

HABITAT HOMES GO SOLAR

Last year, Milwaukee Habitat for Humanity installed solar water heating systems on 11 new homes.

A unique partnership among energy industry professionals, solar technology manufacturers and a well-respected charity has provided an opportunity for students to learn how to install solar water heating systems, while bringing this progressive technology to homeowners who have a real need to save money on their energy expenses.

This pilot project, linking Milwaukee Habitat for Humanity with Wisconsin's leading utility and energy partners, solar thermal manufacturers, contractors and educators, has brought cost-effective, renewable energy to Milwaukee's inner city. In the process, it has provided an opportunity for contractors to get hands-on experience with the best ways to properly install the systems.

THE COLLABORATION BEGINS

After attending a renewable energy fair in mid-2007, Adam Helt-Baldwin, construction director for Milwaukee Habitat for Humanity, began to wonder how solar energy could be applied to the organization's homes and fit into its motto of "simple, decent, affordable." Habitat organizations in other parts of the United States had brought the technology to their building processes, but it had not been used in Milwaukee Habitat homes before. In the months that followed, Helt-Baldwin linked up with WE Energies, the large public utility serving much of Wisconsin, and they began to piece together how to bring cost-saving solar water heating technology into 11 Habitat homes under construction in Milwaukee's inner city.

"WE Energies took more of an organizational lead, helping to bring sponsors to the project," says Jessica Thibodo-Johnson, WE Energies renewable energy specialist. WE Energies invited manufacturers and other leaders in the solar industry, from companies including Caleffi, Hot Water Products Inc., Johnson Controls and others, to be a part of the project.

Furthering its funding and coordination role, WE Energies sought the collaboration of Focus on Energy, a statewide energy-efficiency and renewable-energy organization. Funded by the Public Service Commission,

Focus on Energy provides information and



Contributions from suppliers made the solar installations possible.

educational programs, and connects customers with contractors. The organization compiles a list of qualified solar water heating installers, some of whom have even been certified by the North American Board of Certified Energy Practitioners.

IDENTIFYING INSTALLERS

"One of the barriers to solar that we discovered was finding trained installers," Thibodo-Johnson says, adding that it's a requirement in Wisconsin that contractors be the lead on an installation before they can be added to Focus on Energy's installer list.

Through the Habitat for Humanity solar water heating installation project, contractors were able to get that needed experience, thereby meeting one of the requirements to be listed with Focus on Energy.

While Wisconsin is one of the states leading in the use of solar energy, the Milwaukee area is not as far along as other areas of the state when it comes to having a large contingent of qualified installers. Local industry professionals recognize the need to build the base of installers from the ground up.

To get the needed training and installation experience, five students took a three-week Advanced Solar Thermal Training course conducted by the Midwest Renewable Energy Association (MREA) in fall 2008, which culminated in each of them leading the installation of a solar water heating system at a Habitat for Humanity house (see the accompanying sidebar). The MREA is a nonprofit group based in north-central Wisconsin that provides training for people interested in pursuing careers in renewable energy.

A number of solar manufacturers and technology compa-

SOLAR STAR

Milwaukee was named one of 25 Solar America Cities in early 2008. Solar America Cities is a partnership between the U.S. Department of Energy and a select group of cities that have committed to accelerating the adoption of solar energy technologies for a cleaner, safer, more reliable energy future.

Jessica Thibodo-Johnson helped bring sponsors to the project.



nies stepped in to provide the components and extras needed for the large-scale venture. Caleffi contributed the controllers, pump stations and expansion tanks. Hot Water Products Inc. donated the solar collectors and storage tanks. Fat Spaniel Technologies, which provides critical monitoring and reporting services for the renewable energy industry, will monitor the homes' solar water heating systems through the Internet and let WE Energies know how the systems are functioning.


HOMEOWNERS GET INVOLVED

The homeowners, already involved in their home construction as is required by Habitat for Humanity, learned about solar water heating technology as well. They were required to attend a two-hour training class at WE Energies, instructed by representatives of MREA, to learn how the systems function. Hands-on training in their homes was another component.

"We wanted to install solar water heating in the Habitat for Humanity homes, but we didn't want the technology to be misunderstood or underused," Thibodo-Johnson says. Helt-Baldwin from Habitat says the homeowners are definitely excited about solar water heating, and there has been great interest in demystifying how it works.

"As soon as the homeowners found out about the energy expense savings and that they didn't have to worry about hail damage, they were really excited about the systems," he says. "They're so simple to operate. In particular, the system controller is great, with the screen giving you all the necessary information about how the system is running right at your fingertips. And when you look at the energy cost savings, these systems are definitely affordable."

WINS ALL AROUND

In the end, the collaboration has been constructive and positive for everyone involved. New solar contractors have received the training they need, increasing the number of installers in southeastern Wisconsin; the industry has partnered to increase the use of solar technology in the area; the homeowners have a shield against increasing energy costs; and more houses are sustained by simple, cost-effective, renewable energy. 

For more product information, go to www.caleffi.us.

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A Learning Opportunity

ANDY DEROCHE, project engineer at Full Spectrum Solar, Madison, WI, had been teaching for the Midwest Renewable Energy Association (MREA) for a few years when the opportunity arose to train students on solar hot water heating installations for Milwaukee Habitat for Humanity homes.

"This was an educational opportunity for individuals working to become professional installers," he says. "There was a simple application process we used to screen for individuals who had taken some basic solar hot water classes and who preferably had a bit of hands-on experience. Two women and three men were accepted into the class. One woman was a journeywoman electrician, and the second had taken some solar training and wanted to start an install business. The three men included a master plumber, a jack-of-all-trades and a firefighter who wanted to start a renewable energy company."

The class included the actual installation of five systems, and each student served as "lead installer" for one system. Each student was able to record the install they led as their own.

"This had two benefits," DeRocher says. "First, it enabled them to become listed as a 'full-service installer' under Wisconsin's subsidy program, Focus on Energy. Second, it qualified as an install for individuals who are building toward North American Board of Certified Energy Practitioners (NABCEP) certification for renewable energy installers. Perhaps more valuable than this, the students said the class provided an opportunity to 1) experience what it's like to install on an everyday basis, 2) gain a new respect for doing work that requires such a wide range of skills from roofing to plumbing and 3) build the confidence to install again, on their own, from the repetitive nature of five installs."

"All five students performed phenomenally," he continues. "The systems were challenging in terms of the pipe run, and we battled some rainy conditions at inconvenient times. Plus we were working around other contractors on site. All of these factors helped the students develop their decision-making and technical skills in real-world conditions at a very steep curve."

DeRocher says it appears likely that more workshops like these will be held in the future. "We took the feedback from the students very seriously and are planning to further improve the class and make it ever-involving." —By Lisa Murton Beets, contributing editor, GMC

For more information about these classes and other types of renewable energy education, visit the MREA Web site at www.the-mrea.org or call 715/592-6595.