

Richardsville Elementary - NET ZERO

Bowling Green, Kentucky



Net Zero Schools – The Future of Sustainable Building

September 2010 marked the grand opening for Richardsville Elementary, the **First Net-Zero Insulated Concrete Form School in the U.S.** Warren County School district, the school board responsible for Richardsville, has been building energy efficient schools that are being recognized for their innovation across the United States. Designed by Sherman Carter Barnhart and located in Bowling Green, Kentucky, Richardsville was created to be a two-story, energy efficient structure that incorporated renewable materials and NUDURA insulated concrete forms for a



superior building envelope. The design and north-south site orientation allowed the school to maximize the use of renewable energy resources, such as wind and solar, so that it can produce more energy than it consumes.

It's a popular topic when it comes to a structure's carbon footprint, its effect on human health, and its high-energy costs. Research provides evidence that schools throughout North America are moving toward greener and healthier building solutions and the demand for energy performance has become increasingly more important.

At 72,285 sq. ft. and generating its own energy, Richardsville is the next generation of educational building standards and a valuable tool to educate students on energy and water conservation as well as the value of recycling.



The concerns associated with designing a net-zero structure are usually cost, time, and the best eco-friendly building solution available. In order to meet this list of demands the Warren County School Board decided to use NUDURA, an industry-leading manufacturer in ICF construction, to maximize the structure's energy performance and minimize energy costs. The result was a high-performance building envelope using NUDURA forms for the interior and exterior walls.

NUDURA provides a highly insulated concrete wall made up of EPS foam connected by a web that is reinforced with steel and filled with concrete. The walls come in a variety of sizes ranging from 4" to 12" concrete cores and provide performance values as high as R-50.

PROJECT DETAILS

Distributor:

Holdfast Technologies

Architect:

Sherman-Carter-Barnhart

Engineer:

CMTA Engineering Consultants

Contractor:

R.G.Anderson Company Inc.

Location: 1775 Richardsville Road, Bowling Green, Kentucky 42101

Cost: \$14 Million

Size: 72,285 sq. ft - Two-Storey

Other ICF Uses: Interior walls, fire walls, shear walls, load bearing walls.



Energy Savings - A Comparison

The average U.S. Elementary School's utility bill for one month is approx. \$7000. Richardsville generated enough solar energy (in 8 sunny days in the course of a month) that they covered over \$4300 in utility charges and received a credit of \$300 for selling the energy back to the electric company.

