

got zero?

RICHARDSVILLE
ELEMENTARY,
COMING FALL 2010

Richardsville Elementary



Warren County, KY

Richardsville Elementary slated to be first Net Zero School in the Nation

But what exactly does it mean to be "Net Zero?"

Well, to put it simply, it means Richardsville will operate without energy costs.

To do this, the building creates as much clean energy with solar panels as it consumes in natural energy.

Achieving Net Zero

One of the keys to Richardsville achieving Net Zero was its intricate building design. While the building itself is a typical 550-student school with classrooms, gymnasium, cafeteria and other areas, most features about it are very unique. For instance, the building is constructed of insulated concrete blocks that help seal in temperature control three times better than most

building materials. Everything from the heating and cooling system to the lights work with sensors to determine how many people are in a room, if more light is needed and if a room could use a little more or less heat.

Active Daylighting Strategies

One of the most unique features of the building is its active daylighting strategies. The entire building was designed for the classrooms to face the sun so that devices like solar tubes – giant magnifying tubes placed in the ceilings of classrooms – can pipe direct sunlight into the classes instead of depending on artificial light.

Ground floor classrooms without solar tube exposure have a unique row of windows near the ceiling. Outside those windows are light trays that actually bounce sunlight through the

window and onto the classroom ceiling. With carefully selected paint choices, the classrooms will reflect so much natural light that added artificial light will rarely be needed.

The roof of the school, as well as a parking shade structure, will both be lined with solar panels that are expected to produce more clean energy than the school will ever consume.

Zero Facts

Richardsville cost	\$12.1 mill
Total Square Footage	77,466
Energy use per square foot	18 kBtus
National average usage	73 kBtus

Everything We Touch Turns to Green



2010

In 2009, Warren County Public Schools was awarded the Andromeda Award from the Alliance to Save Energy. The award follows more than a decade of efforts to reduce consumption. Besides implementing an energy conservation program that has avoided more than \$5 million in energy costs, the district has continued to improve building designs with each new project. Most schools operate on 73 kBtus of energy per square foot. The average Warren County school uses 40. In 2007, it built Plano Elementary to use only 28. Continuing to master energy conservation, it used Plano's design to create Richardsville – operating at only 18 kBtus per square foot. Nearly all 21 Warren County Schools meet Energy Star certification. They toot their horns with four hybrid buses.

Richardsville was designed as a teaching tool for students to learn how it conserves and produces energy



Skinner-Carter-Barnhart

School Gets A+ on Green Report Card

While even the drinking fountains have been selected to operate from solar-energy, the entire school is designed to be a teaching element for students.

One of the most attractive features of the building is its main lobby, equipped with flat screen TVs that show the real-time energy production of the solar panels. Students can take this information and apply it to nearly every subject, including math, social studies, science and reading.

A geothermal hallway will showcase exposed geothermal pipes with temperature monitors available for students to take readings while the recycling hallway provides a number of bins for all recyclable products to allow students to monitor the quantities collected as they relate themselves to global impact.

There will even be a weather station available at the custom outdoor classroom at

Richardsville that gathers information 24/7 and enables students and teachers to evaluate the building's performance throughout Kentucky's four distinct seasons.

Everything down to the **bamboo-wood flooring** in the gymnasium floor was carefully selected to show our kids how environmentally thoughtful the district can be by choosing even wood sources that are easier to replenish than standard oak or maple.

Cooking up energy savings

The kitchen itself has been designed to eliminate unnecessary energy waste

It features a **combi-oven**, which uses steam instead of grease to cook everything from French fries to chicken patties and vegetables.

The change to steam eliminates the need of hoods that are necessary to collect grease vapors and the associated heat, which can surge the building's cooling costs.

A Place to Learn

Richardsville will boast several "energy-themed" learning zones

1. Green Screen Hall

From the moment students enter the school, they are met with Green Screens showing them how much energy is being produced by solar panels in real time.

2. Environment theme hallways

Every hallway will have a theme, such as recycling, water and solar, with hands-on learning tools for students to learn how to be better global citizens.

3. Outdoor classroom

A covered outdoor classroom is equipped with a weather station that allows Richardsville students to monitor wind, temperatures and humidity while studying Kentucky's four diverse seasons.

4. Unique flooring

Most of the floors in Richardsville are made of a soy-based stained concrete that stays shiny without the need for buffing, like tile. The gymnasium floor will be made from bamboo, a more renewable source than other woods.

5. Efficient Kitchen Design

Students will learn about healthy eating and appliances as the kitchen uses only Energy Star rated equipment including combi-ovens that cook with steam rather than fryers and tilting skillets. This reduces unnecessary heat and incurred cooling costs.

WARREN COUNTY PUBLIC
SCHOOLS
 WHERE CHILDREN PREPARE FOR SUCCESS

