



'21st Century School' Features Precast

CONCORD, NORTH CAROLINA

A new 300,000-ft² high school for Cabarrus County Schools, described by the designers as incorporating "21st century educational models," was planned with three materials cladding its exterior to delineate the various functions. High-efficiency insulated precast concrete panels were specified to clad the main academic building to ensure its construction will meet a tight schedule for completion by the fall of 2019.

The \$61.7-million project, which will have an initial capacity of 1600 students and a core capacity of 1850 students, features a two-story main commons area that serves as a central organizing hub, connecting the three building areas via the open cafeteria, dining, and media center. The administrative portion is being clad with structural steel, while the 1284-seat gymnasium and 693-seat auditorium portions are being built with load-bearing masonry.

The school will emphasize "strategically dispersed collaborative areas, flexible classrooms, and flexible teaching stations," according to LS3P, the architectural firm. The three-story academic building features classrooms grouped by similarity to share resources.

The precast concrete panels feature 4 in. of insulation sandwiched between 3-in. exterior and interior wythes, creating a 10-in. panel. Finishes comprise several textures of buff-colored precast concrete accented with thin-brick insets.

Metromont Corp. in Greenville, S.C., fabricated the components for the project, for which Branch & Associates in Richmond, Va., is serving as the general contractor. ARP Engineering in Monroe, N.C., is the structural engineer.

Precast concrete was chosen for the classroom section in part due to its speed of construction and shortages of labor in the market for other material construction, according to

LS3P. This approach ensured the schedule was maintained to have classrooms ready on opening day. The project broke ground on October 17, 2017, and is expected to open for the fall 2019 school year, on a 21-month schedule. For more on this project, see the profile article on LS3P in this issue.

Clark Pacific Launches Campus Design Tool

WEST SACRAMENTO, CALIFORNIA

Clark Pacific has launched CP Campus Housing, a set of integrated structural and façade precast concrete components that work together to provide Type I campus housing with maximum design flexibility.

"Traditionally, each new campus housing project is approached as a completely new project, yet when you compare those projects side by side, there is very little variance in the structure and layout," says Roy Griffith, director of corporate development. "With CP Campus Housing, our custom-manufactured systems are designed to work together to provide a cost-competitive and durable building with minimal site disruption."

CP Campus Housing includes the Collaborative Design Interface, a rapid design tool that leverages standardized components and provides schematic student-housing designs. This allows designers to focus on aesthetics and unique project needs. For more information, visit www.clarkpacific.com/solution/cp-campus-housing.



Athletic Center 'Wave Wall'

EVANSTON, ILLINOIS

The new Ryan Walter Athletic Center along Lake Michigan on the campus of Northwestern University offers panoramic views over the water but created a fundamental challenge to protect the building's shoreline from exposure to waves. Designers resolved the issue with a precast concrete wall designed to withstand harsh wave impacts while mirroring the naturally curved layout of the beach.

The wall needed to serve two purposes: stop the powerful waves' horizontal force from causing damage to the building's foundation and to provide a shield to pedestrians passing along the front of the building on a multi-use path. Architectural firm SmithGroupJJR worked with engineering firm Perkins & Will and Walsh Construction, all in Chicago Ill., to design the structure, with Utility Concrete Products LLC in Morris, Ill., fabricating the components.

Their goal was to create an extensive wall with multiple, tapering curves that included integral pigment coloring and an architectural, durable finish, explains Leah Dix, a spokeswoman for Utility Concrete. After reviewing options, the team determined that precast concrete offered the best combination of economics, durability, precise forming, and plasticity to achieve the goals.

The wall consists of 109 5-ft-wide segments standing 20 ft tall at its center and tapering at each end, where it begins to flatten, similar to a wave. The self-consolidating concrete mix included Scofield SG "Sand Buff" liquid integral color, which was altered to match a sample of existing building limestone. The segments

Submit your headline news for consideration in a future issue of Ascent to Tom Bagsarian at tbagsarian@pci.org.



then were sandblasted to achieve the desired appearance.

Designers paid particular attention to precise placement of epoxy reinforcement, embedded stainless steel angles, and hot-dipped galvanized/epoxy connectors within the high-strength concrete due to the powerful waves crashing against the wall and the area's freeze-thaw conditions.

The precast concrete units sit atop a cast-in-place knee wall that includes both column-base connectors and splice sleeves to complete the connection to the precast segments. The column-base connectors are typically used for precast concrete columns, while the splice sleeves most often are used to speed bridge construction.

The sleeves consist of a mechanical coupler embedded in the precast wall segments that is fit over a cast-in-place concrete dowel bar in the field. The sleeve is grouted through PVC ports extending from the sleeve to the exterior face of the precast wall.

To expedite installation, the contractor bolted the walls at these shoes and continued with the installation rather than using a bracing system and waiting for the grout in the sleeves to set up to expedite installation. This required close tolerances to ensure quick and precise connection.

Getting the wall installed as efficiently and quickly as possible was a top priority for the contractor, Dix explains. The wall's location on the site made it a critical item, since building erection couldn't continue until the wave wall was completed due to a tight site and the necessity for crane space.

With close communication and coordination among team members, the components were fabricated quickly and erected on time and within budget. Construction at the athletic facility is expected to be completed later this summer.

Innovation Studio To Feature Precast Panels

WORCESTER, MASSACHUSETTS

The Foisie Innovation Studio & Messenger Residence Hall at Worcester Polytechnic Institute (WPI), opening this fall, showcases a variety of exterior materials, including architectural precast concrete panels, curtainwall, metal panels, and conventional masonry. In the process, it showcases the ability of precast concrete producers to customize components to meet specific design demands.

The \$49-million, 78,000-ft² facility includes a 41,000-ft² Innovation Studio in the basement and on the first two levels of the five-story, mixed-use academic and residential building. That space serves as a state-of-the-art hub for WPI's project-based approach to science, technology, engineering, and math (STEM) courses. A variety of academic and active learning spaces are designed to foster innovation and creativity while supporting multiple modes of collaborative work.

Above the studio levels are three floors for the Residence Hall, with space for 140 students. The new Messenger Hall will feature coed single and double rooms, with each floor including a laundry room, two tech suites, and two open lounges.

Gensler Architect in Boston, Mass., is the architectural firm on the project, with Shawmut Design & Construction in West Springfield, Mass., serving as general contractor. Lemessurier in Boston is the structural engineer.

Coreslab Structures Inc. in Thomaston, Conn., is fabricating the architectural precast concrete panels, comprising 38 pieces encompassing 5822 ft². The uninsulated precast concrete panels are mostly slender, vertical pieces in a horizontal, stacked-panel design. The precast concrete producer used custom polyurethane formliners for the project.

Erection presented several challenges, including a 20-ft cantilever overhang at the

third level, which required special rigging considerations and lifting devices to position the panels under the overhang. Crane access also was restricted to three sides on the tight site, which served an active campus during erection. Limited staging area and multiple underground utilities added to the challenges.

The Center replaces a 100-year-old Alumni Gym. The new, steel-framed structure is set on spread footings and is designed to achieve LEED gold certification.

Legacy Precast Names Cariveau President, CEO

BROOKSHIRE, TEXAS

Legacy Precast LLC has named Jay Cariveau its new president and CEO. Cariveau will lead the senior-management team, which includes five ownership



partners. Robert Diakiw, the founder, president, and CEO of Legacy, is stepping away from the day-to-day operation but will remain chairman and will spend time on other entrepreneurial initiatives as well.

A registered architect and a LEED-accredited professional, Cariveau has more than 25 years of building industry experience in management, design, manufacturing, construction, business development, and marketing. His experience includes work with multifacility architectural and structural precast concrete manufacturers, serving various market segments.

Submit your headline news for consideration in a future issue of Ascent to Tom Bagsarian at tbagsarian@pci.org.



Timothy Christian School Upgrades Facilities

ELMHURST, ILLINOIS

As part of a multi-million-dollar investment in campus improvements over a six-year period, administrators at Timothy Christian Schools developed a new junior high school to house seventh and eighth graders and provide upgraded learning facilities. To meet the tight schedule as well as zoning requirements and other needs, designers specified load-bearing architectural precast concrete panels with inset thin brick and an insulated core to clad the façade.

The project consists of classrooms, laboratories, administrative offices, and other facilities, including a spacious lobby that serves as the lunchroom for students during the day and as a mingling area during athletic competitions. A new athletics arena for the adjacent high school seats 1200 people, almost double the current capacity of the existing gym.

The construction manager's familiarity with precast concrete and its fast erection were key factors in its specification over masonry-cavity construction with a brick veneer and other options, according to AMDG Architects. A brick facing was required to meet zoning ordinances, which precast concrete could provide in a panelized system, reducing joints and speeding construction.

Lombard Architectural Precast Products Co. in Alsip, Ill., was brought onto the project on a design-assist basis early in the design phase after winning the project in a three-way competition. Lombard's team immediately consulted on optimizing panel sizes and design and to provide budget estimates.

Submit your headline news for consideration in a future issue of *Ascent* to Tom Bagsarian at tbagsarian@pci.org.

A blend of brick colors was chosen to complement other buildings on the campus with a variety of similar brick appearances. The designers worked with Lombard to find the best approach to handling returns on the brick-covered panels.

The panels were erected quickly, getting the building enclosed so interior trades could begin work earlier. Most of the erection took place during the school's Christmas break, alleviating congestion at the site and improving access.

PCI Adds Marketing Staff

CHICAGO, ILLINOIS

Tom Bagsarian has joined PCI as editorial content manager, a new position. He will help manage

Ascent's editorial and production processes and work to build PCI's media-relations program with trade publications and media outlets. Bagsarian arrived from the Hanley Wood media group, where he worked on *Concrete Construction*, *The Concrete Producer*, *Concrete Surfaces*, and *Public Works* magazines, among others.

In addition, David Anians has been promoted to coordinator of education and publications. In this new role, Anians will independently coordinate materials for the PCI eLearning Center, which now includes transportation modules, and create courses within that software package. Anians joined PCI in 2016 as administrative assistant for education and publications.



PCI HEADQUARTERS

phone: (312) 786-0300
email: info@pci.org
www.pci.org

Florida Prestressed Concrete Association—Diep Tu, PE

phone: (407) 758-9966
email: diep@myfpca.org
www.myfpca.org

Georgia/Carolinas PCI (GCPCI)—Peter Finsen

phone: (678) 402-7727
email: peter.finsen@gcpci.org
www.gcpci.org

PCI Mid-Atlantic—Tom Holmes

phone: (717) 723-6010
email: info@pci-ma.org
www.mapaprecast.org

PCI Central Region—Phil Wiedemann

phone: (937) 833-3900
email: phil@pci-central.org
www.pci-central.org

PCI Gulf South—Dan Eckenrode

phone: (228) 239-3409
email: pcigulfsouth1@att.net
www.pcigulfsouth.org

PCI of Illinois & Wisconsin (PCI-IW)—Amy Holliday

phone: (312) 505-1858
email: info@pci-iw.org
www.pci-iw.org

PCI Midwest—Mike Johnsrud, PE

phone: (952) 806-9997
email: mike@pcimidwest.org
www.pcimidwest.org

PCI Mountain States—John Dobbs, PE

phone: (303) 562-8685
email: jdobbs@pcims.org
www.pcims.org

PCI Northeast—Rita L. Seraderian, PE, LEED AP

phone: (888) 700-5670
email: contact@pcine.org
www.pcine.org

PCI West—Ruth A. Lehmann, PE, PMP

phone: (949) 420-3638
email: ruth@pciwest.org
www.pciwest.org

Precast Concrete Manufacturers' Association of Texas (PCMA of Texas)—Chris Lechner

phone: (210) 633-6743
email: lechner@pcmatexas.org
www.pcmatexas.org