

Energy Star Case Study on the Milford Housing Development Corporation

Organization Background

Milford Housing Development Corporation (MHDC) is a nonprofit affordable housing developer that builds Energy Star homes and apartments and operates a Mutual Self-Help Program where families are grouped together to build each other's homes. MHDC has committed to build Energy Star homes so that families and residents will benefit from lower utility costs and the comfort of knowing that they are conserving resources.

In 2008, MHDC completed their first Energy Star certified rental project, Hurd's Crossing, and served as both the developer and the General Contractor. As of October 2008 all units of Hurd's Crossing were occupied. The project was completed at the end of July and took only a few months to fully lease. Also in 2008, MHDC built and completed 6 Energy Star certified single family homes through their Self-Help Program. MHDC has another 17 homes under construction in the Self-Help Program that will be complete in 2009.

Construction Details

Hurd's Crossing is a senior complex built in Felton, Delaware which consists of 36 garden style apartments. Each apartment is 760 square feet and was constructed with R-19 walls, R-10 perimeter slab insulation (1½ inch foam board), R-30 blown ceiling insulation, and some cathedral ceilings. Hurd's Crossing used U-0.33 windows with a SHGC of 0.30 and Energy Star rated exhaust fans that run continuously for improved indoor air quality. The Energy Star Advanced Lighting Package was used in each unit with CFLs and a Trane 13 SEER air conditioning unit was installed for each apartment.

The Self-Help Program used R-19 walls, R-30 blown ceiling insulation, and conditioned crawl spaces or R-30 batts in crawl space floors for each home. Each single family home is approximately 1,400-1,500 square feet. The Self-Help Program installed exhaust fans in bathrooms and kitchens which were not exhausted to the outdoors nor run continuously as in Hurd's Crossing. The Self-Help Program does not use Energy Star labeled lighting products or the Advanced Lighting Package as was installed in Hurd's Crossing. A Goodman 14 SEER air conditioning unit was installed for each home.

Both Hurd's Crossing and the Self-Help Program used a 50 gallon electric water heater with an energy factor of 0.91 and Energy Star labeled appliances (clothes washers, 18 cubic foot refrigerators, and dishwashers were provided for each unit). Both Hurd's Crossing and the Self-Help Program sealed buildings with Tyvek house wrap, used extra caulking around windows and doors, and used spray foam where drywall meets the top plate to prevent air infiltration from the attic.

Motivating Factors

In 2006, MHDC decided to change their approach to building affordable housing solutions. With increases in utility costs and the trend toward conservation, they embarked on a commitment to reduce utility costs in the homes and apartments they build in order to conserve natural resources. MHDC became an Energy Star Builder and since then, 100% of their new construction projects, including houses and apartments, have been Energy Star certified. This policy was implemented because it just made sense to MHDC based on their goals toward energy conservation. Hurd's Crossing received Low Income Housing Tax Credits, which also require Energy Star certification.

Project Funding

The financing partners were USDA Rural Development and their 515 program for Hurd's Crossing and USDA Rural Development 502 funds for permanent mortgage dollars for the Self-Help Program. Other funds utilized for Hurd's Crossing were Low Income Housing Tax Credits, HOME Funds, and HDF Funds (state run loan program).

Target Populations Served

All participants in the Self-Help Program are working families earning less than 80% of the Area Median Income (AMI) with an emphasis on those making less than 50% of the AMI. Hurd's Crossing was developed for tenants making less than 60% of the AMI.

Costs

Cost impacts were negligible, easily absorbed into the cost of the homes and units, and were acceptable to the lending partners, primarily USDA Rural Development and the Delaware State Housing Authority. The changes had more to do with practice and construction techniques than cost. The Self-Help Program had to teach homeowners how to construct conditioned crawlspaces, and had to perform additional monitoring to ensure that air sealing was done properly. The Self-Help homes had approximately \$700 in added costs due to the addition of foam on the crawl space walls for the conditioned crawl spaces. Window costs also increased due to specifications for low-e windows.

One of MHDC's primary partners, USDA Rural Development, acknowledged efforts of builders exceeding current energy codes and those building to Energy Star standards. The Energy Star Self-Help homes can qualify for an additional 2% on front and back-end ratios to help agencies serve more people by lowering the gap for financing.

Benefits

Tenants greatly benefit from the changes MHDC made to build Energy Star certified homes. The single family Self-Help residences are seeing the benefits by way of lower utility bills. Utility costs have been compared between one of the Self-Help homes built prior to MHDC's conversion to one that is now Energy Star rated. The homes were identical in model and square footage and there was a \$40-60 reduction in monthly utility costs for the Energy Star home.

Total Construction Cost	Added Cost for E*	% Cost Increase	Annual Savings	Payback (yrs)
\$ 95,255	\$ 700	1%	\$ 600	1.2

Other benefits have been seen in the Self-Help Homes such as improved thermal comfort due to the conditioned crawl space. In winter, floors are noticeably not as cold when compared to homes with unconditioned crawlspaces or slab-on-grade homes. There have been no noticeable differences in maintenance of the homes.

MHDC actively markets being an Energy Star Builder. They give certificates to the homeowners so that when they sell their home, they can advertise that their home is Energy Star certified. They have also started placing small bronze plates on each home so that homeowners can proudly acknowledge the fact they are living in an Energy Star home.

Rater Involvement

MHDC received guidance from their HERS Rater in understanding the process of moving from a conventional builder to an Energy Star builder. The rater for the project was very helpful in communicating the necessary adjustments from current practices for MHDC to be an Energy Star builder. The change was minimal and the rater provided MHDC with standards and guidance on construction practices throughout the process.

For the Self-Help Program, the blower door tests were done in groups of five and added a few hours to the total construction process with minimal changes to the overall process. The costs of the ratings were \$350 per house all 6 homes constructed under the Self-Help Program were rated. For Hurd's Crossing, the cost for the ratings were \$250 per building, with a total of 18 ratings done. MHDC received no special funding for the ratings and they were not subsidized by any utility, state, or local organizations.

Training

Tenants received information packets on their new homes, and the only problem documented to date is confusion with thermostat operations. The staff has been able to help tenants understand how to operate their thermostats and the MHDC construction program has held post-construction meetings with tenants to train them on the proper care and maintenance of their new home (provided three months post-occupancy).

Green Initiatives

MHDC has begun a recycling program, and is investigating several green technologies to further their efforts in promoting energy conservation in their buildings. They compressed their work schedule during a portion of 2008 so that staff and the agency could reduce their carbon footprint and consumption of natural resources. They are looking to achieve LEED certification in several projects in the near future.



Contact Information

For more information on Hurd's Crossing, the Self-Help Program, and MHDC, contact Dan VanVorst, Construction Project Manager, or Ted Gardener, Construction Coordinator, at (302)422-8255.