Building your business on energy efficiency

Building Up

minnesota power
AN ALLETE COMPANY

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Energy-efficient home construction has come a long way since Minnesota Power launched the first Energy Design Conference & Expo in 1991.

This event has introduced our region's building industry to many advances in air tightness, insulation, ventilation, moisture control, window technology, heating and cooling systems, renewable energy, lighting and appliances. It was exciting to see so many area builders, subcontractors, architects, industry suppliers and homeowners in attendance this year, learning the latest in energy- and resource-efficient design and construction.

Now more than ever, consumers are looking for high performance homes. They are asking questions and demanding solutions that will impact their energy usage, reduce their carbon footprint and increase their home values. Many come to Minnesota Power for plan reviews and help with locating contractors who build to Triple E/ENERGY STAR® standards.

Become an expert in high performance home design and construction, apply that knowledge to your work and certify your homes through the Triple E/ENERGY STAR® program. It is a great way to build your business on energy efficiency.

DEAN

Dean Talbott
Residential
Program Manager

Consumers Demand

High Performance Homes

Dean Talbott (center) of Minnesota Power reviews home construction plans with Jay and Helen Coughlin.

Jay and Helen Coughlin are eager to break ground on their new home in Hermantown, Minn., but they are taking their time in selecting a builder. Among their top criteria are experience in constructing energy-efficient homes and ability to meet Minnesota Power's Triple E/ENERGY STAR® standards.

"This probably is the last house we will build, and we want it done right," said Jay Coughlin, a recent retiree. He and his wife have interviewed several prospects, looking for the perfect fit.

The Coughlins are among a growing number of consumers who take energy efficiency seriously and demand homes that outperform energy codes. They spent months researching materials, comparing foundation and wall systems, evaluating window technologies, weighing heating and cooling options, and developing plans for a high performance, energy-efficient home that will be comfortable, durable and affordable to operate. They also contacted Minnesota Power to review their plans.

"It was important to talk with energy experts who understood the big picture before we finalized our plans," said Helen Coughlin. "Energy efficiency is an investment, and we wanted to know if the payback was reasonable."

"Getting Minnesota Power involved on the front end benefits both homeowners and builders," said Dean Talbott, residential program manager, Minnesota Power. "We can offer more and better services so homes meet energy performance goals and qualify for Triple E/ENERGY STAR® rebates and certification."

The Coughlin's final design includes walls built with insulated concrete forms, triple-pane windows, an energy-efficient furnace with thermal mass storage and ENERGY STAR®-qualified appliances and lighting—all in a beautiful, contemporary home. They are close to hiring a builder.

"We're looking at a 2,700-square-foot house that could cost just $60 per month to heat and cool," Jay Coughlin said. "Being on a fixed income, it is important to keep our energy costs down. If I were a contractor in today's market, energy-efficient construction would be a strategic part of my business. It is the way to go."

2008 Energy Design Conference & Expo

SEMINAR HIGHLIGHT:
The Next Frontier for High Performance Housing

The quality of products and equipment used to build houses continues to improve, but actual energy efficiency, durability and indoor air quality may not be keeping pace. Has the trend toward bigger and more complex homes led to fragile and unacceptable performance?

The answer is "yes," according to Pat Huelman of the University of Minnesota's Cold Climate Housing program. His presentation at the 2008 Energy Design Conference & Expo, *The Next Frontier for High Performance Housing*, challenged attendees to rethink modern home construction approaches.

"Are we using materials and methods that we don't fully understand? Are we investing in risky designs, systems and materials, hoping for perfect execution? Are we counting on perfect homeowner operation and maintenance?" Huelman asked.

He contends many popular home features and construction practices, like complex wall and roof geometries, tuck-under garages and bonus rooms, interior foundation insulation, ductwork outside the thermal envelope, natural draft combustion and moisture reservoir siding are fragile because they depend upon too many variables.

"We need to move toward robust designs, materials and methods that don't require perfect execution and operation to perform successfully," Huelman said. "We can and must do better."

Triple E Trend — Wall Systems

Wall systems have improved dramatically since Minnesota Power launched its Triple E New Home Construction program in 1990. At that time, the most common wall insulation was R19. Today, the minimum standard for Triple E homes is R21 cavity insulation, with most homes achieving R-values of 24 or more.

Trends that enhance wall performance include:

1. Reducing thermal bridging
2. Increasing insulation density
3. Improving air tightness of wall assembly
4. Eliminating water intrusion with exterior weather barriers

Contact Information

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10 Key Components
of High Performance Housing

The University of Minnesota's Cold Climate Housing program introduced the "House as a System" concept more than 20 years ago. This has led the industry to a better understanding of key components of high performance housing and how they interact.

1. Full coverage, optimal thermal insulation
2. Continuous, warm-side air barrier
3. Full-coverage, warm-side vapor retarder
4. Continuous, exterior-side weather barrier
5. Energy-efficient, condensation-resistant windows
6. Effective ground moisture/soil gas control
7. Low toxicity materials, finishes and furnishings
8. Safe, efficient space heating and cooling
9. Managed, balanced mechanical ventilation
10. Efficient, safe appliances and lighting


Scenes from the 18th Annual Energy Design Conference & Expo

Featured Incentive

TRIPLE E/ENERGY STAR® NEW CONSTRUCTION

This residential conservation program offers many benefits to homebuilders and their customers:

- Plan and design reviews
- Site inspections
- Performance testing (blower door and infrared thermography)
- Rebates up to $2,000 (based on specific standards for thermal integrity, airtight construction, moisture control, ventilation, heating, cooling, water heating and inclusion of ENERGY STAR® lighting and appliances); some rebates apply only to electrically heated homes
- Triple E and ENERGY STAR® home certification

Learn more at www.mnpower.com/tripleestar.

"It's like finding money."