Builders Challenge

Recognizing Energy Leadership in Homebuilding

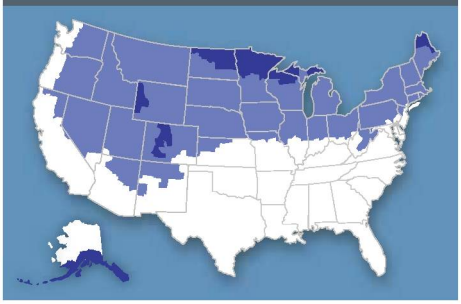
High Performance Builder Spotlight

Treasure Homes Inc

"The Gem," Burns Harbor, Indiana

Treasure Homes' first house qualified for DOE's Builders Challenge and served as an educational opportunity for Treasure Homes and for local builders, realtors, and homebuyers.

COLD CLIMATE



BUILDER PROFILE

Builder: Treasure Homes Inc.
Wheatfield, IN
Sarah Oudman, President
(219) 405-1809
www.treasurehomesinc.com

Founded: 2009

Where: Burns Harbor, IN

Featured Home: "The Gem" demonstration home, 2,850 sq. ft., 1.5 stories plus basement, $249,950

Building AMERICA
U.S. Department of Energy

Family-run Treasure Homes, Inc., achieved a HERS rating of 46 without PV on its prototype "Gem" home, located on the blustery shores of Lake Michigan in northern Indiana, thanks in part to training received from a Building America partner, the National Association of Home Builders Research Center.

Two members of the Oudman family, who were already experienced home builders, took NAHB classes and became Certified Green Professionals. They shared what they learned, using the "Gem" house as an educational tool. A "Work Boots Tour" brought in local builders and real estate professionals during construction. The "Gem" was showcased at the local builders association's "Green Homes on Parade." Complete on the exterior, the interior was finished only to the pre-drywall stage, enabling people to see the home's high-performance components.

"People interested in energy efficiency were in awe," says Sarah Oudman, president of Treasure Homes. "People who only intended to spend a few minutes inside ended up spending a long time, asking lots of questions about how things work."

"Education is key," Mrs. Oudman says. "Consumers will not buy what they do not value, and they do not value what they do not understand. So our marketing efforts have been educationally focused."

The 1.5-story home, with 3 bedrooms and 2.5 bathrooms, achieved its HERS rating of 46 with a tight, well-insulated shell. Two inches (R-10) of rigid foam insulation separate the ground from the concrete basement slab. The basement walls are built with insulated concrete forms and the outside of the foundation walls is covered with a waterproofing membrane.

The treated bottom plate is sealed to the foundation wall with spray foam. SIPs wall panels are gasketed to the wall nailer as well.

Above-grade walls are 4-inch (R-24) structural insulated panels (SIPs) with tongue-and-groove joints. Rim joists are insulated with 8 inches (R-40) of open-cell spray foam. Low-expanding spray foam seals gaps around window and door frames, and closed-cell foam seals the outlets and junction boxes. House wrap and fiber cement lapped siding complete the exterior walls. The

low-emissivity vinyl-framed windows are U-0.28 and SHGC 0.25. Blower door tests showed air leakage of 343 cubic feet per minute (cfm) and 0.8 air changes per hour at 50 Pascals.

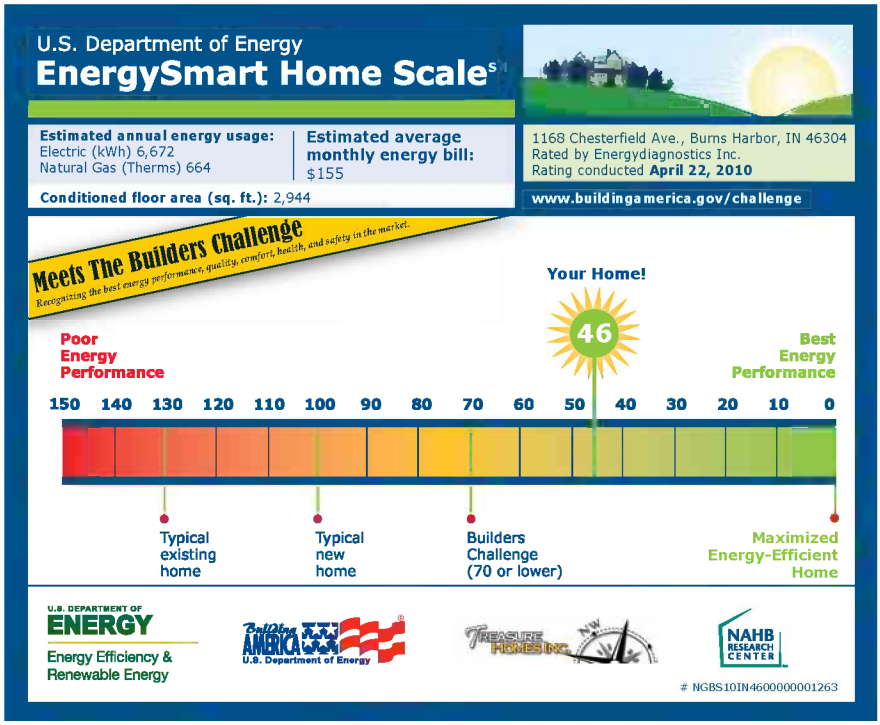
Seven inches of R-30+ expanding open-cell foam was sprayed on the underside of the roof deck, creating an air-sealed, insulated attic space for the HVAC ducts, which are mastic sealed. Duct leakage to the outside is 0 cfm at 50 Pascals.

The multi-zoned HVAC system consists of a 95 AFUE natural gas furnace and a 17 SEER electric air conditioner. The builder uses a fresh air intake with a timer control to draw in fresh air through a 16 MERV filter, and a passive exhaust system removes stale air.

Other energy-efficiency features include a 0.93 EF natural gas tankless water heater, a manifold water delivery system, and an ENERGY STAR dishwasher. A tubular skylight and 67 CFLs provide light.

U.S. Department of Energy Builders Challenge

DOE seeks to give every consumer the opportunity to buy a cost-neutral, net-zero energy home anywhere in the U.S. by 2030. Homes that qualify for this Builders Challenge must achieve a 70 or less on the EnergySmart Home Scale (E-Scale) which is based on the Home Energy Rating System (HERS) index (www.natresnet.org). The E-Scale allows homebuyers to understand—at a glance—how the energy performance of a particular home compares with others.



To learn more about the Builders Challenge and find tools to help market your homes, visit www.buildingamerica.gov/challenge.

Insulation beneath the concrete slab and insulated concrete forms for the lower walls contribute to a tight thermal envelope for this home near the shores of Lake Michigan. Extensive air sealing creates a comfortable, energy-efficient haven in a climate with cold, windy winters and hot, humid summers.

Key Features

- **HERS Score:** 46
- **Blower Door Test:** 343 cfm at 50 Pascals (0.8 ACH 50 Pascals)
- **Foundation:** R-10 2-inch foam under slab
- **Walls:** R-32 ICF basement walls, R-24, SIP above-grade walls
- **Roof Insulation:** 7-inch, R-30 open cell spray foam under roof deck
- **Heating:** 95 AFUE gas furnace in basement
- **Cooling:** 17 SEER electric air conditioner
- **Ventilation:** Whole house mechanical balanced system in basement with MERV 16 filter
- **Duct Leakage:** 0 cfm at 25 Pascals, ducts in cond. space
- **Windows:** Low-E, vinyl-framed ENERGY STAR windows, U=0.28, SHGC=0.25
- **Water Heating:** 0.93-EF gas tankless
- **Appliances:** ENERGY STAR dishwasher
- **Lighting:** 67 CFLs, 1 tubular skylight

House Awards and Certifications:
DOE Builders Challenge
ENERGY STAR
NAHB Green Building Standard

U.S. DEPARTMENT OF ENERGY
Energy Efficiency & Renewable Energy

EERE Information Center
1-877-EERE-INF (1-877-337-3463)
www.eere.energy.gov/informationcenter

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For information on **Building America** visit **www.buildingamerica.gov**. The website contains expanded case studies, technical reports, and best practices guides.