

Ratcheting Residential Energy Codes up to ENERGY STAR

-- The Long Island Model as an Example of What Can Be Achieved --

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Introduction

The most cost-effective way to improve the energy efficiency of new homes is to raise and then aggressively implement energy codes. Instead of making small, incremental improvements with insulation upgrades or specifying some air sealing details—the standard approach to improving codes—some communities are taking big steps and moving all the way to the ENERGY STAR Homes level, reducing home energy use by 20% or more relative to the International Energy Conservation Code. At the same time, instead of relying on code officials whose primary focus is (and should be) on life/health/safety issues, energy professionals are being engaged to conduct true performance testing that results in homes that *actually* achieve the desired code levels. And all of this can be accomplished at no cost to tax- or rate-payers; only those home buyers who directly benefit from the more efficient homes pay the cost to get there.

The Long Island Story

Some interesting code enhancements are taking place on Long Island. As the New York ENERGY STAR Labeled Homes Program has been ramping up since its introduction on Long Island in 2005, town officials have noticed and have taken some bold steps. Towns that host more than half of Long Island's 4-5,000 new home starts a year have passed ordinances that will require building to New York's version of ENERGY STAR Homes standards in April 2008. (These standards include achieving a qualifying home energy rating, putting in efficient lights and appliances that will result in at least 500 annual kWh savings, installing a mechanical ventilation system and passing a combustion safety test.) At the same time, the rest of the towns on Long Island are considering following suit. And the unusual thing about all of this is that a most unlikely group is leading the charge; the National Association of Home Builders' local affiliate, the Long Island Builders Institute (LIBI).

So why is it that the group that traditionally has been the most vocal and active opposition to raising codes is now leading the way on Long Island? To quote the letter¹ that LIBI's executive vice president, Bob Wieboldt, sent to the Environmental Protection Agency justifying their actions: "...LIBI endorses the adoption of Residential ENERGY STAR Construction Standards across Long Island for the following reasons:

- Proven paybacks for homeowners are too rapid to ignore,

¹ Letter from Long Island Builders Association to Kathleen Hogan, EPA, dated October 20, 2006.

- The building industry must join efforts to reduce fossil fuel dependency,
- Code requirements create a market volume large enough to achieve economy of scale, i.e. lower per unit cost for high SEER equipment, more choices, etc.,
- The market transformation effort of voluntary program was working only slowly,
- There was a significant coalition pushing for it and we are trying to promote uniform standards to avoid 70 separate versions.”

One might imagine that it would be nice for homebuilders to position themselves in a positive light supporting a new initiative instead of playing the role of the opposition. Becoming a supporter of the legislation that was moving ahead with or without homebuilder support, LIBI was able to negotiate a seat at the table which gave them an opportunity to help craft the ordinance language to take into account some of their industry experience and concerns (like a later implementation date than had originally been proposed), which would likely not have been considered had they not become partners with the code sponsors. In addition, LIBI is likely to also expand their member services and opportunities by becoming the local training resource for the Long Island builders and subcontractors to teach them what it takes to build to ENERGY STAR.

Code Support Infrastructure

It might sound good on paper to raise the new homes code to ENERGY STAR, but can this actually be achieved? Why won't Long Island just end up like other municipalities that have “raised their codes” yet found that the energy performance of homes did not really advance? Long Island is taking an approach that has a much greater likelihood of actually achieving the energy savings by moving compliance away from the building code officials' responsibilities and into the marketplace².

On Long Island, a dozen or more nationally-certified Home Energy Rating System (HERS) energy raters will be gearing up to work with builders to achieve the New York ENERGY STAR Labeled Homes standards. They must conduct plan reviews, advise builders on upgrades, train their subcontractors on what they will need to do, provide technical assistance during construction, conduct inspections, carry out blower door and duct blaster performance testing of the home upon completion and then generate the necessary paperwork to document compliance. Further, they will need to work with local Code Enforcement Officials on compliance documentation, as well as how and when they will coordinate on inspections. The local utility, the Long Island Power Authority (LIPA), will provide oversight, tracking and quality assurance monitoring to ensure HERS rater adherence to the national and New York standards. LIPA will continue to support these and other beyond-code efforts through their mandate to transform their markets to become more energy efficient.

While building code officials may still conduct some of the insulation or other energy-related inspections, they will undoubtedly welcome being relieved of any obligations to

² Similar efforts in Frisco, Texas result in energy raters inspecting more than 4,000 new homes annually to ensure compliance with their local code level, ENERGY STAR. This effort has been under way for at least three years and stemmed from excessive air pollution, resulting in increasing home energy codes.

test and document adherence to ENERGY STAR. This is probably just as well given the likelihood that:

1. Code officials will likely not want to take a week off to become trained and certified as energy raters;
2. Towns will not necessarily want to purchase \$2-3,000 worth of performance testing equipment for each rater; and
3. Code officials do not have--nor would they necessarily want to take--the required time on each house to test the air leakage and duct leakage, inspect for all the energy features, and run the computer energy modeling software to generate the reports that document ENERGY STAR compliance.

Focusing on life/health/safety issues in each house is a much higher priority and better use of code officials' time, anyhow.

Additionally, as an electric utility, LIPA justifies its expenses on ENERGY STAR Homes primarily through the electricity that participating homes save. By setting lighting and appliance kWh savings standards and utilizing the HERS rater infrastructure to verify adherence to these standards as part of the ENERGY STAR Homes process, LIPA is able to justify financial support of the ENERGY STAR Labeled Homes program. Code officials would not necessarily be willing to count light fixtures or track appliance model numbers, but HERS raters can charge for this service and support these efforts. However, LIPA will only be able to justify providing financial support to what is mandated by law. After a few years helping foster the code transition, they will need to raise the bar again for their new homes program and provide incentives for even more efficient homes, with the ultimate target being "zero energy homes".

Economic Development

Moving the new home code to ENERGY STAR can be done with very little or no cost to local taxpayers. By utilizing market-based certified HERS energy raters instead of building code officials, government does not have to increase fees or taxes in order to achieve this significant new home savings. Energy rating jobs in the local economy are created and paid for by those who will directly benefit from the reduced energy costs: the home buyers. Raters will provide their rating services to builders who hire them like any other sub-contractor. As with all the costs of building a home, these expenses will be passed along to the person buying the home in the form of the purchase price. Jobs are created and the buyers who will realize a more efficient home foot the bill.

On Long Island, the cost to upgrade the average new home to ENERGY STAR Home levels is estimated to be about \$4,000, which covers the raters fees (generally in the \$500-\$800 range depending on house size and complexity) and the cost for the necessary improvements. However, the savings that will accrue from this investment will more than pay for the upgrades from the first year the house is occupied. Specifically, financing \$4,000 as part of the house price will add about \$300 per year to the mortgage payments³. However, annual energy cost savings of \$1,150 will more than off-set this

³ Assuming 30 year mortgage at 6.25% interest rate.

payment increase, resulting in about \$850 positive cash flow starting in the first year. And, as builders learn how to shift construction cost centers to accommodate incremental changes, the cost will come down. Finally, it is anticipated that additional benefits will accrue to builders, including fewer construction call-backs and liability issues due to better quality control.

Opportunity for Replicability

Long Island is not unique. Ratcheting code up to ENERGY STAR can be done almost anywhere there exists the political will to save energy. Long Island does not have a lot of HERS raters currently, but are using the interim time before the new code takes effect to train and certify raters and educate builders on what it will take to make ENERGY STAR. LIPA is providing a key support role by helping fund some of the outreach, helping fund the training of raters, builders and subs, providing loans and grants for purchasing testing equipment (blower doors, duct blasters, combustion safety equipment, etc.), and ensuring quality assurance of the rating process. In locations where demand-side management (DSM) programs exist, they can provide assistance and support. However, DSM programs don't always have to be in place in order to get started. As with Long Island, all it took was the passing of the ENERGY STAR ordinance for market interest in the energy rating business to flourish. This, too, could easily happen elsewhere.

Conclusion

If we are to start getting serious about the environmental and societal costs of our energy use, cutting new home energy use by 20% or more would be a step in the right direction. Moving local codes to ENERGY STAR levels can be accomplished at no taxpayer expense while boosting the local economy through HERS energy rater job creation. Long Island has proven that this can be done *and* that the local home builders can potentially be an ally in the process if they understand the benefits for their association, members, customers and the environment.