Trends in Softwood Lumber Usage in New Homes and Remodeling

SLMA Meeting

Atlanta, GA

October 6, 2010

NAHB RESEARCH CENTER

NAHB Research Center Background

- Founded in 1964 as independent subsidiary of National Association of Home Builders
- Mission to improve the durability, affordability, and environmental performance of housing
- Expertise spans wide array of housing technologies and disciplines
- Services Performed
  - Market Research
  - Third-party accredited Lab Testing
  - Certification of products, installation
  - Field Evaluations & Demonstrations
  - Code Compliance & Standard Development
  - Information Dissemination (ww.toolbase.org)

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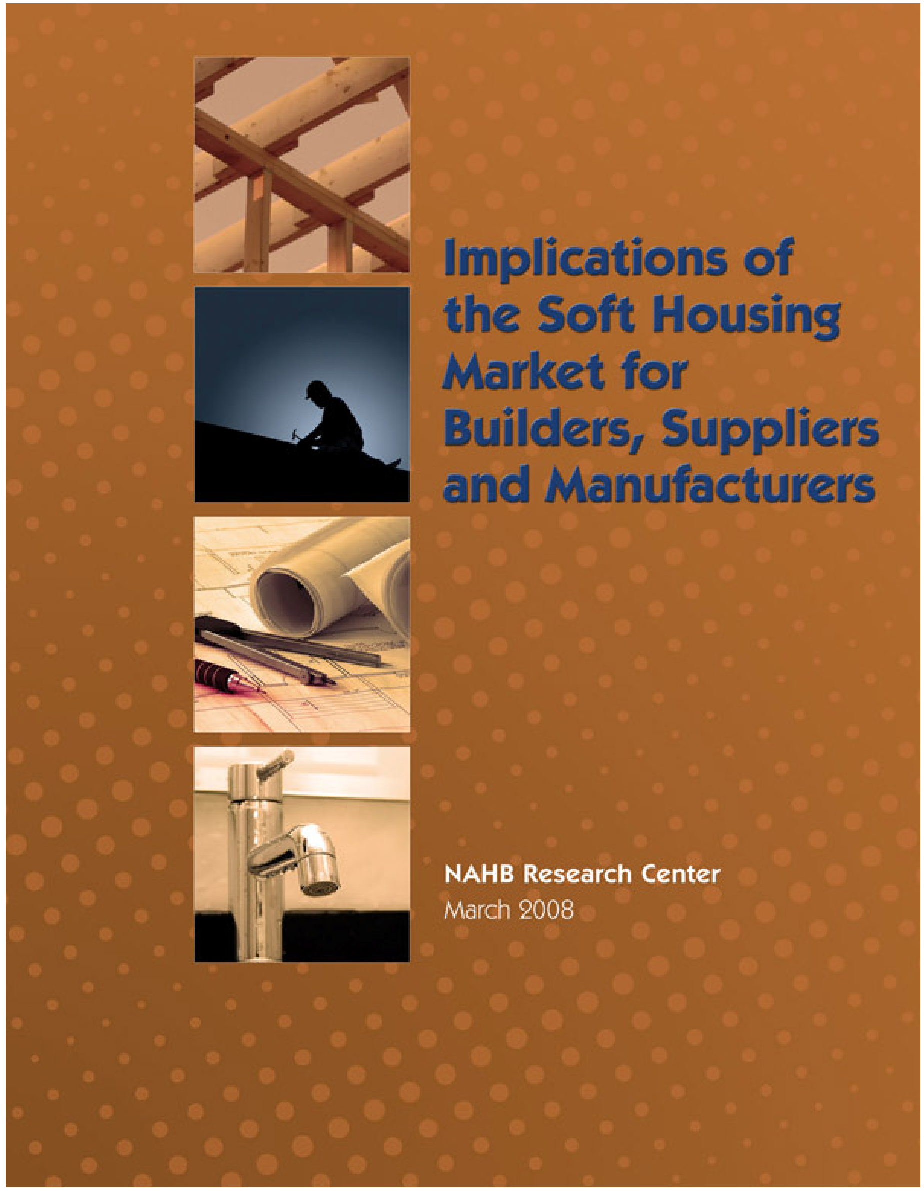
Implications of the Soft Housing Market for Builders, Suppliers and Manufacturers
NAHB Research Center
March 2008

Findings from Soft Housing Market Study

- Industry change is unprecedented
- Key home building changes:
  - Improved construction efficiency
  - Increased value to the home buyer
- Acceleration of green home building movement
- Validated by ABPS & CPS data

Important Trends

- Return of many traditional housing values
- Accelerated adoption of innovative building systems
- Acceleration of style trends
- More efficient use of space, materials
- Decline in indoor living space; growth in outdoor living
- Energy efficiency
- Green building on increase

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Lumber Volumes in New Home Construction, 2006

- Structural floors: 4.2 billion bf
  - 2.2 billion was engineered wood
  - 2 billion was dimensional lumber
- Structural walls: 7.9 billion bf
  - most is dimensional lumber
- Structural roofs: 7.5 billion bf
  - vast majority is dimensional lumber
- Outdoor structures: 1.6 billion bf
- 2009 new home lumber volume is about 1/3 of 2006 (7 billion bf)

Source: 2006 Builder Practices Survey tabulations, NAHB Research Center, Inc.

Lumber Volumes in Residential Remodeling, 2006

- Structural floors: 1.2 billion bf
- Structural walls: 2.4 billion bf
- Structural roofs: 3.1 billion bf
- Outdoor structures: 7.9 billion bf
- 2009 remodeling lumber volume is about ¾ that of 2006 (11 billion bf)

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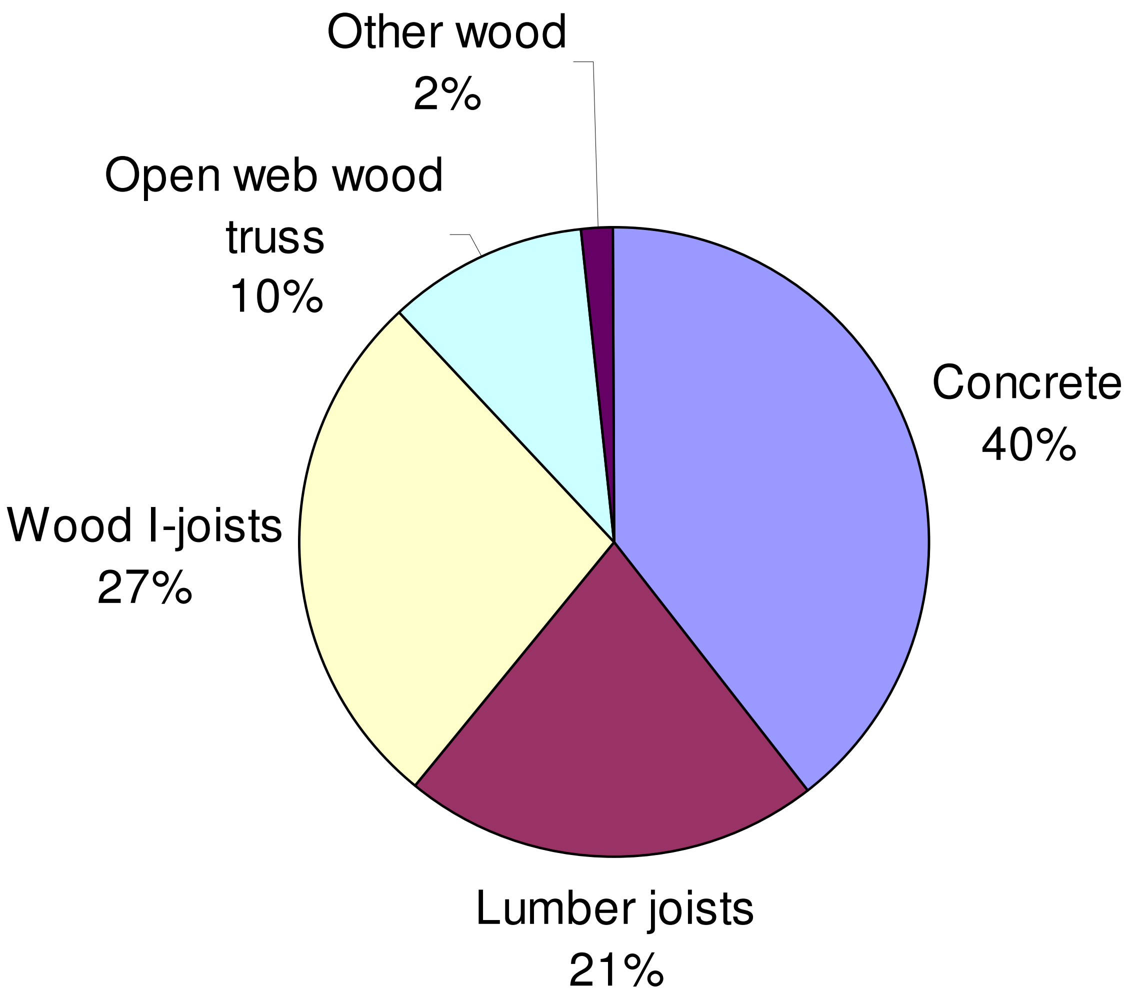
Source: 2006 Consumer Practices Survey tabulations, NAHB Research Center, Inc.

Shares of New Home Structural Floors, 2009



Source: 2009 Builder Practices Reports, NAHB Research Center, Inc.

Trends in New Home Floor Materials

	2004	2005	2006	2007	2008	2009
Concrete	38%	38%	41%	39%	37%	39%
Lumber joists	25%	23%	21%	21%	21%	21%
Wood I-joists	26%	28%	27%	29%	33%	27%
Open web wood truss	10%	9%	11%	10%	9%	10%
Other	0%	2%	1%	1%	1%	2%
	100%	100%	100%	100%	100%	100%

Source: Builder Practices Survey Reports, NAHB Research Center, Inc.

Joist Spacing in New Home Floors

Dimensional Lumber

	2004	2005	2006	2007	2008	2009
8 inches	7%	6%	7%	8%	11%	10%
10 inches	80%	79%	77%	72%	65%	68%
12 inches	13%	15%	17%	20%	23%	22%
	100%	100%	100%	100%	100%	100%

Wood I-Joists

	2004	2005	2006	2007	2008	2009
8 inches	1%	0%	0%	2%	0%	1%
10 inches	20%	22%	23%	19%	17%	18%
12 inches	68%	66%	63%	61%	64%	63%
14 inches or greater	11%	12%	15%	17%	18%	18%
	100%	100%	100%	100%	100%	100%

Open-Web Lumber Joist

	2004	2005	2006	2007	2008	2009
8 inches	0%	0%	3%	0%	0%	0%
10 inches	4%	6%	7%	4%	12%	5%
12 inches	14%	16%	18%	16%	14%	21%
14 inches or greater	82%	79%	72%	80%	74%	73%
	100%	100%	100%	100%	100%	100%

Source: 2009 Builder Practices Reports, NAHB Research Center, Inc.

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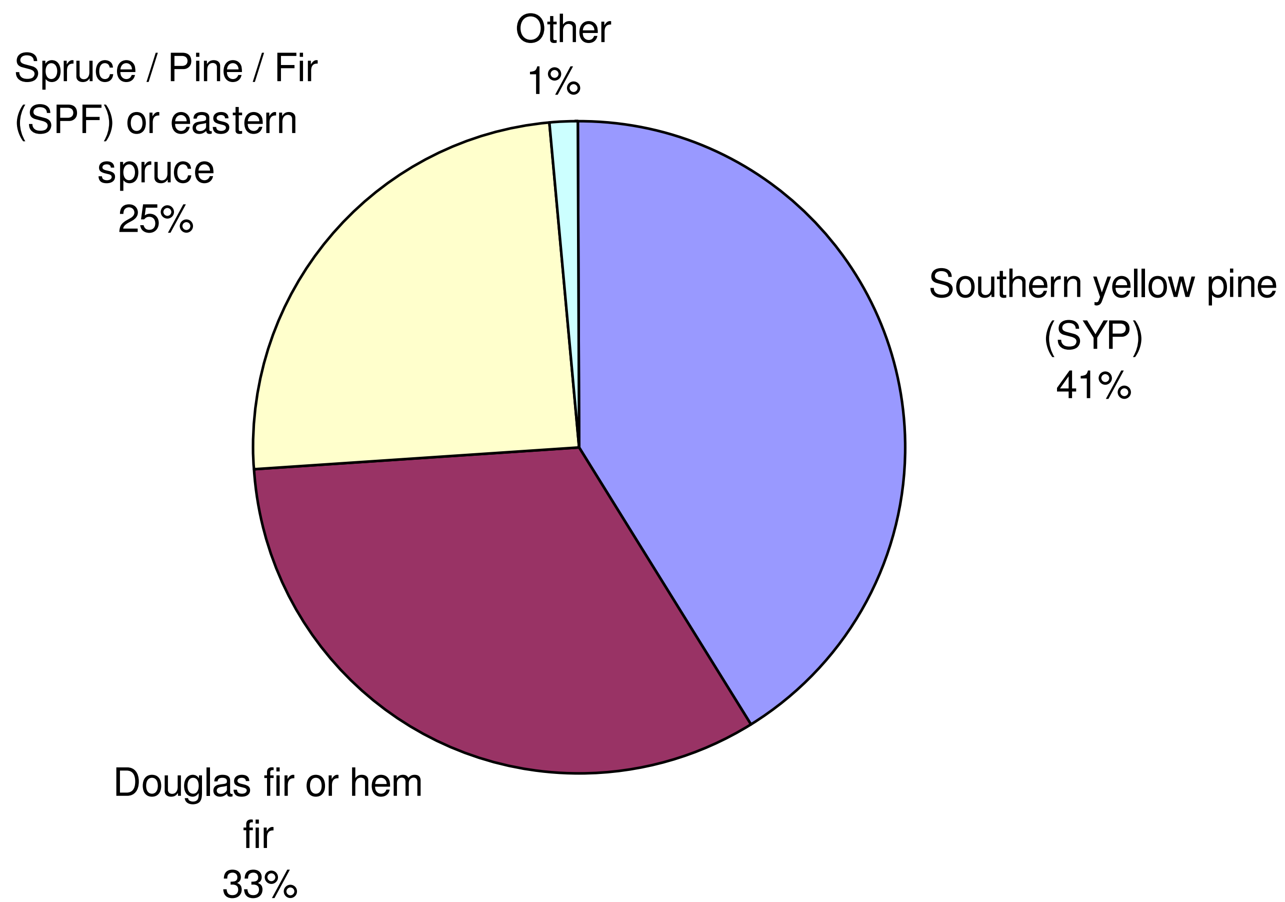
Shares of Lumber Floor Joist Species, 2009



Source: 2009 Builder Practices Reports, NAHB Research Center, Inc.

Trends in Floor Joist Species

	2004	2005	2006	2007	2008	2009
Southern Yellow Pine	42%	40%	45%	38%	44%	41%
Doug-Fir, Hem-Fir	34%	28%	32%	34%	31%	33%
SPF or eastern spruce	24%	32%	22%	24%	24%	25%
Other	n/a	n/a	n/a	4%	2%	1%
TOTAL	100%	100%	100%	100%	100%	100%

Source: Builder Practices Survey Reports, NAHB Research Center, Inc.

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New Home Wall Framing

Primary Exterior Wall Materials

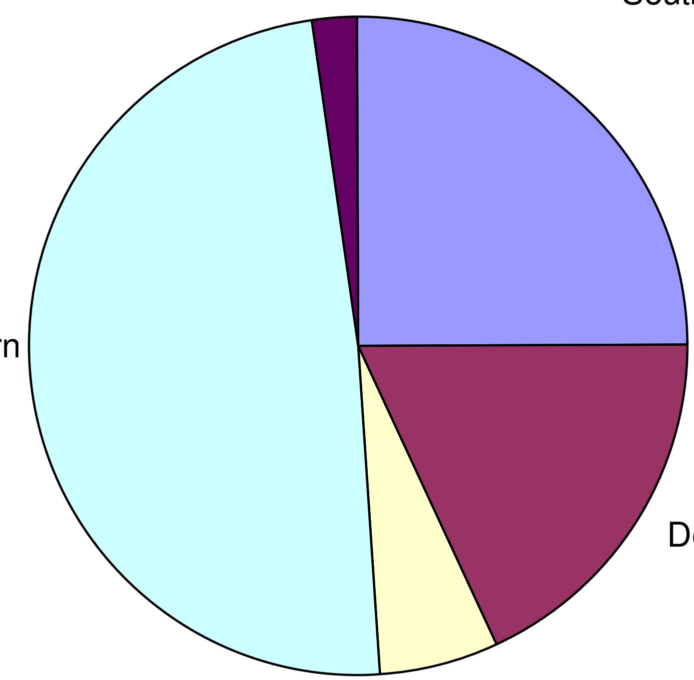
	2004	2005	2006	2007	2008	2009
Wood	97%	93%	96%	94%	96%	94%
Masonry or Concrete	3%	6%	4%	6%	4%	5%
Steel	0%	1%	0%	0%	1%	1%
	100%	100%	100%	100%	100%	100%

Primary Exterior Wall Materials

	2004	2005	2006	2007	2008	2009
2x4's 16 inch o.c.	70%	70%	73%	68%	59%	67%
2x4's 24 inch o.c.	4%	1%	3%	3%	4%	3%
2x6's 16 inch o.c.	25%	26%	22%	26%	33%	26%
2x6's 24 inch o.c.	2%	4%	2%	3%	3%	3%
Other	0%	0%	0%	0%	1%	1%
	100%	100%	100%	100%	100%	100%

Source: Builder Practices Survey Reports, NAHB Research Center, Inc.

Shares of Wall Stud Species, 2009



Finger-joined of any species, 8%

Source: 2009 Builder Practices Reports, NAHB Research Center, Inc.

Trends in Lumber Stud Species, Wall Height

	2004	2005	2007	2008	2009
Southern yellow pine (SYP)	15%	13%	24%	22%	25%
Douglas fir	24%	26%	25%	17%	18%
Hem-fir or other western woods	12%	11%	11%	10%	6%
SPF or eastern spruce	47%	49%	40%	49%	49%
Other	2%	1%	1%	1%	2%
	100%	100%	100%	100%	100%

	2004	2005	2006	2007	2008	2009
8-1/2 or less	53%	48%	45%	48%	46%	49%
9 Feet	36%	38%	39%	38%	37%	38%
10 Feet	9%	12%	13%	12%	11%	11%
12 Feet	2%	2%	3%	3%	6%	3%
	100%	100%	100%	100%	100%	100%

Source: Builder Practices Survey Reports, NAHB Research Center, Inc.

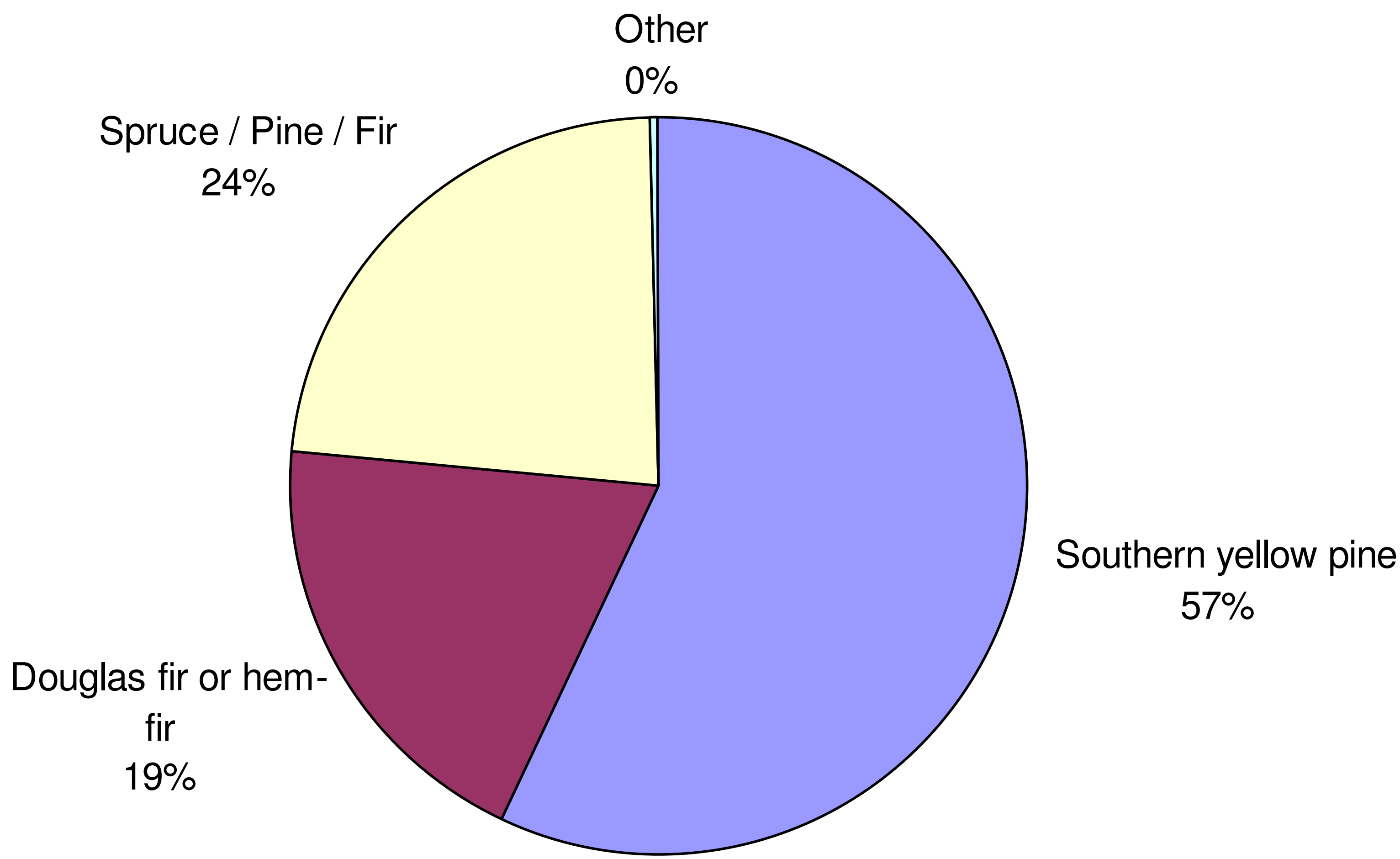
Trends in New Home Roof Construction

	2004	2005	2006	2007	2008	2009
Gable	57%	54%	53%	53%	53%	59%
Hip	41%	44%	45%	44%	42%	38%
Other	2%	1%	2%	3%	5%	3%
TOTAL	100%	100%	100%	100%	100%	100%

	2004	2005	2006	2007	2008	2009
Rafters	35%	39%	41%	47%	49%	42%
Trusses	63%	61%	56%	50%	46%	55%
Structural insulated panels	0%	0%	1%	1%	1%	1%
Beam & purlin	1%	1%	2%	2%	3%	1%
Other	0%	0%	0%	0%	1%	1%
TOTAL	100%	100%	100%	100%	100%	100%

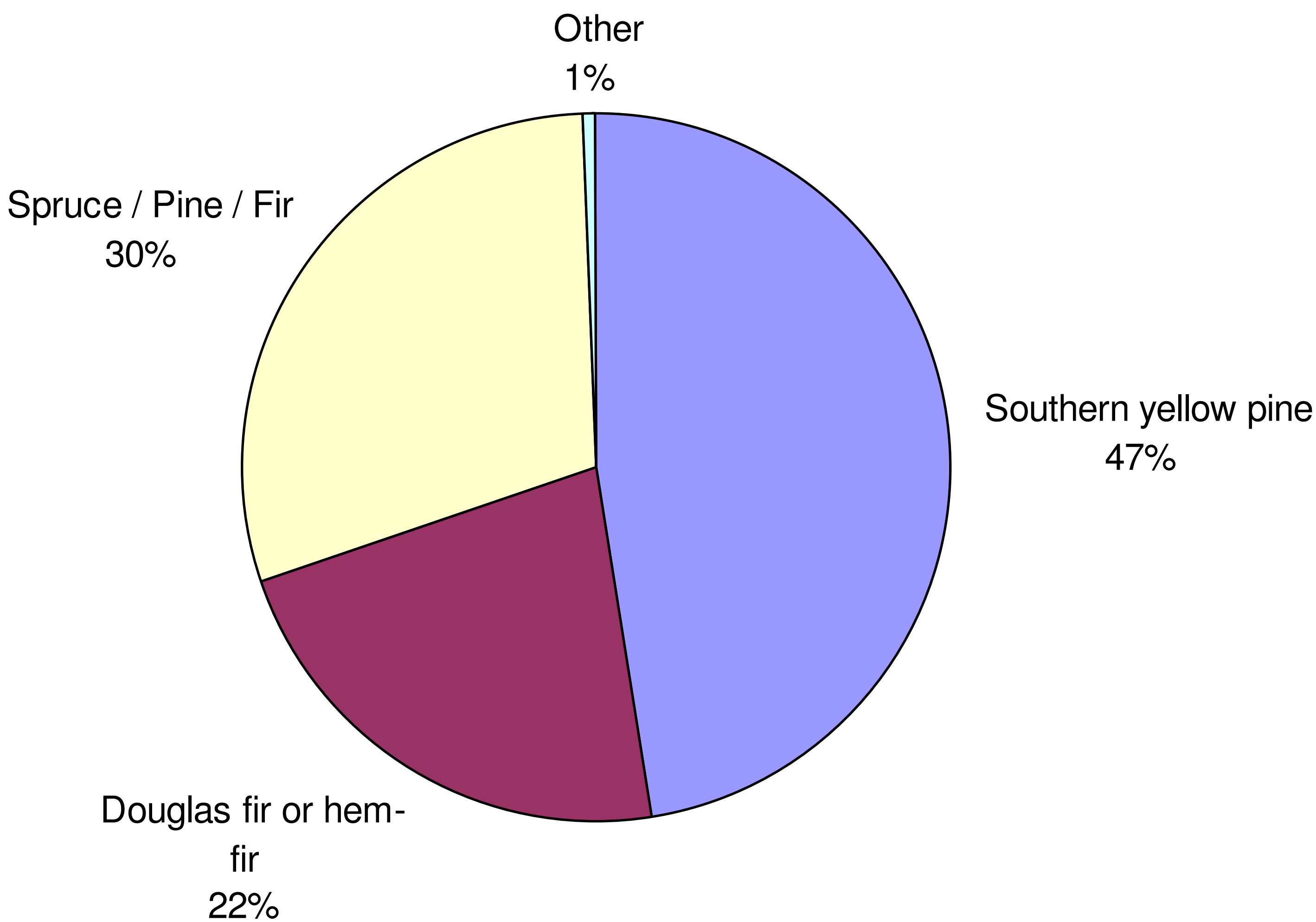
Source: Builder Practices Survey Reports, NAHB Research Center, Inc.

New Home Roof Rafter Species



Source: 2009 Builder Practices Reports, NAHB Research Center, Inc.

New Home Roof Truss Member Species



Source: 2009 Builder Practices Reports, NAHB Research Center, Inc.

Trends in Roof Lumber Species

Roof Rafter Species

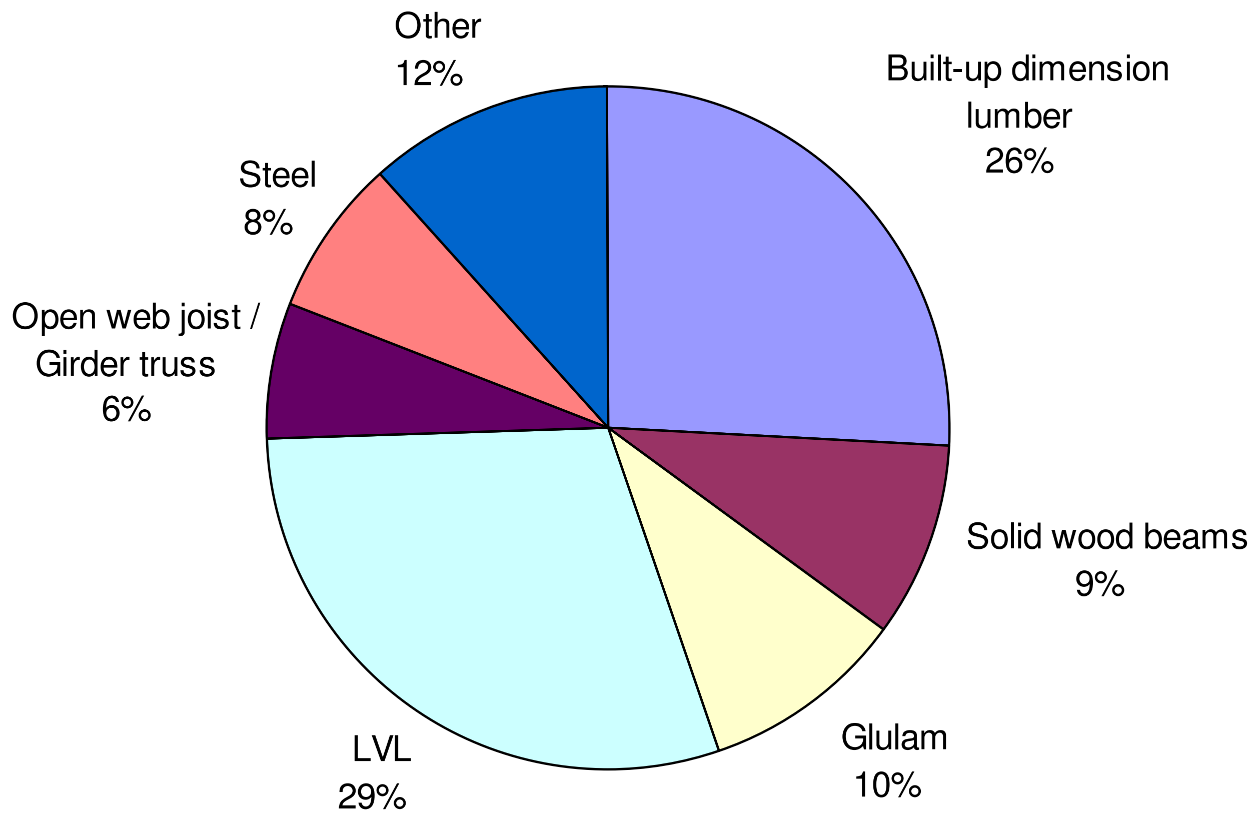
	2004	2005	2006	2007	2008	2009
Southern yellow pine	48%	51%	54%	51%	52%	57%
Douglas fir or hem-fir	29%	23%	20%	22%	21%	19%
Spruce / Pine / Fir	23%	26%	26%	27%	26%	24%
Other	0%	0%	0%	0%	0%	0%
TOTAL	100%	100%	100%	100%	100%	100%

Truss Member Species

	2004	2005	2006	2007	2008	2009
Southern yellow pine	45%	46%	42%	48%	43%	47%
Douglas fir or hem-fir	34%	35%	40%	35%	33%	22%
Spruce / Pine / Fir	21%	19%	18%	17%	23%	30%
Other	0%	0%	0%	0%	1%	1%
TOTAL	100%	100%	100%	100%	100%	100%

Source: Builder Practices Survey Reports, NAHB Research Center, Inc.

Shares of Beams in New Homes



Source: 2009 Builder Practices Reports, NAHB Research Center, Inc.

Trends in Beam Usage in New Homes

	2004	2005	2006	2007	2008	2009
Built-up dimension lumber	38%	37%	41%	35%	30%	26%
Solid wood beams	11%	9%	8%	10%	9%	9%
Glulam	7%	8%	5%	7%	5%	10%
LVL	23%	27%	24%	27%	32%	30%
Parallam	5%	4%	4%	4%	4%	3%
Timberstrand	2%	2%	3%	3%	2%	2%
Open web joist / Girder truss	4%	4%	6%	3%	4%	6%
Steel	6%	5%	5%	4%	4%	8%
I-joist	5%	3%	3%	6%	9%	5%
Other	0%	1%	1%	1%	1%	1%
TOTAL	100%	100%	100%	100%	100%	100%

Source: Builder Practices Survey Reports, NAHB Research Center, Inc.

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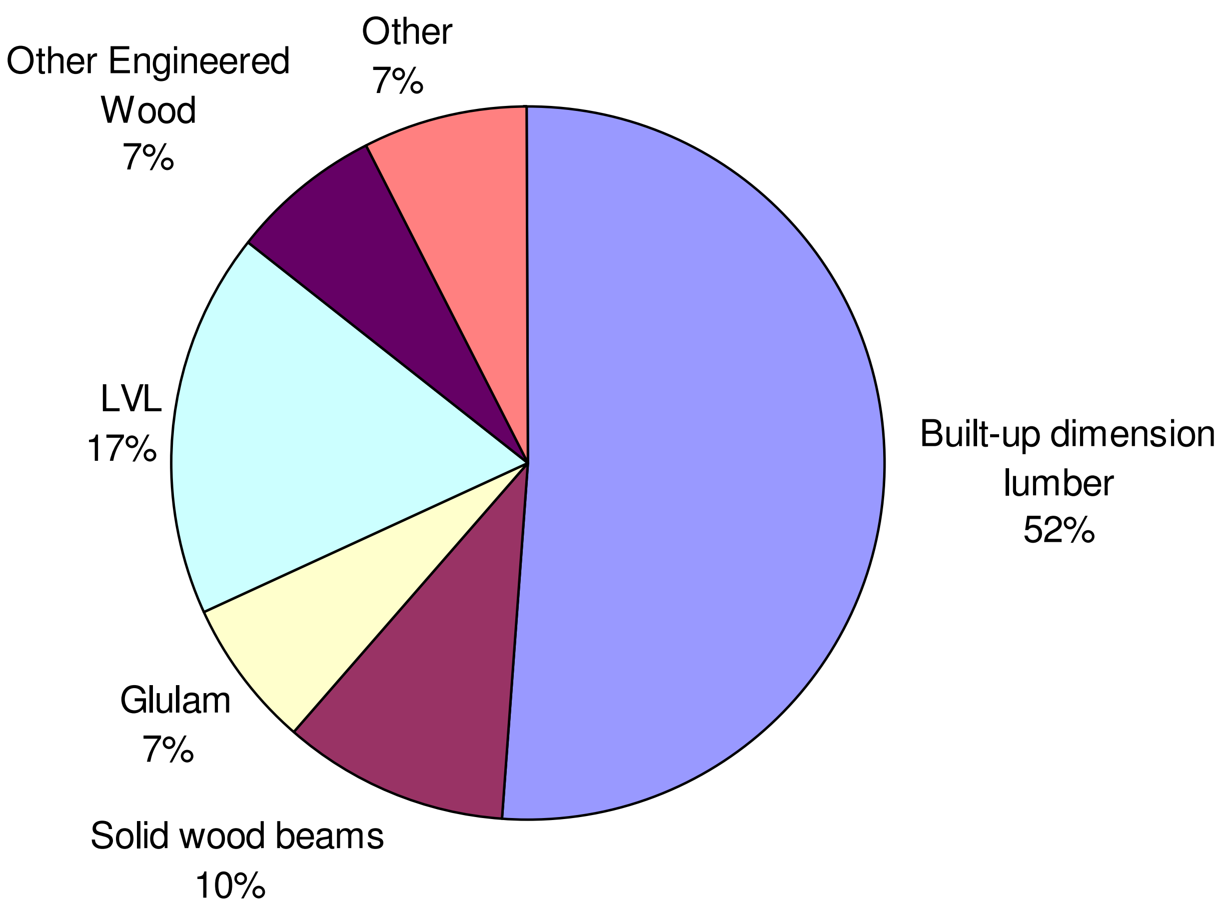
Shares of Header Materials in New Homes



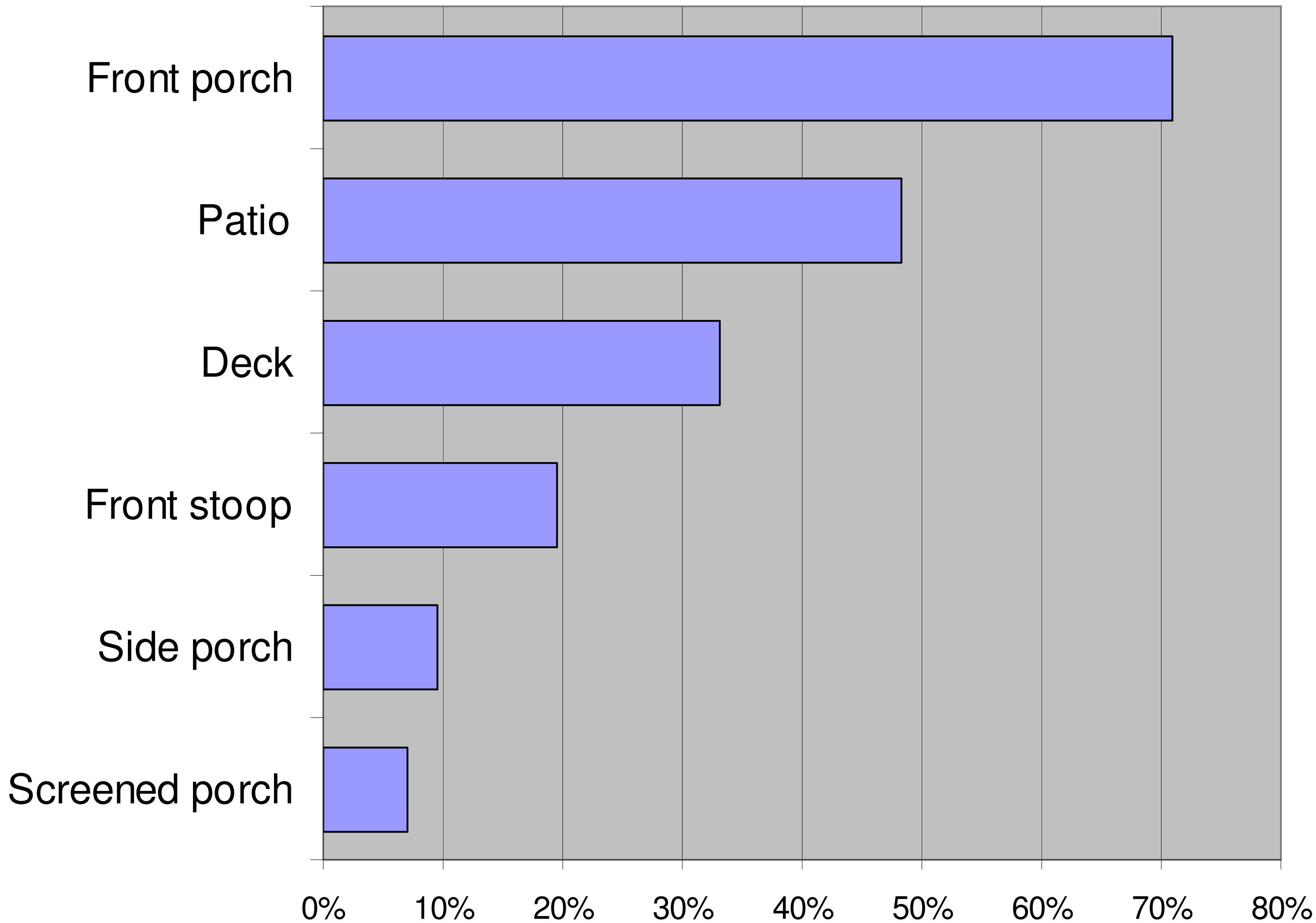
Source: 2009 Builder Practices Reports, NAHB Research Center, Inc.

Trends in Header Usage in New Homes

	2004	2005	2006	2007	2008	2009
Built-up dimension lumber	44%	46%	45%	47%	45%	51%
Solid wood beams	18%	15%	13%	16%	13%	10%
Glulam	7%	7%	7%	8%	8%	7%
LVL	14%	16%	15%	16%	21%	17%
Parallam	4%	3%	4%	2%	3%	3%
Timberstrand	1%	2%	4%	2%	2%	3%
Open web joist / Girder truss	1%	1%	1%	0%	1%	0%
Steel	1%	1%	1%	1%	2%	1%
I-joist	1%	1%	1%	2%	1%	1%
Other	9%	9%	10%	6%	5%	7%
TOTAL	100%	100%	100%	100%	100%	100%

Source: Builder Practices Survey Reports, NAHB Research Center, Inc.

Shares of New Homes with Outdoor Structures, 2009



Source: 2009 Builder Practices Reports, NAHB Research Center, Inc.

Trends in Outdoor Features, New Homes

	2004	2005	2006	2007	2008	2009
Deck	30%	33%	35%	36%	43%	33%
Patio	53%	57%	47%	44%	36%	48%
Front porch	62%	63%	66%	65%	72%	71%
Front stoop	25%	20%	18%	17%	18%	20%
Side porch	7%	7%	7%	6%	10%	10%
Screened porch	11%	10%	10%	8%	10%	7%

Source: Builder Practices Survey Reports, NAHB Research Center, Inc.

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Trends in New Home Porch Surfacing Materials

	2004	2005	2006	2007	2008	2009
Treated wood	20%	18%	20%	20%	13%	17%
Cedar	5%	2%	5%	8%	2%	2%
Redwood	1%	1%	1%	2%	1%	1%
Other untreated wood	2%	2%	2%	2%	5%	1%
Plastic Composite	9%	12%	10%	12%	13%	12%
Concrete, Brick or Stone	64%	64%	62%	56%	67%	67%
TOTAL	100%	100%	100%	100%	100%	100%

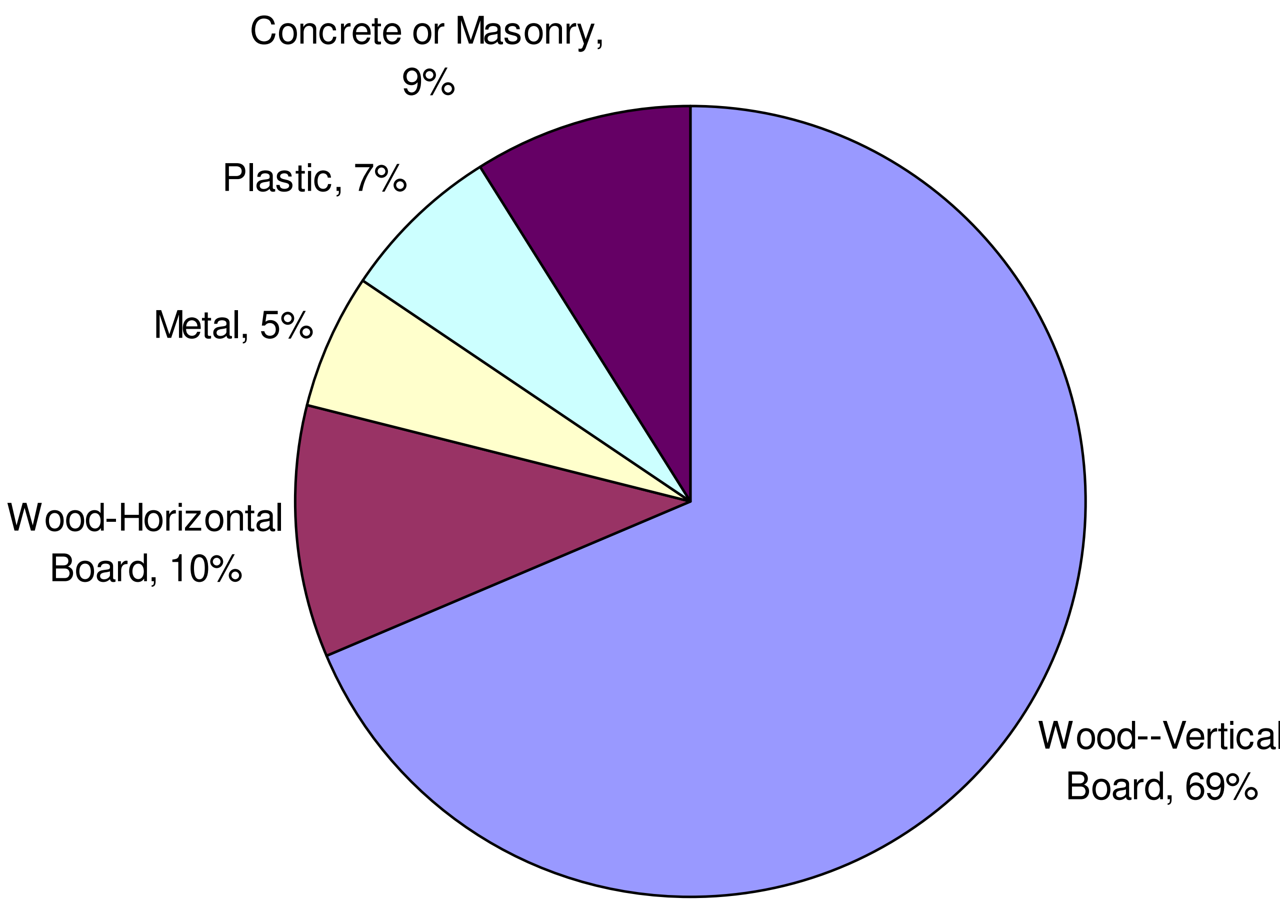
Source: Builder Practices Survey Reports, NAHB Research Center, Inc.

Trends in New Home Decking Surfaces

	2004	2005	2006	2007	2008	2009
Treated wood	60%	53%	60%	52%	47%	48%
Cedar	11%	10%	8%	9%	7%	9%
Redwood	6%	3%	3%	5%	2%	4%
Other untreated wood	2%	3%	3%	4%	7%	2%
Plastic Composite	22%	31%	26%	30%	38%	37%
TOTAL	100%	100%	100%	100%	100%	100%

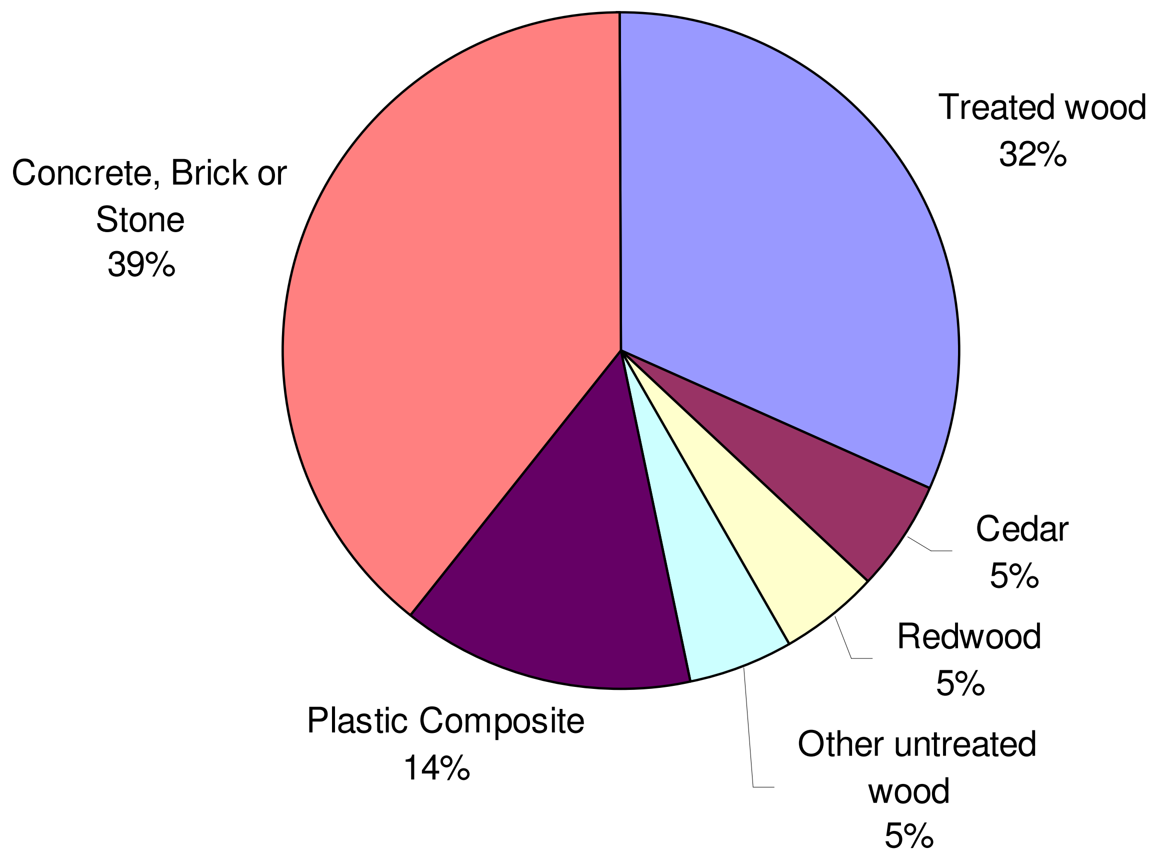
Source: Builder Practices Survey Reports, NAHB Research Center, Inc.

Materials in New Home Fence Construction



Source: 2009 Builder Practices Reports, NAHB Research Center, Inc.

Remodeling Porch Surfacing Material, 2009



Source: 2009 Consumer Practices Reports, NAHB Research Center, Inc.

Trends in Remodeling
Porch Surfacing Materials

	2004	2005	2006	2007	2008	2009
Treated wood	37%	39%	38%	41%	38%	32%
Cedar	3%	4%	2%	4%	3%	5%
Redwood	3%	3%	3%	2%	4%	5%
Other untreated wood	7%	7%	8%	4%	8%	5%
Plastic Composite	12%	12%	16%	16%	12%	14%
Concrete, Brick or Stone	38%	34%	33%	32%	35%	39%
TOTAL	100%	100%	100%	100%	100%	100%

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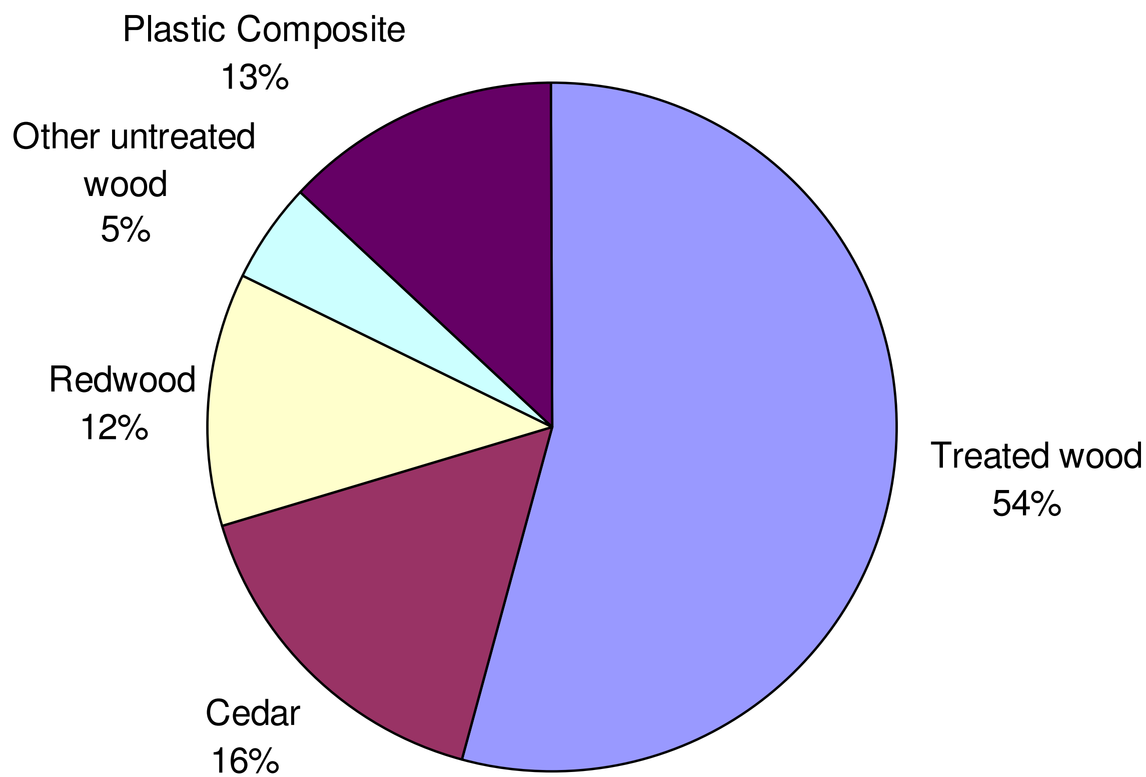
Source: Consumer Practices Survey Reports, NAHB Research Center, Inc.

Shares of Remodeling Deck Surfacing Materials



Source: 2009 Consumer Practices Reports, NAHB Research Center, Inc.

Trends in Remodeling
Deck Surfacing Materials

	2004	2005	2006	2007	2008	2009
Treated wood	68%	65%	60%	61%	68%	54%
Cedar	7%	6%	6%	9%	7%	16%
Redwood	5%	8%	8%	5%	9%	12%
Other untreated wood	3%	3%	5%	3%	3%	5%
Plastic Composite	17%	17%	22%	21%	13%	13%
TOTAL	100%	100%	100%	100%	100%	100%

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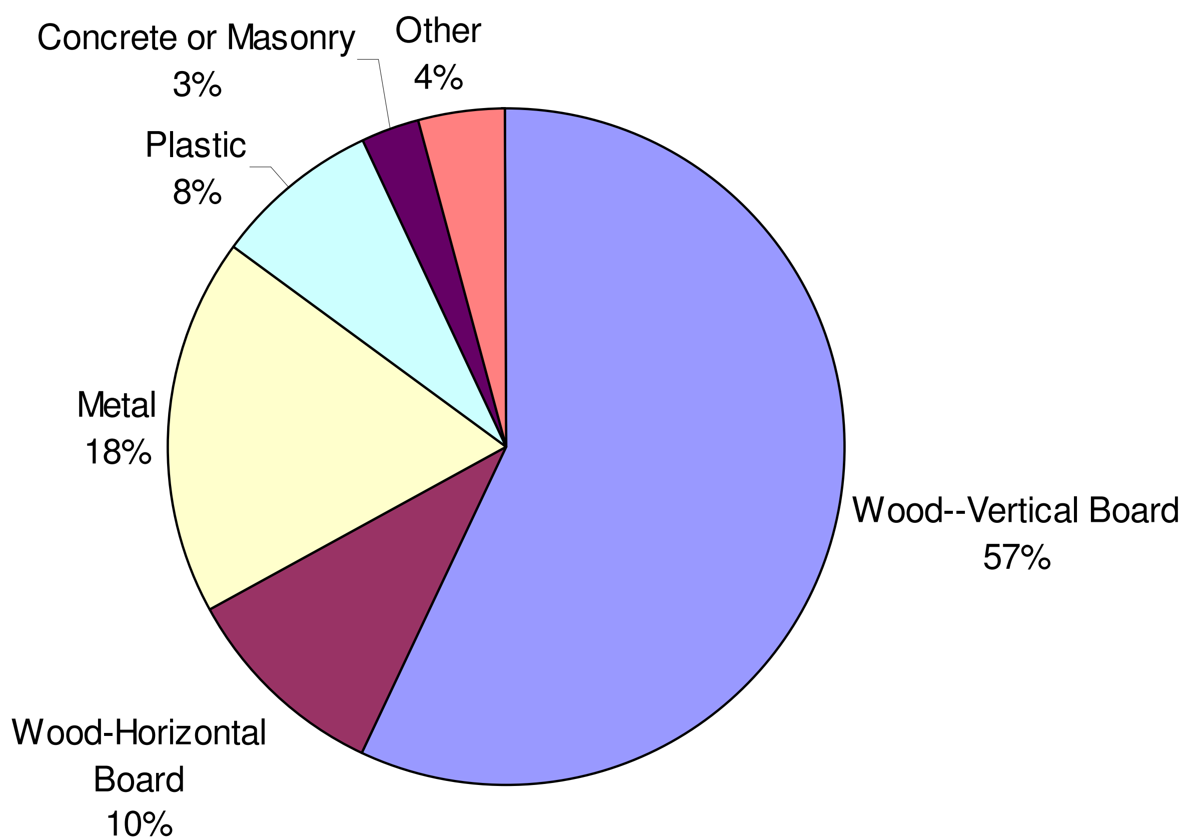
Source: Consumer Practices Survey Reports, NAHB Research Center, Inc.

Remodeling Market Purchases of Outdoor Structure Materials

	2004	2005	2006	2007	2008	2009
Purchased by Homeowner	56%	54%	56%	61%	63%	57%
Installed by Homeowner	48%	47%	46%	51%	56%	50%

Source: Consumer Practices Survey Reports, NAHB Research Center, Inc.

Shares of Fence Materials, Residential Remodeling



Source: 2009 Consumer Practices Reports, NAHB Research Center, Inc.

Trends in Remodeling Fence Materials

	2004	2005	2006	2007	2008	2009
Wood--Vertical Board	57%	57%	54%	55%	56%	58%
Wood-Horizontal Board	10%	7%	9%	7%	7%	8%
Metal	18%	20%	22%	23%	17%	18%
Plastic	6%	10%	8%	9%	8%	8%
Concrete or Masonry	4%	3%	3%	3%	4%	3%
Other	4%	4%	3%	3%	7%	4%
TOTAL	100%	100%	100%	100%	100%	100%

Source: Consumer Practices Survey Reports, NAHB Research Center, Inc.

Green Building Encompasses Many Functional Benefits

- Energy efficiency
- Safety & health
- Comfort
- Durability
- Low maintenance
- Natural or bio-based
- Sustainability

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Where are Home Builders on Green Building?

No Interest in Going “Green”	12%
Considering Going "Green"	20%
Learning How to Build "Green"	23%
Build Non-Certified "Green" Homes	28%
Build Certified "Green" Homes	17%
TOTAL	100%

Source: 2009 Home Builder Omnibus Survey, NAHB Research Center, Inc.

Conditions Needed for Builders to build “Green”

Cost is Same or Slightly More	#1
Homebuyers Will Pay More for It	#2
Flexibility in Home Design, Features	#3
Easier to Sell Homes	#4
No Extensive Training of Subs, Vendors	#5
When it Gives Me a Competitive Advantage	#6
Finding the Right “Green” Program	#7
Green Homes Become Easy to Build	#8
When My Competitors Do It	#9
Preferential Treatment by Codes	#10
When Green Homes are Higher in Quality	#11

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Source: 2009 Home Builder Omnibus Survey, NAHB Research Center, Inc.

2009 Study of Home Builders

n=1,500

- Green homes built at no additional cost over a standard home
  - Overall: 47%
  - Starter: 63%
  - Move-up: 33%
  - Luxury: 28%
- Average cost increase over standard home
  - Overall: $4,000 (2%)
  - Starter: $1,800
  - Move-up: $2,750
  - Luxury: $9,000

Source: Annual Builder Practices Survey, NAHB Research Center, Inc. 2009

Phases of Green Home Marketing

1. Niche market for socially conscious builders, remodelers, & home buyers
2. "Green" homes as a superior value to homebuyers
3. A comprehensive approach to designing and building homes "the right way"

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1. Niche Market for Socially Conscious Builders, Buyers

- "Green" means sustainable & harmonious with nature
- Assumes higher construction cost & financial sacrifice for buyer
- Benefits are largely emotional to home buyer (but tangible to the public)
- Most of industry still in this phase
  - Supporters of paradigm are very vocal
  - Still the basis for majority of branding & advertising
- However, growth under this paradigm is limited: there are many other good causes to support
- Benefits of buying a "green" are hard to measure

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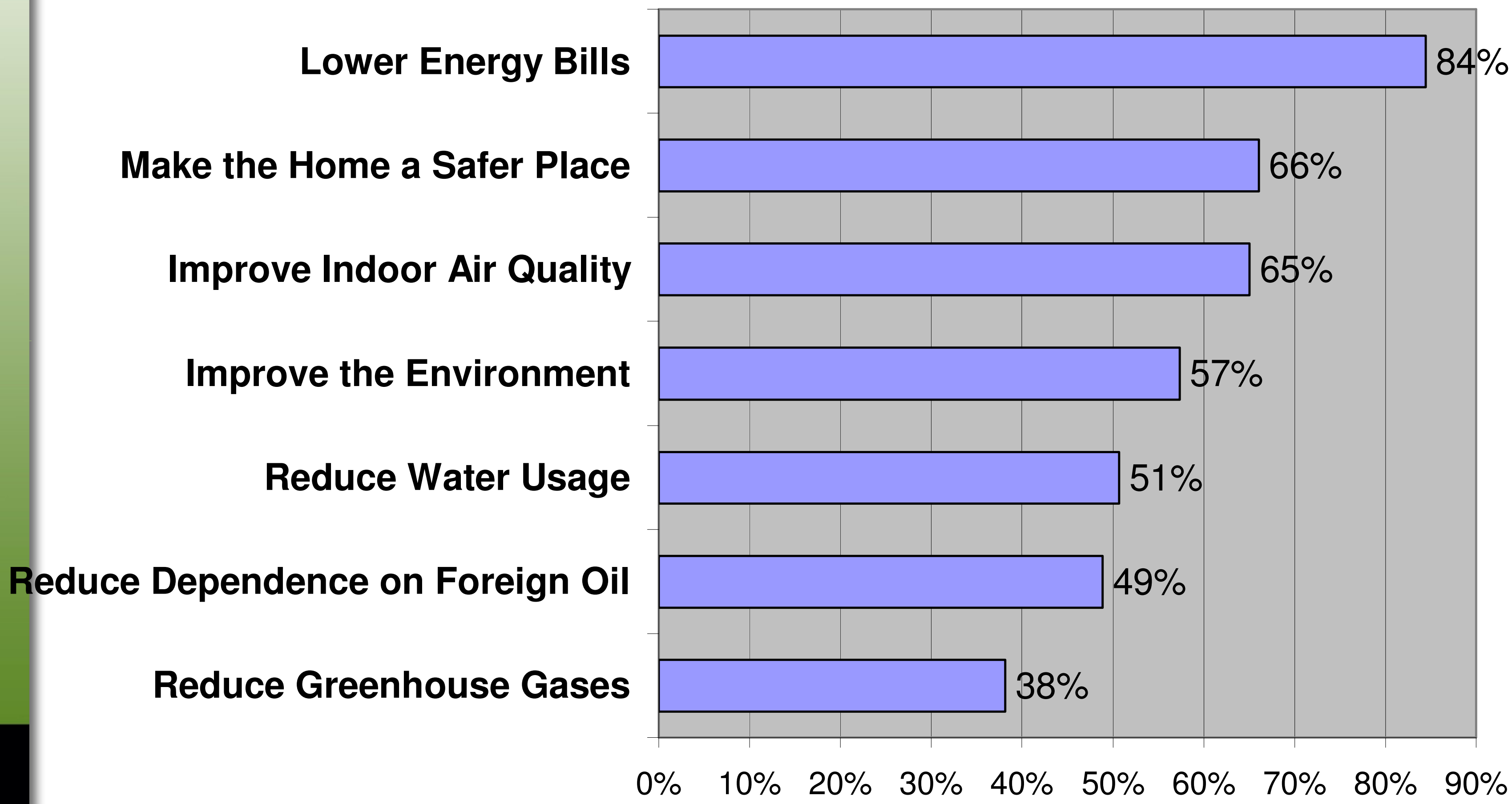
Importance of "Green Building" Benefits in Builder Purchase Decisions



Source: 2007 Soft Market Study, NAHB Research Center, Inc.

2. Emphasis on Benefits to Individual Home Buyers

- Many individual benefits of “green”
  - Lower operating, maintenance, & replacement costs
  - Safer, healthier, more comfortable living environment
- Environmental, social benefits promoted as secondary
- Many cost-reducing construction techniques are legitimized by green certification programs
  - Fewer impermeable outdoor surfaces—omit paved driveways, curbs & gutters in developments
  - Fewer raw materials used, such as OVE framing
  - Reduced amount of waste through precuts, factory production
  - Reduce street lighting
  - Less disturbance of natural land features

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3. Green as the Superior Way to Build Homes

- Green is best for builder, community, homeowner/occupant, environment
- Inspires confidence in home buyer that builder…
  - Uses leading-edge practices & technologies
  - Is thoughtful & environmentally responsible
  - Willing to sacrifice for good of community
- Expect “green” movement to merge with other business and social movements
  - Quality assurance
  - Universal design
  - Walkable and co-housing communities
  - Others

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Green Building Programs

Build Green NJ

EARTH CRAFT HOUSE™

GREEN HOME BUILDERS OF THE TRIANGLE

Gb GREEN BUILT home

BUILDING GREEN WORKS

Hawai'i BuiltGreen™

BUILD GREEN UTAH

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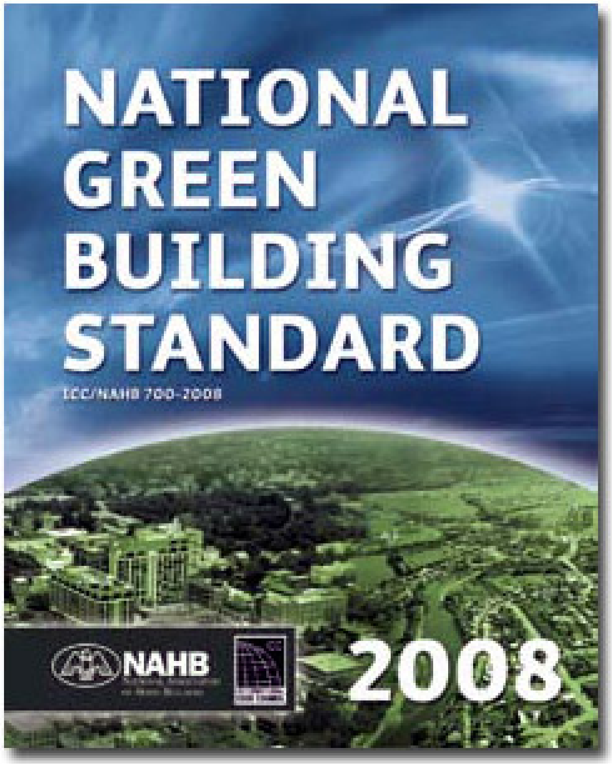
National Green Building Standard

- Approved Jan 2009
- Collaboration between ICC and NAHB
- First green rating system to be approved consensus standard



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NAHB NATIONAL GREEN BUILDING PROGRAM™

Other Features and Developments

- Green Remodeling
- Green Land Development
- Green Modular Homes
- GreenApproved™ Products
- Integration of DOE "Builder Challenge"
- Potential integration of
  - EPA/DOE EnergyStar™
  - EPA Indoor Air Plus™
  - EPA WaterSense™

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Where Lumber can Get Points Toward Green Certification

- Sourced locally, or indigenous material
- Manufacturing energy—33% renewable or from waste materials
- ISO 14001 certified manufacturing process
- Efficiency in materials production
- Recycle waste (onsite or offsite)
- Factory-built trusses or panels
- Engineered lumber
- Precut lengths or dimensions
- Prefinished materials

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Recommendations

1. Learn the green building ratings systems
2. Pinpoint how builders/remodelers can **get points** under each green building program
3. Continue to influence the National Green Building Standard (ICC-700)
4. Investigate **Green Approved™** program
5. Provide builders with information to readily promote the **individual "green" benefits** of brick
6. Demonstrate how using your products are the **best value** in gaining points under a green building program

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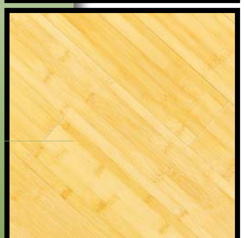

Ed Hudson

Director, Market Research Division

ehudson@nahbrc.com

301-430-6305

NAHB Research Center

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

www.nahbrc.org

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