Project Profile

WILLOW CREEK Elementary School

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TOTAL PRECAST SOLUTION



Owner

Fleetwood Area School District Fleetwood, Pennsylvania

PCI-Certified Precast Concrete Producer High Concrete Group Denver, PA

Architect AEM Architects, Inc. Reading, PA

Engineer of Record Multani Associates Wyomissing, PA

General Contractor Wohlsen Construction Lancaster, PA

Project Cost \$22.1 million

Project Size 79,000 ft² Insulated wWalls 31.000 ft² Solid Walls





Above: Willow Creek Elementary School, Fleetwood, PA finished building Left: Detail aesthetic of cut stone-like reveals on buff-pigmented insulated precast wall stair tower



Key Project Attributes

- Three inches of rigid extruded polystyrene (XPS) foam sandwiched between the 3" exterior wythe and 4" interior wythe provide an R-value of 15.
- The exterior loadbearing precast walls are fully structurally composite, meaning that the interior and exterior wythes act together to resist gravity, lateral and seismic forces.
- Back surfaces of the insulated panels were trowel-finished "... with a smoothness that almost looks like gypsum board," says Istenes. The walls were painted with off-white block paint and are the exposed surfaces of the classrooms and halls.

Owners saw better value in precast

The two-story, 108,000 ft² Willow Creek Elementary School was built in response to increased enrollments at the elementary school level. The school opened for the 2009-2010 academic year, and features 44 classrooms, a cafeteria, gymnasium, library, computer labs, art and music classrooms for an estimated 700 students.

The \$22.1 million school was designed by AEM Architects, Inc., which also designed the nearby Tilden Elementary Center in Hamburg, PA with CarbonCast[™] High Performance Insulated Wall Panels. The Tilden school was completed in 2007.

Willow Creek was built in proximity to other Fleetwood facilities, and takes the place of an older block and brick structure. According to AEM project architect Justin H. Istenes, the insulated wall panels were chosen for the school because "precast is built to last. The owners toured High's Denver plant and the Tilden school while it was under construction, and were satisfied they were getting better value with precast insulated wall panels."

Thermal efficiency key to performance

Three inches of rigid extruded polystyrene (XPS) foam sandwiched between the 3" exterior wythe and 4" interior wythe provide an R-value of 15. The wythes are connected by low thermal conductivity C-GRID[™] shear trusses. "R-value isn't a perfect indication of energy efficiency because of thermal bridging," says project architect lstenes. "These concrete mass walls provide continuous insulation because the wythe connectors minimize potential energy loss."

Look of cut stone accents, amplifies masonry facade

The design of the school is simple in nature providing an academic schoolhouse feel with a positive sophistication. The main visual field is made up of masonry-clad insulated precast walls with strong buff-colored lintels and sills framing the windows and a buff square medallion centered over each window. The masonry is a reddishgray thin brick from Glen-Gery in a running bond pattern with rake joints.

The facade is broken up by buff-pigmented insulated precast wall stair towers and accents on the library, large group instruction and office areas. Cut stone-like reveals on the panel faces, 22" on center vertically and horizontally, bring a classic element that creates contrast while conveying substance. Finish is a light sandblast.

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– Justin H. Istenes, Project Architect, AEM Architects, Inc.

