CASE STUDY

Concrete Thinking for a sustainable world

Clearview School Gets an A+ with Concrete

Insulating concrete forms build high-performance, sustainable facility

At first glance, Clearview Elementary School in Hanover, Penn., might seem pretty typical. There are students, teachers, classrooms and corridors. But this is no ordinary school. Built with concrete, it's designed to consume one-third less energy than a conventional structure, providing substantial cost savings that can be redirected for educational purposes. Open to students in January 2003, the school is Leadership in Energy and Environmental Design (LEED) Gold certified.

Clearview Elementary was built with insulating concrete forms (ICFs). Made from foam and stacked in the shape of the structure, ICFs are filled with reinforced concrete to create a solid wall with excellent thermal mass and structural strength. ICF structures offer energy efficiency, durability and design flexibility at a competitive cost with traditional construction techniques.

Beyond the structural system, the school is designed with features that enhance the learning experience, incorporating daylight and improved ventilation, as well as super-efficient ground source heat pumps and radiant floor heating.

"We set out for Clearview to be a place where students thrive and parents and taxpayers get the most for their money, both up front and over the life of the building," says John Boecker, a LEED-accredited architect with L. Robert Kimball & Associates, who acted as lead architect on the project. Boecker says ICFs were "a powerful component for garnering these results."

An innovative concrete mix design was crucial in achieving LEED Gold certification, according to Scot Horst, project consultant and principal of 7group. The concrete mixes incorporated a high slag cement content, as much as 60 percent in the ICFs. Horst pushed for creation of an Innovation Credit to assist in LEED certification, paving the way for other project designers to earn points toward certification for innovative use of slag cement in concrete mixes.

On the Clearview project, approximately 40 percent of the building material was manufactured locally, and about 75 percent (by cost) was manufactured with a high recycled content. These benefits, partnered with the energy efficiency and durability of the concrete structure, will save the school an estimated $34,000 annually on energy costs. This is a tangible value no parent can argue with, says Dana Yealy, Clearview PTO president: "It's encouraging to know that the money saved on utilities can go towards other important resources."

Project Team:
Owner: Hanover, Pennsylvania School District
Architect and Engineer: L. Robert Kimball & Associates
Ready-Mixed Concrete Producer: Hanover Concrete
Insulating Concrete Form Supplier: Eco-Block
Green Consultant: 7group