

Birch Haven Residence  
 Middleville, MI  
**PROJECT PROFILE**

**LEED 2008**  
**LEED Platinum**  
 March, 2017

The stunning [Birch Haven](#) residence was designed by LEED architect Michael Carlson of Carlson Studio Architecture and built in West Michigan by Homes by True North. Designed for accessibility, the home has a zerostep main floor and may other universal design features. Recycled content and water efficient features are used throughout.



LEED encourages and rewards the use of SIP panel construction in the homes standards. SIPs create a well-insulated and tightly constructed building envelope, speed up construction and reduce waste. The home uses passive design features and a roof mounted solar PV system with space for more PV panels. The key passive design feature is to rotate the main roof plan 20 degrees to the south, so that the main roof is only 15 degrees from due south facing. This passive feature helps to block the summer sun, but lets the winter sun penetrate deep into the home for passive solar heat gain. Energy Exceptional Energy Performance- Using a combination of great windows, high insulation levels and 7.2 KW of solar power.

A Heat Recovery Systems (HRV) installed capture waste energy and ensure constant fresh air ventilation. One unique feature included a Non-concrete based vegetative / permeable driveway for boat input. Interior must also be comfortable and beautiful. The design is clean, dynamic and modern leaning, but warm and comfortable at the same time. Most of the residence has bamboo wood floors with no carpet installed.

T&G pine ceilings, exposed glulam beams, some exposed steel, stainless steel and aircraft cable railing systems, and travertine finished custom showers with frameless glass enclosures. They salvaged the knotty cedar wood plank interior for the original 1950's era cottage that was demolished, and are re-using the material inside the new residence. The spirit of the original cottage lives on for future generations to enjoy and to remember the history of the site.

## LEED Facts

### Birch Haven Residence

Location.....Middleville, MI  
 Rating System.....HOMES 2008  
 Certification Achieved.....Platinum  
 Points Achieved.....102/136

Location & Linkages.....5/10  
 Sustainable Sites.....16/22  
 Water Efficiency.....9/15  
 Energy and Atmosphere.....31.5/38  
 Materials and Resources.....10.5/16  
 Indoor Environmental Quality.....19/21  
 Innovation and Design.....10/11

## PROJECT METRICS

**74%** reduction in estimated energy usage compared to code – HERS 26

**26%** of the construction waste was diverted from landfill.

### Project Team Members

Architect: Michael Carlson, Carlson Studio Architecture  
 Builder: Rich Bloem, Home By True North  
 Landscape: Michael Bruggink, Fenview Design  
 HVAC/Solar: Greg Mulder – Net Zero Energy Advisors  
 Rater: Jamison Lenz, Catalyst Partners  
 Provider: GreenHome Institute