Residential New Construction Energy Efficiency Program

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Small changes add up to significant energy savings

Josh and Emily Bellamy's new home in Duluth is the first project to make use of Minnesota Power's Residential New Construction Energy Efficiency Program.

Builder Josh Jipson has a phrase he often shares with customers who want him to construct their new homes. Like the Finnish name of his company, Sisu Builders, it clearly expresses perseverance and determination.

"I tell them a house built to code is the worst house you can legally build from an energy-efficiency standpoint," said Jipson, who is committed to improving the energy performance of northern Wisconsin and Minnesota, one building project at a time. "Everyone can do something to make their house more efficient, and a lot of it is not too expensive."

Jipson's philosophy and experience building sustainable, contemporary homes made him a perfect fit for Josh and Emily Bellamy, a young professional couple looking to build a new home in Duluth in 2021. Their project was the first to utilize Minnesota Power's new Residential New Construction Energy Efficiency Program, which offers homeowners and builders opportunities to qualify for more than $4,000 in incentives based on a menu of energy-saving choices.

Minnesota Power leads the region toward energy-efficient home construction

Minnesota Power has a long history of promoting practices and technologies that enhance the energy efficiency, comfort, health, and durability of the home construction market in and around the utility's service territory. Its leadership in this area dates back to the 1980s when Minnesota began to require investor-owned utilities to spend a portion of their revenues on energy efficiency. Minnesota Power responded by developing effective residential and commercial conservation improvement programs, including Triple E New Construction, which stood for energy Efficiency, Education, and Evaluation.

Triple E set rigorous standards for energy efficiency, air tightness, moisture control, indoor air quality, heating and water heating. It included a detailed construction guide for builders and quickly became the gold standard for energy-efficient homes in the region. But to qualify for Triple E certification and its substantial rebate, participants had to meet all of the program's criteria in every category. It resulted in extremely efficient homes, but success was out of reach for many customers.

In 2021, Minnesota Power revisited that approach and determined it was time for a change.

"Triple E incentivized builders and homeowners to build super-efficient homes with a list of required prescriptive and performance standards that had to be met in order to qualify for a flat rebate amount," said Jon Sullivan, senior programs and services representative, Minnesota Power. "We found that requiring all of those upgrades limited accessibility for a lot of homeowners, so we redesigned the program to provide energy adviser services and rebates that encourage people to make as many energy-efficiency upgrades as possible, based on their budgets and goals."

New program provides more options and greater accessibility

The revamped Residential New Construction Energy Efficiency Program recognizes that each person building a home has different aspirations and resources. Not everyone can build the most efficient home; however, they may want to invest in certain things. The new Minnesota Power program offers rebates for qualifying choices in air sealing, continuous wall insulation, under-slab insulation, attic insulation, efficient windows, cold-climate air source heat pumps, and more.

"Customers and builders are not required to install every upgrade we rebate. Rather they can choose based on their goals and abilities and receive rebates for those choices," Sullivan said. "We hope the rebates will enable more upgrades by offsetting some of the costs."

To help folks along the way, the program offers consulting services with an experienced energy adviser, on-site inspections during construction (including a blower door test for air tightness to identify efficiency improvement opportunities before they are hidden behind drywall), and final site visit inspections with a blower door test and infrared thermal scans (when effective).

Participating builders can use the inspections to identify opportunities for improvement and also apply them to future projects, not only increasing the marketability of their homes but also their customers' long-term satisfaction.

The program is free for Minnesota Power customers as long as the home is heated primarily with electric heat and includes an efficient energy/heat recovery ventilator (ERV/HRV) with a minimum sensible recover efficiency (SRE) of 60 percent.

First participating home project is a success

Josh and Emily Bellamy wanted an energy-efficient home for themselves and their two young sons to reduce their carbon footprint and save money on energy bills. Initially, they considered remodeling their former house in Duluth but found it had many issues common to the city's aging housing stock.

"It was built in 1937, so there were inefficiencies across the board with poor insulation, older windows, and all of the things you would expect to see in an older home," Josh Bellamy said. "At the end of the day, it got to be too pricy, so we decided to sell and build new."

They hired Josh Jipson of Sisu Builders to build their dream house, a contemporary home with a chic Icelandic-inspired

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Josh Jipson, Sisu Builders

During the design phase of the "Scandinavian glam" home, the Bellamys and builder Josh Jipson met with a program authorized energy adviser to help them make the best choices for their kitchen and throughout the home.

design—what they call "Scandinavian glam." It was a good partnership with both the homeowners and contractor committed to energy efficiency.

Josh Bellamy was familiar with many energy-efficient products and building practices from his work as a programmer analyst senior at ALLETE, parent company of Minnesota Power. Prior to construction, he connected with colleagues in Minnesota Power's Conservation Improvement Program (CIP) and learned about the Residential New Construction Energy Efficiency Program that was ready for launch. They decided to test the program on the Bellamys' new home before rolling it out to the general public.

Bellamy and Jipson met with a program authorized energy adviser during the design phase and went over plans for the 4 bedroom, 2½ bath home. In this case, plans met many of the program requirements for rebates—from robust insulation to energy-efficient windows (made by Walsh Windows in Duluth) and mini-split cold-climate ASHP units to heat and cool the home.

"I really wanted to go with a cold-climate ASHP," Josh Bellamy said. "I do a lot of work on Minnesota Power's website, and I've gone to the Energy Design Conference & Expo that Minnesota Power hosts every year, so I've learned about that technology and what it can offer."

Cold-climate ASHPs don't actually produce heat. They extract heat from the outside air and use it to heat the home, even when outside temperatures dip below -10 degrees Fahrenheit. In the summer, they work in reverse, cooling the home by extracting inside heat and moving it outdoors.

"They are still pretty new in our area but are widely used in other parts of the developed world," Jipson said. "The model installed in this house is rated to -15 degrees (F). Even with Minnesota winters, on most days, it can cover heating needs without any backup."

Cold-climate ASHPs are extremely efficient and qualify for one of the highest rebates available in the new program. Inspections and blower door tests conducted midway through construction and at the end of the project confirmed the Bellamys' house far exceeded program requirements for air tightness and thermal integrity.

Energy efficiency is the new standard in home construction

"A lot of people might consider this to be the house of the future, but it's really the house of the present because the technologies exist," Jipson said. "This is going to be our new standard going forward because it is not that much more expensive, especially with the rebates and incentives from Minnesota Power."

"Working with Minnesota Power was very easy," said Emily Bellamy, a speech and language pathologist at North Star Academy in Duluth. "The way Josh (Jipson) designed the home with attention to energy-saving strategies was very helpful. We were already doing almost everything required, so the program really made sense for us."

The Bellamy family moved into their new home in July of 2021. Since then, Minnesota Power has begun to promote the Residential New Construction Energy Efficiency program and is seeing more participation than under its predecessor. People are taking advantage of rebates for incremental upgrades like increasing attic insulation or installing ASHPs, even if they can't build to near passive levels.

"The more we can help influence these types of upgrades in homes that are built, that's a 20-, 30-, 40-year investment in the community," Sullivan said. "The goal is to support future homeowners and builders as they strive to build energy-efficient homes that are comfortable and affordable to live in for the long term."

The Residential New Construction Energy Efficiency Program offers more than $4,000 in incentives based on a menu of energy-saving choices, such as the energy-efficient windows on either side of the fireplace.

For more information about the Residential New Construction Energy Efficiency Program, call 218-355-2843 or email customerprograms@mnpower.com

Minnesota Power's Conservation Improvement Program helps customers identify and complete energy-efficiency upgrades and projects. Minnesota Power is the first utility in Minnesota to deliver 50% renewable energy and envisions delivering 100% carbon-free energy by 2050. Learn more about how Minnesota Power is moving EnergyForward at **mnpower.com/CarbonFreeEnergyVision**.