Precast concrete excels in school renovations

In the summer of 2007, the Blue Valley School District in Stanley, Kans., embarked on a crucial renovation project for the Blue Valley Academy high school campus.

The building's masonry facade, constructed in the 1970s, was beginning to deteriorate as the brick started to crumble. With students enrolled in school and no other location to hold classes, the district took on the ambitious challenge of updating the building without significantly disrupting staff and student schedules.

As plans for Blue Valley's renovations began, the design team recognized the need for a thin but strong wall material that could be erected easily and efficiently, says Mark Franzen, president of HTK Architects in Kansas City, Mo. HTK chose IPC Inc. precast concrete for its durability and ease of installation, among other attributes.

"We got the strength we needed in a thin wall section compared to masonry," Franzen says.

The project was broken into three phases. The majority of site work took place during the summers of 2007 and 2008 when students were out of school. Precast concrete installation crews followed directly behind the wall demolition and clean-up crews to place the panels so that they would meet the aggressive schedule and avoid major disruption to administrative staff.

IPC provided 22,604 ft^2 (2100 m^2) of wall panel with architectural finish. IPC produced the 178 total wall panels for the job out of its PCI-certified architectural production facility in West Burlington, Iowa.

IPC Inc. provided precast concrete for the renovation of the Blue Valley Academy in Stanley, Kans. Courtesy of IPC Inc.

The walls consist of a premium white portland cement mix with a sandblast finish and inset thin brick. Insulation was also integrated into the precast concrete sandwich panel, creating a comprehensive wall system.

In his experience, Franzen says, many school districts don't give exterior maintenance the proper attention, making durable materials a necessity. "Precast greatly reduces the amount of maintenance needed on the building," he says.

In addition, the vast variety of exterior finishes that precast concrete offers often upgrades schools to a newer, more modern appearance.

Dirk McClure, regional sales manager for IPC, went on to explain how precast concrete provides other value to schools. "In the past, IPC has provided precast for schools wanting their auditoriums to double as community tornado shelters," McClure says.

In addition, precast concrete is naturally fire resistant. "Other materials must be treated to gain fire resistance," McClure says. "In the event of a fire, precast absorbs heat, isolates the fire, and offers structural integrity. As a noncombustible building material, precast itself will never burn."

Franzen says, "The quality and aesthetics of each panel delivered to the site were superbly executed. It was a real joy for me to have the school district admire the installation and marvel at the joint alignment and detailing."

—Source: IPC Inc.

Precast concrete fits builder's vision

Precast concrete from Nitterhouse Concrete Products Inc. helped the builder achieve 9 ft (2.7 m) ceilings and a cantilevered pool in this Maryland home. Courtesy of Nitterhouse Concrete Products Inc.

Nitterhouse Concrete Products Inc. provided the precast concrete that was used for many of the amenities in this luxury home in Maryland. Courtesy of Nitterhouse Concrete Products Inc.

Bloom Management Corp. owner Lewie Bloom was faced with a challenge when developing plans for his new dream home in the Bethesda, Md., area.

Local officials had reduced height restrictions from 35 ft to 30 ft (10.7 m to 9.1 m) to keep home sizes under control and were imposing new building restrictions that made it difficult for builders to achieve ceiling heights in new construction any higher than 8 ft (2.4 m) when using the typical 16-in.-deep (406 mm) wood beams for the flooring.

These restrictions presented a challenge when Bloom's project architect, Robert M. Gurney, used high ceilings in his design of the Bloom residence to communicate a contemporary, open, airy space.

Bloom started looking at ways to achieve the 9-ft-high (2.7 m) ceilings he wanted in this new home overlooking the Potomac River. His search for a solution led him to Nitterhouse Concrete Products Inc. in Chambersburg, Pa.

After a call to Nitterhouse, Bloom met with the vice president of engineering, John M. Jones, who was able to engineer the entire precast concrete subflooring system, including an area with solid slab designed to support a 500,000 lb (226,796 kg) cantilevered swimming pool overlooking the river.

Bloom compared the total costs of other flooring systems—such as the labor, carpenters, material, and equipment—to the ConCoreFloor System from Nitterhouse for this $3 million to $5 million residential project and discovered that, overall, the ConCoreFloor System cost less.

"Other builders in this area are coming by the project asking how I was able to get the high ceilings. This project is getting lots of high praises from other builders," Bloom says.

With the use of the ConCoreFloor hollow-core flooring system, the builder was able to achieve clear spans from 28 ft to 30 ft (8.5 m to 9.1 m) and add up to 8 in. (203 mm) more to the ceiling heights throughout the house without the use of columns or steel beams. This means that the home has enough space for a pool table in the basement or even an indoor swimming pool.

In addition to the column-free space and higher ceilings, Bloom also wanted marble and terrazzo floors throughout, which would not have been possible with a wood subfloor system due to the inevitable cracked flooring. Radiant heating was also installed into the poured 2 in. (51 mm) topping on the ConCoreFloor system to warm the floors throughout.

"When people are spending over $1 million on a new home," Bloom says, "they don't want eight-foot ceilings."
—Source: Nitterhouse Concrete Products Inc.

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