

Building your business
on energy efficiency



Building Up

May 2007

Eco-Home Demonstrates

a "House as a System"



Specialists installed the rooftop solar array on the Eco-Home this spring. The home's super energy-efficient design, high performance construction, and innovative, hybrid HVAC system will result in an annual heating bill of approximately \$300.

The Eco-Home at Hawk Ridge blends right into its quiet Duluth cul-de-sac. If not for the discreet solar panels and evacuated tubes for solar domestic hot water heating on its roof, you might mistake it for any other attractive, modestly sized home in this growing neighborhood—and not recognize it as the cutting-edge, super energy-efficient model home it is.

Proving that a high performance, energy-efficient house can be beautiful, affordable, and livable was a key goal shared by developer Women in Construction Company, architect Wagner Zaun Architecture, energy consultant Conservation

Technologies, and a broad consortium of public and private partners, including Minnesota Power. The Eco-Home is designed to show members of the construction industry and the general public advanced technologies and building systems at work.

"People can conserve resources and save money by building energy-efficient homes and investing in renewable energy," said Michelle LeBeau, Women in Construction Company. "The construction industry has a huge impact on the environment, and we have a responsibility to build more efficiently and to pass these benefits on to consumers."

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It seems like yesterday. Seven years ago, Minnesota Power celebrated the new millennium by building and showcasing a super high performance home in a cold northern climate—the Millennium Star. This model home featured state-of-the-art, energy- and resource-efficient building technologies in an attractive modern house.

Millennium Star demonstrated the energy- and money-saving advantages of building a "house as a system." It expanded upon a well-insulated, properly ventilated shell by integrating passive solar design, energy-efficient heating and cooling, ENERGY STAR®-qualified appliances and lighting, and renewable energy. The "house as a system" is the core of our enhanced Triple-E/ENERGY STAR® New Construction program.

Now the knowledge we gained is being put to work on a new model home, opening this spring in Duluth. Minnesota Power is a key technical advisor and supporter of the Eco-Home at Hawk Ridge, a project developed by Women in Construction Company with many community partners.

We are proud of our role and hope you'll visit this amazing house during the 2007 Arrowhead Builders Association "Homes on Parade" event, May 12-20. It offers outstanding ideas to build your business on energy efficiency.

DEAN

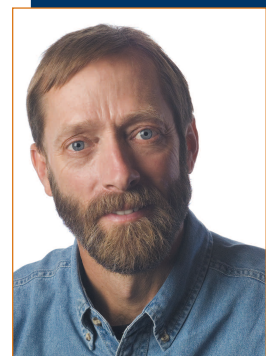
Dean Talbott
Minnesota Power
Project Manager

**Triple E / Energy Star®
New Construction**

Standards have changed

New Triple E standards took effect March 1, 2007. Under the new requirements, homes built to Triple E Tier 2 standards can be certified as ENERGY STAR®.

Visit our website
www.mnpower.com/tripleestar





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Minnesota Power has been advocating energy-efficient home building through the Triple E New Construction program and efficiency rebates since 1990. It developed the Millennium Star, a similar model home, in 2000 to demonstrate and compare high performance, energy-saving building products and techniques. That experience is being applied in the Eco-Home. Technical assistance and financial support from Minnesota Power have helped shape the project.

The Eco-Home is designed as a system, from the way it is oriented on the site to its smaller size, framing and insulation, windows and doors, heating and ventilation systems, and ENERGY STAR®-qualified lighting and appliances. It also features a 2 kW grid-connected solar electric display and evacuated tube solar domestic hot water system that helps heat the house. The total estimated heating cost per year is \$300.

“Climate change and rising fuel prices have created an opportunity to educate developers, builders, community organizations, and consumers about energy-efficient construction,” said Tim Nolan, Minnesota Pollution Control Agency (MPCA)–Sustainable Development Strategic Initiatives. The MPCA helped fund the solar energy system and documentation of the Eco-Home’s innovative design, construction, mechanical systems, and renewable energy components. “This model home will be open to the public for two years, transferring that information.”

To learn more, visit www.womenworking.org.

Eco-Home Energy-Efficient Features

- 2,000 square feet total finished space
- Passive solar design
- Frost-protected slab foundation
- 4" foam insulation under slab (R-20)
- 9.5" double 2X4 stud walls, dense-pack cellulose (R-36)
- Superior air tight construction
- Cellulose attic insulation (R-60)
- Triple-pane glazing with warm edge spacers, argon fill, and low e coatings
- Overall U-value average of .20 for windows
- Solar domestic hot water (evacuated tube system)
- 2 kW grid-connected solar electric array
- Hybrid HVAC and water heating systems that integrate solar, natural gas, and alternative energy sources
- Environmentally preferred materials
- ENERGY STAR®-qualified lighting and appliances

Arrowhead Builders Association 20th Annual “Homes on Parade”

May 12-20, 2007

Weekdays: 5:30-8:00 p.m.

Weekends: 12:00-5:00 p.m.

If you’re thinking about buying, building, or remodeling a home, don’t miss the 20th Annual Arrowhead Builders Association “Homes on Parade.” The nine-day event showcases 29 new housing units to fit all budgets and lifestyles, from modest family homes to executive estates and waterfront condos.

See firsthand the quality construction materials, techniques, and craftsmanship our local builders offer—in homes suited to our cold climate. Pick up a “Homes on Parade” magazine and map at area Holiday Station Stores after May 6, at any of the homes during the event, or look for an insert in the Duluth News Tribune on Thursday, May 10. The parade is free and open to the public.

Featured Incentives

Triple E New Construction

Up to \$2,000 in program rebates, based on specific Triple E standards for thermal integrity, airtight construction, moisture control, ventilation, heating, and inclusion of ENERGY STAR®-qualified lighting and appliances.

For more information about Minnesota Power’s Triple E New Construction program and other residential rebates and savings please visit

www.mnpower.com/foundmoney.

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