

Excellence in Affordable Housing

In 2005 the Philadelphia Housing Authority (PHA) responded to spiraling energy costs by developing a plan to reduce energy consumption. PHA currently owns nearly 16,000 units, serves about 84,000 low-income Philadelphia residents, and employs 1,600 people in 340,000 sq ft of office space. The plan approved in September 2005 evaluated PHA's \$26.65 Million current energy consumption and identified \$1 Million savings by 2009.

Institutional Change:

A significant part of this plan is a commitment to build as much new construction to Energy Star Homes standards as is financially possible. To facilitate this goal PHA participated in 2006 in an Energy Star Homes demonstration project for low-income housing. The pilot includes 50 Energy Star town home units at Lucien E. Blackwell (LEB) – Phase III - in West Philadelphia, and 14 town homes in the Ludlow section of North Philadelphia, using modular construction.

Of this group, 10 modular home units have been fully certified as Energy Star Homes as of 11/30/06. An additional 38 units using conventional construction have passed the HERS rating with applications in progress for full certification. The additional twelve units will be complete and are expected to be certified by the end of 2006.

The Energy Coordinating Agency of Philadelphia (ECA) is administering this Energy Star Homes initiative, which has resulted in the first certified Energy Star certified homes built by any public housing authority in Pennsylvania and has the potential to impact all 30,000 new homes built each year in Pennsylvania.

The Energy Star Homes initiative began in August 2005. PHA staff and the entire project team, were trained in Energy Star Homes criteria which has been incorporated into the LEB III design layout and specifications; these homes now contain a number of Energy Star products including: windows, heat pumps, dishwashers, and refrigerators.

PHA has begun implementing a number of energy efficient upgrades to PHA's existing sites including: new specifications on lighting in all common areas to Energy Star compact fluorescent lamps (completed in 2006); and a commitment to replace the existing 1090 five gallon toilets for more efficient 1.6 gallon units (625 completed in 2006). The agency's maintenance staff is also installing energy efficient products as part of their regular business. PHA installed solar photovoltaic (PV) systems on 22 PHA residential properties in 2005, and has been monitoring energy consumption to track savings.

In 2005 PHA began working closely with our primary funding agency, the U.S. Department of Housing and Urban Development (HUD) on innovative ways to incorporate mandated energy efficiencies and reduced energy consumption, while adhering to current allowances for total development costs.

Demonstrated Success:

For the Energy Star Homes pilot project, ECA is completing a full analysis of each unit based on RESNET Home Energy Rating System (HERS) guidelines. This includes plan take-offs, computer modeling, blower door testing, and duct leakage testing. ECA energy analysts worked directly with the PHA development team to specify energy efficient upgrades to the buildings prior to construction. This was followed by on-site inspections to ensure measures were installed correctly. Finally, performance testing is being conducted to ensure that the buildings have tight ductwork and building envelopes.

The Energy Star Homes pilot will reduce energy consumption on average by 15% to 20% creating significant economic and environmental impacts. Each household will save an average of \$524 per year. For the 64 units that PHA is building as part of this pilot the initial economic impact is over \$35,000 per year. The best practices learned from this project will be utilized on PHA upcoming construction projects. In October 2006, the Pennsylvania Department of Environmental Protection announced funding for an Energy Harvest grant that will assist PHA in building more Energy Star homes in another development during 2007 and 2008. In addition, PHA has 1,560 units in the pipeline targeted for completion in the next six years with full potential savings of over \$800,000 per year.

Housing Affordability:

PHA serves a customer base comprising almost exclusively very low and low-income families. For example, 56% of PHA families earn less than \$10,000 a year. Another 28% earn between \$10,000 and \$19,000 a year. PHA's guidelines for rental housing call for us to serve those families from 0 to 50% of area median income.

Education:

In recognition of the fact that occupant behavior is key to energy consumption in any building, PHA has also developed a client education pilot focused on energy reduction. PHA has partnered with PECO Energy and the Pennsylvania Public Utility Commission (PUC), Drexel School of Engineering, and ECA to achieve this goal. Over the last two years seminars were conducted by PECO at PHA sites; PECO also trained PHA staff in energy conservation and procedures for accessing PECO programs. In addition PHA residents participated in a special low-income programs: PUC's 13th Annual Philadelphia "Be UtilityWise Fair" in November 2005; and PHA/PECO sponsored 1st Energy Conservation Fair in 2006.

Environmental Sustainability:

PHA is also interested in environmental sustainability of its housing. ECA has assessed the 50 Energy Star pilot homes in the LEB development against the LEED for Homes standard. This study demonstrated how affordable housing can be built to LEED standards.

Energy Star Partnership:

PHA has submitted an application to become an Energy Star partner. In both internal and external communications, PHA has promoted energy conservation. To promote the Energy Star program PHA wrote an article for the PHA News, in December 2005.