PA Outreach Opportunities / Ideas

PA Collaborative meeting 2/18/2015

Maria Ellingson, Program Director, Building Codes Assistance Project (BCAP)
Audiences to Target for Greatest Impact

- Architects, Engineers, Contractors
- Code Officials
- General Public
- Policymakers
Key Characteristics about PA

- Abundant resources, yet spends $30 billion annually to import energy
- HHs consume about 8% more than average U.S. HHs
- HHs spend 16% more than average U.S. HHs
- Industrial, residential, and commercial sector emissions higher than the overall U.S. percentage of emissions for the same sectors
  - PA responsible for 1% of global man-made greenhouse gas emissions

- The Pennsylvania Climate Change Action Plan Update mentions
  - Supporting “high performing buildings”
  - Adopting the latest version of the ICC to minimize cooling and heating loads

- Energy sector jobs critical to its economy:
  - According to the Bureau of Labor and Statistics, there were 30,463 jobs in coal mining, and oil and gas (Feb, 2012)
  - More than 57,000 people are employed in clean energy industry jobs in Pennsylvania
Target Audience: Architects, Engineers, and Contractors

Justification:
• Architects, Engineers: the first line of contact with buyers; uniquely poised to influence.
• Contractors: build what buyers demand.

Requirements for maintaining licensure:
• Engineers: Must obtain 24 hours every 2-years
• Architects: no CEUs required to maintain license (although AIA membership requires 18 hours annually)
• Contractors: No CEU requirements
Strategy / Ideas for Architects, Engineers, and Contractors

1. Survey members of AIA PA and PSPE (and HBA?)
   - Determine needs / opportunities
   - Better understand attitudes and awareness, barriers

2. Then, deliver what they need:
   - Education at AIAPA, PSPE, and HBA events?
   - Energy Code Ambassador Program?
   - Other?
   - Support AIA PA in efforts to require CE credits to maintain licensure (Note: currently architects not required to obtain CEUs in PA)
Target Audience: Code Officials

Justification: There are 2,518 certified code officials in PA.

Many...

• Have limited experience/technical knowledge
• Local department resources are stretched thin
• Employ 3rd party inspectors
Target Audience: Code Officials

Requirements for maintaining licensure: 15 hrs of CEUs per certification

- 549 are certified as **Residential Energy Inspectors**
- 630 **Commercial Energy Inspectors**
- 402 are **Energy Plans Examiners**
- There is some overlap in those numbers (some hold more than one certification)
Location of Energy-Certified Code Officials
Strategy / Ideas for Code Officials

1. Coordinate with PSD Consulting
2. Launch Energy Code Ambassador Program

Example: Ohio

- A diplomatic agent with a mission
- A peer-to-peer local resource for code officials and the construction industry
Example: Texas Energy Code Ambassadors

- Danny Cornelius, Canyon
- Ismael Rivera Jr. "Izzy"
- Kurt Hansen, Denton
- Jason Vandever, Granbury
- Mark Hardin, Sulphur Springs
- David Swatek, Waco
- Mark Mears, Palestine
- Alan Jacobs, Brenham
- Katherine McKelvey, Baytown
- John Umphress, Austin
- Lisa Brown, Houston
- Christian Somers, Jersey Village
- Mike Ingalsbe, Pearland
Strategy / Ideas for Policymakers

Justification: Individuals in decision-making roles must be knowledgeable about the energy code and potential issues with it.

- PECC members report that most local officials are unaware of the benefits of the energy code;
- Some local government officials are actively discouraging code officials from enforcement of the energy code.
Strategy / Ideas for Policymakers

Tour of unfinished home or building

• Breakfast tour led by knowledgeable building science professional, code official or energy rater
  o Featuring key code provision demo areas such as insulation, air sealing, windows, HVAC, blower door, duct blast test
  o Signage throughout house highlighting key areas of correct and incorrect applications of key provisions
  o Fact sheet on Pennsylvania (BCAP can provide)
Strategy / Ideas for Consumers / Buyers

• Justification: Builders will supply what buyers demand
Strategy / Ideas for Consumers / Buyers

• Conduct consumer survey to gauge attitudes & awareness
  o See BCAP’s summary of 3 recent consumer surveys

• Print media (articles in newspapers, magazines, and newsletters)
  o Ex. NE Collaborative: (8 bi-monthly articles planned to run in League of NE Municipalities, state HBA, Collaborative participant orgs)

• TV / radio stories

• TV / Radio media tours

• Meet with editorial boards, submit editorials

• Public Service Advertisements
Fact Sheet: Summary of Consumer & Home-Buyer Surveys

Homebuyer Demand for Energy Codes: Results from Three Consumer Studies

When state or local jurisdictions consider updating energy codes, decision-makers and elected officials hear from those in favor of enhanced energy efficiency and those opposed. It’s hard to make policy changes without public support. But what do buyers really want? This fact sheet summarizes three consumer surveys.

What Home Buyers Really Want
National Association of Home Builders (NAHB)

Energy Codes Messaging Test
Consumers Union and Building Codes Assistance Project (BCAP)

Idaho Homeowner Energy Code Survey
Boise State University, Northwest Research Group, Ecohome

Nine out of ten buyers would choose a highly energy efficient home with lower utility bills rather than one consuming 23 percent less without those features.

On average, home buyers are willing to pay an additional $7,000 in the up-front price of a home to save $1,000 annually in utility costs.

84% of home buyers believe that low utility costs are important when buying their next home.

83% of respondents believe that energy-efficient homes have a higher resale value.

86% want to know a home’s energy operating costs before buying or renting.

Idahoans believe that they are entitled to a house that meets national energy standards when purchasing a new home.

What Home Buyers Really Want (2012)

National Association of Home Builders (NAHB) and the Consumer and Housing Policy Group

Energy Star rated appliances 82%
Energy Star rated for whole home 93%
Energy Star rated windows 89%

Additionally, in the 55-64 age group, 88% of respondents want “improvement rather than repair by code.”

Buyers care about the environment.
Concerned (least environment-friendly home, but would not pay more 57%)
Not concerned 25%
Concerned would pay more 14%

Utility costs are important.

Importance of low utility costs when buying next home 72%
Knowing the projected utility costs of a home is important 77%
The projected utility costs of a home would influence purchase decision 72%
Would prefer to buy a home from a builder that provides home energy ratings 71%

Buyers are willing to pay.

If a home was $10,000 more expensive and was energy efficient, 84% of respondents said they would buy.

On average, home buyers are willing to pay an additional $7,000 in the up-front price of a home to save $1,000 annually in utility costs (older buyers would pay to test).

The top three window criteria is aligned to energy savings.

More than two-thirds of buyers want:
- ENERGY STAR rated windows
- Double-pane, argon-filled windows
- Triple-pane, argon-filled glass
- Low-E, insulating glass
Ready-made Resources:

Homeowner Checklist:
Ready-made Resources:

Homeowner Guide:
Ready-made Resources:

Philadelphia Incremental Cost Analysis:

Analysis of Energy Savings and Incremental Construction Costs for New Row Houses in Philadelphia, PA under the 2012 IECC

Summary

EECC has conducted a preliminary analysis of the energy savings and incremental construction costs associated with the possible adoption of the 2012 IECC for infill row houses in Philadelphia, PA. This analysis specifically aims to calculate the impact of the latest energy code compared to the city’s current code, the 2009 IECC.

This analysis finds that incremental costs range from $1,845 to $1,887 per new home, depending on wall insulation type, representing an estimated increase in the first-cost of a new home (excluding land) of less than one percent. Estimated energy cost savings range from $194 per year (for R-20 exterior walls) to $396 per year (for R-15 exterior walls). Monthly utility bill savings to the home owner are about twice as much as the additional mortgage payment needed to cover the added first-cost of energy saving features required by the 2012 code.

This cash-flow difference is enough to pay back the buyer’s added down-payment in less than four years (or sooner if the loan allows a down payment below 20%). After that date, the owner continues to save $99 to $135 annually in lower utility bills -- and even more if energy prices increase.

Energy Savings and Construction Cost Methodology

To calculate energy savings and incremental construction costs, this analysis used a “typical” row house to represent new residential development in Philadelphia. This row house is three stories in height, 16 feet wide, and 40 feet in depth with a slab on grade foundation, a flat roof, brick veneer front and rear walls, and wood-frame construction, and shared party walls with neighboring buildings. This description was based on interviews with the city Planning department, building inspection officials, and architects currently practicing in the city. Although some leading builders in Philadelphia are already building to a higher standard than the 2012 IECC, for purposes of this analysis we assume a baseline home that just meets the requirements of the 2009 IECC.

Using this model home as a baseline, we identified the building components that would have to be upgraded from the current 2009 IECC code, according to the prescriptive requirements in the 2012 IECC. These changes included upgrades to front and rear wall insulation, third floor ceiling (roof) insulation, envelope air sealing & testing, an increase from 40 percent to 72 percent compact fluorescent lamps or fixtures, and (although not specifically required by the energy code) upgraded bathroom vent fans to provide additional mechanical ventilation.

Energy savings were modeled by ICF International (ICF), an international energy consulting firm with extensive experience in the use of hourly building energy simulation software to estimate energy performance and energy savings of alternative building codes and design concepts. Although the numbers included in the analysis represent a careful, independent technical judgment by ICF staff, it...
Ready-made Resources:

Incremental Cost Analysis:

Summary

Pennsylvanians buying new single family homes meeting the 2012 International Energy Conservation Code (IECC) will pocket between $7,829 and $19,191 in net energy savings over the 30 year mortgage, according to an analysis of energy savings and incremental construction costs by the Building Codes Assistance Project and IC, International.

The energy savings from the 2012 code are enough to pay back the home buyer’s additional down payment in 5 to 20 months (depending on construction methods and the climate zone where the home is located) after that break even point, owners will continue to pocket between $376 and $650 in estimated profit annually—money that would otherwise go to pay higher utility bills. These savings take into account additional mortgage fees and will be even greater if energy costs rise over the next 30 years.

This report analyzes energy savings and incremental construction costs of new, 1,400 square foot single family homes in Pennsylvania that meet the latest model energy code, the 2012 IECC, compared to the state’s current code, the 2008 IECC. Specifically, this analysis finds an average new home meeting the 2012 IECC will cost between an additional $5,440 and $9,375 per new home over the construction costs of meeting the current energy code. Energy cost savings are estimated at between $431 and $746 per year. Stated differently, homeowners monthly utility bill savings are at least three times more than the additional mortgage payment needed to cover the cost of energy saving features required by the 2012 code.

The majority of the state—represented by climate zone 5 cities including Allentown, Erie, Harrisburg, Pittsburgh, Wilkes-Barre, and Williamsport—has the lowest incremental cost ($1,400 per new home) statewide under the 2012 IECC. Meaning homeowners will break even on energy efficient improvements in no more than nine months and enjoy a profit on their investment of $436 annually.

Energy Savings and Construction Cost Methodology

To calculate energy savings and incremental construction costs, this analysis defined a “typical” single family house to represent new residential development in Pennsylvania. The home modeled is two stories in height, with exterior dimensions of 30 by 40 feet, wood framed walls, and a full basement. Foundation type is based on regional construction practices. The home size modeled is 2,400 square feet—which is also the approximate size of the average new home built nationwide.

For the purposes of this analysis, we assume a baseline home that meets the requirements of the 2009 IECC, which is the state’s current code. Although some leading builders are already meeting or exceeding many elements of the 2012 IECC already, for purposes of this analysis, we assume a baseline home that exactly meets the requirements of the 2009 IECC. Also, although we are on the side of good building practice, in an effort to be conservative, we have included some incremental costs that may not be necessary. For instance, although it is a good building practice for builders to install conventional “hard ducted” return air ducts, some builders may be using seaworm post-nurseries (spun foil or enclosed
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