

# What is the Real Cost of DOE's 30% IECC Improvement Goal

Presented By  
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# NAHB Supports Energy Efficiency

- Despite popular belief, NAHB is a strong proponent of energy efficiency and green building
- NAHB Policy specifically supports beyond code energy programs and cost-effective and practical energy efficiency improvements
- Last April NAHB along with ICC submitted the FIRST consensus based Green Standard to ANSI for approval.

# Homeownership

- The NAHB vision “strives to create and environment in which all Americans have access to the housing of their choice and the opportunity to realize the American dream of home ownership”.
- There must be a balance between energy efficiency and cost of home ownership.

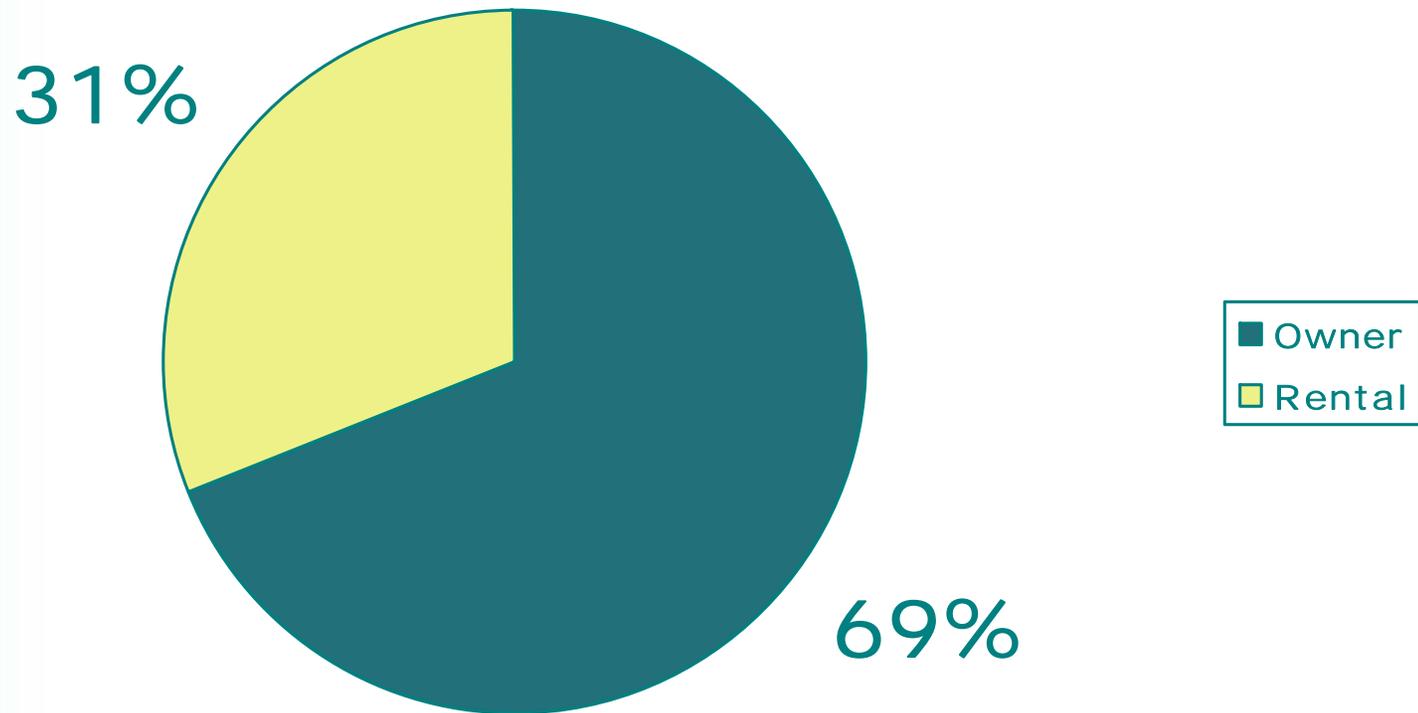
## Balance

- NAHB recently modified its cost effectiveness policy to incorporate a 10 year simple payback. NAHB believes that this is the maximum payback most homebuyers will tolerate.
- Simple payback is designed for simplicity to minimize points of contention such as interest rates, energy escalation, or residual value of efficiency upgrades.

## Relating Cash flow vs. Simple Payback

- A 10 year simple payback on a \$1,000 investment is \$100/yr or \$8.33/month
- A mortgage payment on a \$1,000 loan at  
7% is \$6.65/month  
8% is \$7.34/month  
9% is \$8.04/month
- The NAHB criteria is comparable to a positive cash flow analysis

# A Significant Share Of Residential Housing Is Rental



Source: 2005 American Housing Survey, U.S. Census Bureau and HUD

# There is a Consistent Relationship Between The Value of Rental Property and Rents

Rental Receipts as a Percent of Property Value		
	2-4 unit Properties	5-49 unit properties
With a Mortgage	11%	12%
Without a Mortgage	12%	12%

Source: 2001 Residential Finance Survey, U.S. Census Bureau and HUD

## IMPLICATION

If construction cost per unit increases, annual rent per unit will increase by roughly 11% (1/9) of the incremental energy efficiency costs, or a 9 year simple payback.

If the payback is greater than 9 years, the overall cost of rent plus utilities will INCREASE.

# Importance of Rent Prices

- The mean household income for renters is \$27,051 per year.
- The mean household income for homeowners is \$55,571 per year
- 32% of renters income goes to rent while 20% of owners income goes to mortgage.

Source: 2005 American Housing Survey

# Minimum Code

- The IECC is a minimum code- not a high performance program
- A minimum code should not represent unproven or “cutting edge” building processes
- When adopted, the energy code represents the least energy efficient house that can be built- builders and consumers have no other options
- Practicality and cost-effectiveness must be considered when setting a minimum standard.

# Arbitrary Improvement Targets

- If the stringency of the IECC is not allowed to proceed naturally, there will be a negative impact on the construction industry and consumers
- By forcing the energy code to achieve a specific level of stringency, cost effectiveness will be compromised, and economic market effects will increase gross housing costs for consumers

# Issues Beyond Cost Effectiveness

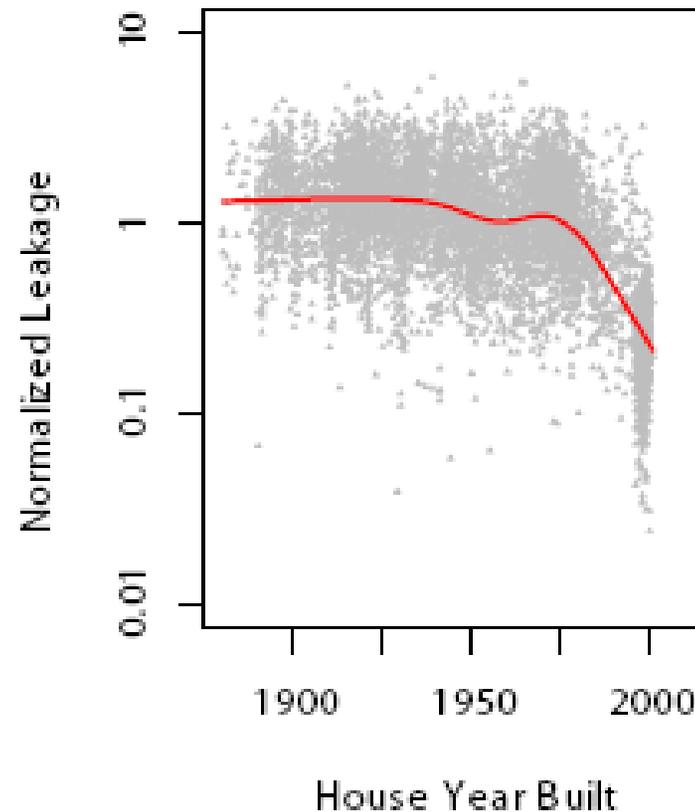
- Material Availability and limitations-  
There is very little low-e glass with SHGC below 0.30- much of what is has very low visible light transmittance
- Restrictions to efficient design- in climate zones 2 and more so in zone 3, passive solar designs can be used to allow desirable winter solar gains- this change limits these possibilities

# Issues Beyond Cost Effectiveness

- Experienced Field Testing Personnel
- There are proposed changes to require field blower door and duct tightness testing for all homes. Where are these people?
- Specific testing protocol. No duct tightness testing protocol specified. Blower door protocol indirectly references a permissive standard.
- What is a builder to do if a house does not pass?

# Issues Beyond Cost Effectiveness

- Houses are tighter than they have ever been
- Requiring a tightness test of every house would create a legacy test with little, if any, energy savings



# Issues Beyond Cost Effectiveness

- Assumed 5% missing insulation
- Required 3<sup>rd</sup> party insulation inspection and building tightness testing
- No credit for improved water heating efficiency
- No credit for improved heating and cooling equipment efficiency

# Examples of NAHB Supported Cost Effective Efficiency Increases

- Requirement for 50% Installed Compact Fluorescent lighting
- R-15/19 basement insulation in climate zones 6, 7 & 8

# Examples of Non-Cost Effective NAHB Opposed Efficiency Increases

- R-16 walls in climate zone 2
- R-20 walls in climate zone 4
- R-38 floor insulation in climate zones 7 & 8
- U-factor for windows of 0.65 in climate zone 1

## Too Much Too Fast

- When massive changes occur overnight, many problems are likely to occur.
- Many proposed changes are straight forward.
- Others are potential disasters:  
e.g. moisture, basements, flashing

# Humidity

- Hot Humid Climates are bound to have serious problems
- Most Air Conditioning Equipment has the ability to remove a fixed amount of moisture.
- Dramatically increasing the UA of a house in a hot humid climate can easily push past the capability of a standard A/C system resulting in cold clammy air which is the perfect recipe for mold.

# Minnesota Basement Insulation

- “Because of the unique moisture load on basement walls and floors, some insulation methods may make walls and floors subject to mold growth which could lead to health problems for the home’s occupants.”
- Quote from the Minnesota Department of Commerce on “Basement Insulation”.
- There would not have been a need for this if minimum code change requirements did not cause mold problems

# Unintended Consequences

- Who is affected by these unintended consequences?  
Consumers  
Builders
- Who is NOT affected?  
Energy efficiency partnerships  
Government employees  
Material suppliers

# Conclusions

- NAHB Supports Energy Efficiency
- A balance between cost and energy must be maintained
- Many code change proposals are opposed for practical reasons and have little discernable energy savings
- Unintended consequences of good intentions can be a considerable liability for consumers and builders
- NAHB supports some and opposes other increased efficiency minimum proposals for the 2007-2009 ICC code cycle

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