

# Matt Belcher

---

## McGraw-Hill Green Smart Market Report



Midwest Energy Efficiency  
Research Consortium



Hibbs•Homes



# Housing

---

128,649,000

Housing Units in the USA

-U.S. Census Bureau

**At its peak: new Construction  
added about 1.6% to this number  
per year**

**(Approximately 10 years)**

**-About 2.5% of all Homes**

## Housing

---

- **Residential sector consumes 21.9% of the Energy in the U.S.**

## Housing

---

- Residential sector consumes 21.9% of the Energy in the U.S.
- **It also Produces 21% of green House Gas (GHG) Emissions**

# Housing

---

- Residential sector consumes 21.9% of the Energy in the U.S.
- It also Produces 21% of green House Gas (GHG) Emissions
- **Homes built today are 100% More Energy efficient than homes built prior to 1991 (Amounts to 2.5% of *all* Homes)**

# Building Codes

---

- International Code Council (ICC)
  - "Family of Codes"
- Reference Standards (e.g.; ANSI, ASTM, NFPA)
  - As many as 350 standards developed by 50 standards generating organizations.



# Advances in Codes

---

*Currently:*

Approximately 25% of the cost of a housing unit is from regulatory considerations.

*Source: Survey and Housing Policy Research  
National Association of Homebuilders*

# Advances in Codes

---

- Land entitlement (Lot)
  - Time for process
  - Storm water issues/EPA Rule changes

Cost per developed lot has increased approximately 200% per front foot

# Advances in Codes

---

- Home

- Upgrades to structural design for seismic and wind.
- New Energy Code/Upgrades to Energy efficiency
- Fire Sprinklers  
("Mandatory Option")

# 2012 IECC / IRC Section 11

---

- Basics:

As voted and passed last fall at ICC Conference:

**Will require 30% above 2006 IECC**

**More testing and verification.**

**Energy Labeling (MPG Sticker for Home)**

# Moving Housing forward

---

- Affordability (cost effective)  
\$1000 increase in price of the median-priced new home would mean 217,000 U.S. Households from being able to qualify for a mortgage to purchase that home.

*Source: U.S. Census*



# “Above and Beyond Code”

---

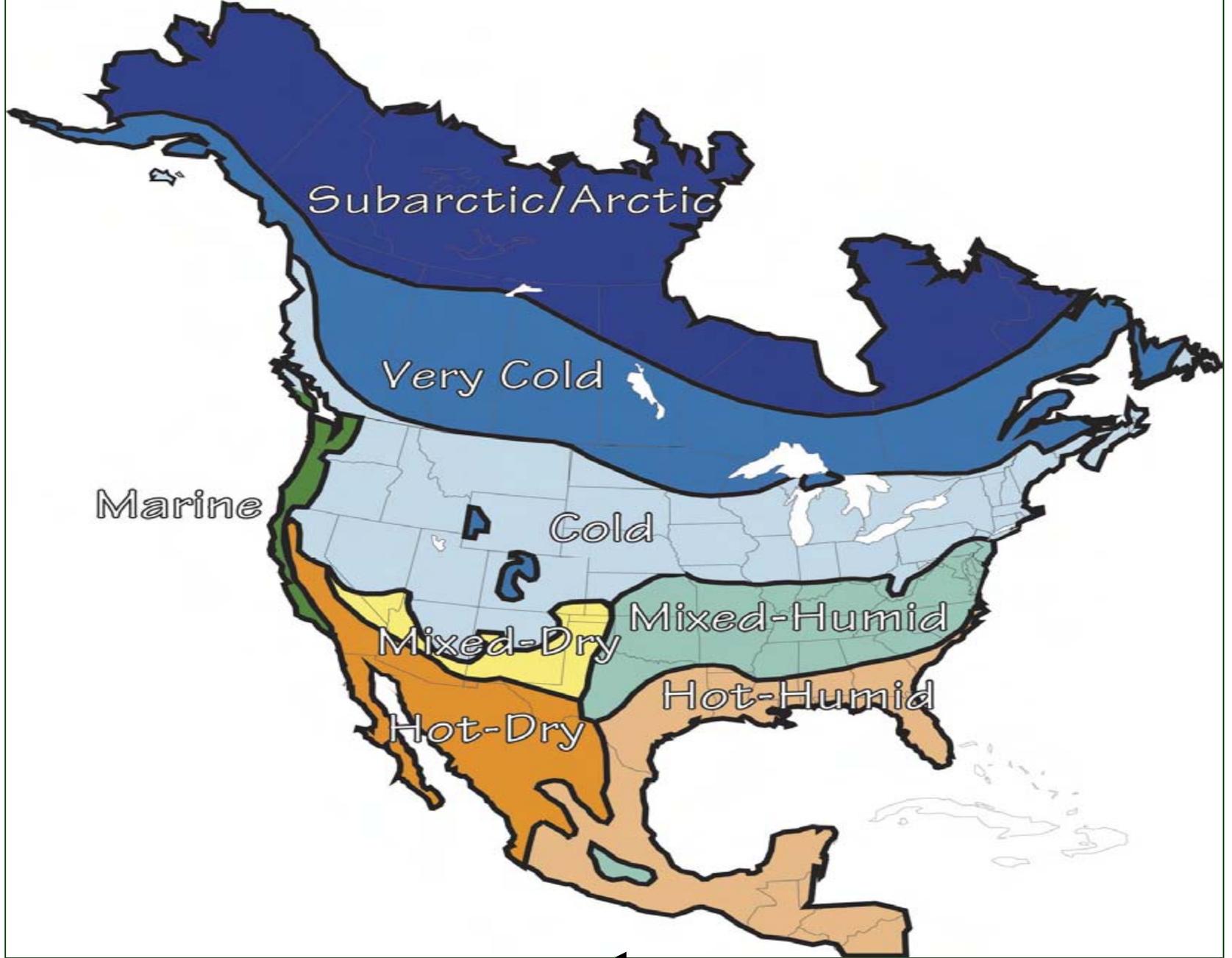
- National Green Building Standard
- Energy Star
- Building America’s Builder’s Challenge
- Active House
- LEED-H



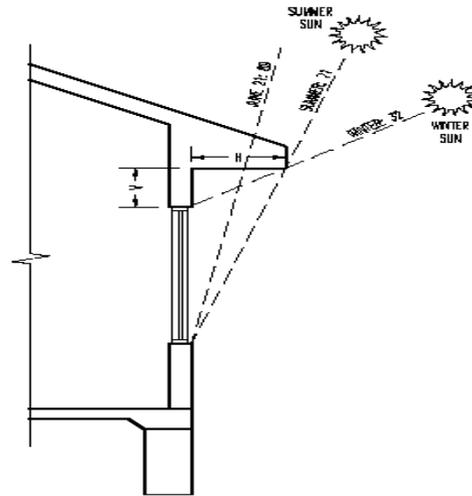
## “Holistic” Basics in Building

---

- Site Planning and Design
- Resource Efficiency
- Energy Efficiency
- Water Efficiency
- Indoor Environmental Quality
- Homeowner Education



# Passive Solar Heating/Cooling



VALUES BASED ON LATITUDE  
**SOLAR SHADE ANGLES**  
© Copyright LAMPRENG, INC.



- Proper solar orientation and extending overhangs can reduce cooling by at least 20%

# De-construction vs. Demolition

---

- Re-use/re-cycling of materials
- Diversion of materials from landfills
- Due to cost to produce new materials, re-used materials are now considered commodities instead of consumables





# McGraw-Hill Green Smart Market Report

---

Moving Forward

The National Green Building Standard

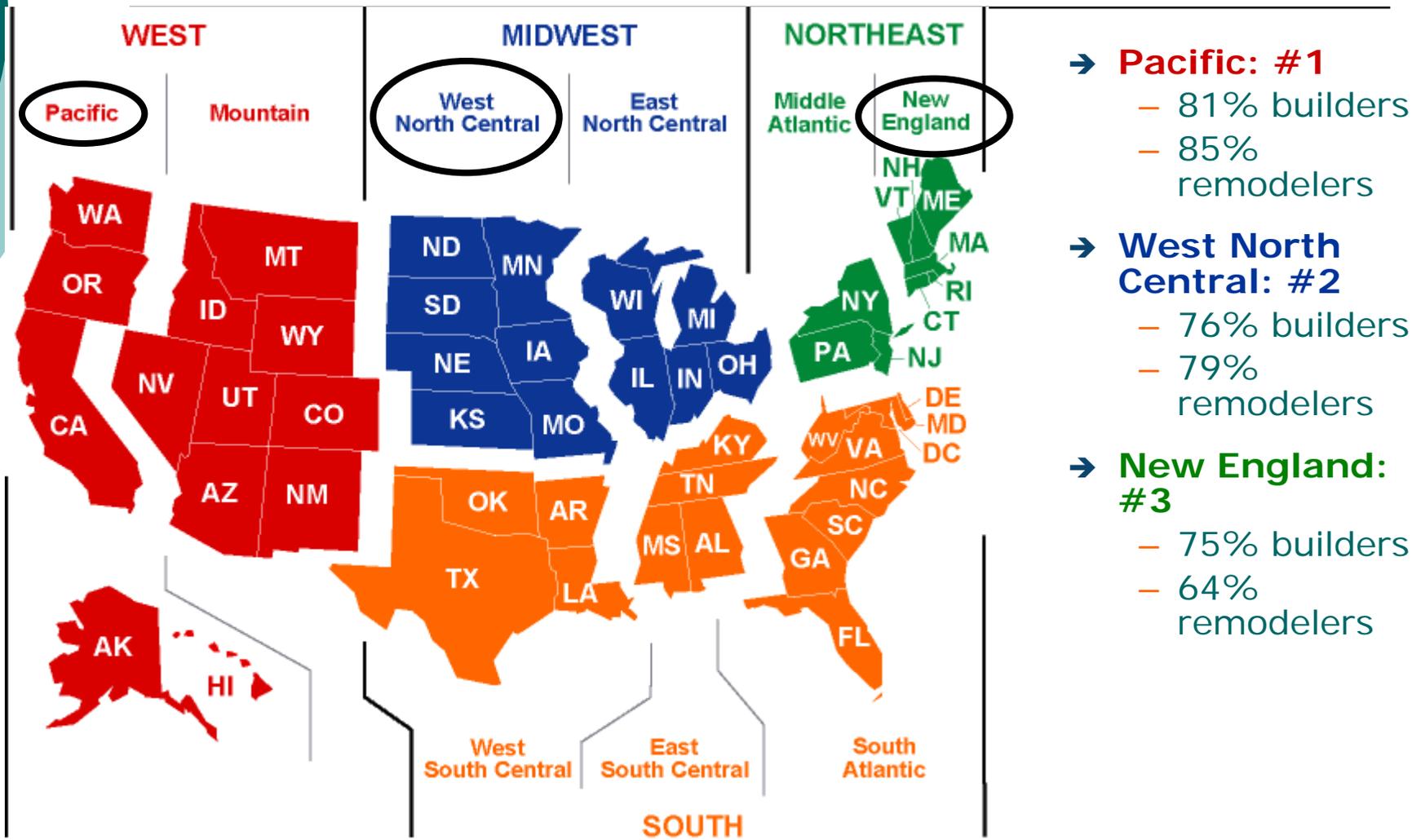


## National Green Building Standard (ANSI ICC-700)

---

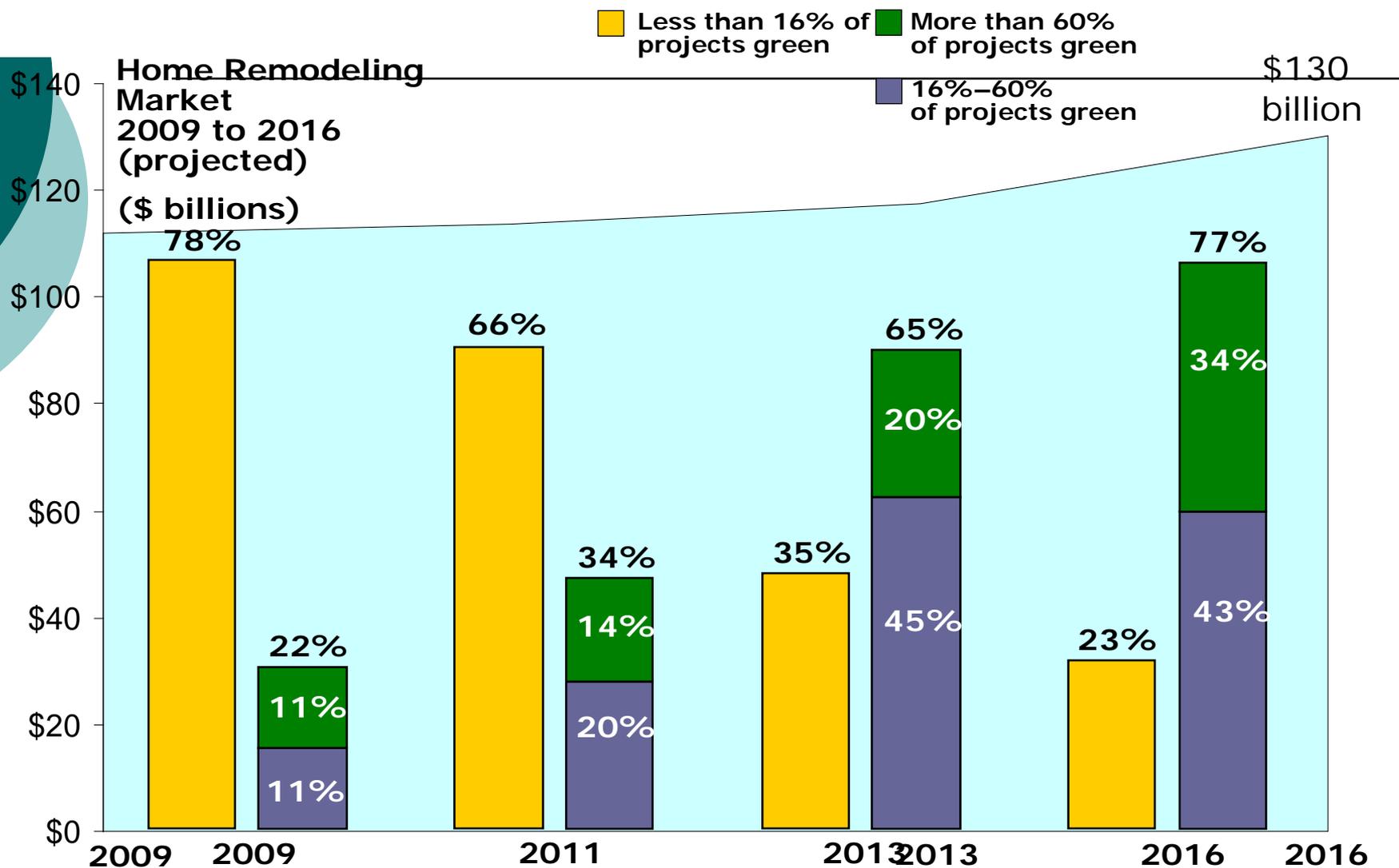
- Currently going through the revision process
- Building Certification, marketing and information through NAHBRC
- Professional Designation (CGP, MCGP) information, marketing through NAHB Education
- Industry advancements in knowledge & Experience

# 3 Regions with Greatest Green Opportunity by Builders and Remodelers



Source: Green Home Building survey, McGraw-Hill Construction, December, 2011

# Remodeling Market and Share of Green on the Rise



Source: Remodeling Market (2009 & 2011, Harvard Joint Center on Housing Studies, Leading Indicator of Remodeling Activity (Q4 2011); 2013-2016 (estimate based on compounded annual growth rate of 3.5%)). Share of green: Green Home Building survey, McGraw-Hill Construction, December, 2011

# Moving Housing forward

---

- “Rules” outpace  
Practicality/Technology

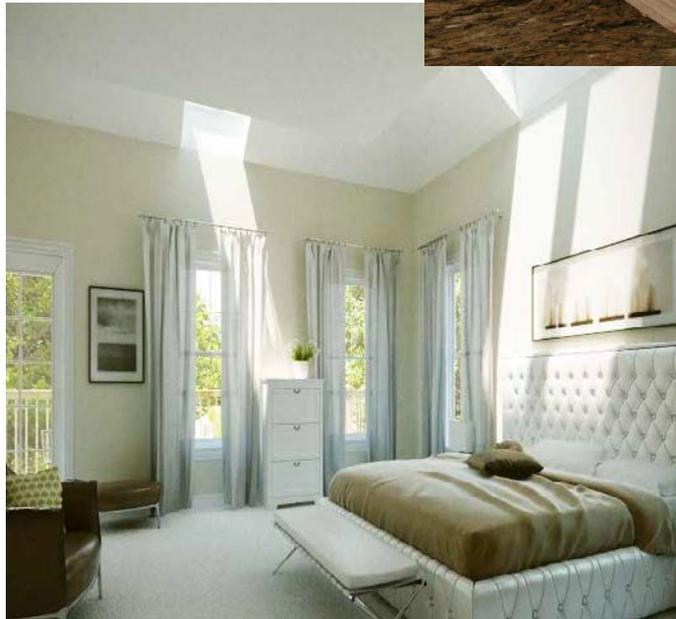
- Total annual U.S. housing research funded by all governmental and industry sources combined is significantly less than other developed countries.

# Occupant Behavior:

---

- Plug Load
- Habits
- Comfort
- Education

# Panelized, Systemic construction



# Combining Technologies

---



## Energy from Daylighting

---

**VELUX®**



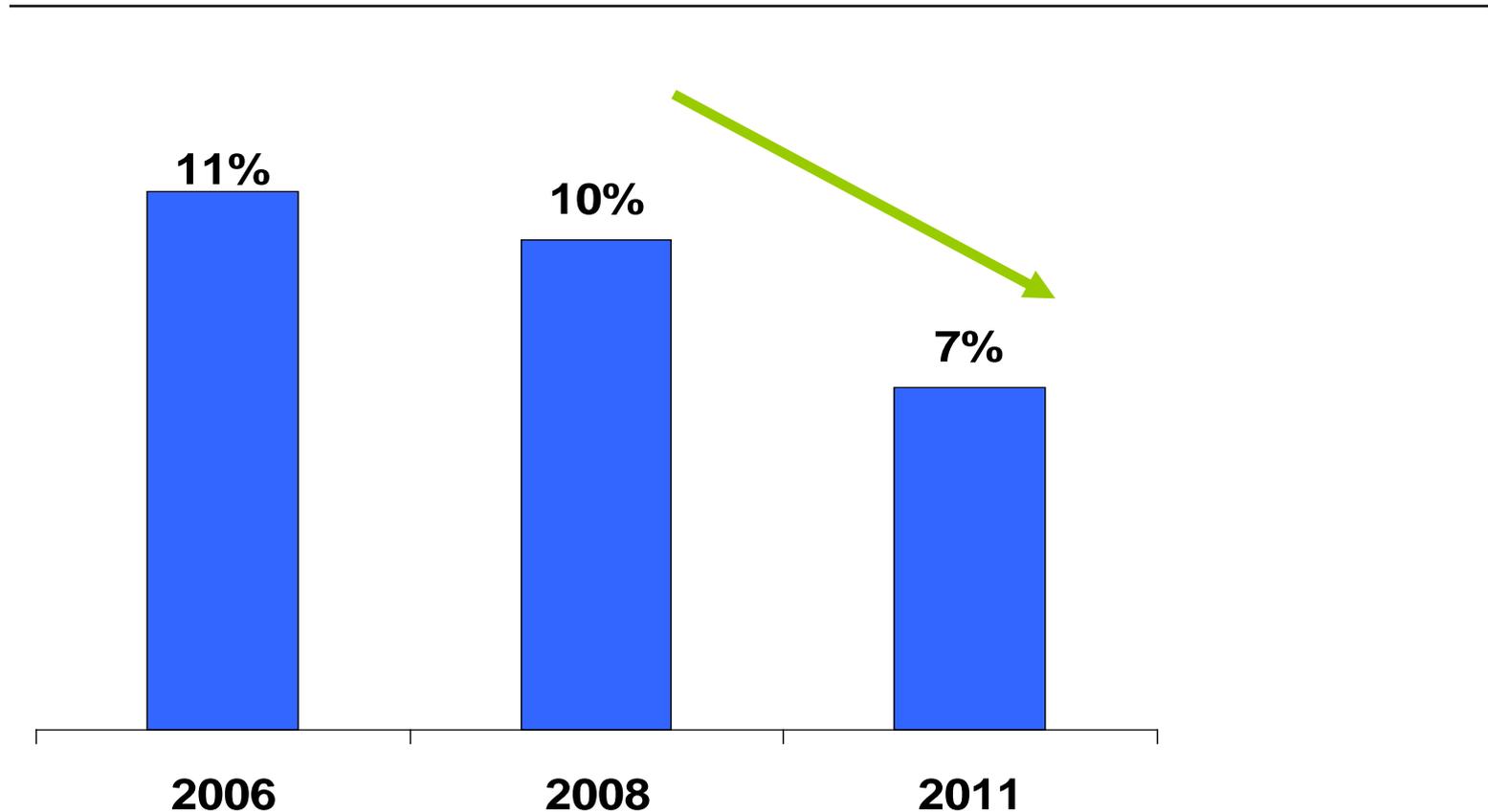
### A Study of the Energy Impacts of Skylights in Different Climates

-November 15, 2011

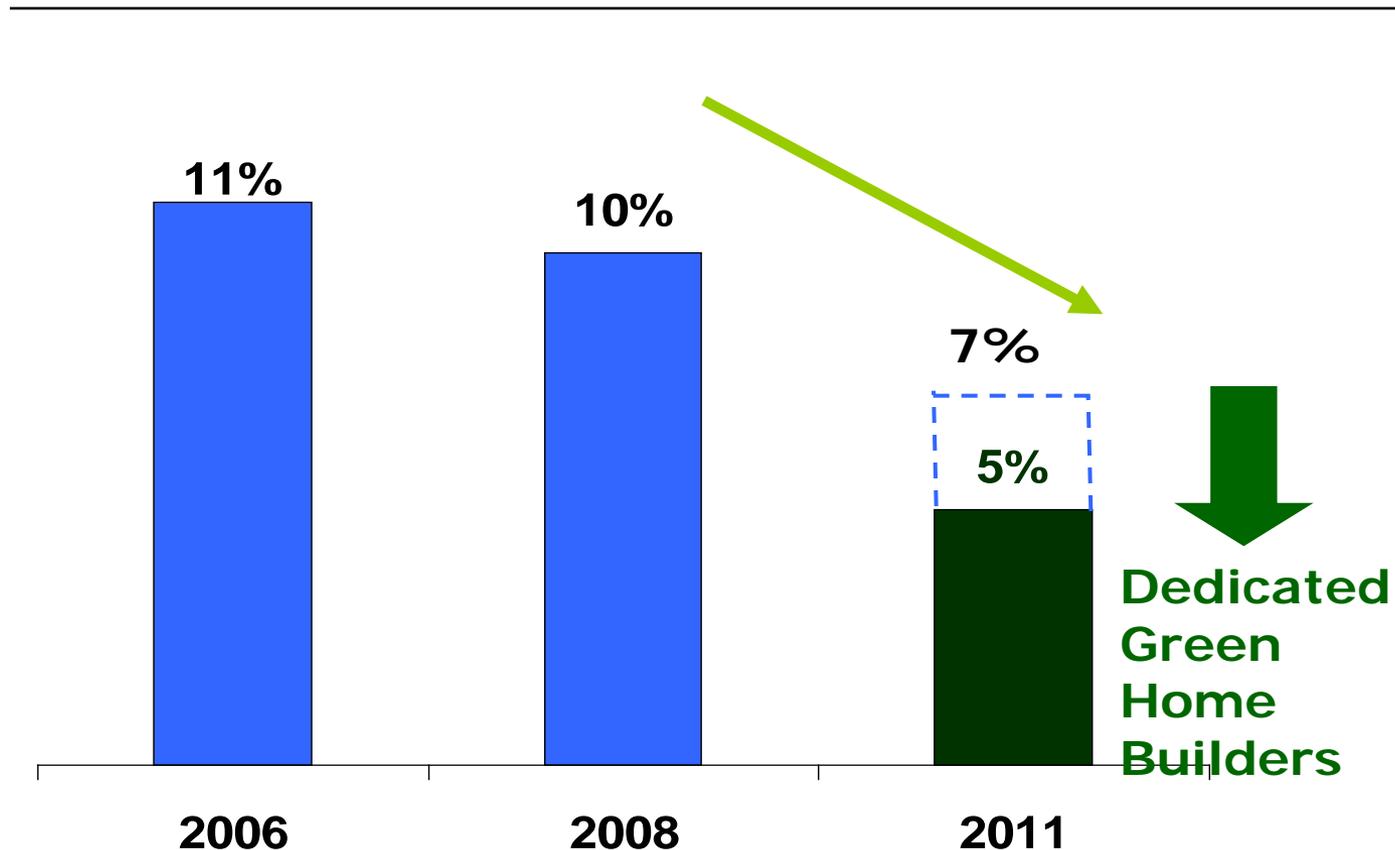
Use of overhead daylight

- More Consistency
- Less glare
- Energy source

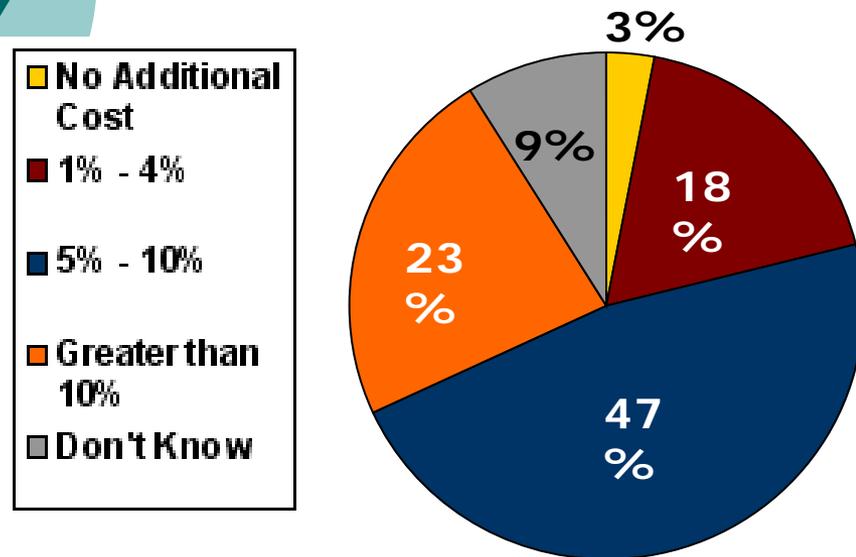
# Incremental Cost of New Green Homes Has Decreased According to **Builders**



# Incremental Cost of New Green Homes Has Decreased According to **Builders**



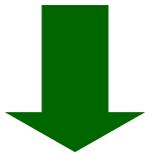
# Green Remodelers Find Low Additional Cost to Build Green (2011)



## Average Additional Cost

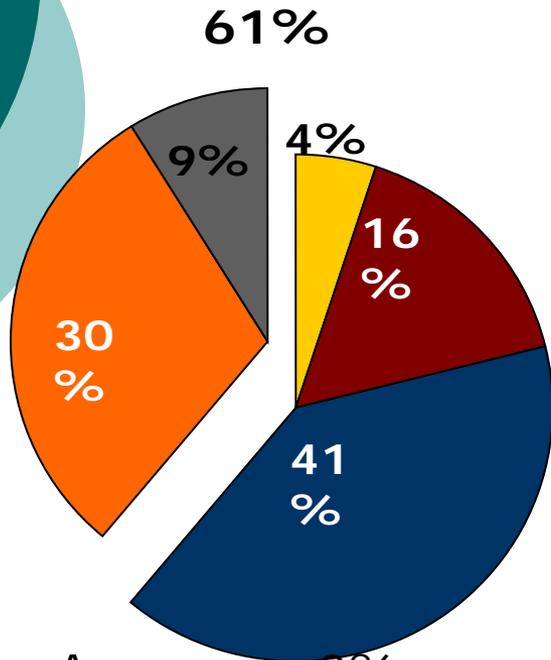
All Respondents – 8%

Dedicated Green – 5%



# More than 60% Find Customers Are Willing to Pay More for Green

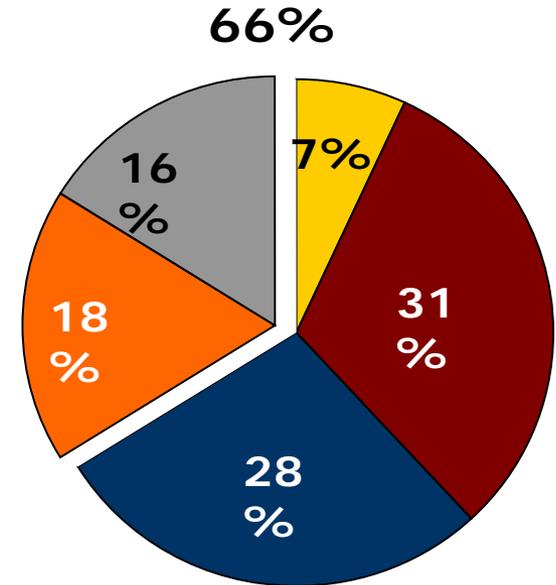
## Builders



Average – 3%

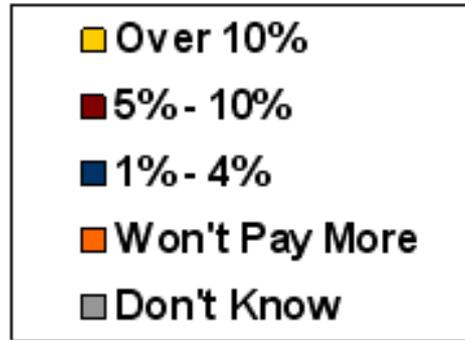
**Dedicated Green  
Average – 6%**

## Remodelers



Average – 5%

**Dedicated  
Green Average  
– 6%**





# Bottom Line:

---

- Education

Builders

Industry Professionals

# Bottom Line:

---

- Education
- ✓ Consumers



# Bottom Line:

---

- Education
- ✓ Consumers
- ✓ Lenders



# Bottom Line:

---

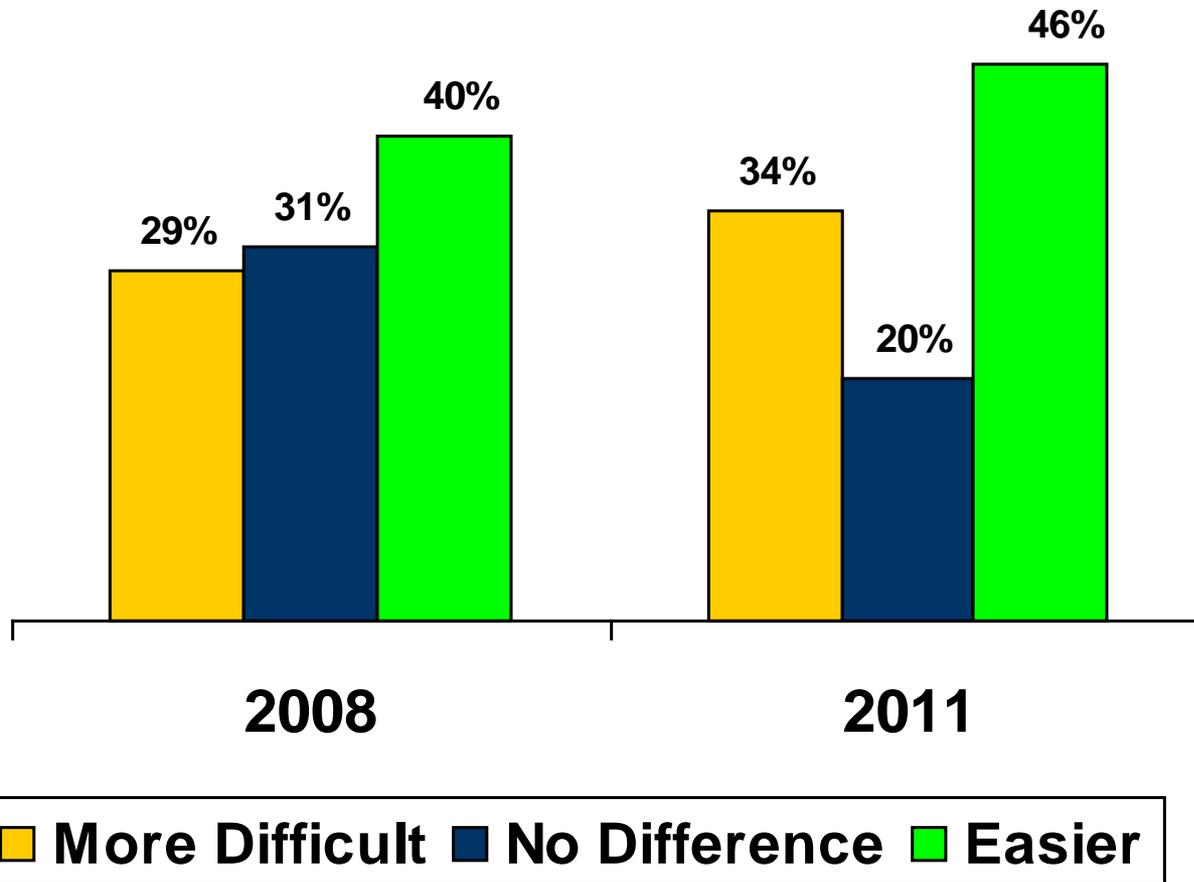
- Education
- ✓ Consumers
- ✓ Lenders
- ✓ Appraisers

# Bottom Line:

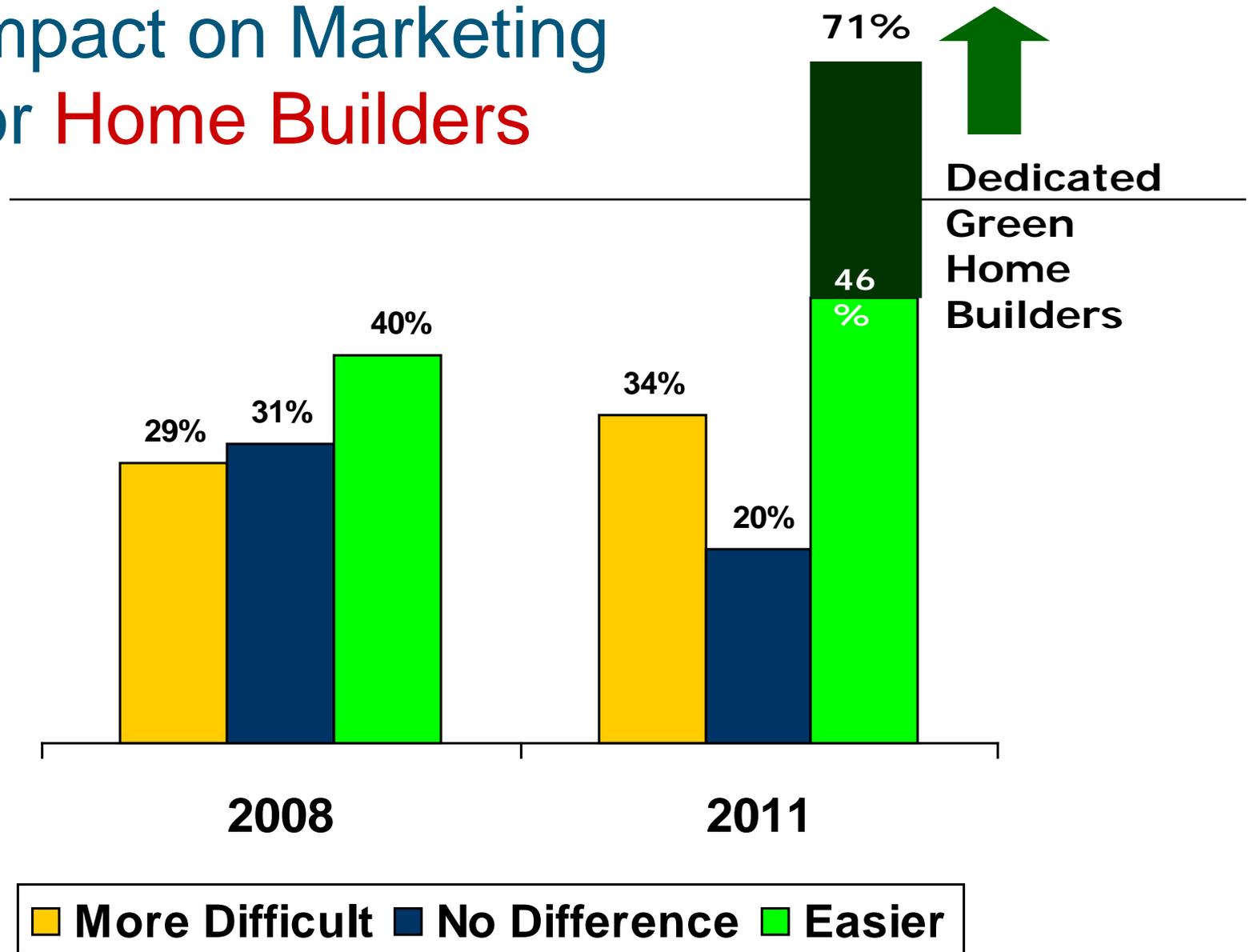
---

- Education
- ✓ Consumers
- ✓ Lenders
- ✓ Appraisers
- ✓ **Jobs**

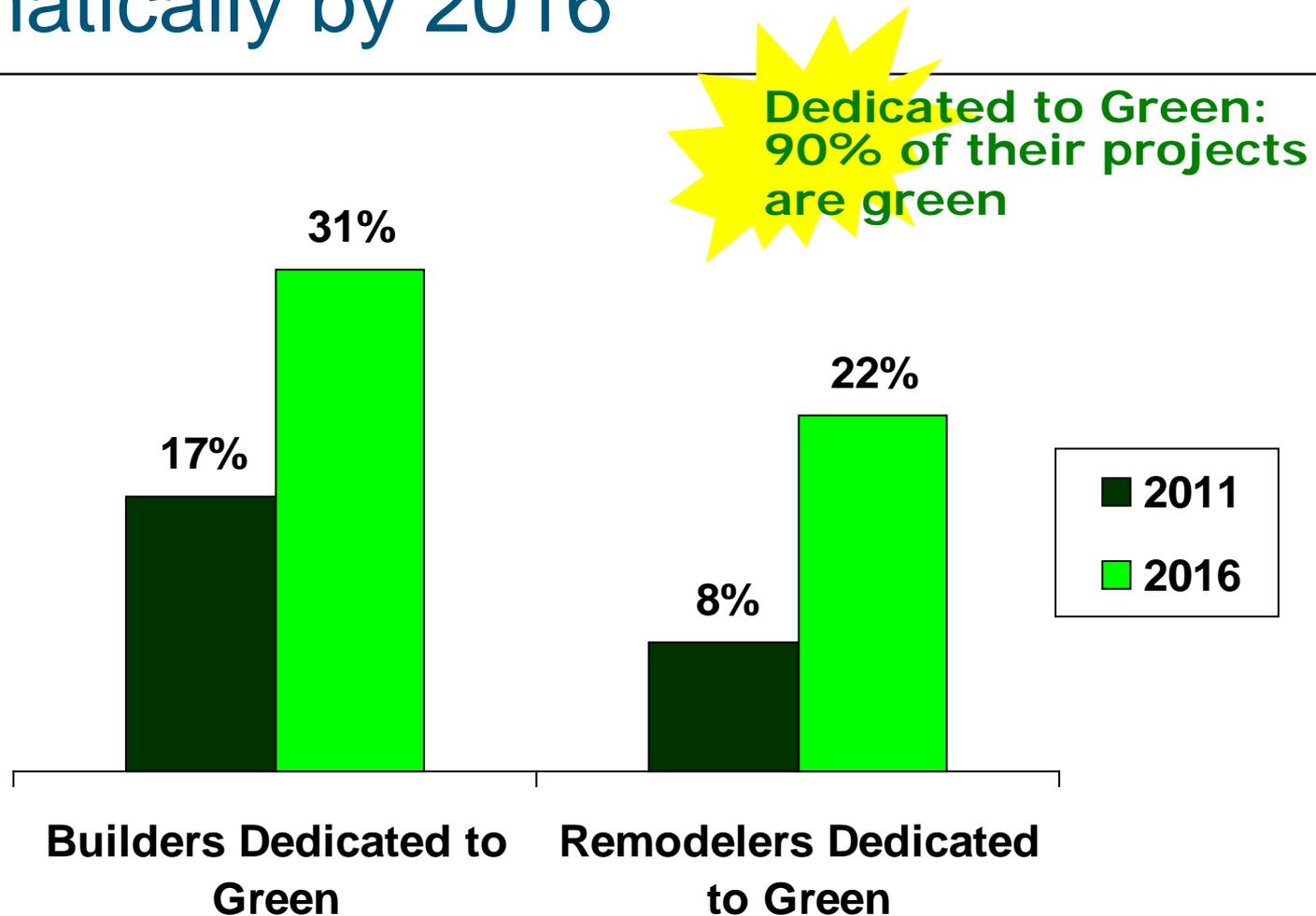
# Impact on Marketing for Home Builders



# Impact on Marketing for Home Builders



# Firms Dedicated to Green Will Increase Dramatically by 2016





# Key Takeaways

---

- New green homes have grown through the protracted downturn and are expected to continue to grow during the recovery
  - Total value expecting a five fold gain in five years.
- Builders are currently doing more green work than remodelers, but remodelers are catching up
  - The number of remodeling firms doing largely green work is going to triple in the next 6 years.
- Experience with green carries strong business benefits.
  - Dedicated green firms have stronger business results across the board.
  - Trend since 2008 for all builders: Green is more affordable and easier to implement.
- Association with quality drives green: most important trigger for builders and second for remodelers

## Energy

---

# Energy “Equity”



# The Smith's

---

- "Right Sized Home"
- Competitively Priced
- Energy Savings
- Reduced Maintenance
- = Equity



# Conclusion:

---

***Not a linear process,  
integrated systems***

**(Affordability = Sustainability!)**



Thank You!  
Matt Belcher

[www.VerdatekSolutions.com](http://www.VerdatekSolutions.com)

[matt@verdateksolutions.com](mailto:matt@verdateksolutions.com)