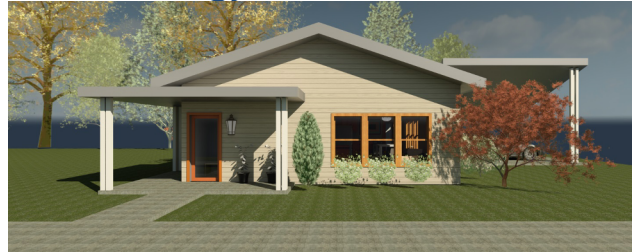




Redbird Red

Habitat for Humanity Net Zero Energy Home



Project Summary

The Illinois State University team incorporated Habitat for Humanity's goals and constraints during the design process, as well as designing it to be zero barrier and ADA compliant.

Throughout the process the team utilized the existing plan to have a direct comparison to the typical home Habitat for Humanity builds. In addition, the team designed the exterior of the home to compliment the surrounding architecture as well as designing it for universal locations.

Relevance of Project to the Goals of the Competition

The home seeks to go along with the town of Normal's sustainability conscious nature and to achieve the greatest value for construction versus the lowest financially feasible energy consumption. The home provides an ADA approved one story home for aging in place and wounded warriors. Through the use of cutting edge technology and construction methods found in the DOE Videos, the home offers green living with long lasting durability.

Design Strategy and Key Points

The foundation on the proposed net zero home is modified from the existing foundation on a typical Habitat for Humanity home, but the slab on grade remains the same. ICF's are used for the foundation walls to utilize the benefits such as R- Value, simply installation and thermal breaks. Along with an advanced framing technique to provide an enclosure for the home, pre-engineered energy heel trusses are used in the ceiling to further improve the insulation value. In addition to intricate insulation to add to our net zero energy, the home is designed for ease of maintenance and changes over time.

Project Data

- Location: Normal, Illinois
- Climate: CZ 5A
- Square Footage: 1,120ft²
- Three Bedroom, One Bathroom, Single Story Detached
- HERS Index Score (without onsite generation 51): -3
- Estimated Monthly and Annual Energy Cost: +3.38, +\$40.56
- Estimated Monthly Energy Cost: +\$3.38

Technical Specifications

- Wall R-Value = R-29
- Foundation R-Value= R-30
- Roof Insulation R-Value = R-60
- Window U-Value = .27, .33 SHGC
- HVAC specifications = E