



Habitat of the Chesapeake is Going Green – And Has The Numbers to Prove It

By Rob Inglis, Blogger for One Green Home at a Time

For low- to middle-income families, energy efficiency is about more than just doing the right thing for the Earth. Money saved on heating, cooling, and lighting starts to add up fast, making positive impacts on the economic trajectories of families and the neighborhoods they live in.

Over the past several years, Habitat for Humanity of the Chesapeake has recognized that energy efficiency is key to their mission of providing affordable housing to low-income residents of Baltimore and Annapolis. Since 2009, Habitat has been attempting to bring all of its new homes and rowhouse rehabs up to the level of the EPA's Energy Star standards, which stipulate that a home must be at least 15% more efficient than homes built to the standard residential code. Among other green building techniques, they've been utilizing blue board insulation, taped seams, and spray foam to make sure that houses are properly air-sealed, along with low-e windows, energy-efficient appliances, properly-sized HVAC systems, and programmable thermostats.

Of course, effort is one thing and results are another. What's particularly interesting about Habitat of the Chesapeake's green building efforts is that they've already created significant, measurable savings for the residents of Habitat-built homes. Brandon Little, a student at Duke's Nicholas School of the Environment, attempted to quantify these savings in a master's thesis written in December 2009. First, she obtained gas and electric bill histories from three groups of rowhouses rehabbed by Habitat for Humanity of the Chesapeake between 2004 and 2009. The first group, completed in 2004 and 2005, were "light green," with high-efficiency furnaces, conditioned crawlspaces, increased insulation, and Energy Star appliances. A second group of rowhouse rehabs, completed in 2006 through 2008, were "stepped-up efficiency" homes, with all of the features of the "light green" homes plus low-e windows, sealed ducts and an air-sealed building envelope, and efficient hot-water heaters. A third group of rowhouses, finished in 2008 and 2009, were built to Energy Star standards. They had nearly all of the green features of the other homes, but had even better insulation and air-sealing, programmable thermostats, and HVAC systems that had been "right sized" for the houses through improved modeling.

Thanks to the cooperation of Baltimore Gas and Electricity, Little was also able to obtain electric and gas bill information from nearby, un-renovated rowhouses. Because these rowhouses were of similar age and dimensions to the rowhouses that Habitat had renovated, Little was able to use them as a control group.

Little found that the Habitat-renovated rowhouses used an average of 33% less natural gas than the control group, with the first set of rowhouses using 17% less, the second set using 55% less, and the third set using 29% less. Habitat's rowhouses used an average of 25% less electricity, with the first set using 11% less, the second set using 33% less, and the third set using 25% less. As might be expected, the biggest gas savings came during the winter and the biggest electric bill savings came during the summer air-conditioning season.

These are exciting results that suggest that using green building techniques in rowhouse rehabs can significantly reduce residents' monthly energy costs – and just as importantly, can smooth out energy costs so that families aren't hit by stratospheric gas bills in January and February or high electric bills in the summer months. It will be interesting to see if Habitat for Humanity of the Chesapeake's ongoing efforts to build green can continue these very positive trends.