



**Home Innovation**  
RESEARCH LABS

# MARKET TRENDS AND OPPORTUNITIES FOR PLASTIC PROFILES IN CONSTRUCTION

PROFILES 2018

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
- #1 in green home building certification (NGBS)
- Building codes and standards developers
- Partners with ICC-ES to fast-track issuance of ESRs



# Purpose and Outline of Presentation

1. Review of building materials trends in new homes and remodeling
  1. Windows & Patio Doors
  2. Roofing
  3. Siding & Exterior Finishes
  4. Exterior Trim & Fascia
  5. Decks & Railing Systems
  6. Fences & Privacy Walls
2. Current market opportunities; Pitfalls in launching & promoting new building products & services



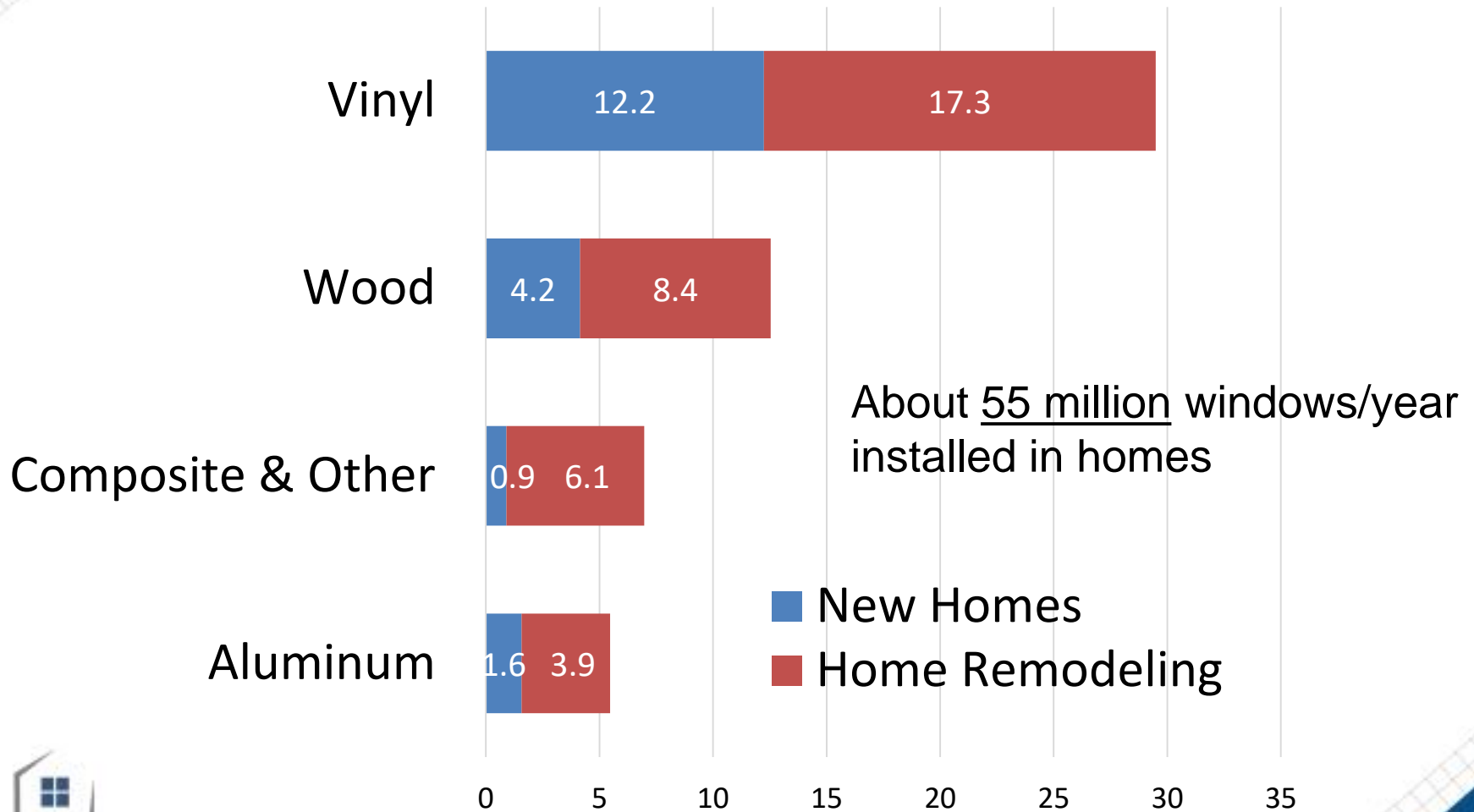
# Basis for Trend Data: Annual Building Product Tracking Studies

- 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
- Support of development and launch of hundreds of new building products



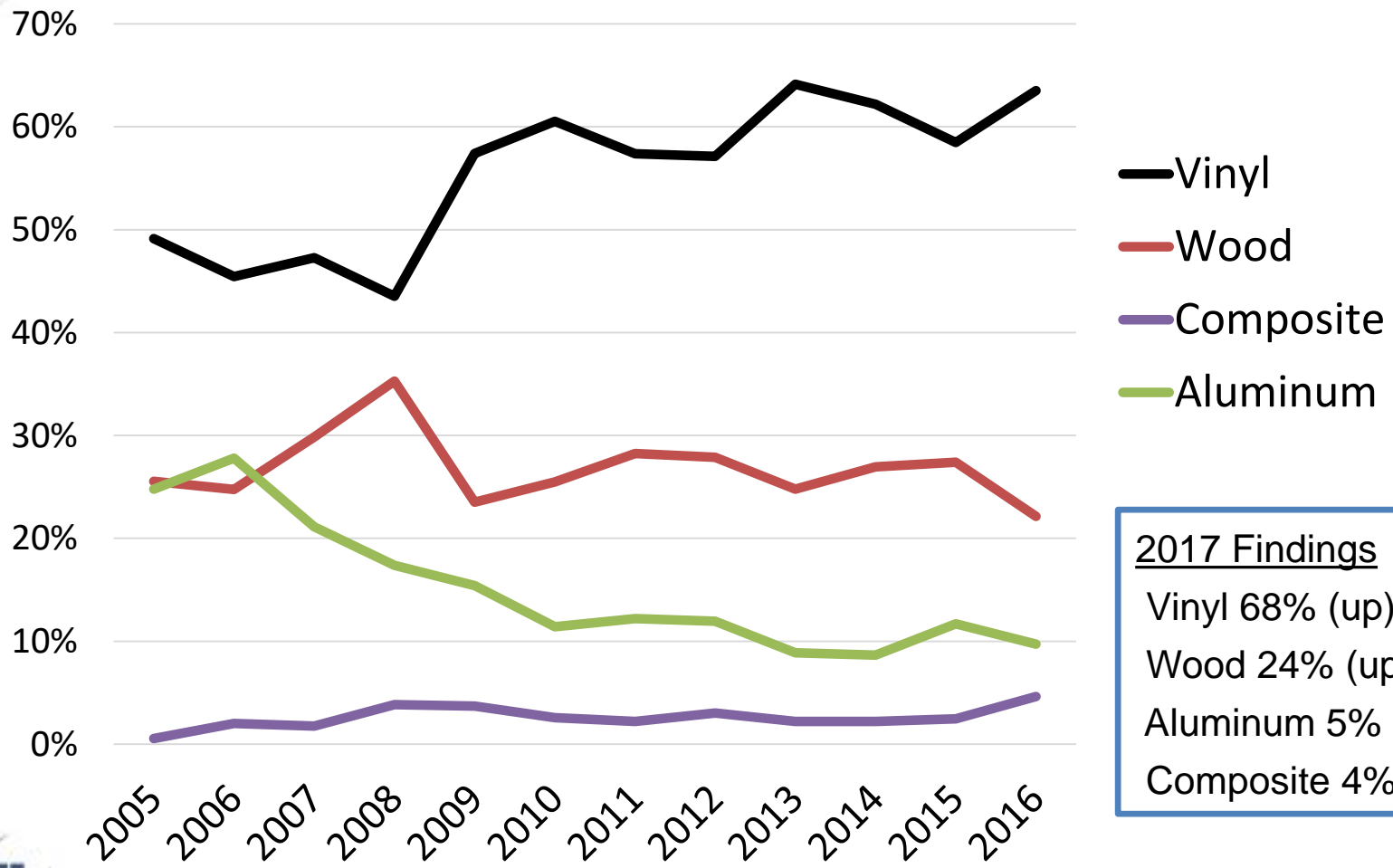
# Windows Installed in New U.S. Homes and Home Remodeling, 2017

(millions of window units)



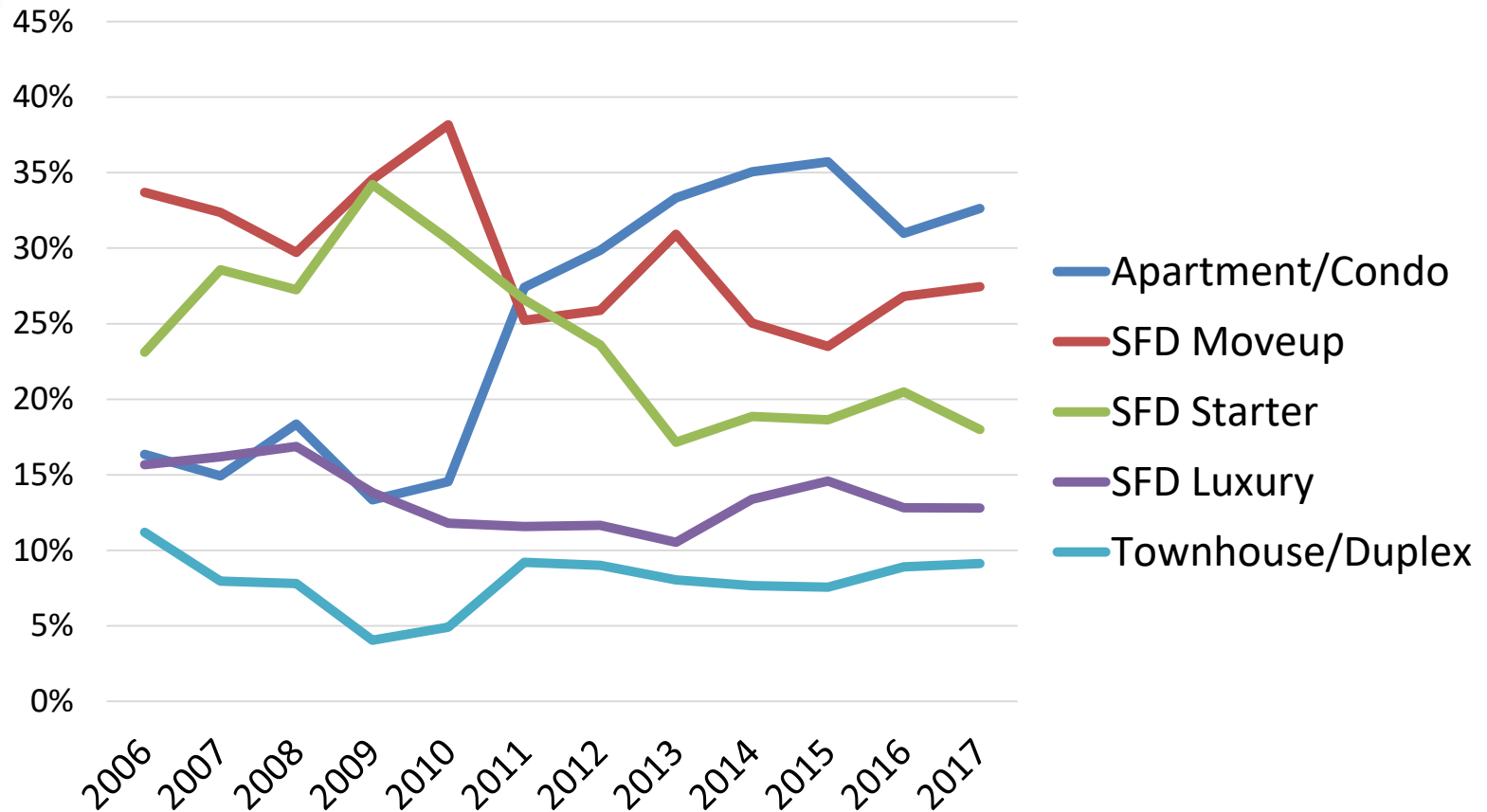
Source: Annual Builder & Consumer Practices Reports

# Windows in New U.S. Homes



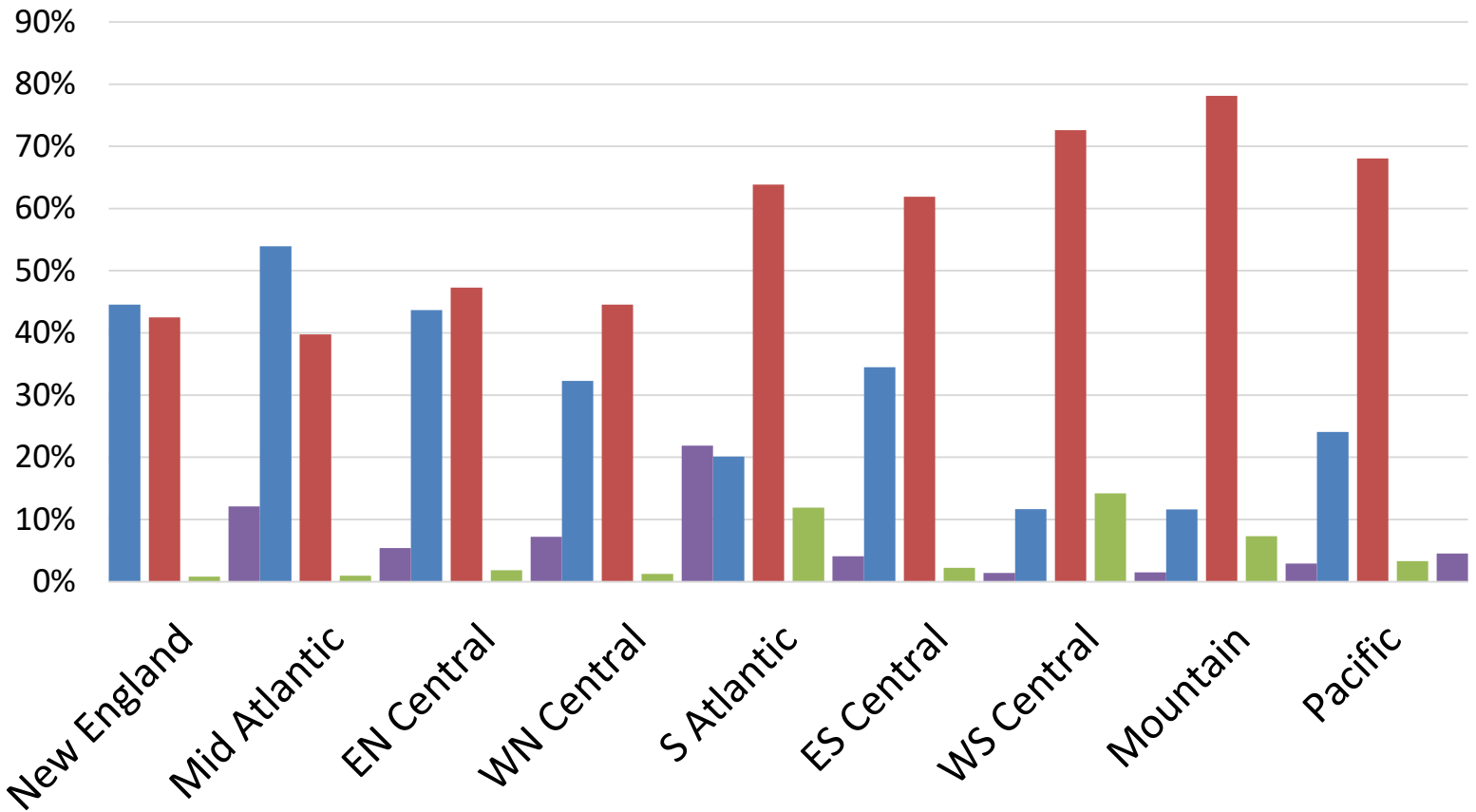
**2017 Findings**  
Vinyl 68% (up)  
Wood 24% (up)  
Aluminum 5% (down)  
Composite 4% (down)

# Change in New Home Construction Mix



Source: Home Innovation Research Labs, NAHB

# Windows in New U.S. Homes, by Census Divisions, 2016

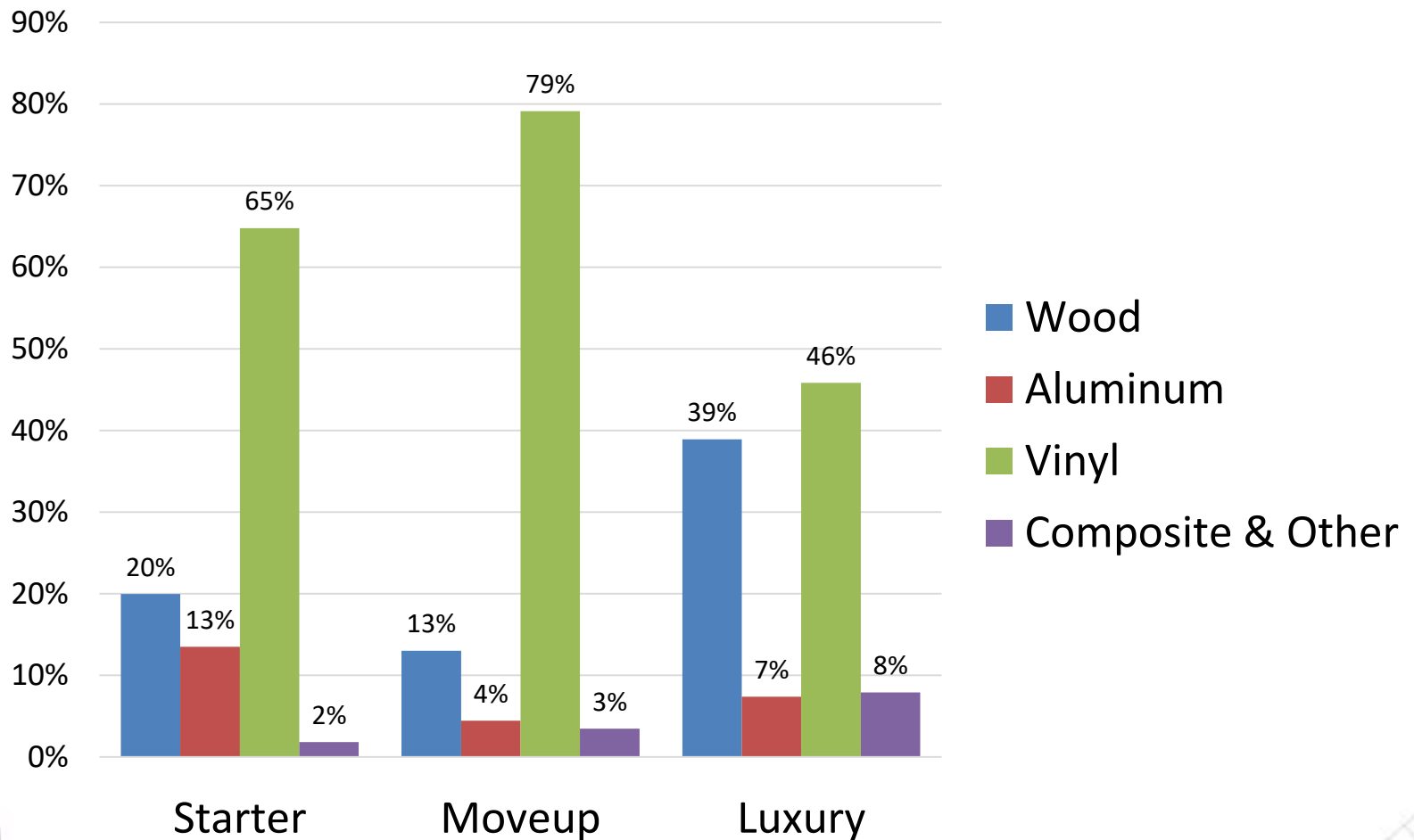


■ Wood ■ Vinyl ■ Aluminum ■ Other

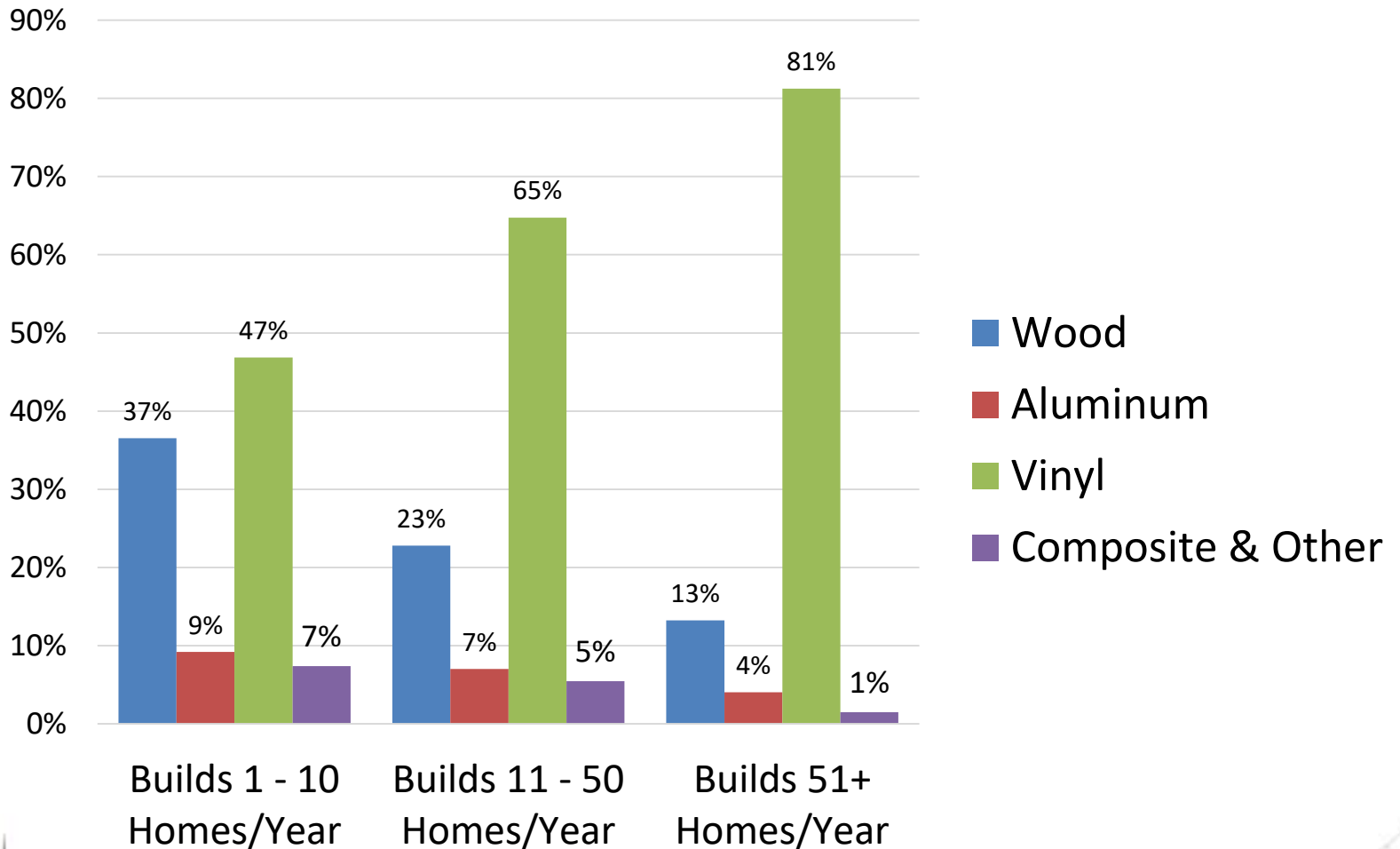
Source: Annual Builder Practices Reports



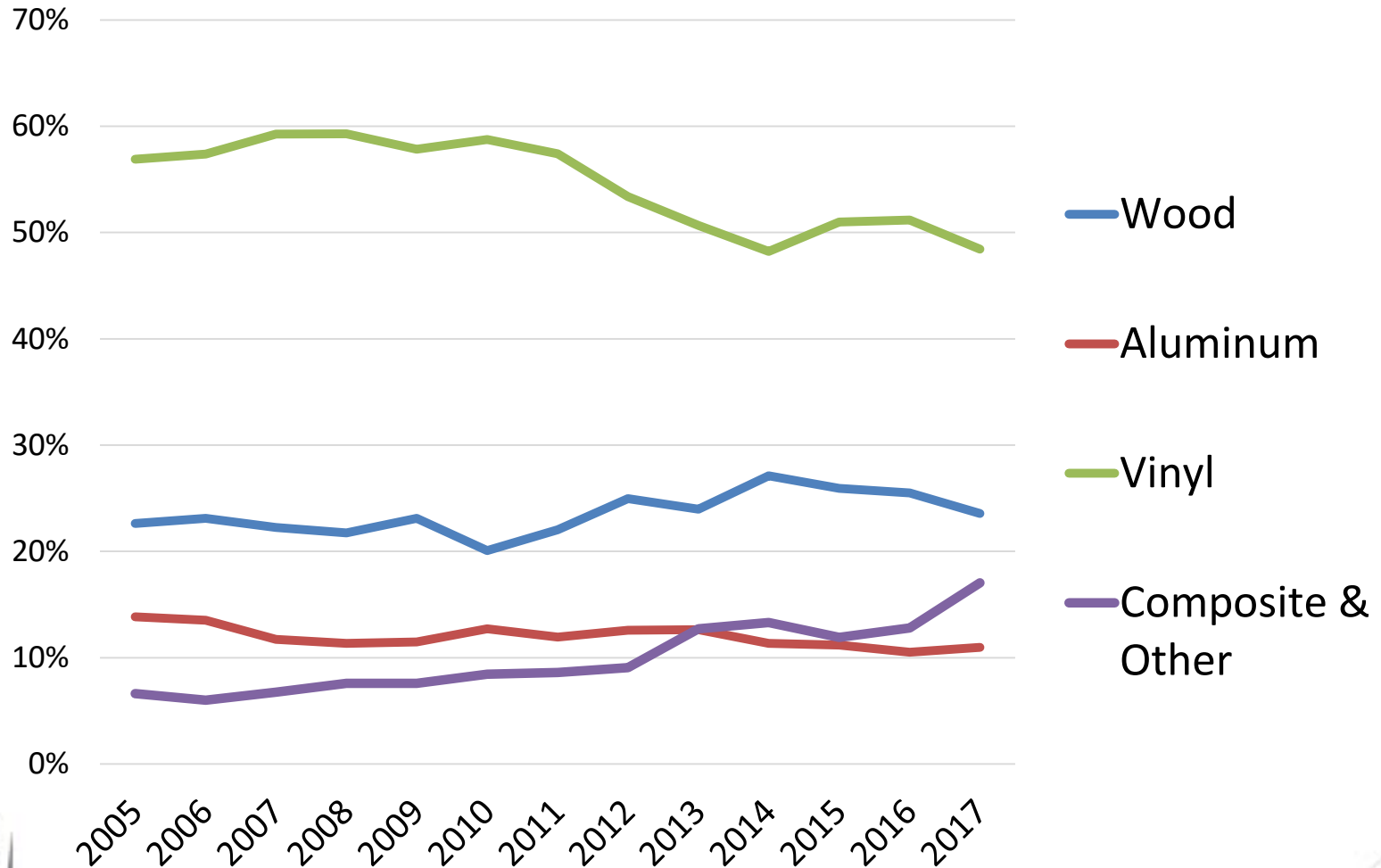
# Window Frame Materials in New U.S. Homes by Price-Point of Home, 2016



# Window Frame Materials in New U.S. Homes by Size of Builder, 2016



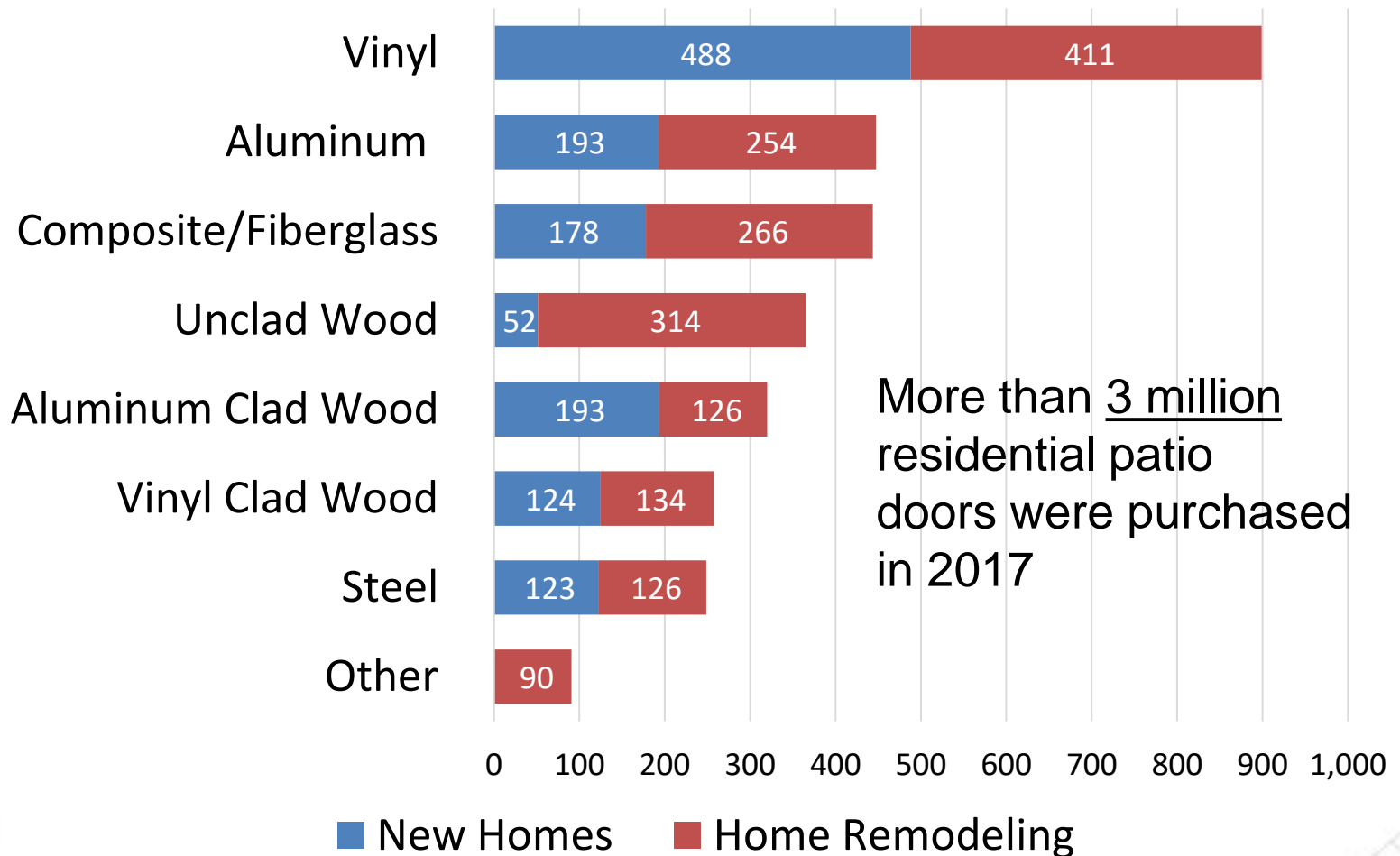
# Windows in U.S. Home Repair, Replacement, and Remodeling



Source: Annual Consumer Practices Reports

# Patio Doors Purchased for New Homes and Remodeling, 2017

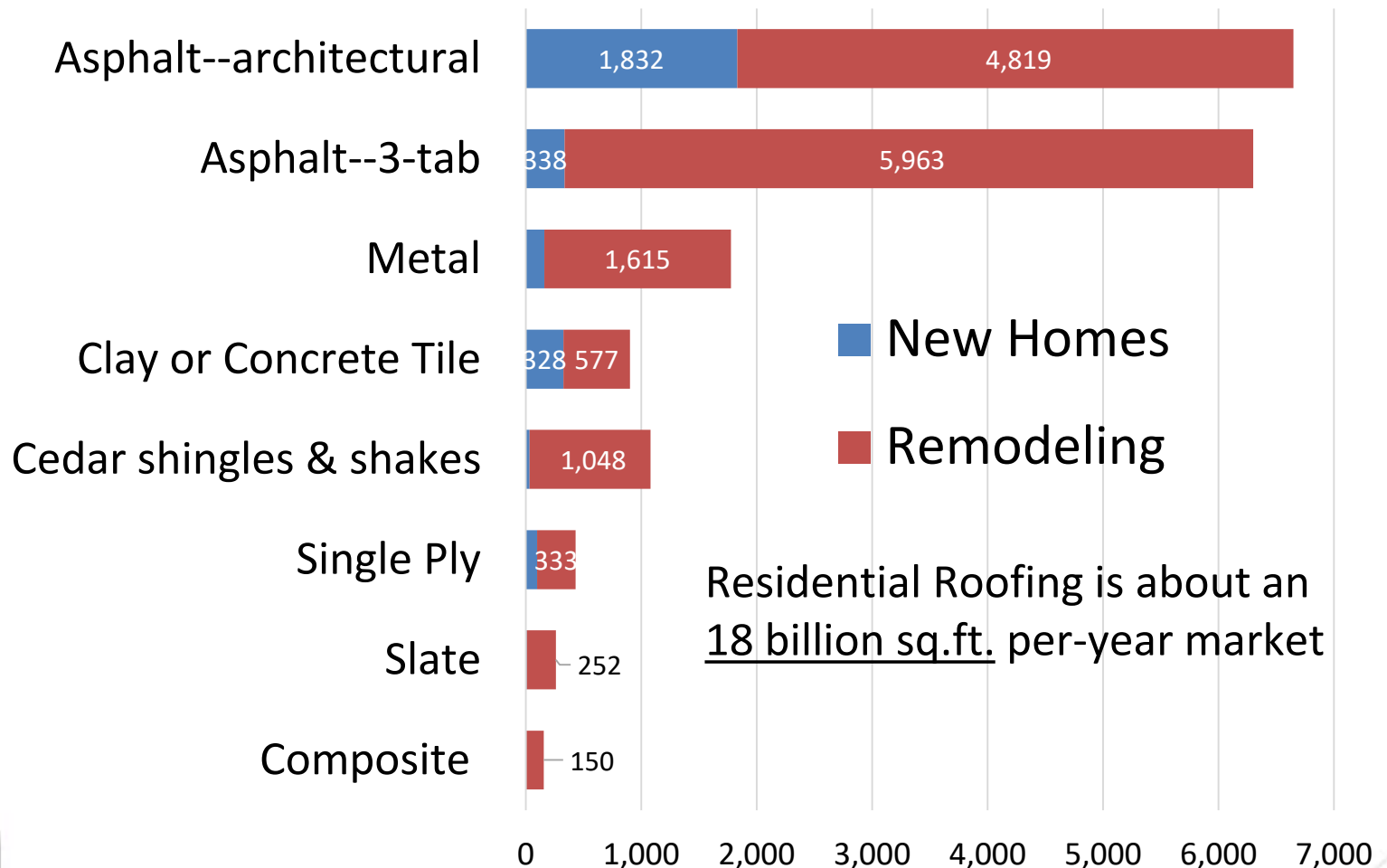
(thousands of units)



Source: Annual Builder & Consumer Practices Reports

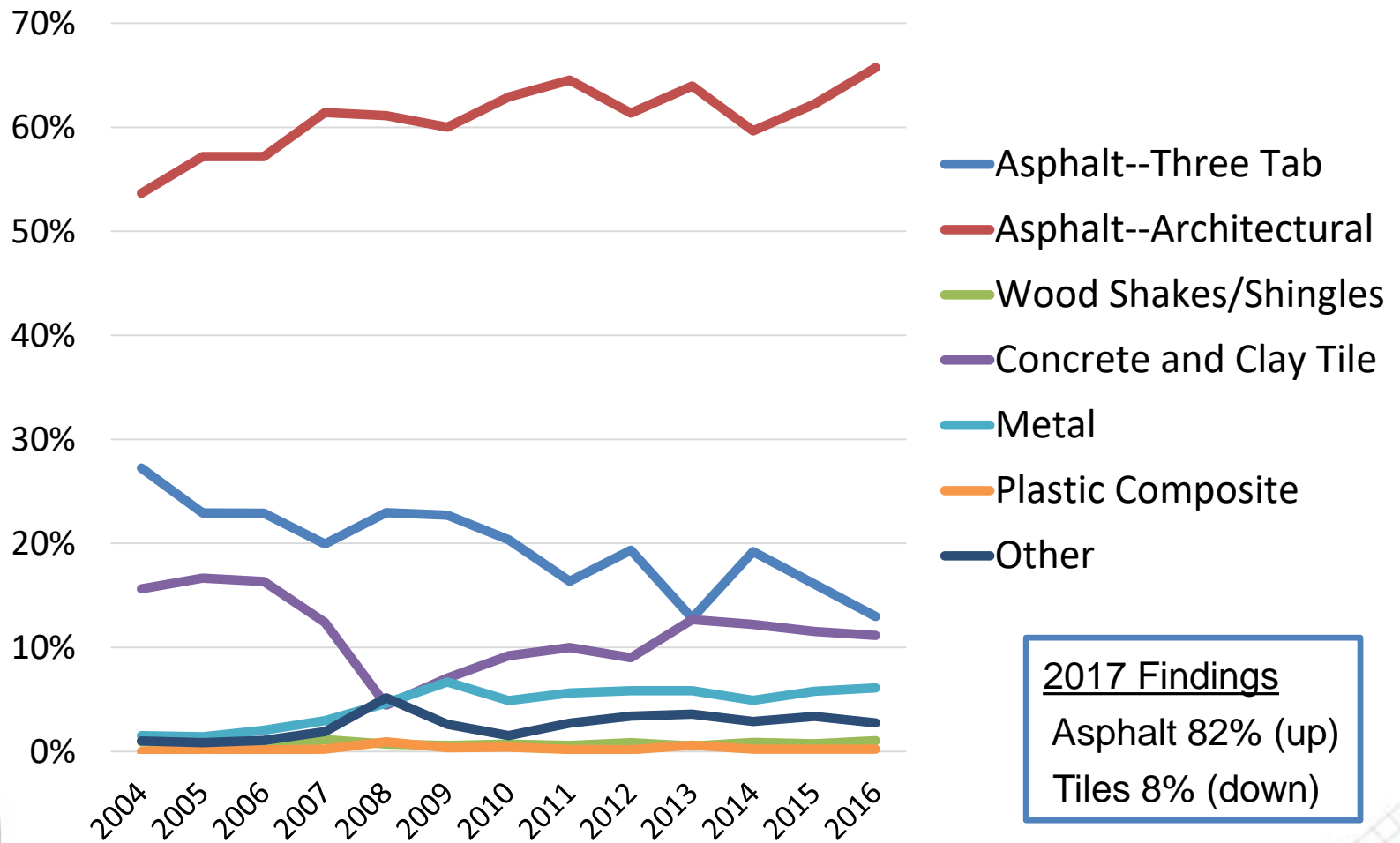
# Residential Roofing: New Homes and Home Replacements/Additions, 2017

(millions of sf)



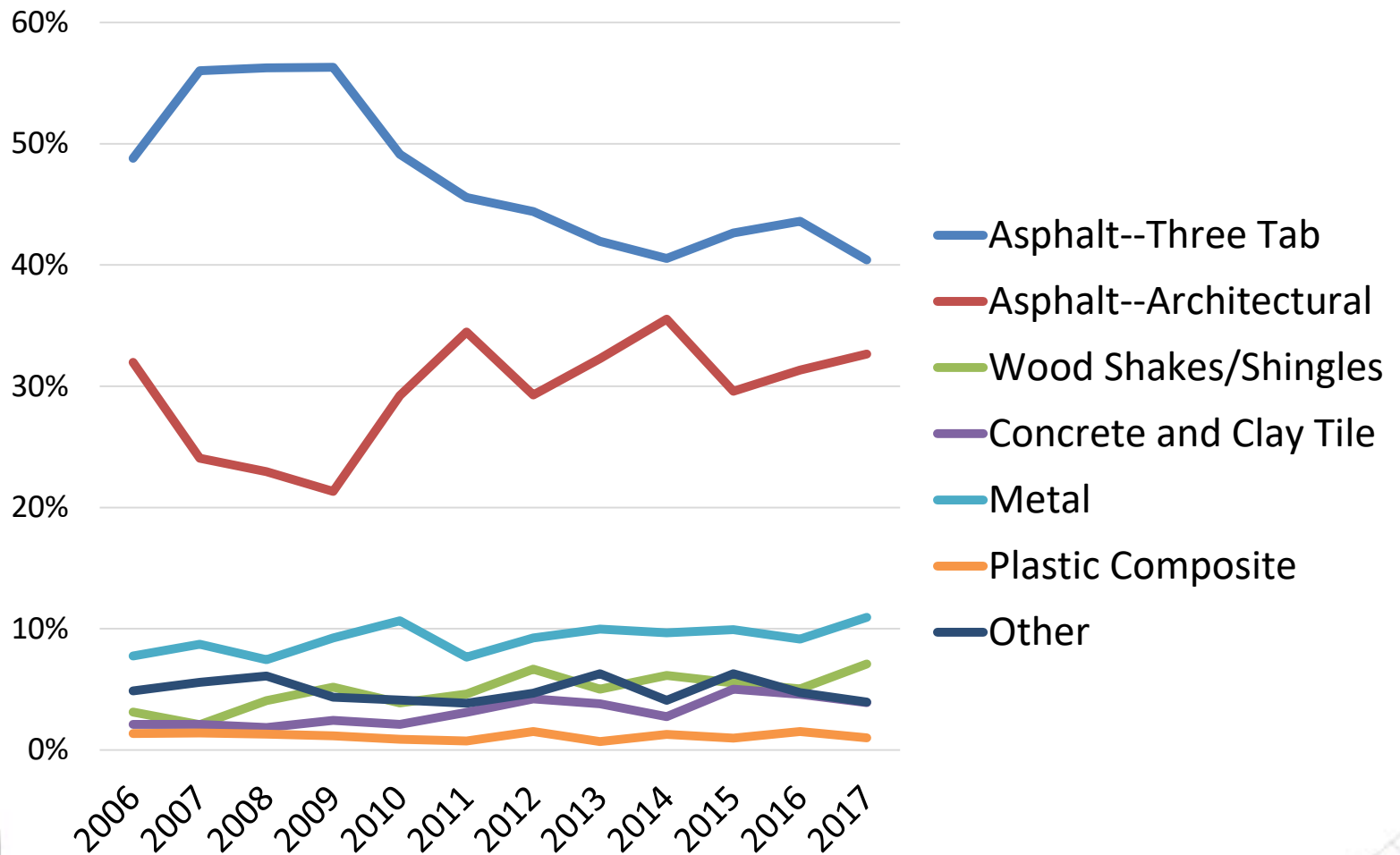
Residential Roofing is about an 18 billion sq.ft. per-year market

# Roofing Materials Installed in New U.S. Homes



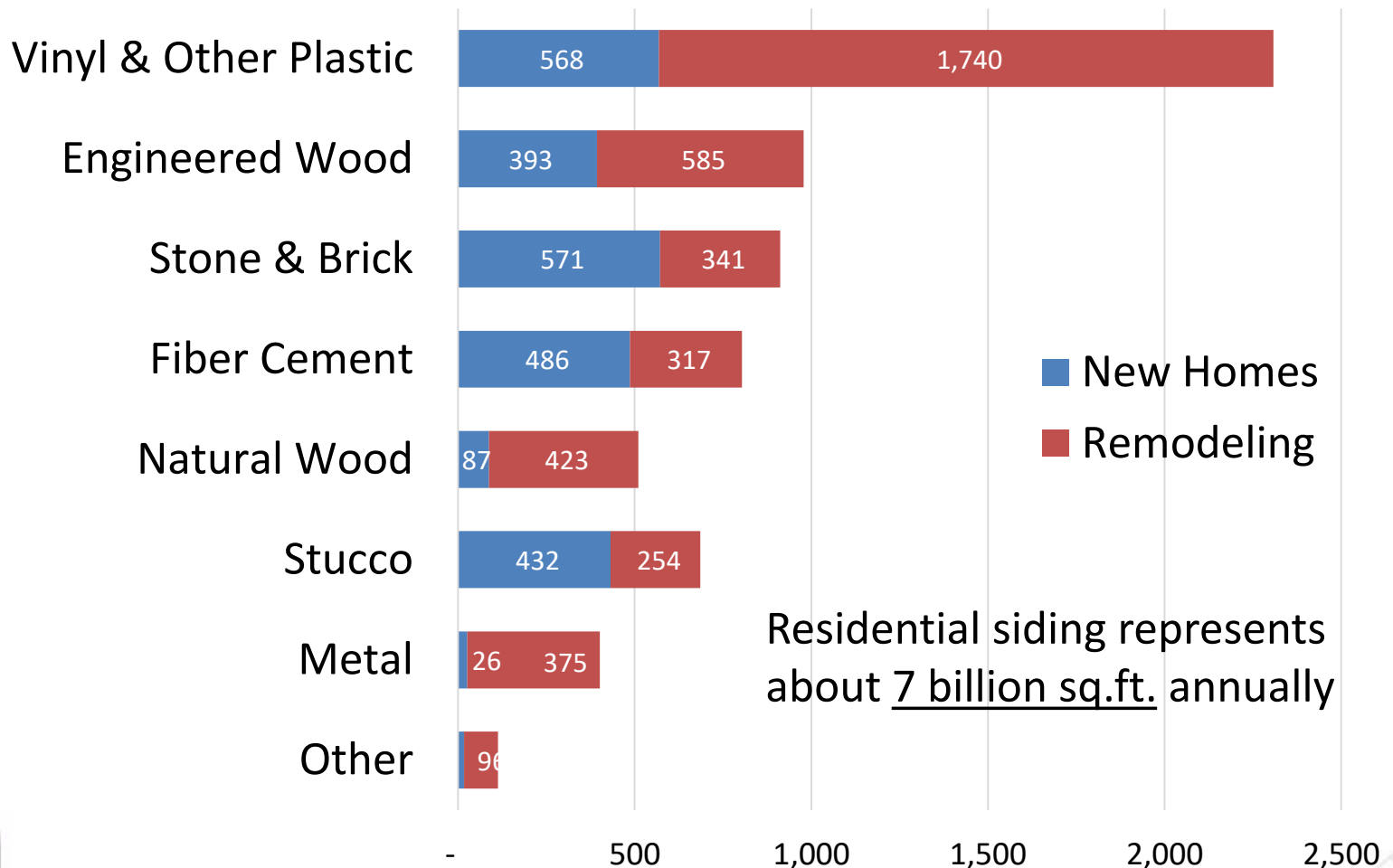
**2017 Findings**  
 Asphalt 82% (up)  
 Tiles 8% (down)

# Roofing Material Installed in U.S. Home Replacements



# Siding in New Homes and Remodeling, 2017

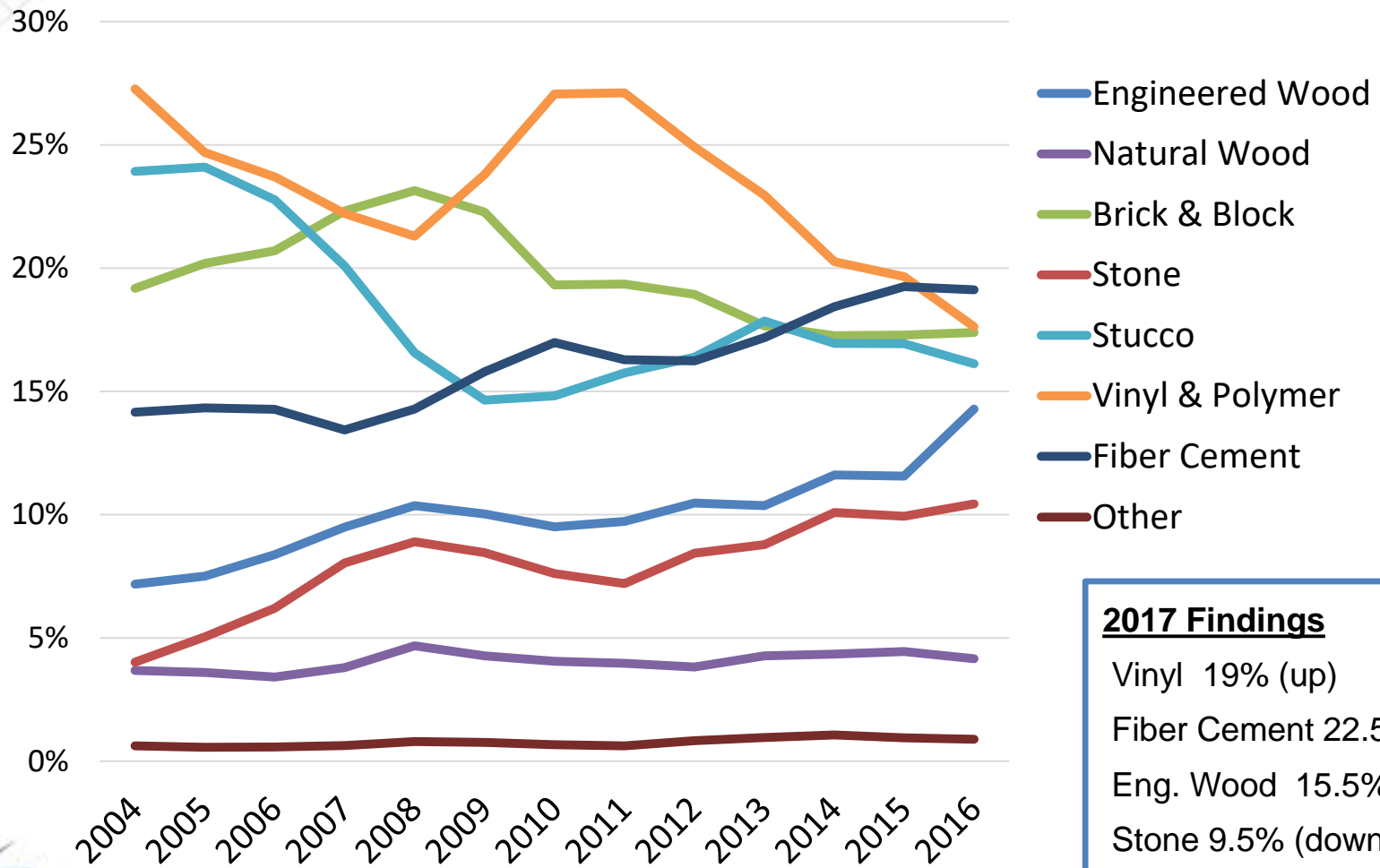
(millions of sq.ft.)



Source: Annual Builder & Consumer Practices Reports

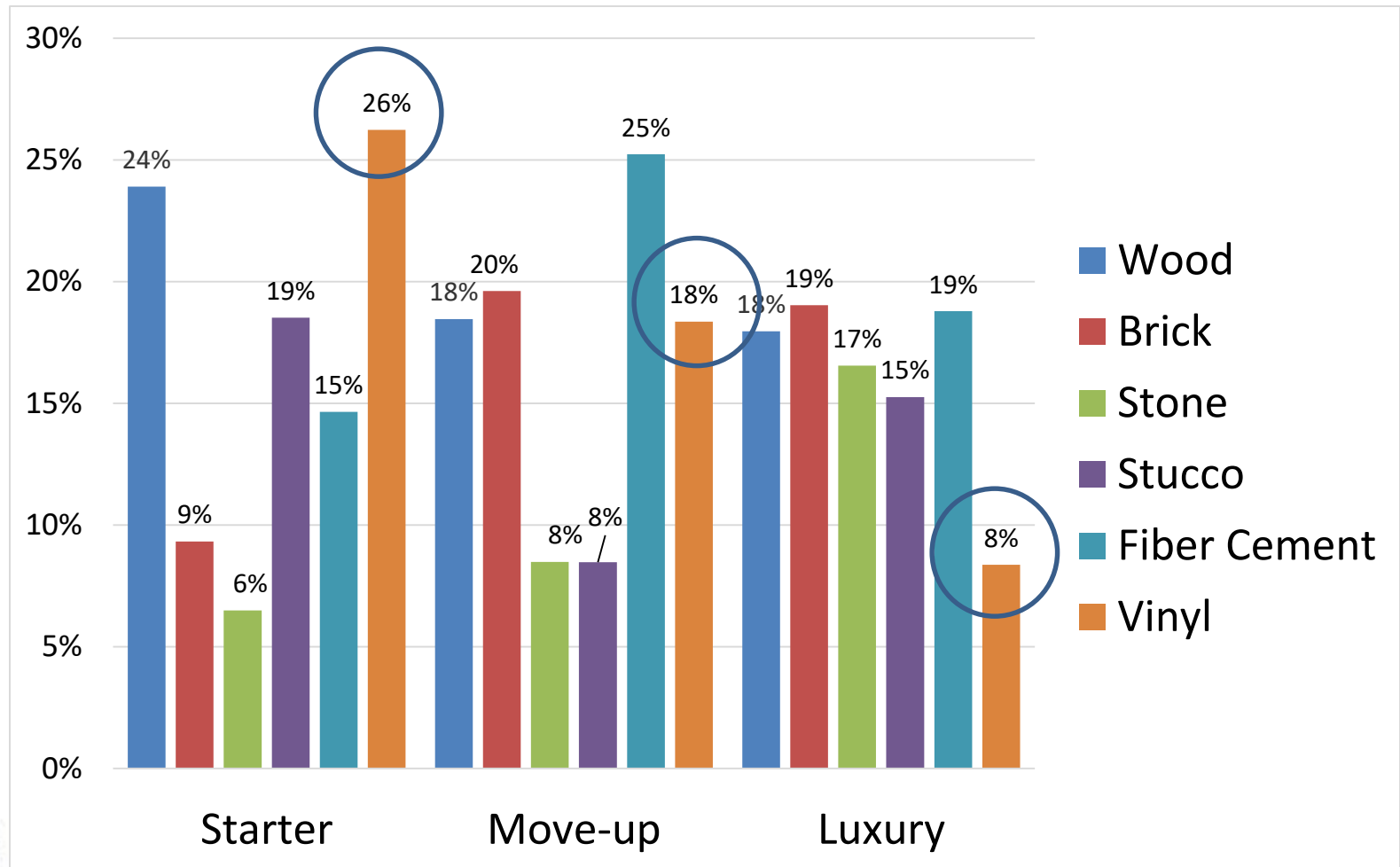


# Siding on New U.S. Homes

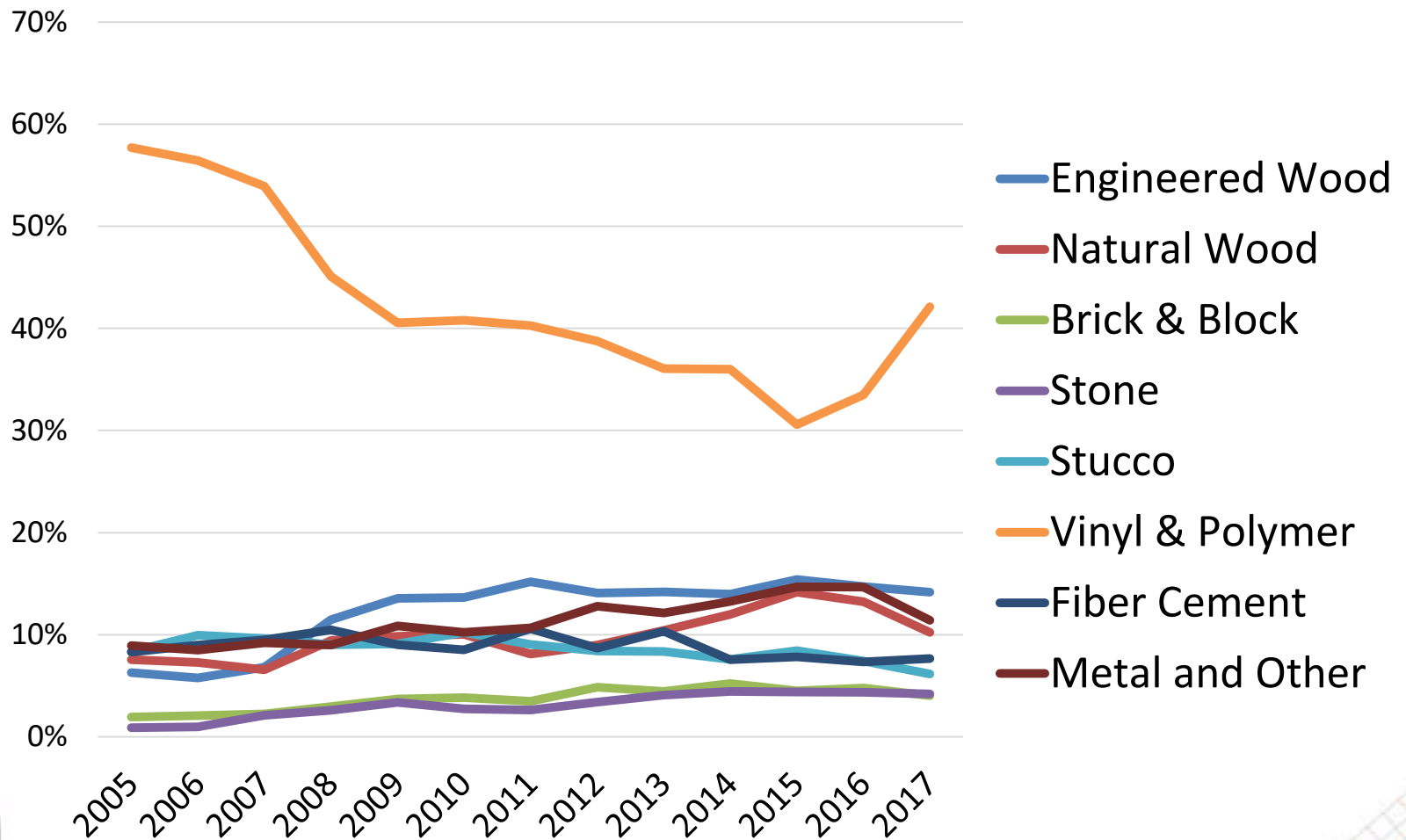


**2017 Findings**  
 Vinyl 19% (up)  
 Fiber Cement 22.5% (up)  
 Eng. Wood 15.5% (up)  
 Stone 9.5% (down)  
 Brick 12.5% (down)

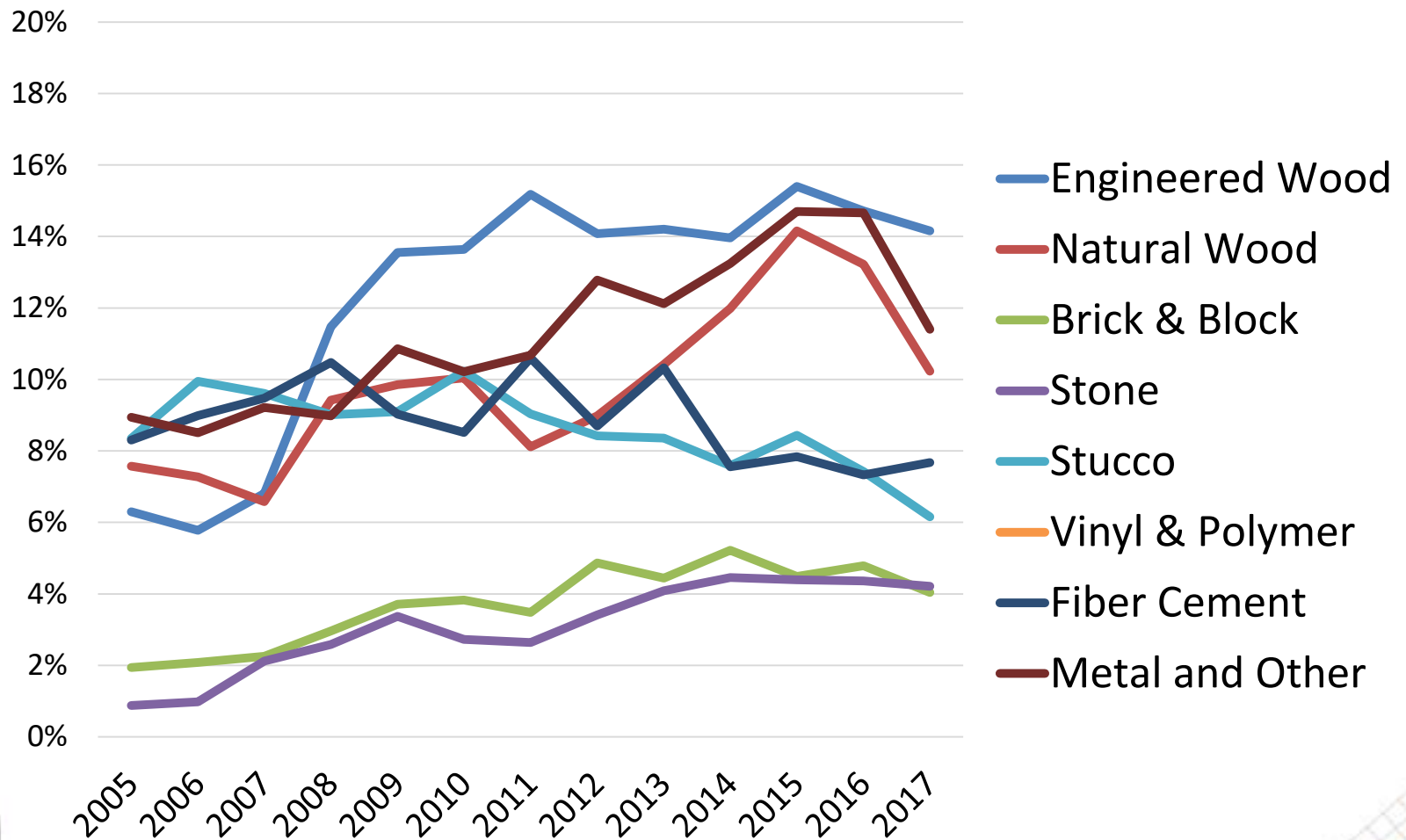
# Siding Shares on New U.S. Homes, by Major Price-Points, 2016



# Exterior Cladding in Home Remodeling



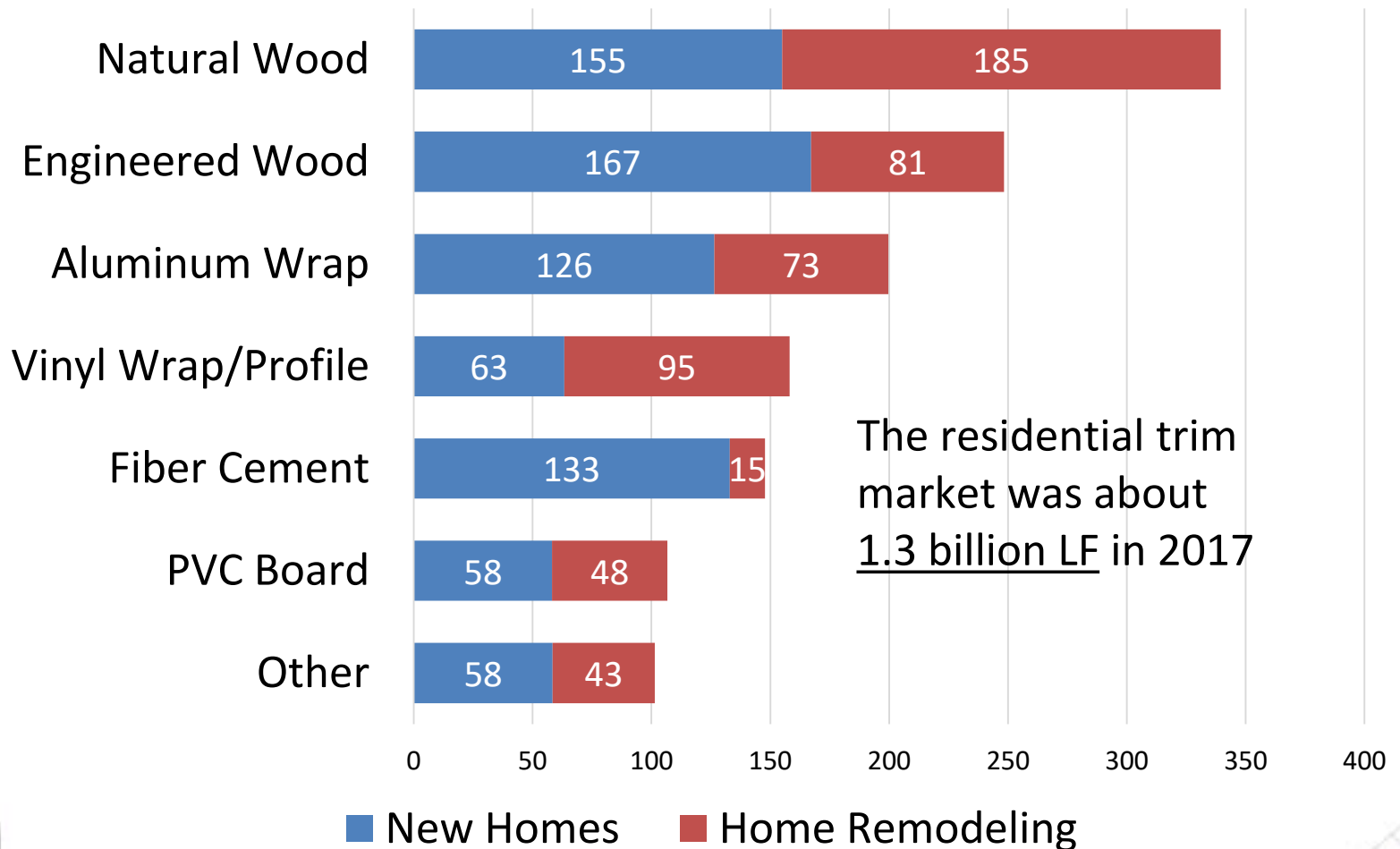
# Exterior Cladding in Home Remodeling (Lowest Tier)



Source: Annual Consumer Practices Reports

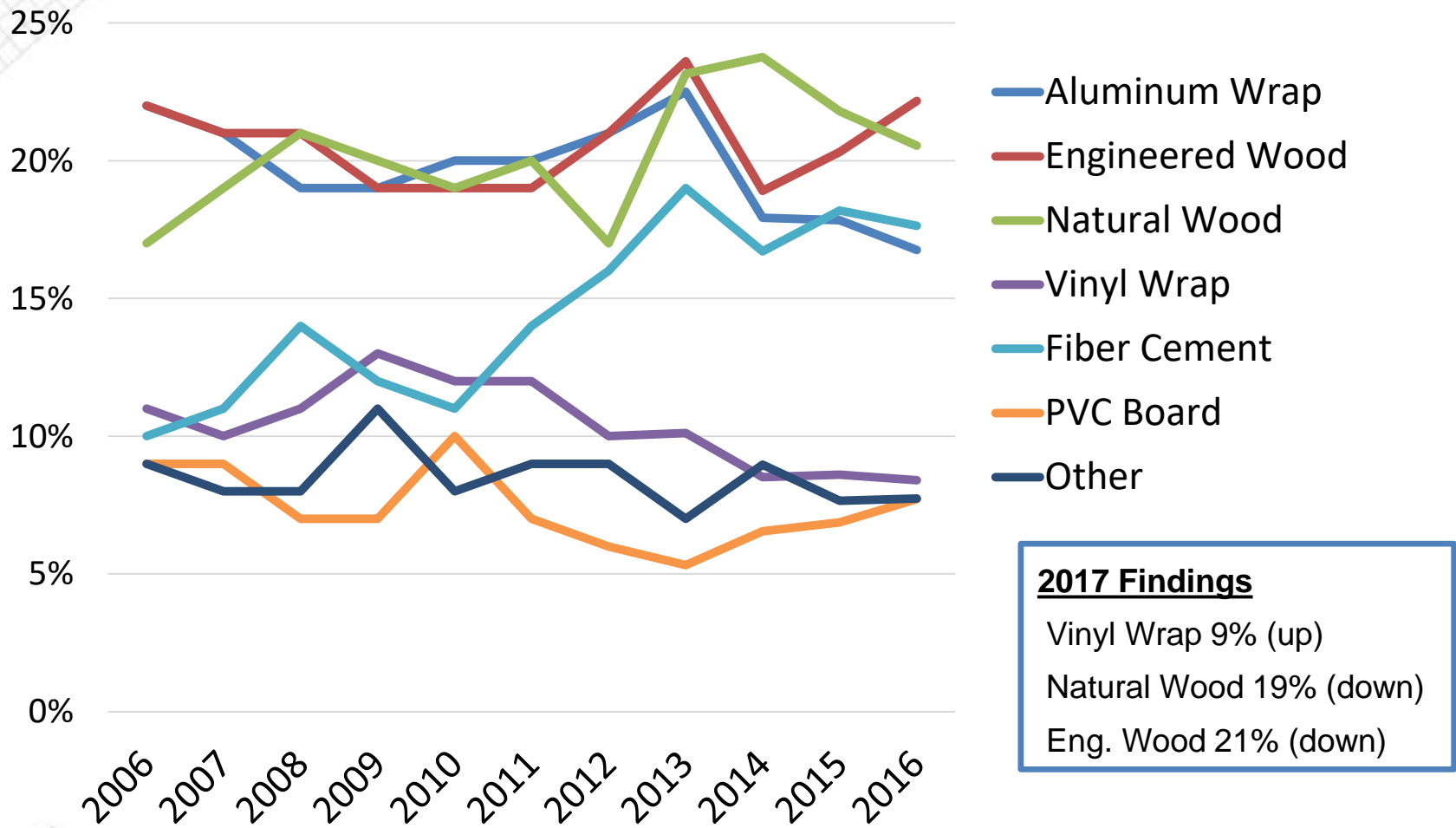
# Exterior Trim & Fascia Board for New U.S. Homes, 2017

(millions of LF)



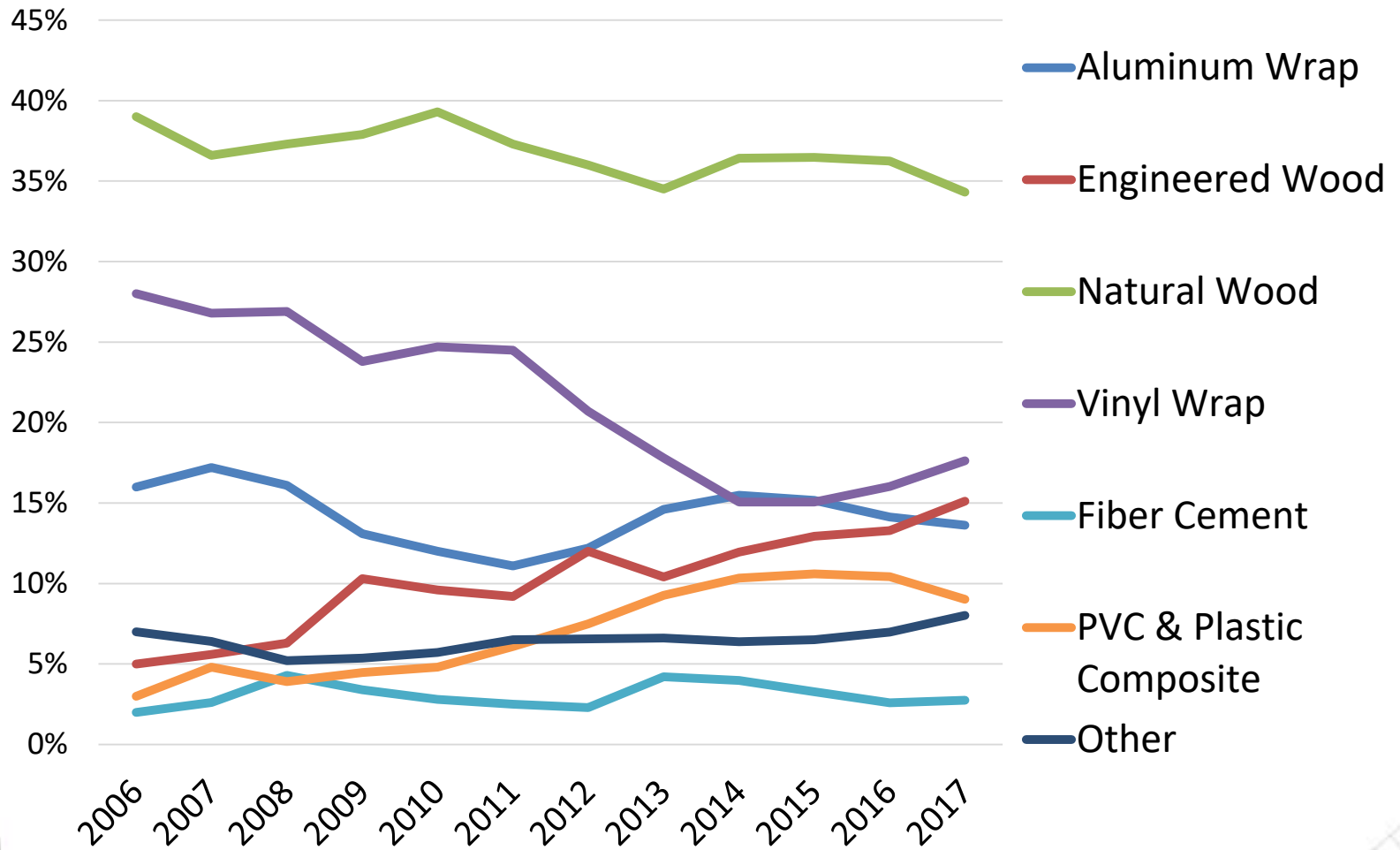
Source: Annual Builder & Consumer Practices Reports

# Exterior Trim & Fascia Board for New U.S. Homes



**2017 Findings**  
 Vinyl Wrap 9% (up)  
 Natural Wood 19% (down)  
 Eng. Wood 21% (down)

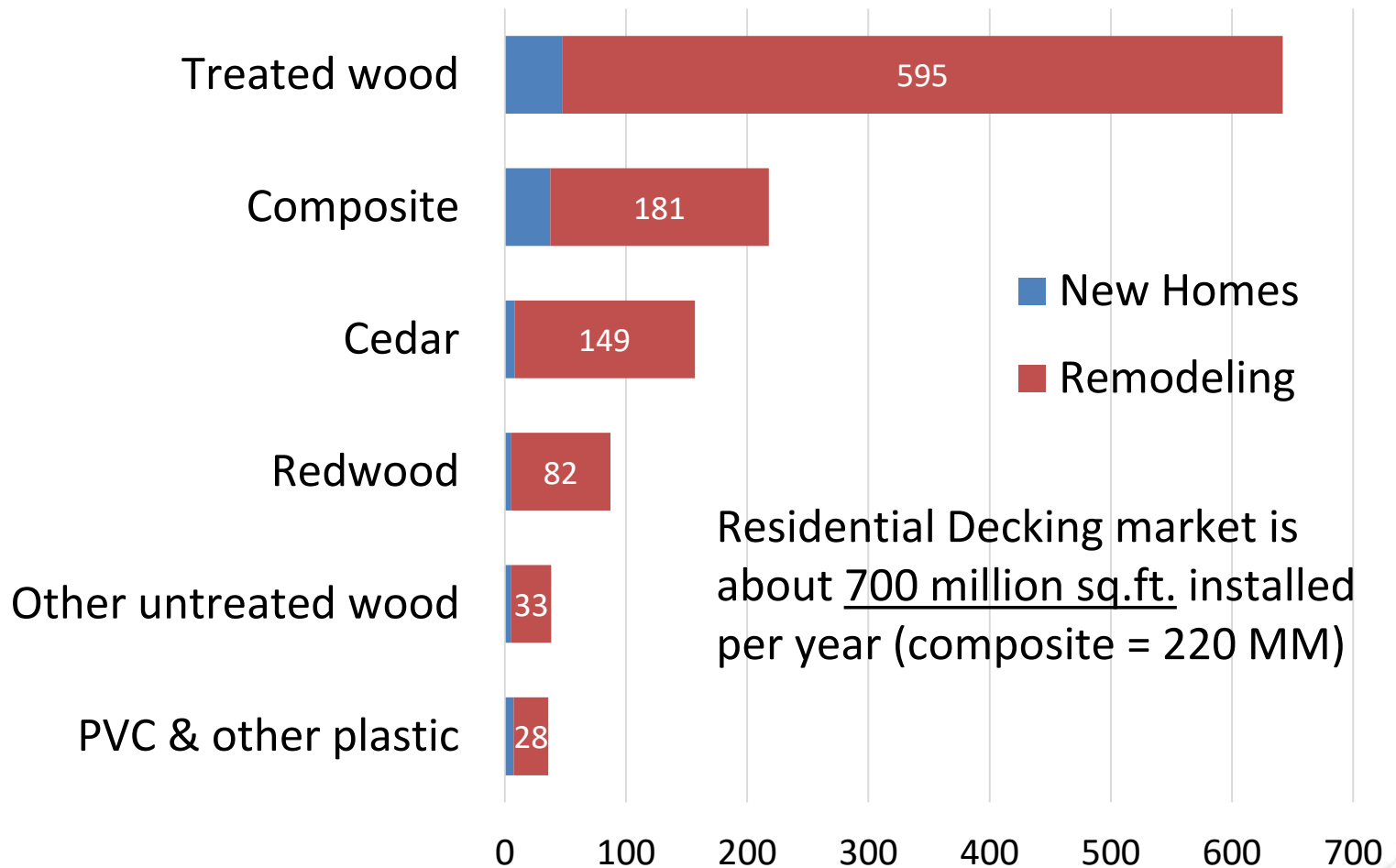
# Exterior Trim & Fascia for U.S. Home Remodeling



Source: Annual Consumer Practices Reports

# Porch & Deck Surfacing in New Homes and Remodeling, 2016

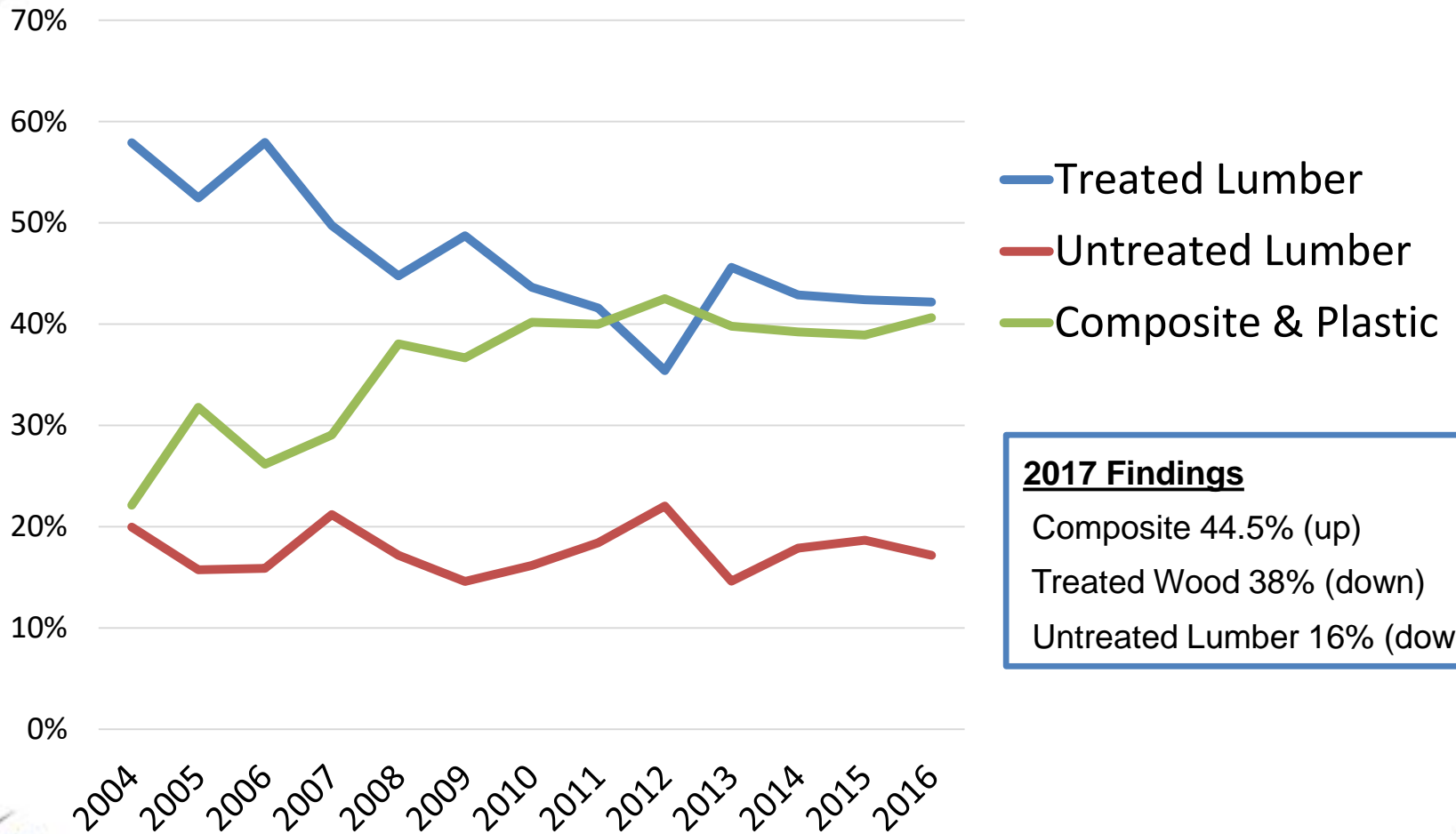
(millions of sf installed)



Residential Decking market is about 700 million sq.ft. installed per year (composite = 220 MM)



# Porch and Deck Surfacing Materials in New U.S. Homes

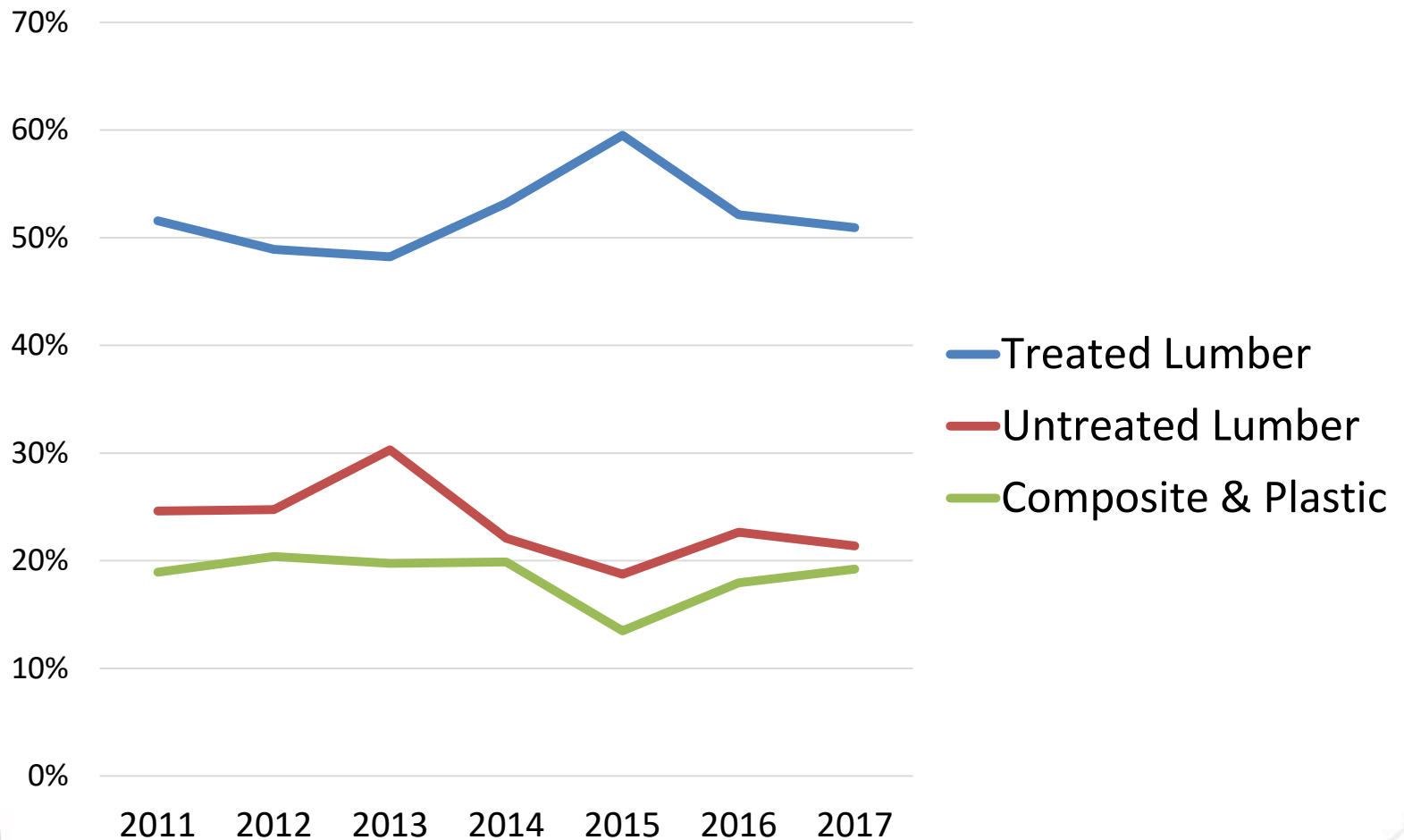


## **2017 Findings**

Composite 44.5% (up)  
Treated Wood 38% (down)  
Untreated Lumber 16% (down)



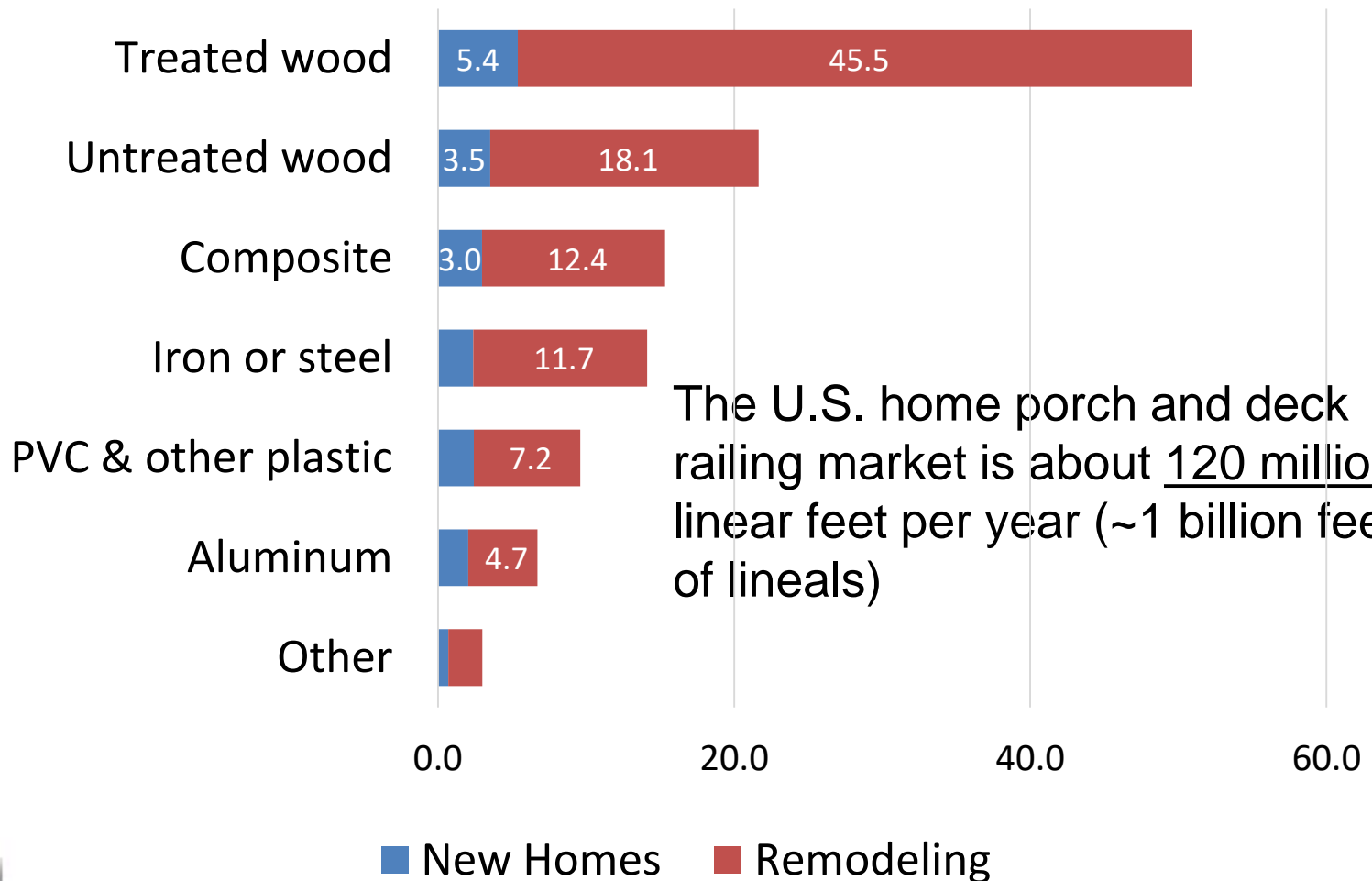
# Porch and Deck Surfacing Material in U.S. Residential Remodeling



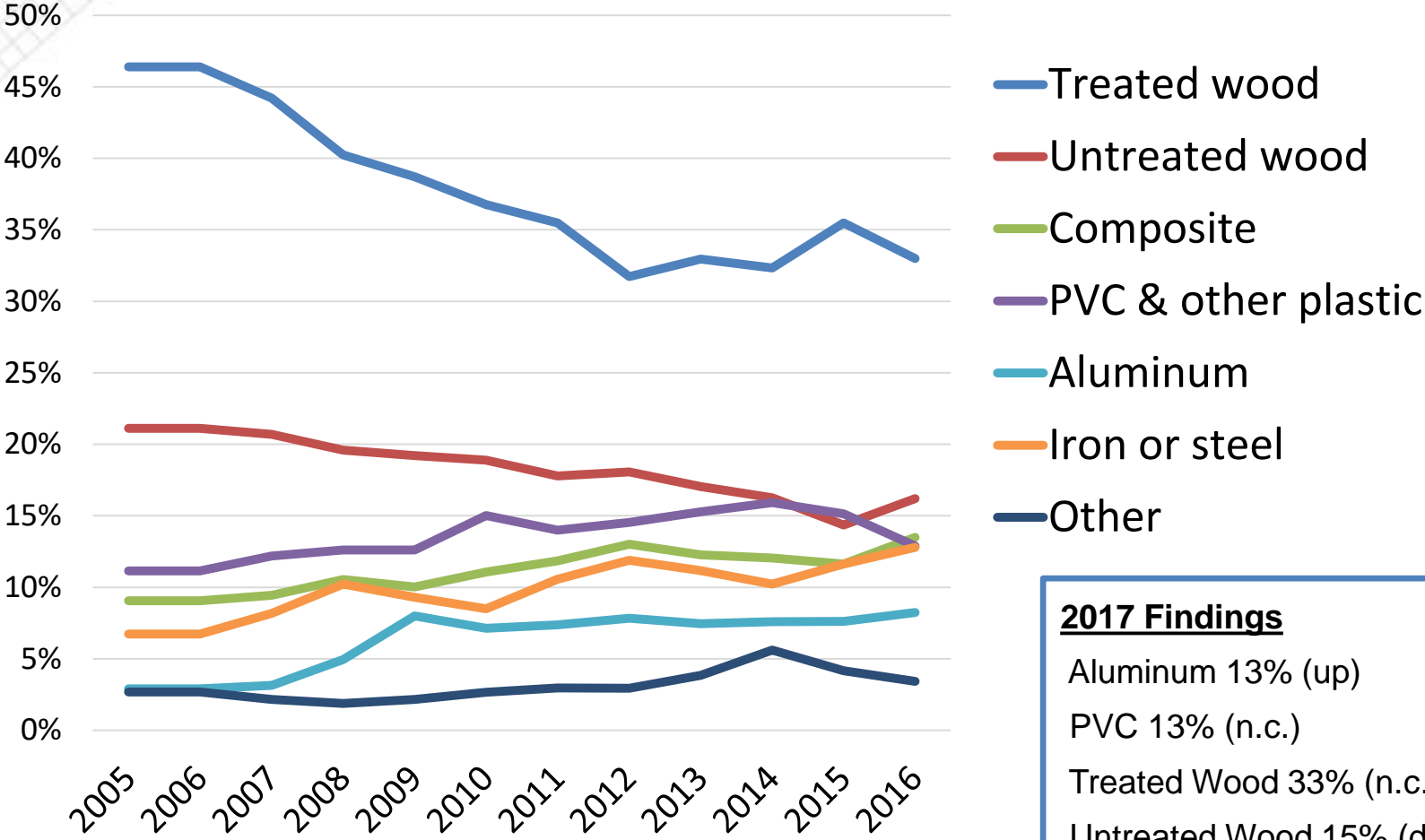
Source: Annual Consumer Practices Reports

# Porch and Deck Railing Systems on New Homes and Remodeling, 2017

(millions of linear feet)

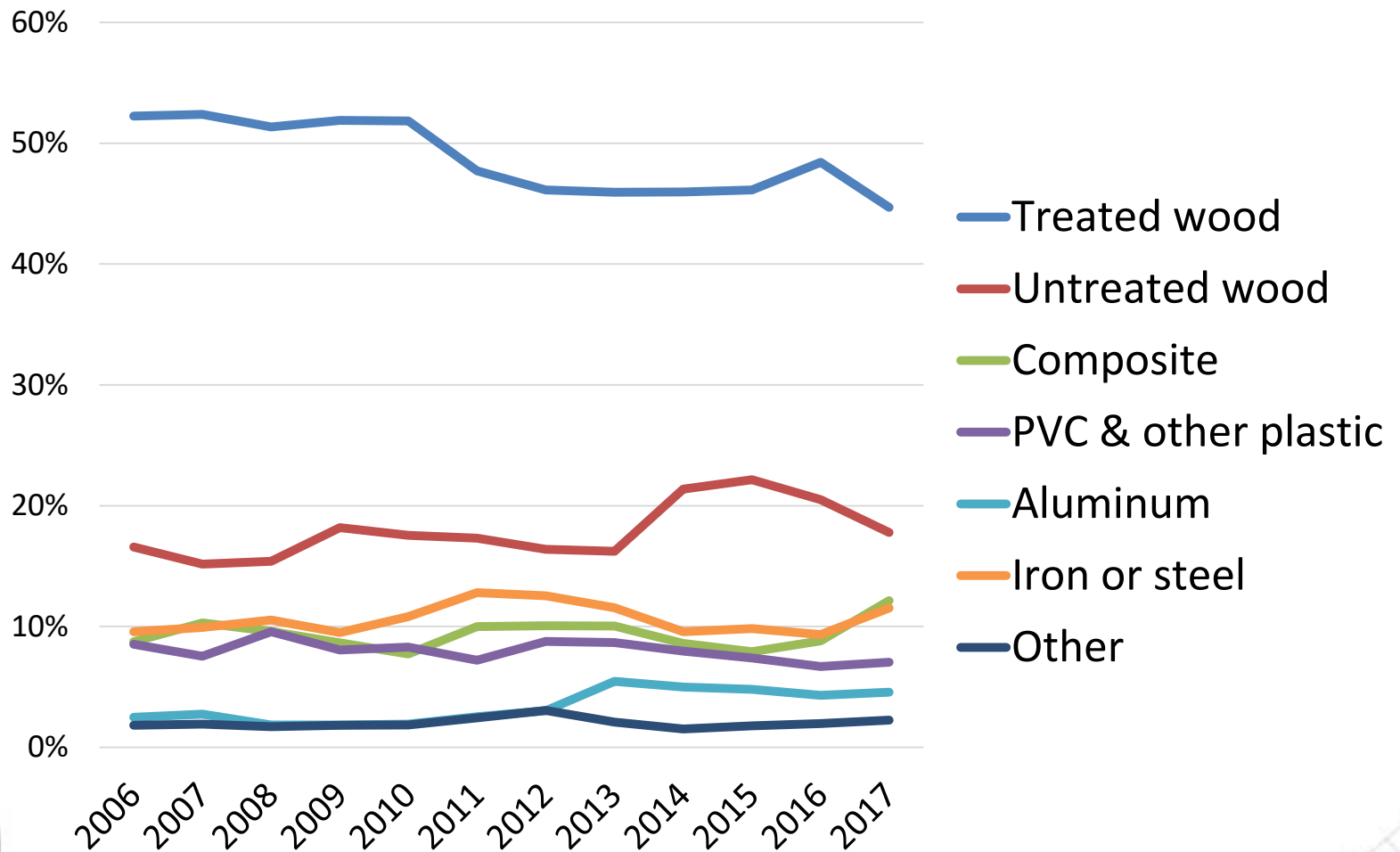


# Deck and Porch Railing in New U.S. Homes



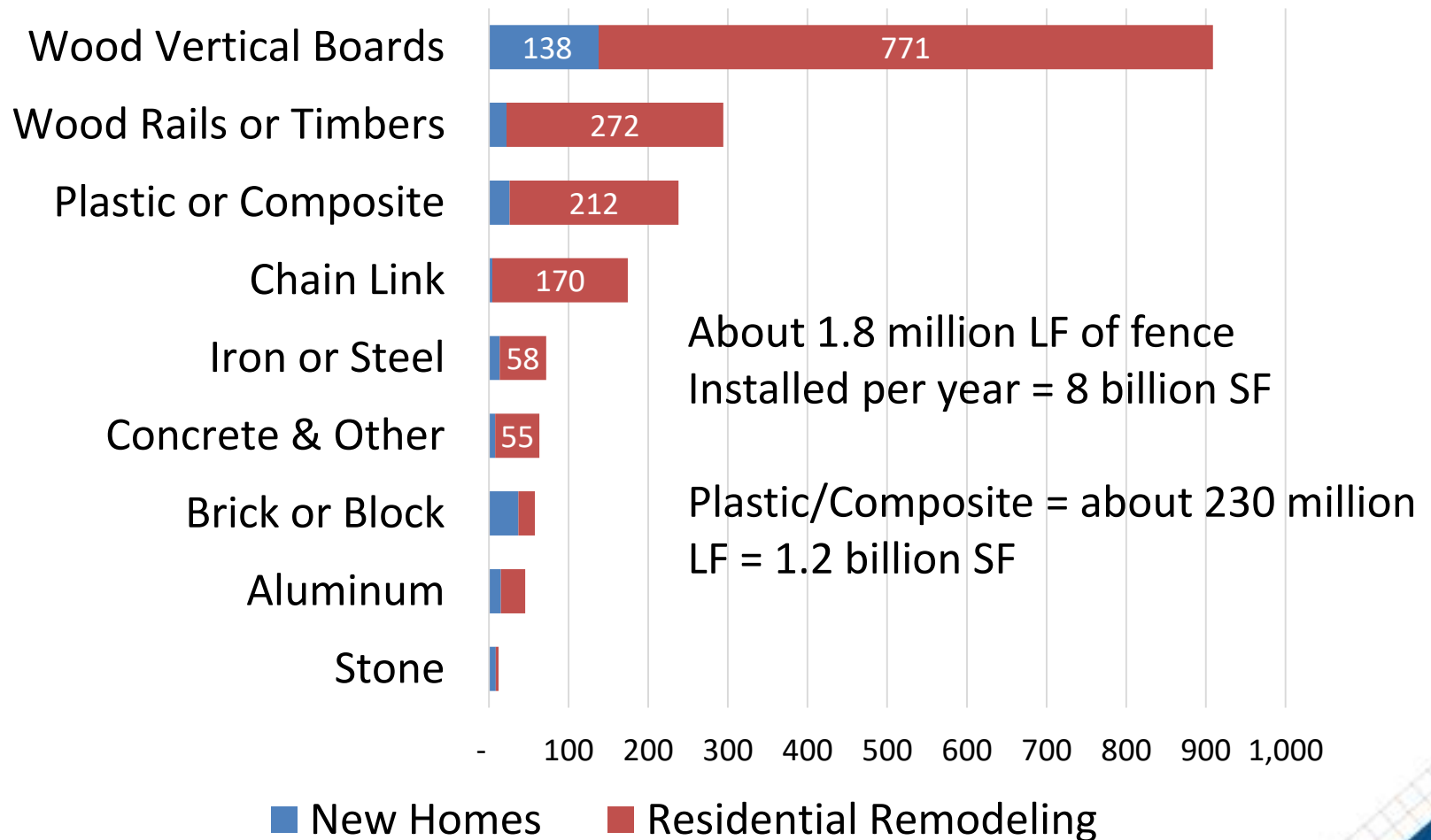
**2017 Findings**  
 Aluminum 13% (up)  
 PVC 13% (n.c.)  
 Treated Wood 33% (n.c.)  
 Untreated Wood 15% (down)  
 Composite 12% (down)

# Deck and Porch Railing in U.S. Home Remodeling

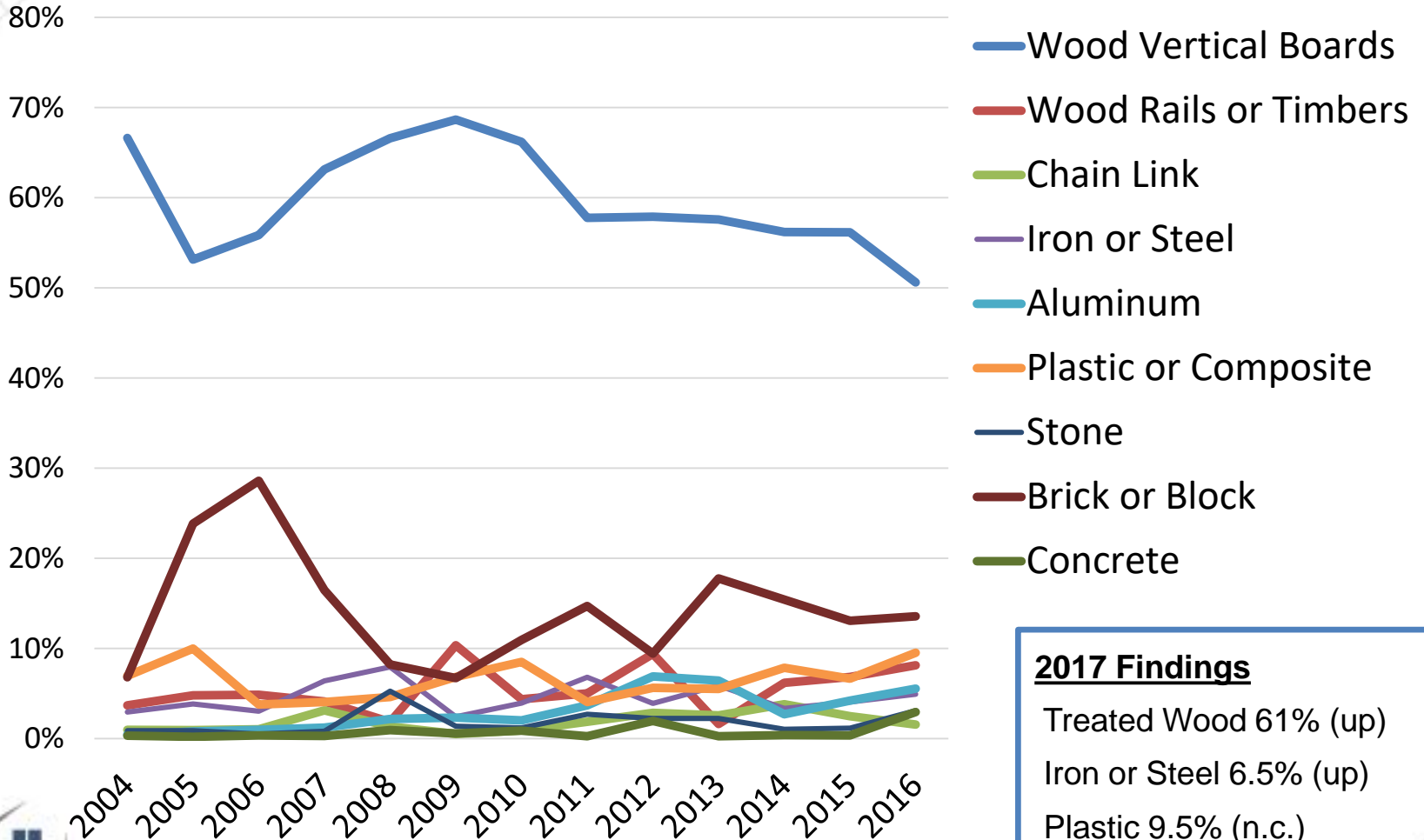


# Fences & Privacy Walls Installed in New Homes and Remodeling, 2017

(millions of LF)

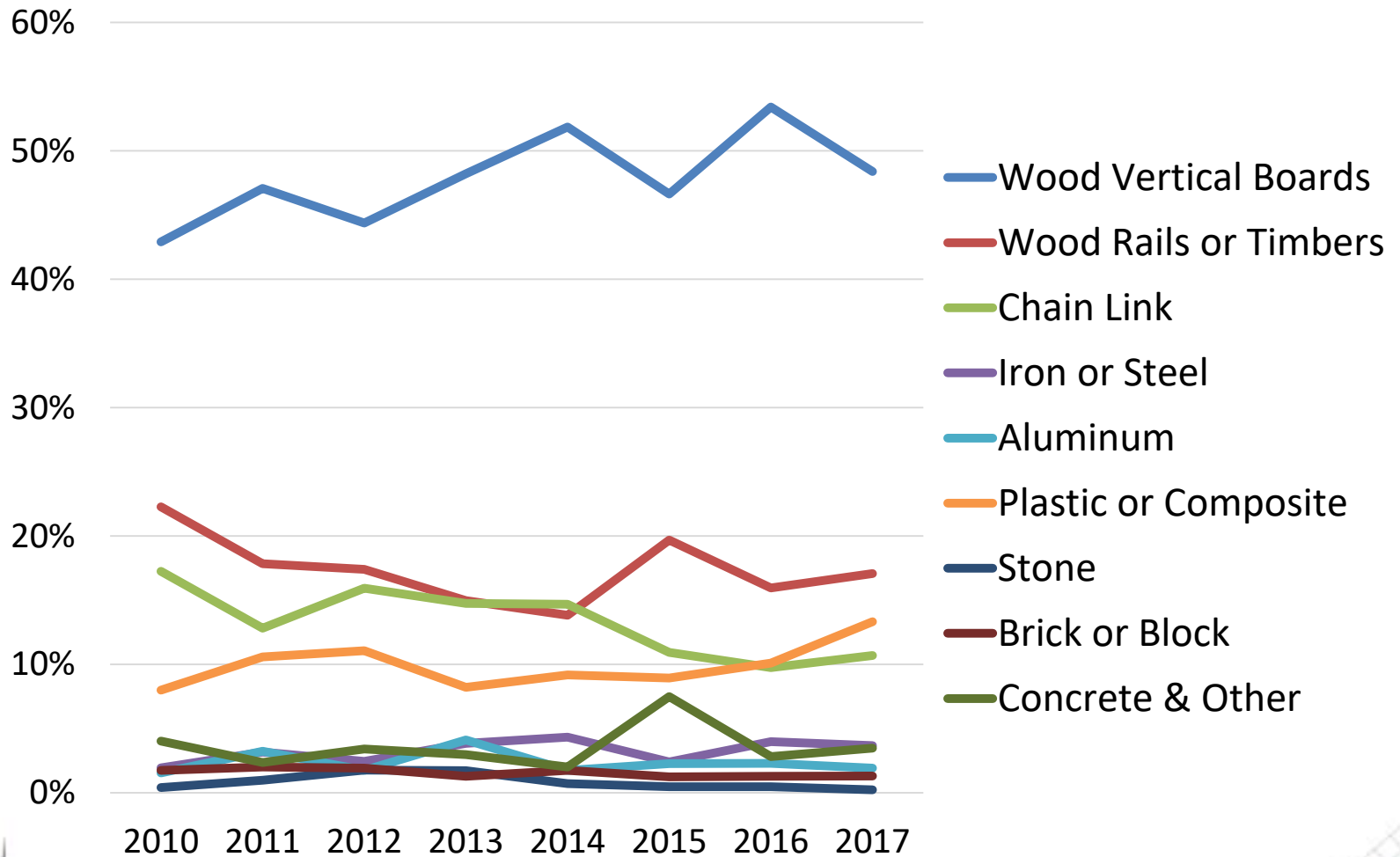


# Fence & Privacy Wall Trends in New U.S. Homes



**2017 Findings**  
 Treated Wood 61% (up)  
 Iron or Steel 6.5% (up)  
 Plastic 9.5% (n.c.)  
 Brick or Block 13% (down)

# Fence & Privacy Walls Installed in U.S. Home Remodeling



Source: Annual Consumer Practices Reports



# 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 in design/construction
  - Drop-in replacements have higher likelihood of success
- Wrongly assuming little emotional content in purchase decision...confidence, smart, or conveys personal values
- Benefits are difficult or disadvantageous to convey
  - When more than multiple logical points need to be made, or if benefits rest on hard-to-understand engineering principles
  - Involves mentioning of disasters, sickness, raises questions



# Common Mistakes with New Building Product 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 often not learned until after the product has been on the market a while



# How Switching to a New Product Can Impact Builders and Contractors

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



# New Product Strategies to Help Solve Construction Labor Shortage

- Reduce skills required (system that can allow unskilled worker to do job of journeyman, for example)
- Reduce crew size (run more crews with same workforce)
- Allowing one construction trade to do the 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 innovation on time-consuming activities



# Your New Product Installs So Easily, Anyone Can Do It...

- Anticipate resistance from some skilled trades
- Demonstration is very important to selling
- Consider non-traditional users, like
  - remodeling generalists
  - handymen who welcome alternatives that don't require special tools or training
- Consider do-it-yourselfers (prosumers, weekend warriors, etc.)



# Management Labor Deficit

- Recent Home Innovation 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 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

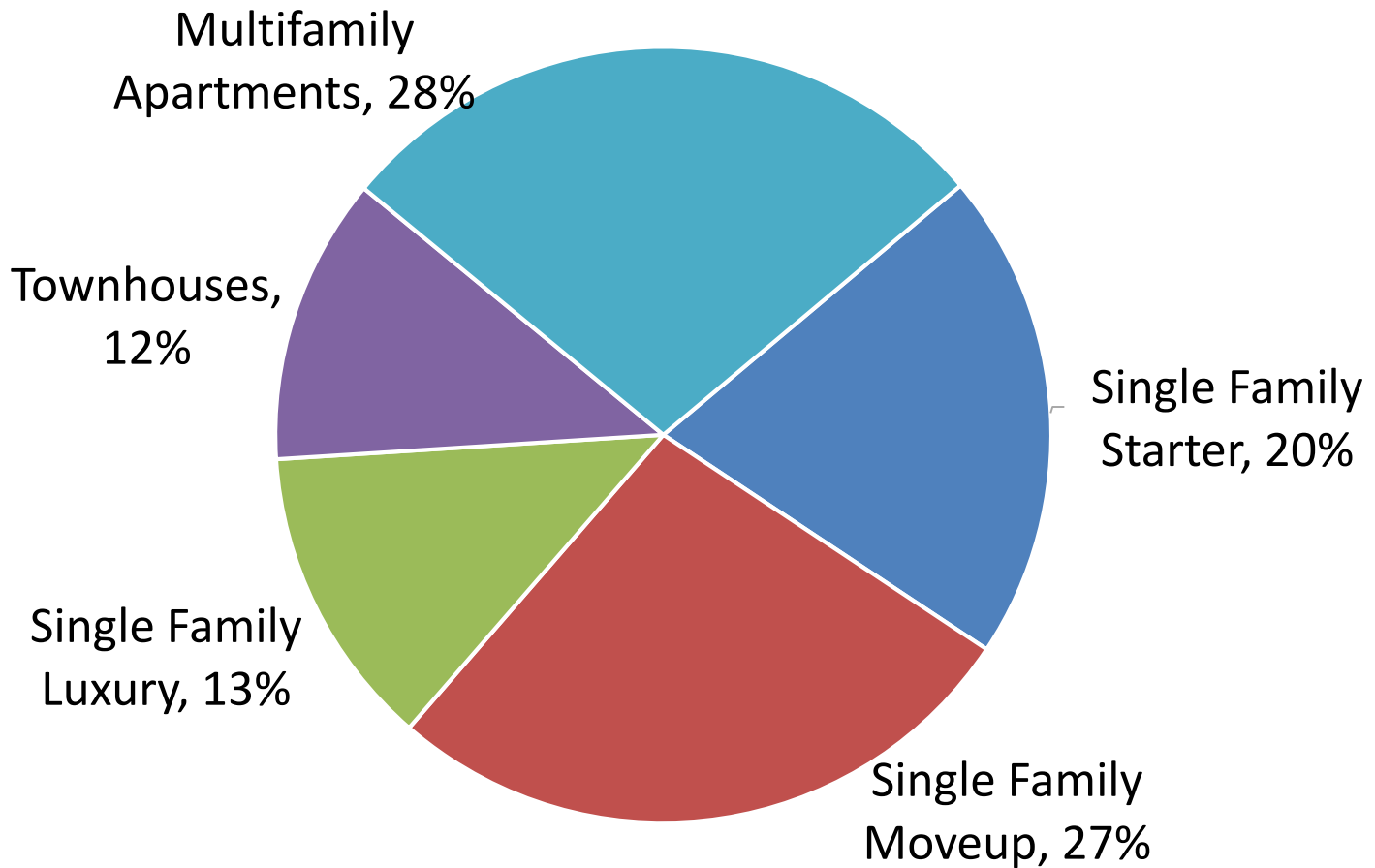
	Share of 2016 Total Starts	Total 2016 Starts of Smallest in the Group
Nation's Largest Builder	3%	41,652
Top 5 Builders	10%	14,229
Top 10 Builders	13%	6,098
Top 20 Builders	16%	2,790
Top 100 Builders	22%	403
Top 200 Builders	24%	149
All Builders Under 149 Starts	76%	1

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





# New U.S. Home Starts by Category, 2016



Source: U.S. Census and Annual Builder Practices Reports

# 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



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**THANK YOU**

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