

Project #42 – Classic



Butterfly on the Prairie

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Participant Information:
Panelworks Plus
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Category: Single Family Homes under 3,000 sq. ft.

Project Information:
Butterfly on the Prairie
7216 Lone Oak Trail North
Grant, MN 55082

Date completed: September 3, 2021 - Certificate of Occupancy

Total cost of project: \$1,000,000.00

Dimensions:
Main floor - 2,877sf
basement(unfinished) - 2,877sf
garage - 1,364sf

Total sq. ft.:
5,754sf on primary mechanical systems
2,877sf garage on secondary gas heater(ceiling hung)

Built by:
Allan Hammel
7216 Lone Oak Trail North
Grant, MN 55082
651.264.9841

Panels Manufactured by: Extreme Panel Technologies



Designed by:
hw² design + architecture, llc.
Andrea Hammel Wollak
9232 68th St North
Grant, MN 55082

Building use:
Single family residence with an emphasis on age in place/low maintenance.

How did SIP construction help you get this job?

There was a desire by the client to have a low/no maintenance high performance building and SIP's is an ideal solution. A complicated/unique form was also easily attainable due to pre-manufactured panels with the kind of precision we received from Extreme Panels.

SIP wall thickness: 8 1/4", EPS Foam
SIP roof thickness: 12 1/4", EPS Foam

The benefits of using SIPs on this project:

SIP's allowed the main exterior shell to go up within a week, which allowed the erection crew to be on-site less and help with the overall budget. SIP's also allowed the complicated shape/angles to be pre-manufactured to great precision which allowed the manufactured steel to fit perfectly in the field. The air tightness and insulation also allowed the mechanical equipment to be the smallest possible thus lowering upfront costs and usage costs.

Innovative design elements:

The unique reverse sloped roof and large overhangs necessitated a significant amount of steel to deal with uplift. This also was used as a design feature as the husband is a mechanical engineer. The precision of SIP's allowed the steel to interface with the panels with remarkable ease.

Blower door test results: pdf attached (CFM @ 50Pa = 451, ACH @ 50Pa = .35)

HVAC system:

Primary system (house): 40,000btu multi-speed furnace, 2 ton variable speed AC, 160cfm air to air ERV, Central dehumidification and humidification, on demand hot water with a recirculation loop, and electric heat mat under the master bath. All air is delivered from ductwork in the floor as a full SIP's roof was used. Due to the small amounts of heating/cooling required duct sizes were minimal.
Secondary system (garage): gas fired unit heater 45,000btu

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Energy-saving materials used in the building envelope:

All windows/doors are Andersen high performance low-e4 glazed. U-Factor of 0.29. Basement walls have continuous 3" rigid insulation with closed cell spray foam at rim joists.

Energy-efficient products or design features:

High Efficiency LED lighting used throughout the home. The house is sited 10 degrees off of due south with the glazing concentrated on that side. With large open spaces and ceiling fans the convective loops created do a great job of bringing warm air through in the winter, and the overhangs help shade in the summer.

Additional sustainable materials or design features:

The exterior finish is divided between a large format masonry product and thermally treated wood product in a rainscreen system. Extensive use of geocell ground grids on the hills around the home allow for more low-mow grass and less paving.

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