

Midwest Models



The University of Minnesota Crookston's Evergreen Hall is the first University of Minnesota LEED registered residence hall. The 32-bedroom apartment with 128 beds was constructed in 2008 and is silver certified. (Photo courtesy of U of M Crookston)



Starting in 2012, every home sold by DynamicHomes will be Energy Star ready with R21 insulation for the walls and R50 insulation for the ceiling. The standard in Minnesota is R19/R44. (Photo by Alan Van Ormer/Prairie Business magazine)



Paul Fick Homes, in Sioux Falls, S.D., is finding that being part of the green building program in the city is paying big dividends in its homebuilding operations. (Photo courtesy of Paul Fick Homes Inc.)

Energy efficient living

Energy efficiency a must in the Midwest climate

Most architects and engineers who design buildings in the region are conscious about energy efficiency using various techniques to assist homeowners and commercial buildings.

"It is important to do this in this region because of the climate we live in," says Mic Buschette, vice president of operations at DynamicHomes, headquartered in Detroit Lakes, Minn.

Starting in 2012, every home sold by DynamicHomes will be Energy Star ready with R21 insulation for the walls and R50 insulation for the ceiling. The standard in Minnesota is R19/R44. The homes are constructed in the production facility in Detroit Lakes and then delivered to the building site. Once there, Energy Star certifies it on site.

Energy Star is a residential program implemented by the U.S. Environmental Protection Agency and the Department of Energy that maintains energy efficiency standards 15 percent higher than that of the International Residential Code.

"We are practically doing it now anyway," Buschette explains. "We have the ability to guarantee people what they are getting and meet Energy Star requirements also."

Phil Stahl, principal architect for Stahl Meland Architects and



Stahl Meland Architects and Builders in Fargo, N.D. continuously work various energy efficient items in construction. (Photo courtesy of Stahl Meland Architects and Builders)

Builders in Fargo, N.D., says architects and engineers have been taught since the 1970s about energy efficiency in buildings. "Good builders build good homes," he states. "It is so ingrained in everything we do. Good green design is part of what we do."

TRANSFORMING A RESIDENT HALL TO LEED

While DynamicHomes is constructing 200 homes a year and Stahl Meland Architects and Builders continues to add energy efficiency in construction of \$400,000 to \$1 million homes, higher education campuses across the region are focusing on Leadership in Energy and Environmental Design (LEED) standards for different facilities.

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Daniel Svedarsky, director, Center for Sustainability at U of M Crookston.

silver certified.

"In my view every building should be built like this up-front because it uses less energy," says Daniel Svedarsky, director, Center for Sustainability on campus. "It has resulted in less energy being used in operations, but we're not sure exactly how much since we are still in the process of getting better monitoring equipment."

LEED consists of a suite of rating systems for the design, construction and operation of high-performance green buildings, homes and neighborhoods. LEED is intended

to provide building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions.

The new dormitory was constructed in part because students at the university decided it was important to take a long-term view of the facility and look at energy efficiency.

More than 99,000 plastic bottles were saved by using Bolyu carpet. All the appliances are Energy Star rated. The counter tops consist of recycled banana peels. All kitchen cabinet hardware in the apartments were salvaged from McCall Hall, refinished and installed. Lighting pendants located in the first floor lounge were salvaged from Kiehle Hall and refurbished for use in Evergreen Hall. Vetrazzo countertops found in the first floor common bathrooms are made from recycled apple juice jugs, root beer, vanilla and medicine bottles.

"The campus needed to do this to show the way and to demonstrate how to live life with less," Svedarsky says. "This is a living example of sustainability and using resources in a way that won't adversely impact future generations."

The university is planning another energy efficient residence hall and is expected to break ground in the spring and be completed in 2013.

Svedarsky says one of the challenges of LEED certified campus facilities is management of construction debris because of the LEED recycling process. Overall, Svedarsky and the campus community hopes to transition to a greener campus.

"It is the right thing to do for the planet, as well as the right thing to do for the pocketbook," he states. "It all boils down to economics, but we have to look at the long-term."

GREEN BUILDING PROGRAM IN SIOUX FALLS

Paul Fick Homes, in Sioux Falls, S. D., is finding that being part of the green building program in the city is paying big dividends in its homebuilding operations.

"Locally, I'm trying to push it more often," states Paul Fick, who is the owner/president of Paul Fick Homes Inc., and also a member of the National Association of Home Builders (NAHB). "Part of it is education to the public and other home builders. I'm convinced that under new building codes we'll soon be required to do it anyway."

Green building is something that the Sioux Falls homebuilder has been studying over the past three years and incorporating in all of his building projects, so it was just a natural fit to become part of the green building program. There is a National Green Standards booklet with six chapters that discusses different aspects of green building. Like LEED

certification, the green building program accumulates points that lead to brown, silver, gold, or emerald certification.

"People around Sioux Falls are becoming more aware of the program and the houses legitimize what they are seeing," Fick notes. "It is a better built home, lasts longer and is more energy efficient. They are going to notice it."

At first, paperwork and education was a challenge, but now Fick believes that the challenges are in the past. "Even though we are improving scores in some areas, the building is still going to be built green."



Paul Fick, owner/president of Paul Fick Homes Inc.

WORKING IN AN ENERGY EFFICIENT ENVIRONMENT

While all construction is not LEED certified or Energy Star certified across the region, architects continuously work various energy efficient items into construction.

For example, Stahl says geothermal is taking off in the area. "Companies are doing a good job of marketing geothermal decreased costs in the long run," he says. "It is expensive to put in geothermal but the owners are going to see savings 15 years out."

In addition, Stahl's buildings will use structural insulated panels with a higher thermal performance than 2x6 insulated stud walls. "Typically, we build structures with insulated panels saving the homeowner 50 to 60 percent in energy costs," he states. "We are always conscious about energy efficiency."

Many architects say that the design portion of the construction of a building is the important point in dealing with energy efficiency. For example, Stahl has fiddled with passive design by using more natural light in his own office space. In addition, anywhere the employees walk they are looking at a window area.

Other examples of his construction projects are routing water to a planting bed and installing radiant floor heat. What is also happening is that codes are catching up to what architects and engineers are doing, meaning it is in their best interest to become more energy efficient in designing projects.

By designing every home as an Energy Star home, DynamicHomes is hoping to increase its \$18 million a year gross revenue and add to its 100 or so employees.

"It is going to help our business going forward," states Paul Nord, chief financial officer. "It gives our dealer network a leg up on our competition."

Along with the increased R-values, DynamicHomes adds vapor barriers to keep air infiltration to a minimum, has installed air-tight ceiling fixtures, and is foaming all ceiling and exterior walls.

In its marketing brochure, DynamicHomes says it can provide a certain amount of savings for its three-bedroom rambler depending on where it's located in the region. For example, in southeastern South Dakota a homeowner has a 52 percent savings, in south central a 74 percent savings, and in northeastern Minnesota a 61 percent savings.

In addition, the construction company is finding that homeowners are seeing a savings of up to 50 percent or more, reducing the chance of mold and pollutants, and reducing air infiltration up to 66 percent. **PB**

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