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The 2400 square foot Milaster home near Lanesboro is off-the-grid, off-the-well, and off-the-furnace, totally reliant on rain water, solar power and wind energy. The house is a testament to good planning and design, as well as a careful eye for detail.

Photo by John Torgrimson

Light and Stone

Lanesboro couple harvest energy for new home

By John Torgrimson

LANESBORO - "Whatever weather we have, we are excited," Christian Milaster said. "When it rains we get our water supply; when the sun is out it will heat our house and water; and when the wind blows, it generates our electricity."

Christian isn't a weather fanatic. He just pays attention to the natural resources around him that can be converted into the energy he and his wife Jennifer need for their new home.

Three minutes from downtown Lanesboro, the Milasters live off-the-grid, off-the-well and off-the-furnace. Their home, with about 2400 square feet of living space spread over one-and-half stories and a basement, is a testament to good planning and design, as well as a careful eye for detail.

Christian and Jennifer, both professionals at Mayo, wanted to build a home where they could live comfortably, yet with a respect for the environment.

While the couple had been interested in renewable energies and sustainable living, it wasn't until they faced expensive prices for conventional style utilities, that they seriously looked at their options.

When the price of bringing electricity to their hilltop site was estimated at $12,000, they researched alternatives, opting for wind generation with battery storage. Their entire electrical system cost $18,000. A 240V propane electrical generator will act as back-up to wind energy until photovoltaic cells can be installed on the south side of the lawn.

When the cost of a well was estimated at $22,000 and when the Milasters learned of possible nitrate pollution in the aquifers in southeast Minnesota, they investigated rain catchment systems. Their design now incorporates their home's roof as a rain catcher and three 2500 gallon cisterns located in the basement as storage.

The house is designed to be an efficient collector of solar energy. Facing true south, sixty percent of the window capacity is targeted at gathering the sun's heat. That energy is stored in the first floor sixteen foot atrium that is tiled with domestic red slate. A masonry stove, which captures and stores the heat of a wood fire and slowly releases it over the course of the day, is another source of heat.

While some people may look at the Milaster's use of alternative energy as an exotic option, Christian and Jennifer see it as reusing ideas from the past.

"None of these ideas are new, Christian said. "I remember my mother telling me about

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PlastiComp coming to Rushford?

By Wanda Hanson

RUSHFORD - Early Tuesday morning, September 19, Steve Bowen, president and CEO of PlastiComp, Paul Ness, CFO, and Eric Wollan, Technical Development Center Manager came to Rushford from Winona to present their company, PlastiComp, to the Rushford EDA. Bowen informed the EDA the company had watched the TRW closing announcements with both "dismay and interest." He explained he had looked at Rushford in the past, considering the current Riverside site in 1989 before ultimately building in Winona.

PlastiComp is outgrowing its building in Winona and needs to expand or find another site. The company is interested in the east TRW building because of the high bay, which is suitable for shipping its products. PlastiComp currently has two production lines and anticipates the building could hold six lines in the future. Timing is important to the business; a decision needs to be made early in the fourth quarter of 2006 with installation of the lines in January and February and production beginning after the first quarter of 2007.

Paul Ness explained PlastiComp as a customer centered business and noted, "Composites are our life blood." The company acknowledges, "Global partnerships are the path to success." He went on to explain the company manufactures LFT, long fiber thermoplastics pellets formed by combining resins and fiber (such as virgin plastic and glass strand), which help make finished products stiffer and tougher. The composite LFT pellets,

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Tuchek to be released from prison

May live in Fillmore County

By John Torgrimson

John Tuchek, the former Lanesboro Police Chief who was convicted of arson in the April 2002 hero-fire that destroyed three buildings in downtown Lanesboro, has completed serving two-thirds of his 72 month prison term. He will complete the balance of his sentence under supervised release.

Shari Burt, an Information Officer with the Minnesota Department of Corrections, confirmed that Tuchek is projected to be released from prison on October 10, 2006. He is presently incarcerated in Faribault.

In an email to the *Journal* about Tuchek's pending release, Burt wrote that Tuchek's "release plan has been approved for placement in Fillmore County, but the exact location is not public information per the Minnesota Data Practices Act."

As a convicted felon, Tuchek must comply with standard conditions of supervised release that include abiding by the terms of his probation and meeting residence requirements.

Tuchek also has special conditions of release, including no contact with certain third parties, who were not identified in

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HOUSE

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her grandparents collecting rain water in cisterns to wash clothes." Jennifer added that windmills were used on farms for many years to pump water and generate small amounts of electricity.

Energy Consumption

When you have to produce all of your own energy, you pay attention to how you consume it.

"We get immediate feedback," Christian said, pointing to a small bank of three devices he calls his "cockpit." One meter displays the wind speed and direction on top of the windmill; a second meter monitors the inverter that converts the battery voltage (DC) into standard household electricity (AC); and a third monitor shows the charge of the battery, the amount of electricity generated, and the amount of electricity being consumed.

Christian Milaster's "cockpit" which measures wind energy, electricity consumption and conversion from DC to AC current.

Christian philosophizes that if car speed were measured in miles-per-gallon we would all immediately start slowing down.

Professionally, Christian is an engineer who is accustomed to solving problems from the standpoint of "how is it being used;" Jennifer is an administrator who is a natural at working with spreadsheets and forecasting. Both consider themselves "techies" who are comfortable with technology and how to use it.

For example, they planned their water consumption needs at 50 to 75 gallons of water per day. This factored in to the size of their roof collection system as well as storage capacity. Christian tracked weather data and concluded that even in a dry year, they would collect, on average, 94 gallons of water per day. It also led him to conclude that their best chance for being water-deficient would come in the month of February. Consequently, an inlet pipe was designed to handle water being hauled in by tanker if needed. This same approach was taken in analyzing and planning for meeting electrical and heat consumption/generation needs.

Each room has its own controllable thermostat so that consumption can be controlled at the point that it is being used. They also use a variety of energy-efficient lighting, including compact fluorescents (which only use a quarter of the energy of regular incandescent light bulbs), motion lights (which turn off when you leave), low wattage LED rope lights (along the ceiling to give a small amount of ambient light to a dark room), and low-energy fixtures for task lighting.

All appliances are low-energy and low-water consuming models. Christian tests the wattage of all appliances with a Kill-A-Watt meter, which measures the amount of energy used. He has also installed timers for outlets with appliances that consume energy even when off (phantom power). Controlling for energy use is essential to the efficient running of an energy sufficient home.

House Design

The Milasters, who have been married six years, spent three years planning the house.

"We couldn't have done it without the Internet," Christian said.

The couple even held a pizza-design party, where they invited 20 friends and colleagues to eat pizza and comment on their house ideas.

While Christian focused much of his attention on the technical systems and building materials, Jennifer planned out much of the interior space. The walls are painted a warm mustard yellow, giving the first floor interior a Mediterranean feel. A semi-open kitchen with custom cabinets sits off the main floor. The staircase to the second floor was custom milled specifically for the room. Upstairs flooring is bamboo and all doors are custom made. The house has four bedrooms and four baths. A two car garage runs the length of the house on the north side, but runs end to end, rather than side to side. This acts as an additional weather barrier between the living space and the outdoors.

The Milasters have been living in their new house for four weeks and fine tuning energy and utility systems as they go. They exude confidence about their new creation: a functional, attractive, energy efficient home requiring low maintenance that will serve them well in the years to come.

Christian and Jennifer Milaster pose with their dog Millie in front of the massive masonry stove in their home.

Open House & Barn Raising

Christian and Jennifer will be hosting an open house on Saturday and Sunday, October 7 & 8, beginning at 9:00 a.m. for the community to learn about their energy efficient and self-sufficient house.

"We want to give others the courage to use renewable energy," Christian said by way of explanation for the open house. The couple have documented their efforts on their website: www.lichtnstein.org - licht means light and stein means stone in German, Christian's mother tongue.

The Milaster's driveway is on Hidden Valley Lane off of Highway 16 in Lanesboro. You can call them at 507-467-3088 or send email to OpenHouse2006@Lichtnstein.org or simply show up. They are also raising a 16 by 24 foot timber frame barn that weekend with anyone who would like to help.

House Facts

- **House specs**. 36 x 38 footprint; 24 x 36 living space; one-and-half level house with full basement, approximately 2400 sf living space ; 11" insulated poured concrete walls from footings to gable and a 4" floor slab on top of basement; 2 foot overhangs; fiber cement lap siding; energy efficient fiberglass dual and triple-pane windows; maintenance-free decking made from 100% recycled milk jugs. Constructed by Lyndon Clark Construction of Plainview; mill work by Matt Sveen of Region Millwork of Elgin; cabinets by Andy Bunge Construction of Lanesboro.
- **Electricity**. Main source wind energy, supplemented by photovoltaic cells (to be installed). Propane generator back-up. Battery storage consists of 12 two volt batteries (each battery weighs 166 lbs.).
- **Water**. Main source rain catchment. 7500 gallon storage. Filtration system with roof washers, settling tank and mechanical screen filters. Back-up intake setup to receive water from a tanker if needed.
- **Heat**. Multiple sources: passive solar design with Masonry Stove wood heat. Solar panels will be installed on the roof that will heat water. Both the masonry stove and solar panels can heat water for in-floor radiant heat, which is zoned to twelve areas of the house.
- **Hot water**. On-demand propane water heater that will be a back-up to solar water heater after solar panels installed.
- **Ventilation**. Second floor bedrooms have window-like openings to allow hot air that rises to circulate through house. All rooms have ceiling fans. Whole house Air-to-Air exchanger.