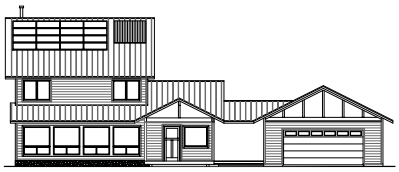
Eco-Home
at Hawk Ridge



A solar model demonstrating energy efficiency, renewable energy and green building

Frequently Asked Questions

- **Why Build an Eco Demonstration Home?**
- **What makes this house an Eco-Home?**
- **How much less energy does a building like this use?**
- **How much more does a building like this cost?**
- **Why is it important to reduce energy consumption and resource use in buildings?**
- **Can I buy this house or get plans to build one like it?**

Why build an Eco Demonstration home?

There were two main goals: first, to build a market rate home in an existing development that fit into the neighborhood but also featured passive solar design, exemplary energy efficiency, renewable energy systems, and sustainable (or "green") principles and materials.

The second goal was to demonstrate to the public that "green" isn't weird and that environmental building methods are by definition good building practice, especially in today's world where cheap fuel is diminishing and global warming is a concern we can no longer afford to ignore.

What makes this house an Eco-Home?

An integrated ecological design approach helped accomplish the stated goals. The solutions were for the most part complementary. Briefly, here's what was done:

1. The design has a familiar "cottage" style and a relatively compact building footprint with flexible spaces. The main floor space plan and window layout give the interior an open, airy feel, with extensive views to the outside and also between living spaces. A bedroom and bath on the main level increase overall accessibility and allow the upstairs to remain unheated if only one or two people live in the house.

2. The building is oriented to maximize passive solar gain and also south roof exposure for the roof-mounted solar systems. The upper roof, with a 10:12 pitch, was designed for ease of direct mount solar technologies that maximized winter solar collection in this region.

3. Passive solar design strategies include open living spaces to the south and utilities to the north. Window and roof overhangs are carefully planned for winter solar gain but summer shade, with a minimum of potential glare and excess heat from the west or east.

4. Maybe most important, the building envelope itself was carefully designed and detailed for maximum thermal performance and durability. The building form, passive solar strategies, and super-insulated envelope create a structure that needs very little added heat to keep warm. The superior thermal envelope and windows work in reverse in summer, helping to keep unwanted heat out. Because the building itself is so efficient, the heating, plumbing and ventilation systems are small and efficient.

5. Finally, materials were selected, inside and out, with preference for highest durability and lowest environmental impact, including associated impacts to human health. Examples are the cellulose insulation used in walls and roof, the long lasting metal roof and fiber cement siding, and interior finishes that don't compromise indoor air quality.

How much less energy does a building like this use?

The result is a building that uses about a third of the energy that a conventionally built home of the same size would use.

How much more does a building like this cost?

The building initially cost about 15-20% more than a house built with more conventional means. The operating costs of the building (meaning monthly heating and electric bills) will be a third or less than such costs for a conventional house. There will be no cooling costs since the house is designed for comfort without air conditioning.

Materials created by Wagner Zaun Architecture and Conservation Technologies under a grant from the Minnesota Pollution Control Agency 2007

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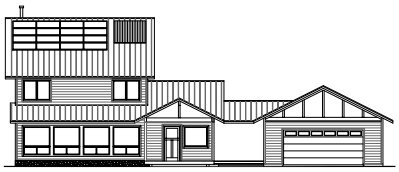

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Frequently Asked Questions (Cont.)

Why is it important to reduce energy consumption and resource use in buildings?

Building construction and operation currently account for close to 50% of all U.S. energy consumption and most of that energy consumption uses fossil fuels. Fossil fuels are a finite resource – natural gas, coal and oil are being depleted at a pace that doesn't match current trends in consumption. In addition, most energy consumption of fossil fuels contributes to global warming, and damages the environment and human health in other ways, with the release of mercury, sulfur, particulates, and other harmful chemicals.

Most building practices of the past 50 years are not sustainable. We have the knowledge and technologies to change standard building practice right now – to make all buildings "Eco-buildings."

Can I buy this house or get plans to build one like it?

Yes, you can buy this house. The demonstration house will be for sale, through the builder/developer Women in Construction Company (WiCC). In addition, WiCC offers a wide array of energy efficient homes that can be purchased directly from the company, or they can work with you to build from a design of your choice. (www.womenworking.org)

The exact plans for the Eco-Home demonstration project are not for sale. The building design and specifications are a response to the specific site and the climate, and might need to be altered to ensure the same performance in another climate or another building site in the same climate. The project architect, Wagner Zaun Architecture (www.wagnerzaun.com), offers a range of services that can include the modification or adaptation of the Eco-Home design to your building site and climate.

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