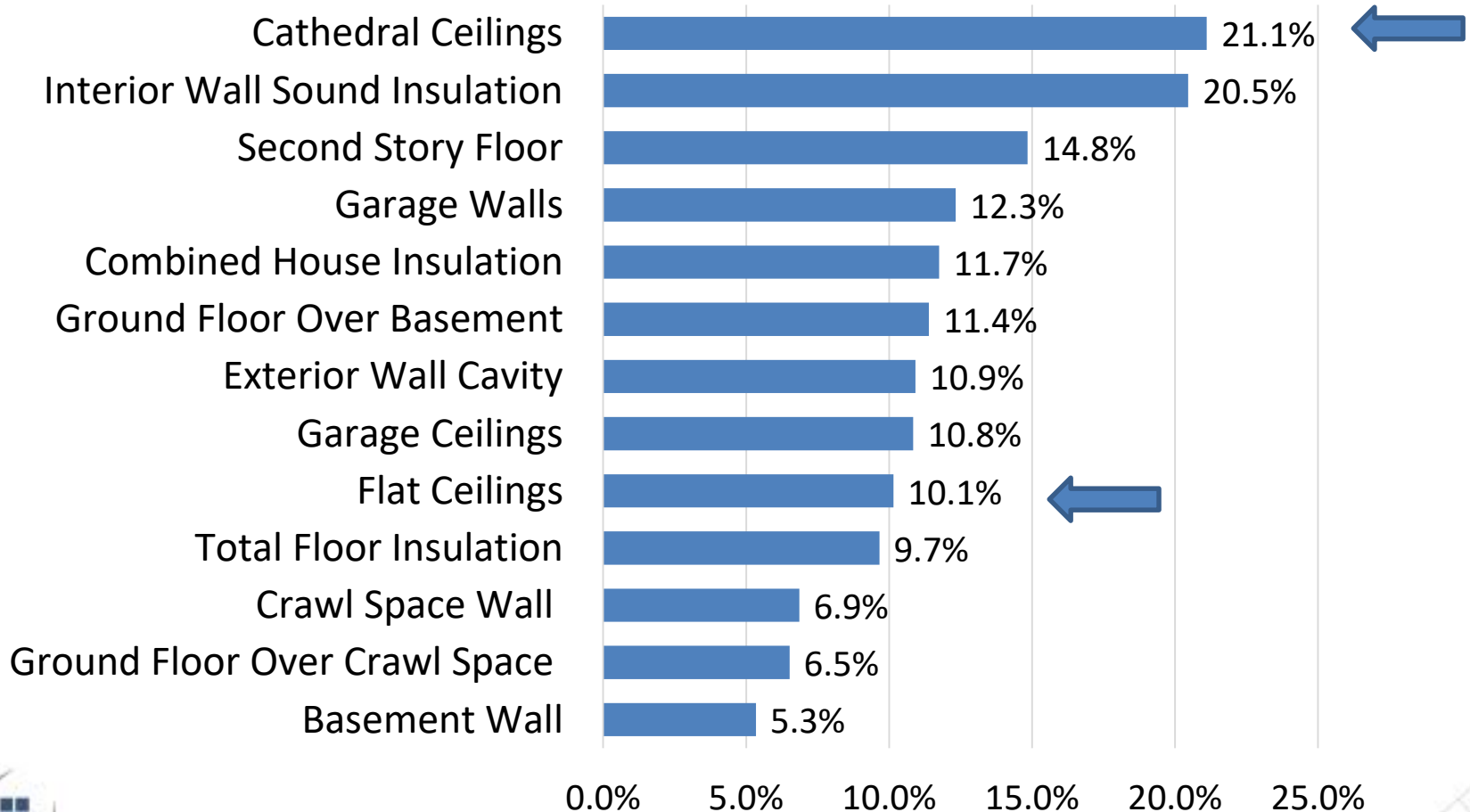
Insulation Usage in New SFD Homes (Overall sq.ft. Coverage)

Excludes Wall Sheathing

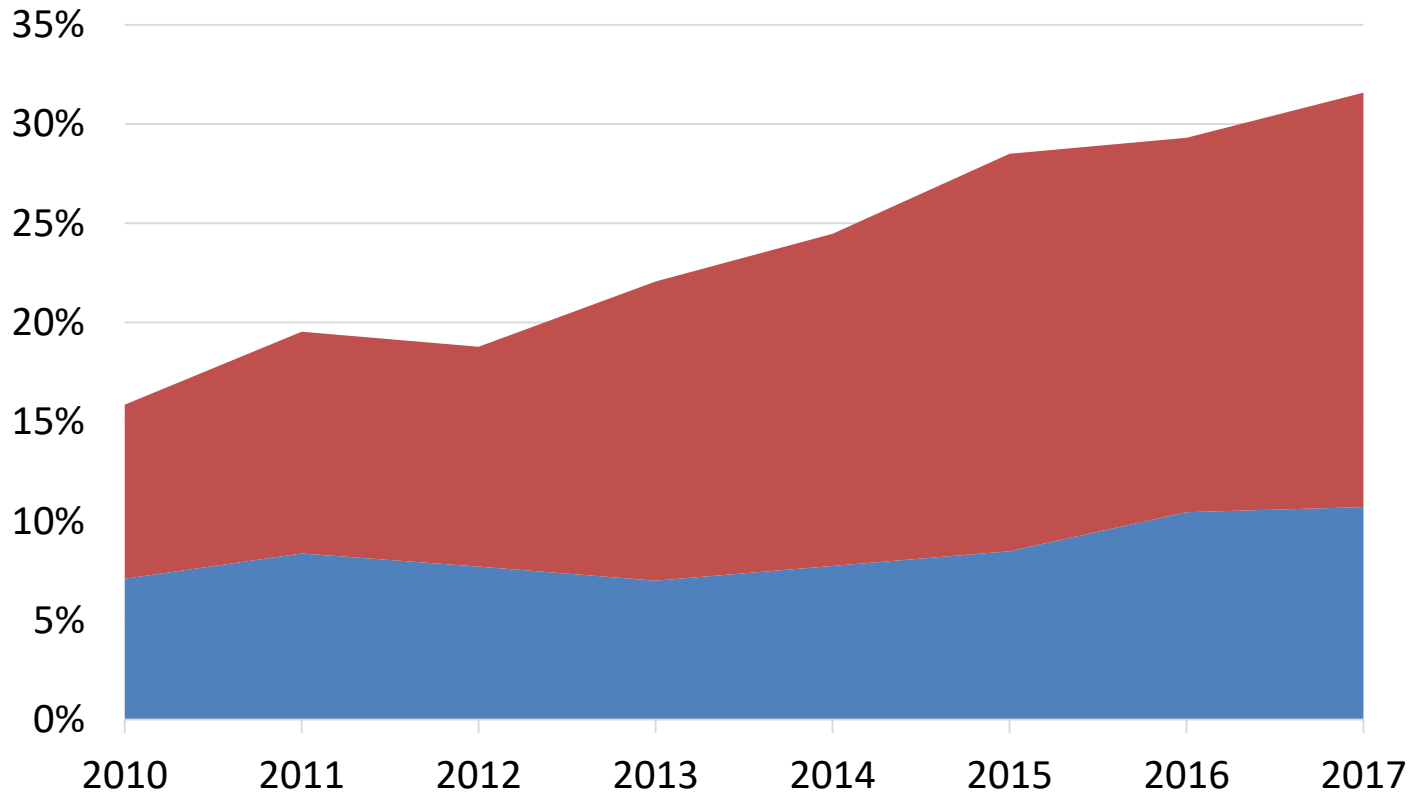


Source: Annual Builder Practices Reports

Spray Foam Insulation Market Share by Assembly, 2016 US Homes



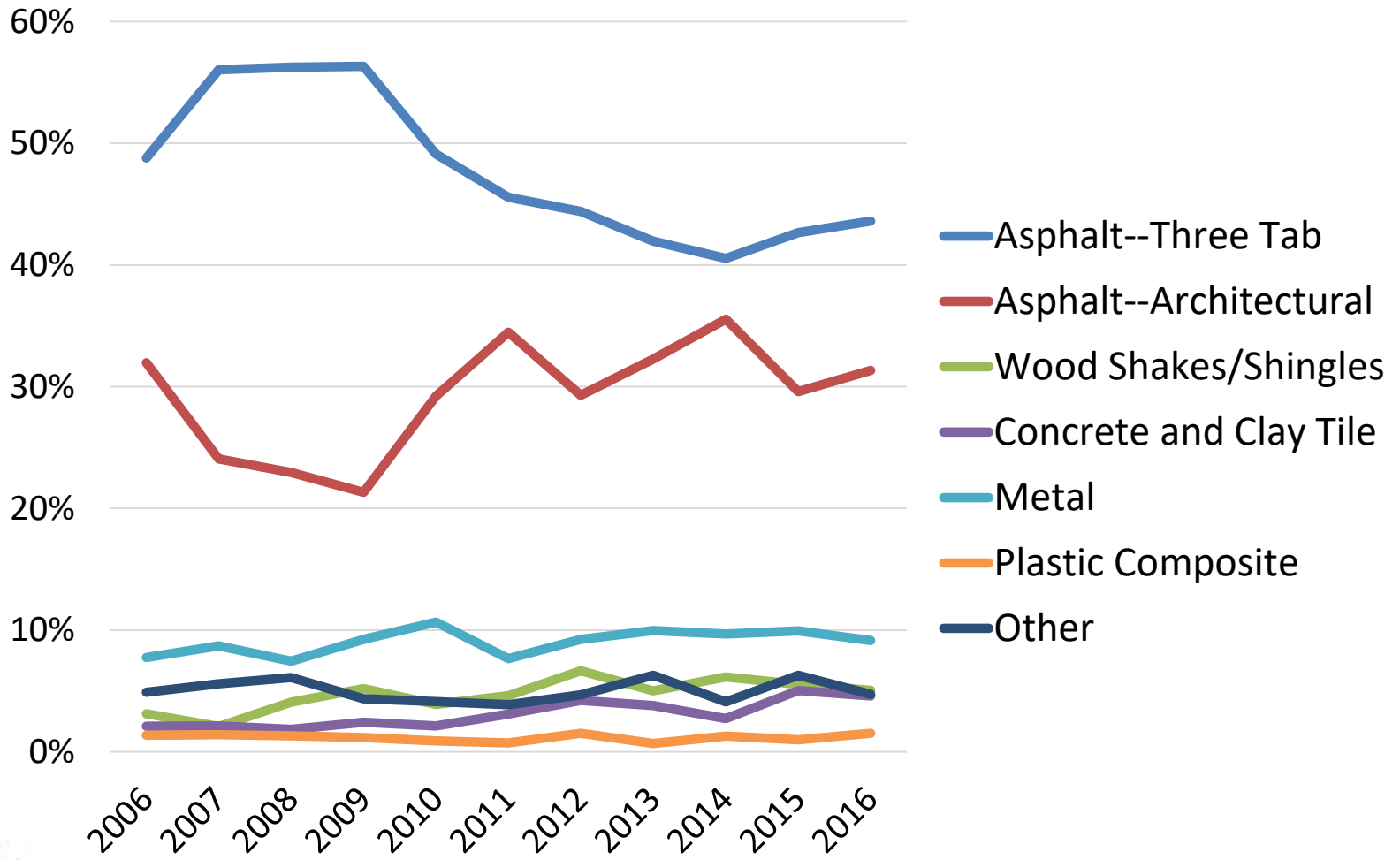
Whole-House Ventilation Systems in New US SFD Homes



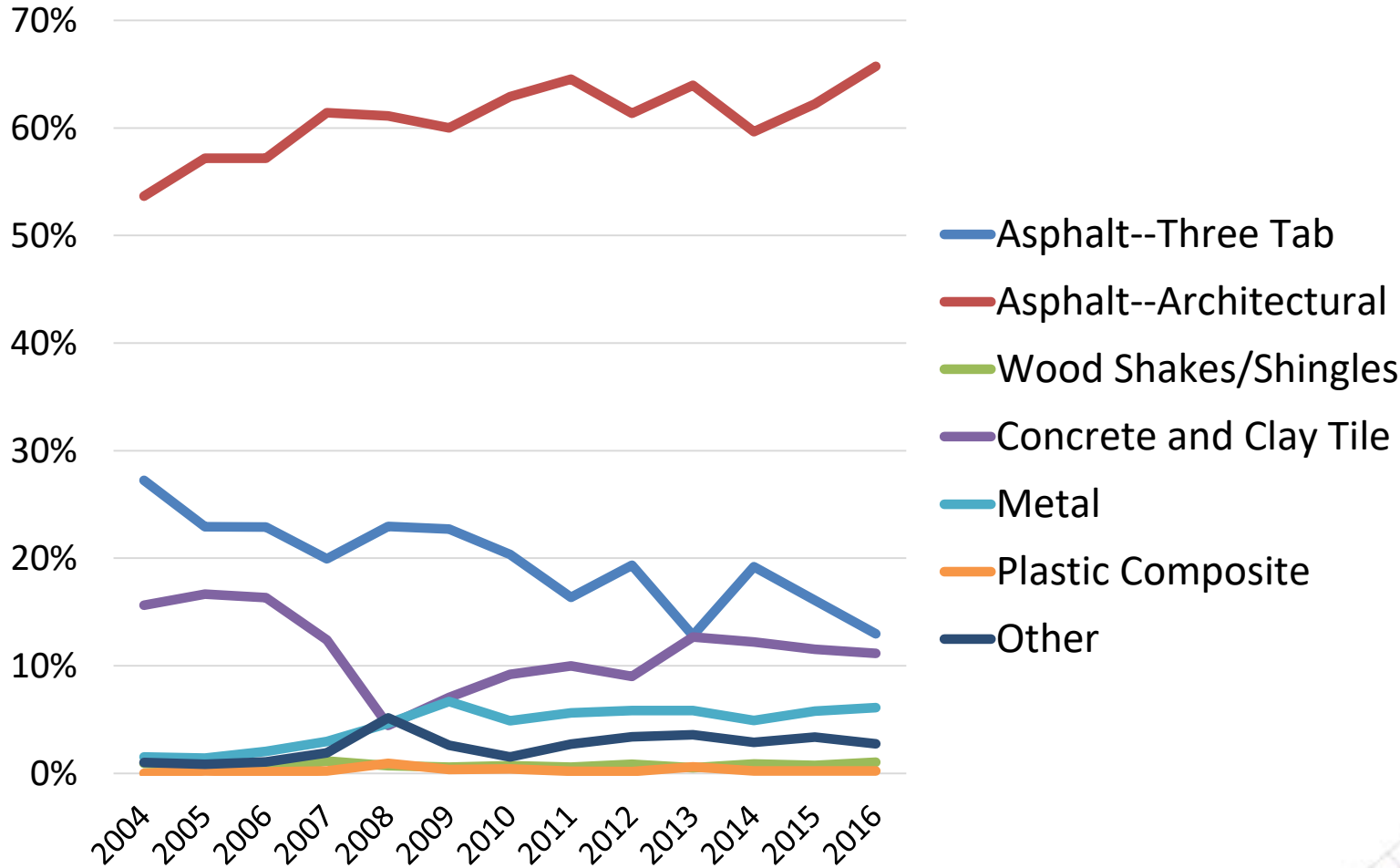
- Non-energy-recovery fresh air exchangers
- Heat or Energy Recovery Ventilators

Source: Annual Builder Practices Reports

Roofing Material Installed in Home Replacements

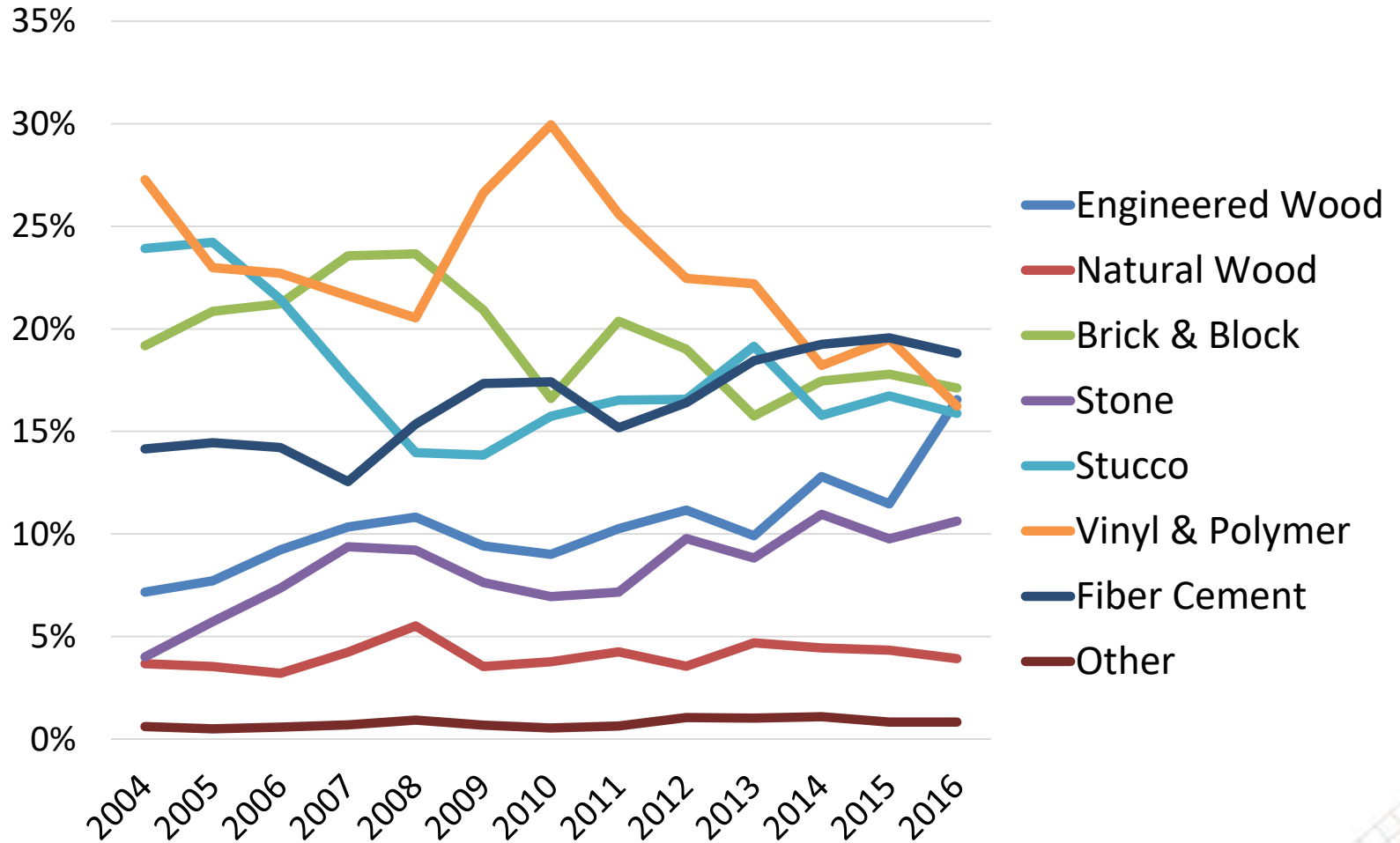


Roofing Materials Installed in New SFD Homes



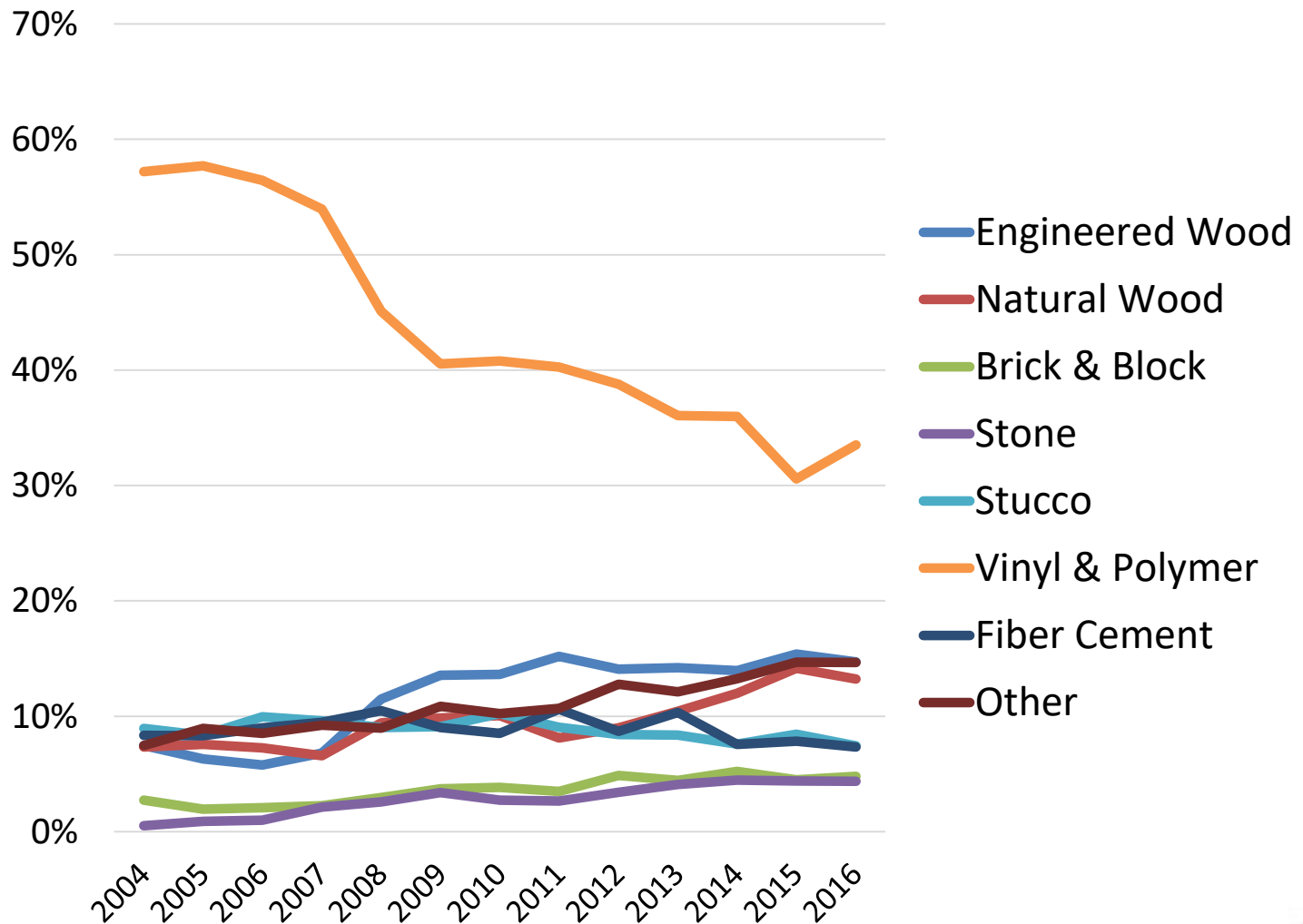
Source: Annual Builder Practices Reports

Exterior Cladding in New SFD Homes



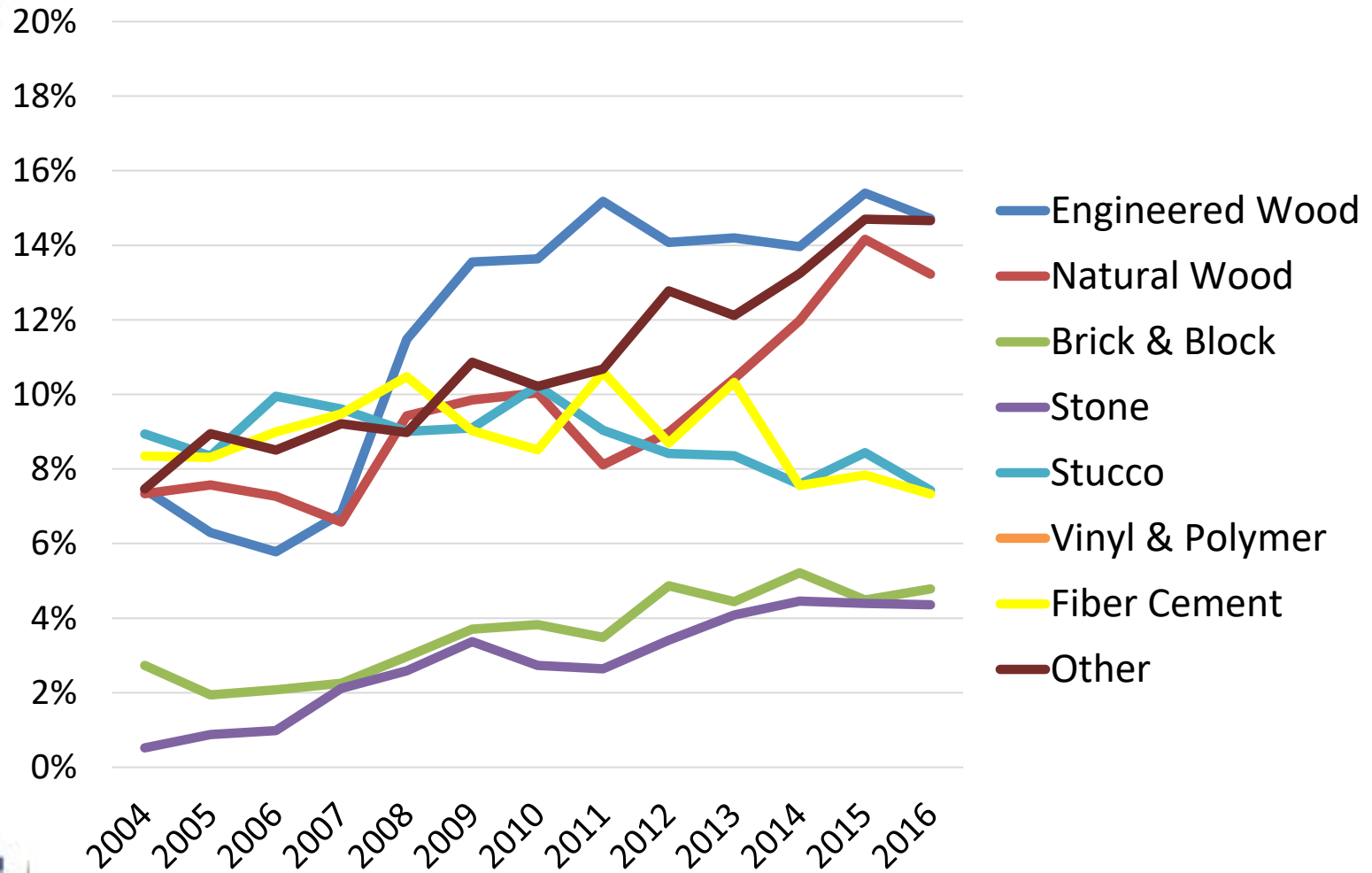
Source: Annual Builder Practices Reports

Exterior Cladding in Home Remodeling



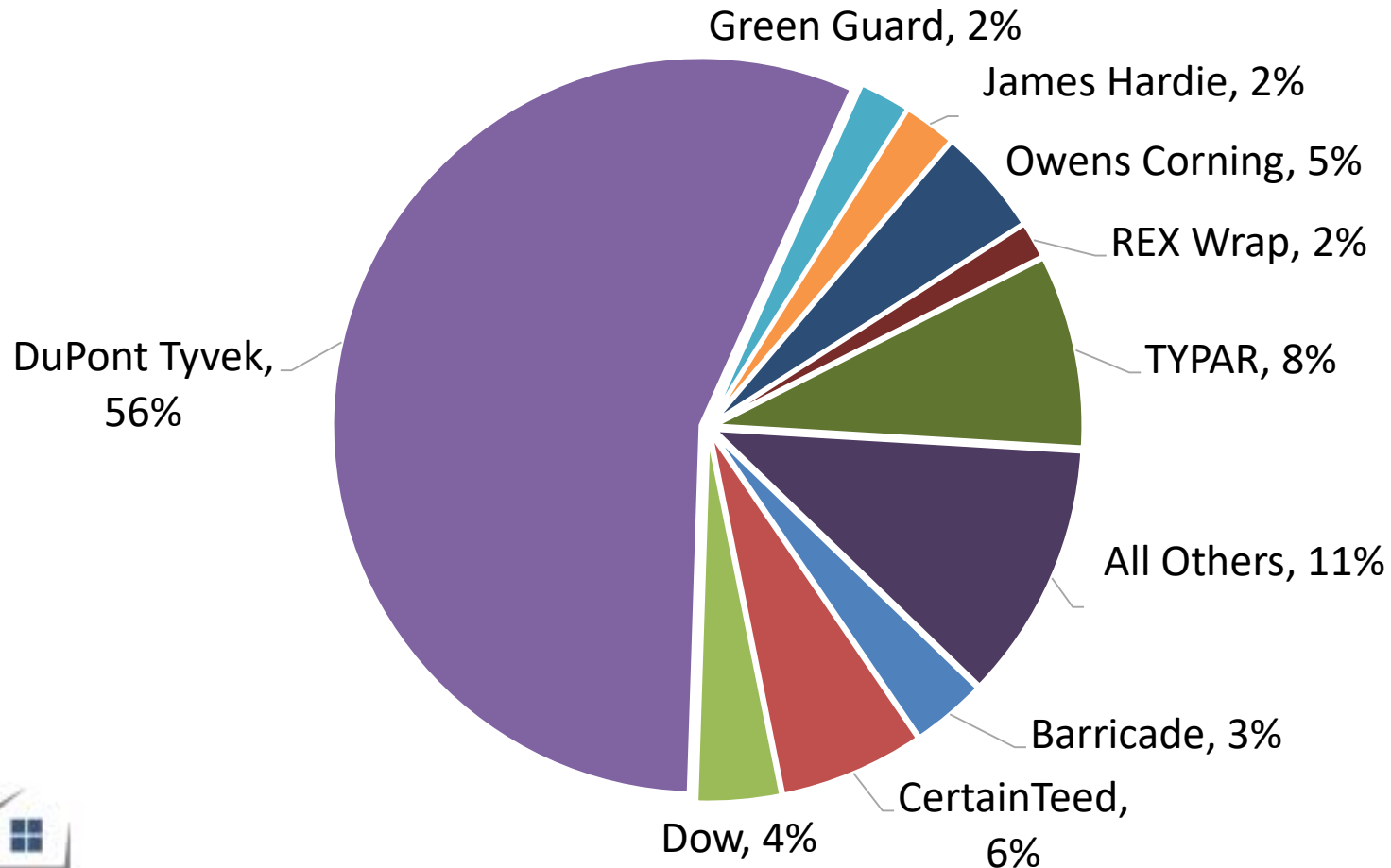
Source: Annual Consumer Practices Reports

Exterior Cladding in Home Remodeling (Lower Tier)



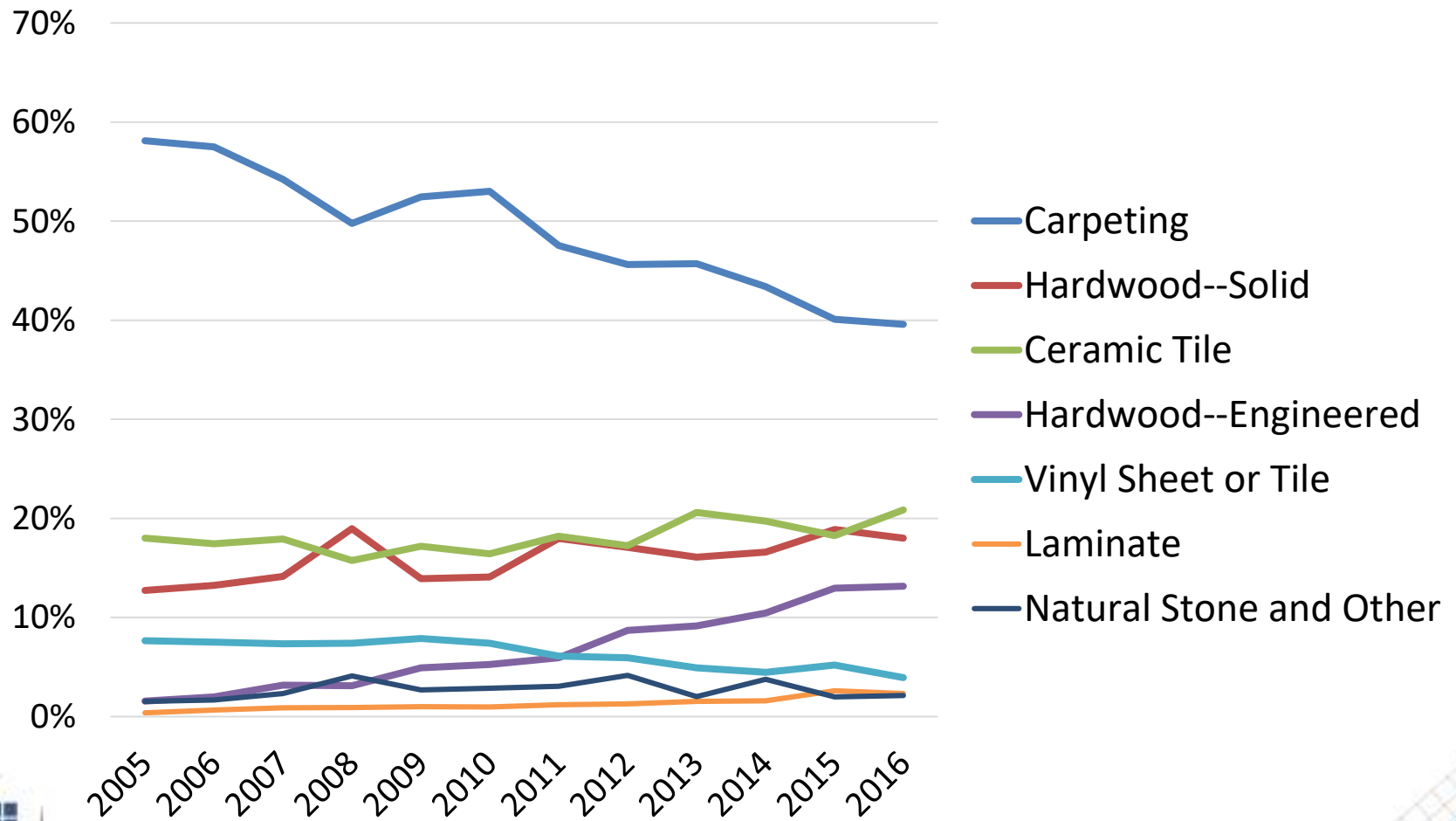
To Own a Market, You Educate a Market

Shares of Housewrap, 2016 New SFD Home Market

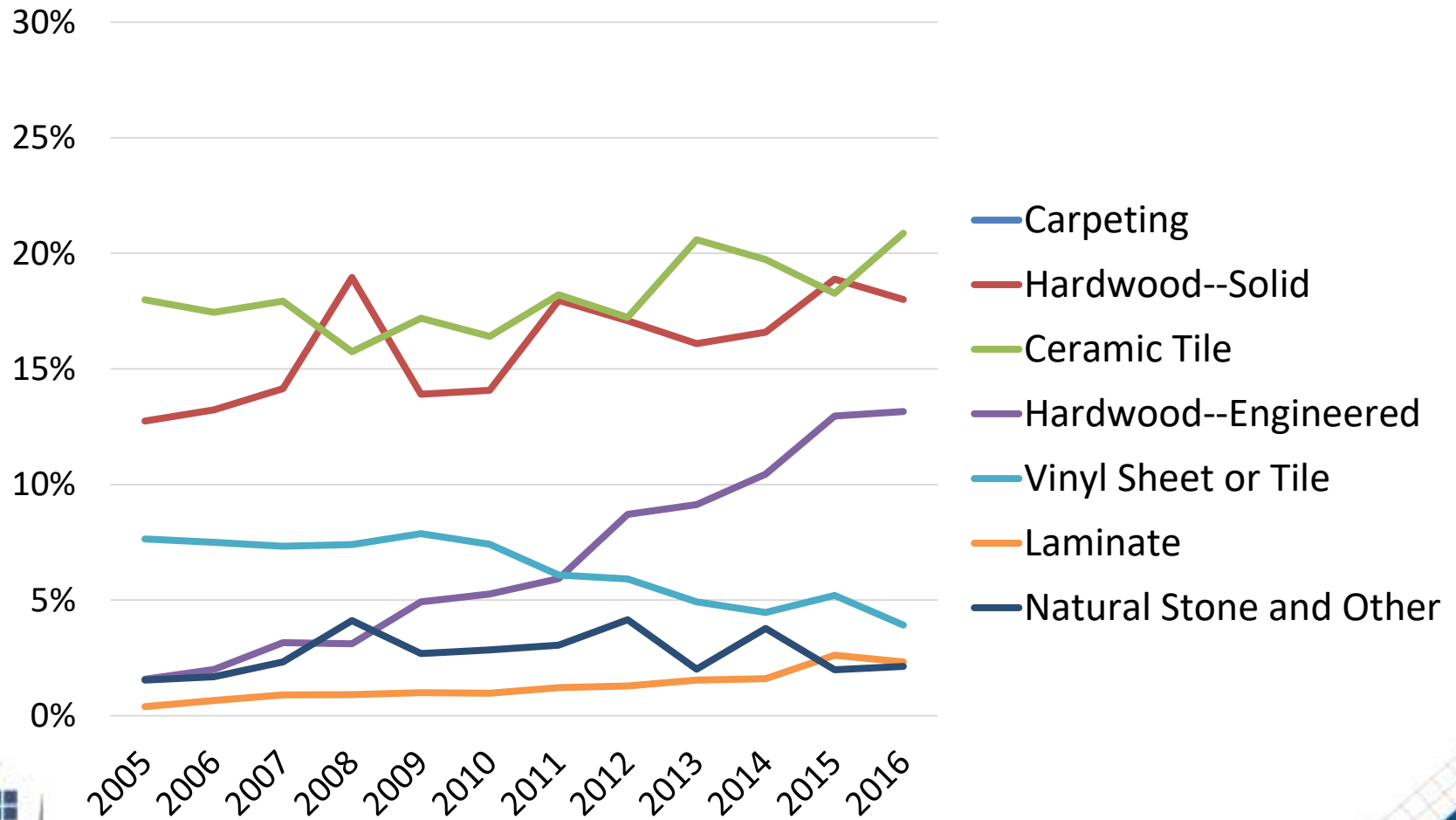


Source: Annual Builder Practices Reports

Finish Flooring in New SFD Homes Trend Towards Hard Surfaces Continues

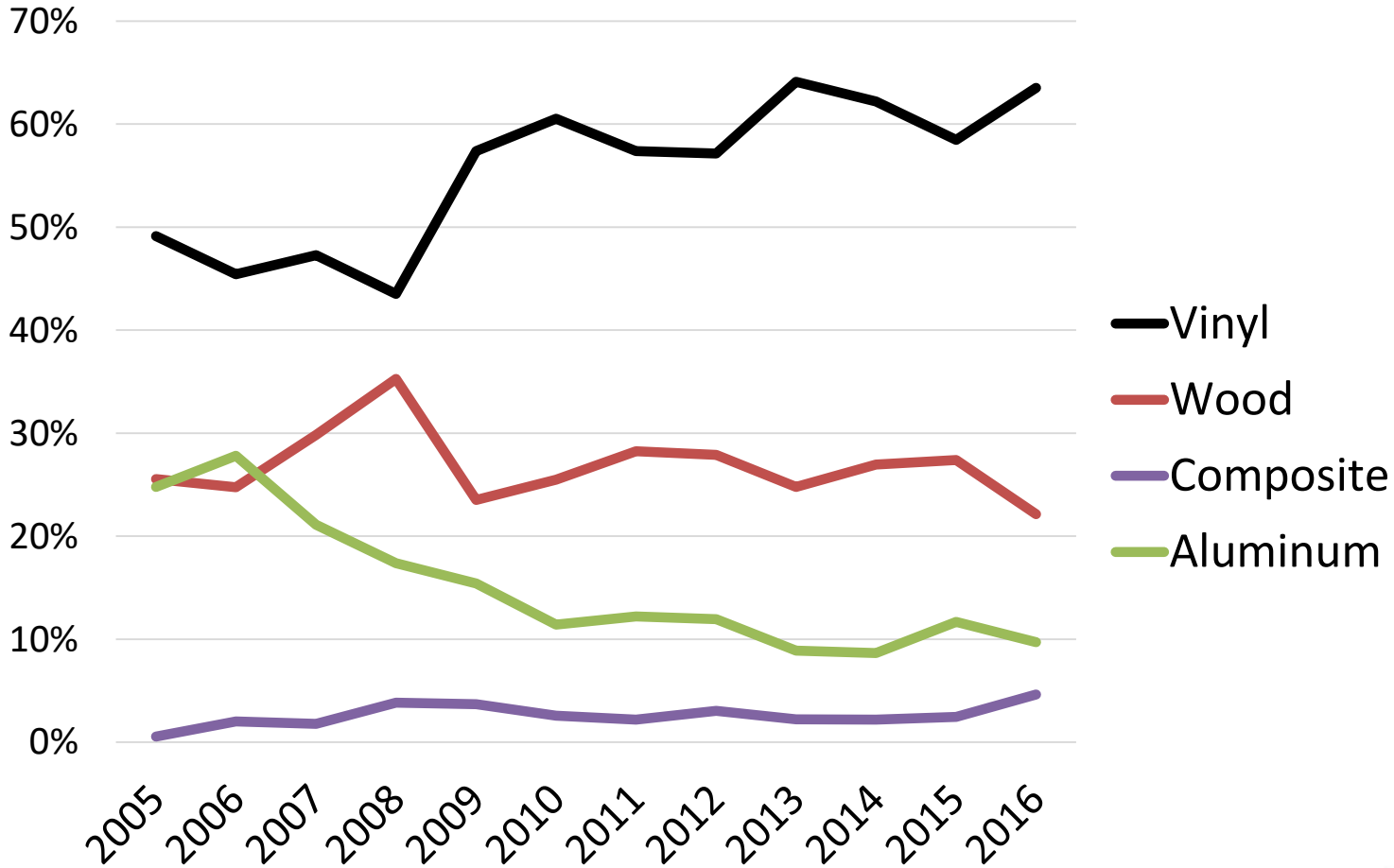


Finish Flooring in New SFD Homes Engineered Wood with Steep Growth



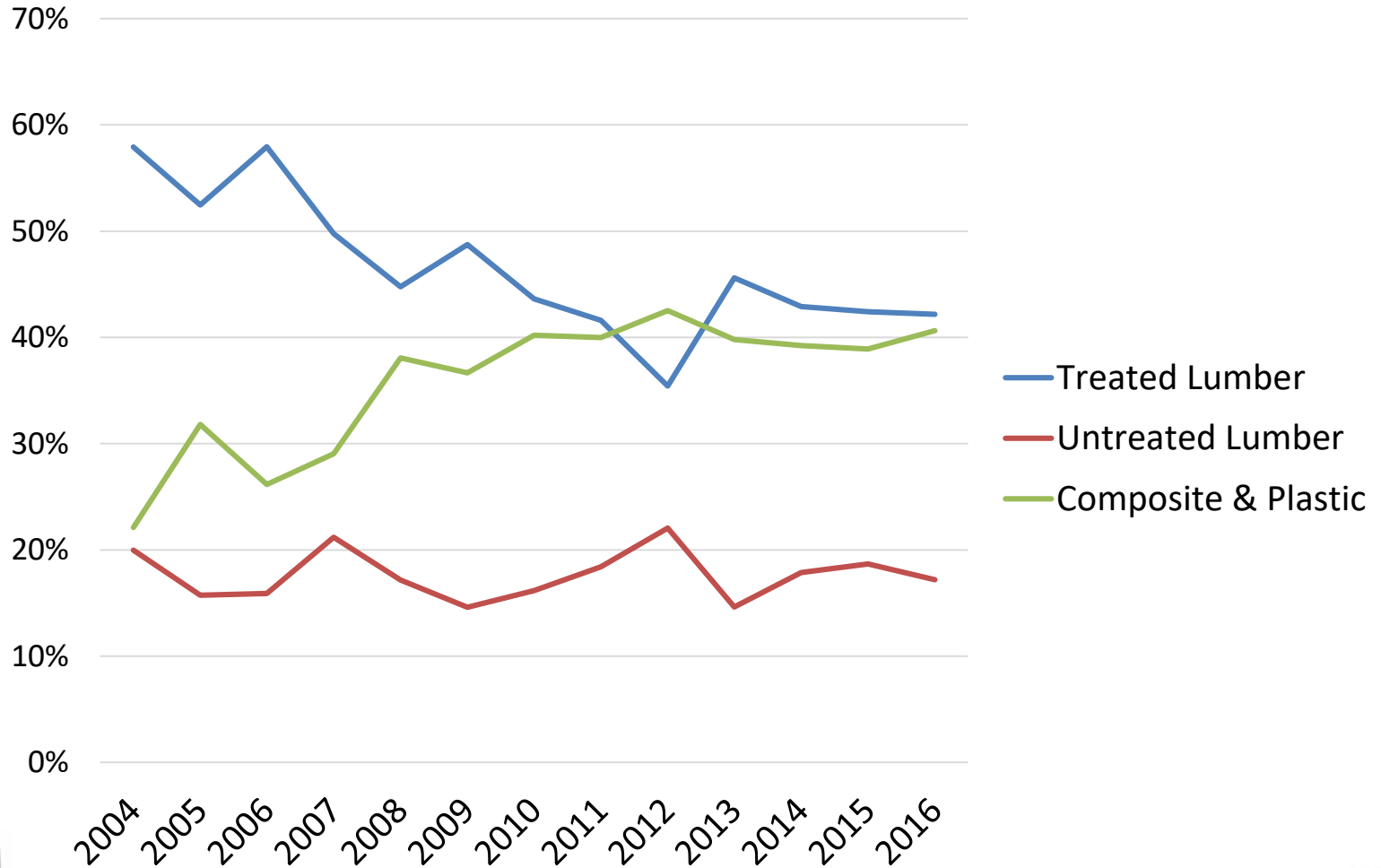
Source: Annual Builder Practices Reports

Windows In New US SFD Homes

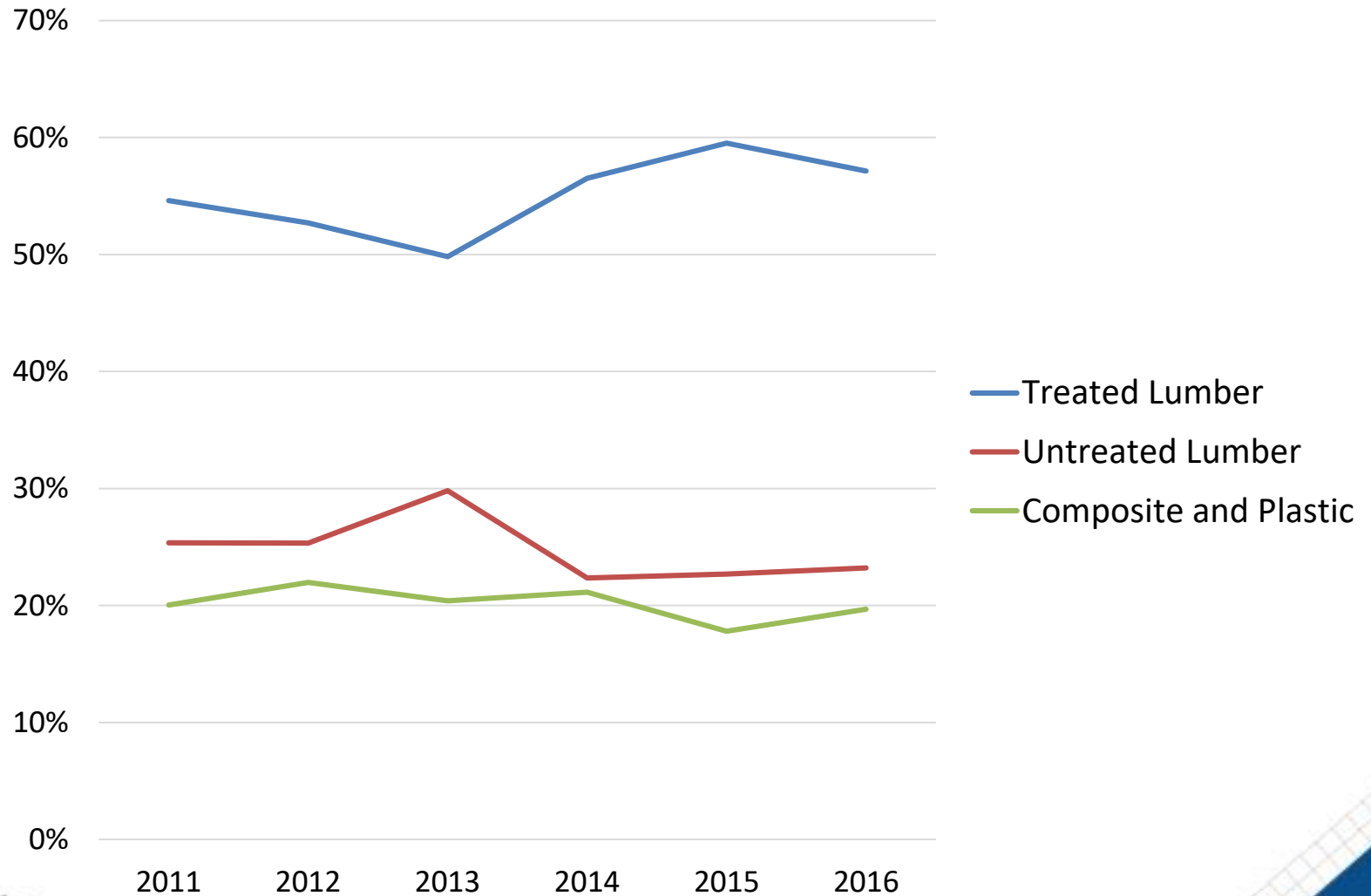


Source: Annual Builder Practices Reports

Shares of Raised Porch and Decking Material in New SF Homes



Shares of Raised Porch and Decking Material in Residential Remodeling



Some Pitfalls to New Building Product Introductions

- Product benefits someone other than specifier, purchaser or end-user (such as some labor saving innovations)
- Product requires systemic change
 - Drop-in replacements have higher likelihood of success
- Wrongly assuming little emotional content in purchase decision
- Benefits are difficult or disadvantageous to convey
 - When more than multiple logical points need to be made, or if benefits rest on a hard-to-understand engineering principle
 - Involves mentioning disasters, sickness, raises questions



Common Mistakes with New Market Introductions

- Entering the most regulated or complex applications first
 - Wall systems in very cold or high-wind areas, for example
- Sellers create value proposition that relies on purist view, requires all-or-nothing decision
 - Exterior trim & molding is a prime example: a single house may have four or more different exterior trim materials
- Failure to realize that home building & remodeling companies are businesses
 - Sales, design, marketing, regulations, code approvals, coordinating construction, financing, hiring & training & retaining employees
 - Your product can improve their home—how about their business?
 - Some offer program assistance—bidding, scheduling, financing, etc.



Common Mistakes with New Building Product Introductions

- New products address complaints or nuisances, but fail to really solve problems or create opportunities
 - Contractors will not always pay more for a product that is less heavy, less dusty, or less itchy
- Some new product benefits create unintended consequences—examples of issues with early Green homes
 - Ultra-low-flow fixtures and long wait times for hot water
 - Very high efficiency AC and high indoor humidity
 - Very tight homes and poor indoor air quality
- True advantages are not typically discovered until after the product has been on the market a while



How Switching to a New Product Can Impact Builders & Contractors

- Switching Costs—new place of purchase, training installers & supervisors, new tools and more
 - “Tool Programs” are one popular way to reduce switching cost
 - Field techs, design assistance, code help are common services
- There is an implied “risk premium” required by contractors for switching—so your product/service advantage need to have substantially greater benefits
- Remember that most installers do not read instructions, and they want the contractor to make decisions on how to install



Your New Product Installs So Easy, Anyone Can Do It?

- Anticipate resistance from some skilled trades
- Learn how product improves installation, then demonstrate to contractors
- Consider non-traditional users, like remodeling generalists or handymen who welcome alternative that doesn't require special tools or training
- Consider do-it-yourselfers (prosumers, weekend warriors, etc.)



Strategies That Can Build Upon Construction Labor Shortage

- Reduce skills required (unskilled worker to do job of journeyman)
- Reduce crew size (run more crews with same workforce)
- Eliminate need for a trade—one trade does work of two
- Fewer trips to the jobsite
- Reduce fatigue & jobsite injuries to keep workers longer
- Allow for easier payment of workers by piece rates
- Cautions: saving time for one worker does not always translate into overall time savings
- Focus on savings in time-consuming activities



Management Labor Deficit

- Recent HI study of ASHRAE members revealed that there is a deficit management levels of construction companies— not just skilled tradespeople—
 - The primary lack was project coordination and management
 - The skills were particularly lacking a deep knowledge of construction (not engineering) need jobsite experience and maturity to anticipate issues
- Technologies/apps/software solutions are available, but only tech saavy younger generation was inclined to use them
 - Webinars to facilitate face-to-face contact
 - Tracking software to communicate real-time with building team
 - Communications apps



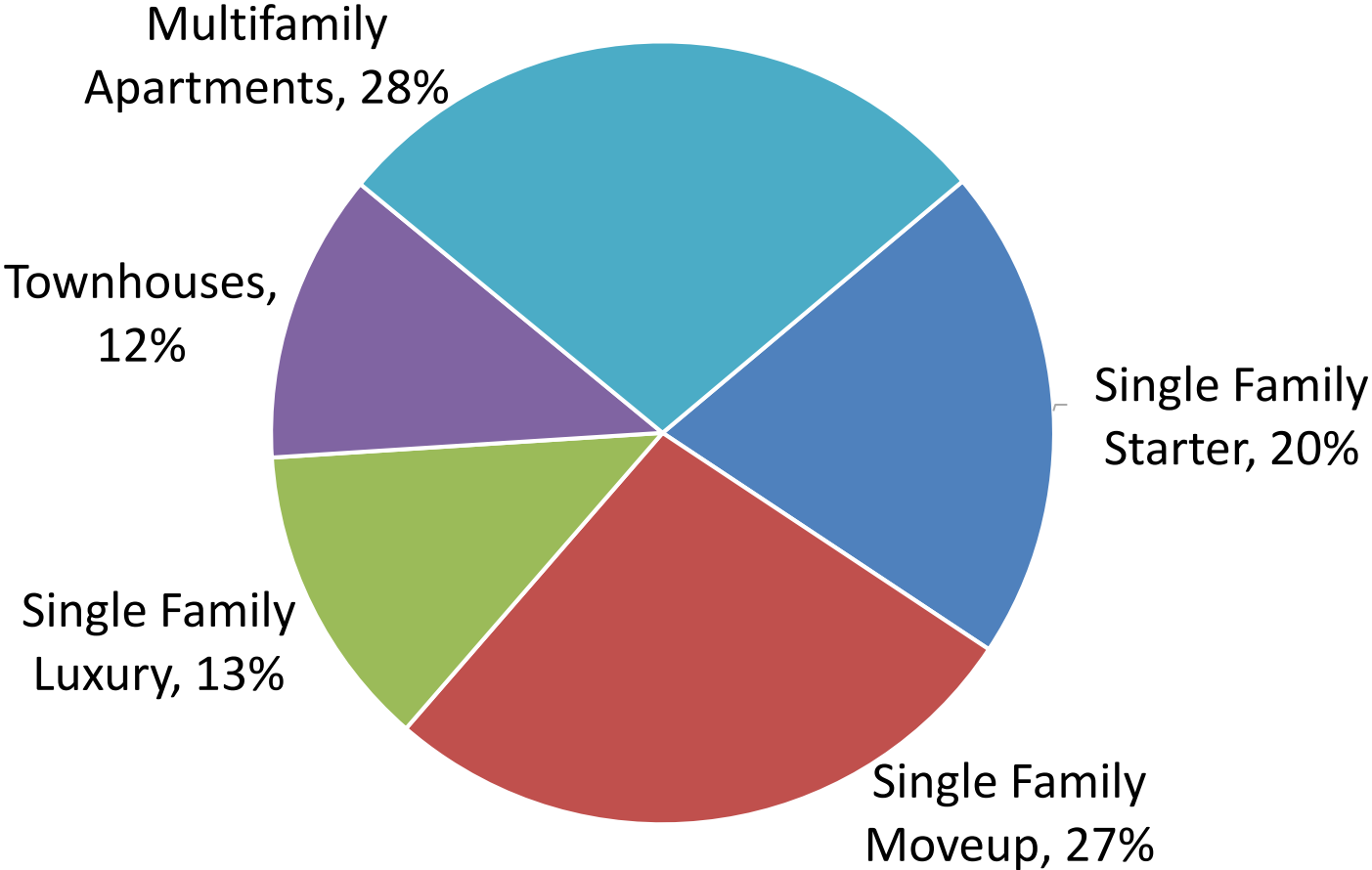
Industry Concentration Among New Home Builders

	Share of 2016 Total Starts	Total 2016 Starts of Smallest in the Group
Nation's Largest Builder	3%	41,652
Top 5 Builders	10%	14,229
Top 10 Builders	13%	6,098
Top 20 Builders	16%	2,790
Top 100 Builders	22%	403
Top 200 Builders	24%	149
All Builders Under 149 Starts	76%	1

Calculations Based on Builder Magazine's Builder 100 and NAHB-reported housing starts



New U.S. Home Starts by Category, 2016





Home Innovation
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THANK YOU

Home Innovation Research Labs

400 Prince George's Blvd | Upper Marlboro, MD 20774

P: 301.430.6194 | F: 301.430.6180

HomeInnovation.com

Finding Innovation a Home

Value of New U.S. Homes Built, 2016

	Average SF of Finished Floor Area	Average Selling Price (USD)	Total Value (Billions USD)
Townhouses	1,745	\$ 327,091	\$ 48
Multifamily Apartments	1,118	\$ 191,640	\$ 66
Single Family Starter	1,700	\$ 183,428	\$ 46
Single Family Moveup	2,535	\$ 364,136	\$ 121
Single Family Luxury	3,931	\$ 767,320	\$ 119

Is the Remodeling Market Opportunity Primarily for Pros or DIYers?

DIY Share of Remodeling Materials Purchases

