PCI
Precast/Prestressed
Concrete Institute

The 2011 PCI Design Awards

Interfacing with Innovation

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The 2011 PCI Design Award winners showcase precast concrete's versatility.

The winners of the Precast/Prestressed Concrete Institute's (PCI's) 2011 Design Awards competition made use of the capabilities and benefits of precast concrete in many ways. Their winning entries both celebrate what has been achieved with the material and point the way for other designers to build on these ideas.

The versatility of precast concrete components allowed them to be used to achieve a wide variety of goals. These included enhanced durability, reduced maintenance costs, rapid construction speed, economy of design, dramatic aesthetics, seismic and wind resistance, ability to overcome site constraints, and sustainable design.

In reviewing the winning entries, judges were struck by precast concrete's capabilities to create dramatic and cost-effective designs. They especially noted its ability to interface well with other materials to create a unified structure and to produce intricate details and unique finishes that add visual interest at low cost.

Judges also noted that in every category, sustainable design remained at the forefront. Minimizing environmental impact, lowering energy costs, and reusing or recycling materials have become paramount to every client.

The following pages present the winning entries in the 2011 Design Awards Competition. In many categories, the competition was so close that judges presented awards to more than one distinctive project.

The awards will be presented to representatives from each precasting company October 22–26, 2011, during PCI's 57th Annual Convention and National Bridge Conference in Salt Lake City, Utah. For more photos of these projects, visit www.pci.org and click on 2011 Design Award Winners.

49th Annual PCI Design Awards Judges

Courtesy of PCI

Special Awards Jury (from left)

Rich Weingardt, P.E., Dist. M. ASCE, F. ACEC
Consulting engineer
Richard Weingardt Consultants Inc.
Denver, Colo.

Jonathan Boyer, AIA
Principal
Farr Associates
Chicago, Ill.

Allen Finfrock, P.E.
Vice president of design
Finfrock Industries
Apopka, Fla.

Courtesy of PCI

Buildings Jury (from left)

Robert Powers, AIA, LEED AP
Architect
HOK
St. Louis, Mo.

Craig Smith, AIA
President
Loebl Schlossman & Hackl
Chicago, Ill.

Richard Fencl, AIA, CSI, LEED AP
Principal/technical director
Gensler
Chicago, Ill.

Jim Crockett
Editorial director
Architectural Products
Palatine, Ill.

Stuart Howard, FRAIC
President
Royal Institute of Architects
Ottawa, ON, Canada

49th Annual PCI Design Awards

Special Awards

Harry H. Edwards Award

Sustainable Design Award

All-Precast Solution Award

Buildings

Best Office Building: Low Rise (1–3 Stories)

Best Office Building: Mid-Rise (4–6 Stories)

Best Mixed-Use Building

Best Parking Structure (0–999 Cars)

Best Parking Structure (1000+ Cars)

Best Stadium

Best Custom Solution

Best Public/Institutional Building

Best University Project

Best Healthcare Facility

Best Multifamily Building

Best Hotel

Best Retirement/Assisted Living Center

Harry H. Edwards Award/Best Bridge with Spans More than 150 ft, Cowinner

Cross Street Bridge

Middlebury, Vt.

Owner Town of Middlebury, Vt.

Project EOR (incl. approach spans and substructure) Vanasse Hangen Brustlin Inc. (VHB), North Ferrisburgh, Vt. (www.vhb.com)

Contractor Kubricky Construction Corp., Wilton, N.Y.

Precaster J.P. Carrara & Sons Inc., Middlebury, Vt. (www.jpcarrara.com)

Splice Girder EOR Corven Engineering, Tallahassee, Fla. (www.corveneng.com)

Post-Tensioning Supplier VSL, Baltimore, Mass.

Deck Area 21,440 ft^2 (1992 m^2)

Bridge Length 480 ft (150 m)

Project Cost $16 million

This two-lane, three-span bridge features a 240 ft (74 m) center span, the longest simple-span precast concrete, post-tensioned, spliced-girder bridge in the United States. The main span is anchored by a pair of 120-ft-long (37 m) adjacent box-beam spans.

The center span comprises five modified New England Bulb Tee (NEBT) girder lines, each consisting of three segments of 64 ft, 108 ft, and 64 ft (20 m, 33 m, and 20 m). This final configuration evolved during the permitting process after state environmental regulators prohibited a permanent pier in Otter Creek. A design-build delivery system, the first to be used on a major transportation project in Vermont, greatly accelerated completion.

The precaster used 10,000 psi (69 MPa) self-consolidating concrete to meet the design demands on the large girders. The approach spans each feature 10 adjacent box beams cast using 8000 psi (55 MPa) self-consolidating concrete. Coordination with the precaster throughout the design of the girders and development of the fabrication drawings allowed timely modifications to existing precast concrete forms and helped expedite fabrication.

With girders standing nearly 10 ft (3 m) tall, the ceiling heights of the precasting plant were just high enough to lift the beams onto the transport trailers. Girder segments were erected using a single Manitowoc crane with a 160-ft (49-m) boom capable of hoisting the 93-ton (84-tonne) segments into place. Once erected, the girder segments had closure pours filled with cast-in-place concrete, and the cast-in-place diaphragms between girder lines were constructed.

Designed to be low maintenance, the bridge features an 8 in. (200 mm), cast-in-place concrete deck with 3 in. (75 mm) of pavement and 6-ft-wide (2 m) sidewalks with precast concrete architectural features and lighting. A pedestrian overlook was created on each of the four piers along the creek channel.

The use of precast concrete superstructure materials saved design and construction time and brought another level of efficiency to the project.

Judges' Comments

"We were very impressed with how the designers pushed a new standard single-span length using precast concrete elements to eliminate piers in the creek. It was a tremendous solution for the local community, which came together to fund and build this bridge. That unusual approach resulted in a unique, record-setting design. This span sets the example for using precast, prestressed concrete and will allow new approaches for using existing precast girder forms. It is the only material that can provide rapid construction in remote areas to create long spans, and it's the most durable."

Photo courtesy VHB

Sustainable Design Award
North Central College Residence Hall/Recreation Center
Naperville, Ill.

Owner North Central College, Naperville, Ill.

Architect Thomas A. Buchar & Associates, Joliet, Ill. (www.buchar.com)

Engineer Architectural Consulting Engineers, Oak Park, Ill.

Contractor Mustang Construction, Naperville, Ill.

Precaster Dukane Precast Inc., Naperville, Ill. (www.dukaneprecast.com)

Project Size 201,000 ft^2 (18,700 m^2)

Project Cost $24 million

To maximize efficiency while minimizing material costs, the North Central College Residence Hall/Recreation Center in Naperville, Ill., combined a residence hall and recreational facility by enclosing the latter inside the former. In the process, the project achieved silver LEED certification, becoming the first in the nation of this type of structure. It consists of a four-story, 265-bed residence hall wrapped around a 62,000 ft^2 (5800 m^2) field house.

The field house features 50-ft-tall (15 m) precast concrete walls and 180-ft-span (55 m) roof trusses, which allow for an open-spaced 200 m (220 yd) indoor track, activity courts, and a suspended walking track. The surrounding residence hall was constructed with precast concrete sandwich wall panels along with precast concrete columns, beams, stairs, and water-retention storage tanks.

Precast concrete contributed to the LEED certification in a variety of ways, including the use of recycled materials such as slag cement, fly ash, and recycled steel. Recycled slag aggregate was used in all of the flooring and walls to lighten footing loads, decrease wall thickness, and achieve the necessary fire ratings. Energy efficiency was improved through the concrete's thermal mass and high *R*-value insulating foam and the local manufacture of the concrete components.

Additional energy-efficient features include efficient windows, radiant heat, high-efficiency air-conditioning, heat-recovery ventilators, domestic hot-water waste-heat recovery, a white membrane roof to reduce the heat-island effect, low-flow plumbing fixtures, and extensive use of recycled and low-VOC-emitting materials.

The project also includes one of the largest geothermal installations in the Midwest, consisting of sixty 650-ft-deep (200 m) geothermal wells and underground precast concrete double-wall storm-water retention tanks.

This innovative approach shows the potential for using precast concrete to combine two normally separate structures into one building that aids sustainable-design and energy-efficiency goals. For more on this project, see the Summer 2011 issue of *Ascent* from PCI.

Judges' Comments

"What stood out most was the use of materials in more than one way, such as built-in insulation and radiant tubing built into the wall systems. That is where manufacturing is going, to eliminate labor and time from the site and put more of the construction into the manufacturing environment. The precast concrete also contributed a lot to the building's sustainability. The sandwich wall panel's capability to be both structural and insulating provided a creative solution. The design's goal of making the building multifunctional ensured it was used throughout the day, creating a very sustainable solution."

Photo courtesy of Dukane Precast, Inc.

All-Precast Solution Award
Tucker High School
Tucker, Ga.

Owner DeKalb County School System Design & Construction, Tucker, Ga.

Architect Milton Pate Architects, Tucker, Ga. (www.miltonpate.com)

Engineer Bennett & Pless, Atlanta, Ga.

Contractor Turner Construction Co., Atlanta, Ga.

Precaster Metromont Corp., Hiram, Ga. (www.metromont.com)

Project Size 340,000 ft² (32,000 m²) in two phases

Project Cost $53 million

Photo courtesy of George Spence, Metromont

By using a total–precast concrete structural system, including wall panels, double tees, spandrels, columns, and beams, the construction team on this high school could erect portions of the building within 2 ft (0.6 m) of the existing, and still occupied, campus buildings. This approach resulted from community input, which indicated citizens wanted the new facility to retain the original high school's presence as an architectural anchor for the town's Main Street.

Because of the proximity to ongoing activities, the project was completed in two phases. In the first phase, the existing gymnasium was demolished, utilities were rerouted, and two total–precast concrete classroom buildings were erected. These facilities consisted of classrooms, labs, a media center, and administrative offices. Students could then occupy the new classrooms, after which the original building was torn down. The second phase completed the campus with technology classroom labs, an auditorium, a gymnasium, a kitchen, athletic fields, and landscaped courtyards.

The design features load-bearing exterior precast concrete walls with continuous insulation that allowed the building to achieve a steady-state *R*-value of 19. The components were shipped from only 40 mi (64 km) away and included all local materials: aggregates, cements, sands, fly ash, strand, reinforcing, and insulation.

A variety of postconsumer and preconsumer recycled materials were used in fabricating the precast concrete materials. These included fly ash, reinforcing bars and mesh, cement, strand, foam insulation, connections, and steel shapes. Recycled materials were used throughout the project. For instance, concrete was salvaged from the original school building and reused.

The owner, design team, and construction manager at risk agreed that erecting the 210,000 ft² (20,000 m²) precast concrete shell in only 52 working days was the key to achieving the overall schedule and ensuring that the students made a swift and smooth transition to the new school.

Judges' Comments

"This project used precast in a unique and innovative way, combining many concepts into one panel. The tight site lent itself well to precast concrete construction, allowing panels to be erected within a few inches of an existing building, which many other materials would not have been able to accomplish. The school also is quite compelling aesthetically. This building excelled in providing textural variety and wedding exterior materials. Its scale fits the community perfectly. The design represents a very efficient method and the future of how to use precast concrete."

Best Office Building: Low Rise (1–3 Stories)
California ISO Headquarters
Folsom, Calif.

Owner California ISO, Folsom, Calif.

Architect Dreyfus Blackford Architects, Sacramento, Calif. (www.dreyfussblackford.com)

Engineer Buehler & Buehler Structural Engineers, Sacramento, Calif.

Contractor Clark Design Build of California, Oakland, Calif.

Precaster MidState Precast LP, Corcoran, Calif. (www.midstateprecast.com)

Project Size 278,000 ft² (25,800 m²)

Project Cost $113 million

This three-wing, design-build project for high-voltage electric-grid operator California ISO in Folsom, Calif., achieved LEED platinum certification, thanks in part to the precast concrete structural system. It includes insulated precast concrete wall panels as well as a post-tensioned hybrid moment-frame structural system.

Each wing of the headquarters serves a different function: a facility for state-of-the-art grid operations and data, offices for 500 employees, and meeting and training spaces. The office wing lent itself to a regular form, with uniform bay spacing that benefited from the hybrid moment frame. This approach achieved the aesthetic goals while providing an economical system.

The precast concrete columns and beams, used with hollow-core slabs, were left exposed to create a loft-like quality to the space. The mass of the concrete flooring serves as a heat sink, moderating temperature fluctuations and reducing energy consumption. Raised-access flooring allows for under-floor HVAC systems.

The precast concrete structural system not only enhanced energy efficiency but aided the construction schedule. The mission-critical wing (the grid-operations center) also contained supporting mechanical and electrical-plant services, which had to be completed first. Notice to proceed was given in mid-March 2009, and an aggressive, fast-track schedule with phased permitting accelerated construction.

The insulated precast concrete panels were fabricated off-site as other prep work was under way, speeding the building's enclosure. Wall erection took about one month and was completed in September 2009, only six months later, allowing the weather tight shell to be erected before winter. Five precast concrete hybrid moment-resisting frames and a total of 1360 precast concrete components were used.

Photo courtesy of MidState Precast, LP

The relatively slender structural lines permitted extensive exterior openings that maximize daylighting and minimize artificial lighting. A variety of additional sustainable-design concepts contributed to the LEED platinum certification.

JUDGES' COMMENTS

"We found this project to be very, very, very exceptional. The combination of the structural frame and the aesthetic design provide a straightforward honesty of composition. The ability to weave the precast concrete together with other materials, including sun shades, produced an effective project. There's a strong repetition in the base layered with classic metal components that enliven and enrich the façade. The precast concrete carries to the inside of the building and enhances the interior space as well."

Best Office Building: Mid-Rise (4–6 Stories)
JE Dunn Corporate Headquarters
Kansas City, Mo.

Owner Dunn Realty, Kansas City, Mo.

Architect 360 Inc./BNIM Project, Kansas City, Mo. (www.360architects.com/www.bnim.com)

Engineer Structural Engineering Associates (SEA), Kansas City, Mo.

Contractor JE Dunn Construction Co., Kansas City, Mo.

Precaster (Architectural Wall Panels) Enterprise Precast Concrete Inc., Omaha, Neb. (www.enterpriseprecast.com)

Precaster (Parking Structure) Coreslab Structures, Marshall, Mo. (www.coreslab.com)

Precaster (Hollowcore) Stress-Cast, Inc., Assaria, Kans.

Precast Concrete Specialty Engineer Structural Engineering Associates (SEA), Kansas City, Mo.

Precast Concrete Specialty Engineer Rupprecht Engineering, Omaha, Neb.

Project Size 204,000 ft^2 (19,000 m^2)

Project Cost $44.3 million

To consolidate operations spread over five downtown locations in Kansas City, Mo., the owners of general-contracting company JE Dunn Construction created a single six-story, 204,000 ft^2 (19,000 m^2) corporate headquarters and adjacent 780-car parking structure. To maximize efficiency, designers used a variety of specially cast precast concrete insulated architectural wall panels on the building along with a total–precast concrete framing system on the parking structure. The project not only met the client's programmatic and aesthetic requirements but also achieved LEED gold certification.

The designers wanted to generate a modern-day loft feel for the interiors, with an exposed structure and exterior bearing walls. Hundreds of standard formliner options were considered. The team decided to create custom designs that hid the repetition and seams while providing strong visual depth.

The building features gray architectural precast concrete panels with a linear formliner design at street level. This appearance contrasts with upper levels, which showcase flat panels with white cement and an acid-etch finish. The interior face of these insulated sandwich wall panels was left exposed with an acid-etch finish as well, emphasizing the fundamental nature of the material, which the architect sought.

Vertical lines accentuate vertical window openings and blend with the character of the neighboring buildings. The upper panels were fabricated to be light and smooth, simulating cut limestone in texture and color, which pays homage to the city hall building on the southwest corner of the property.

The project's decision process was streamlined by having the company serve as developer, owner, and contractor. While those functions were joined, the precast concrete fabrication was expanded by having three precasters work on the project. One provided architectural insulated wall panels, the second fabricated the integrated precast concrete components for the parking structure, and the third provided hollow-core slabs for select areas of the office building.

JUDGES' COMMENTS

"This project was very exciting on two levels: the juxtaposition of the window system that made the façade so interesting and the variety of finishes used for the precast concrete panels. The precast concrete design was well thought through and was handled in a straightforward and honest manner while creating a dramatic look. The use of color helped give the building some scale and differentiate the base from the tower. The thin floor plates allowed daylight into the space and also captured outdoor space for public use."

Best Mixed-Use Building
The Atrium
Victoria, BC, Canada

Owner Jawl Investment Corp., Victoria, BC, Canada

Architect D'Ambrosio Architecture + Urbanism, Victoria, BC, Canada (www.fdarc.ca)

Engineer Stantec Consulting Ltd., Victoria, BC, Canada

Engineer Fast+Epp, Vancouver, BC, Canada

Contractor Campbell Construction Ltd., Victoria, BC, Canada

Precaster Lafarge Canada, Inc., Calgary, AB, Canada (www.lafargenorthamerica.com)

Precast Concrete Specialty Engineer DIALOG, Calgary, AB, Canada

Project Size 204,000 ft² (19,000 m²)

Photo courtesy of Lafarge

Ultra-high-performance concrete (UHPC) helped The Atrium, a seven-story building in Victoria, BC, Canada, achieve a dramatic and cost-effective façade in its first use in a precast concrete exterior cladding system in North America. The UHPC allowed the panels to be light enough to be hung from a unitized curtain-wall envelope system and thin enough to allow an air-displacement ventilation system to fit within the exterior-wall thickness. The panels also helped reduce structural requirements to resist seismic forces.

The 204,000 ft² (19,000 m²) building, located in a historic downtown neighborhood, features ground-floor shops and a seven-story central atrium that introduces daylight into the heart of the building. The building was designed as a high-density, mid-rise form to fit into its environs, using a palette of natural and durable materials.

The UHPC panels were cast with a surface pattern of vertical lines cast from a mold that was hand-carved by the architect. Just $^{3}/_{4}$ in. (19 mm) thick, the textured spandrel panels used minimal fiber-reinforced-polymer bars in the perimeter ribs as a safety precaution against accidental overloading. By eliminating reinforcing bars in the panels, it was possible to create thin, complex, curved precast concrete panels.

The panels also provide superior durability, thanks to an extremely dense matrix. Consequently, the building's maintenance requirements are greatly diminished because the UHPC panels are much less susceptible to the absorption of environmental debris.

About 690 panels were produced from curved and flat molds using a displacement-casting process. The panels are $^{3}/_{4}$ in. (19 mm) thick with 1.18 in. (30 mm) ribs, making each light, strong, and thin. The façade design used rectangular panels that are straight, curved, and a combination of both. All of the panels were 51 in. (1.3 m) high and varied in width from 30 in. to 85 in. (800 mm to 2.2 m), with a mode of 51 in.

The façade techniques helped the building achieve Canada Green Building Council's LEED gold certification.

JUDGES' COMMENTS

"We believe we are seeing the future of precast concrete with this project. It was amazing to see how they curved the panels and used them to create a lightweight curtain-walled system. Traditionally, we view precast concrete as a heavy, massive material, and now we can think in terms of lightweight capabilities. There is a lot of potential for this concept for many projects. We also liked it for its shape and relationship to the streetscape. It's quite well done, a beautiful building."

Best Parking Structure (0–999 Cars)
164th Street Garage
Bronx, N.Y.

Owner New York City Department of Parks and Recreation, New York, N.Y.

Architect Clarke Caton Hintz Architects, Trenton, N.J. (www.clarkecatonhintz.com)

Engineer Fay Spofford Thorndike, New York, N.Y.

Contractor Prismatic/Hunter Roberts, Fairfield, N.J.

Precaster Unistress Corp., Pittsfield, Mass. (www.unistresscorp.com)

Precast Concrete Specialty Engineer Hoch Associates, Fort Wayne, Ind.

Parking Vendor Standard Parking, New York, N.Y.

Project Size 256,330 ft² (23,800 m²)

Project Cost $46 million

Photo courtesy of Jeffrey Totaro Photography

Adjacent to the new New York Yankees baseball stadium in the Bronx, this five-tier, 660-space precast concrete parking structure provides one of the four façades for the stadium. With white precast concrete and stainless steel mesh panels, the structure blends with the stadium's neo-traditional design while projecting a modern appearance.

The thin, rectangular structure runs the length of 164th Street and provides parking for the club, VIP guests, and season-ticket holders. Due to an adjacent stand of trees that could not be removed, along with setback requirements from a nearby elevated rail line, the parking structure required a narrow footprint. As a result, it was designed with a scissor-ramp configuration for vertical circulation and one-way vehicle flow with angle-in parking.

The precast concrete structural system allowed open floor plates to be created, providing drivers with unobstructed views. The project uses a typical 36 ft (11 m) structural grid and 186,000 ft² (17,300 m²) of precast concrete double tees.

The visually striking mesh fabric is held tautly in place with spring-loaded tensioning devices that allow the structure to self-moderate and account for the seasonal temperature differentials of the stadium. The mesh shrouds the pure white concrete mix to create a rich blend of textures. Concealed ground-mounted uplights wash the mesh to provide a soft blue glow at night.

JUDGES' COMMENTS

"What struck us about this project was its simplicity and harmonious marriage with the stadium without being overwhelmed by the stadium's size. That says a lot, considering it is beside one of the more famous structures in the country. This project provides a very simple but elegant design with a striking façade that worked very well to achieve its goals."

Best Parking Structure (1000+ Cars), Cowinner
Norman Y. Mineta San José International Airport CONRAC Garage
San José, Calif.

Owner The City of San José Norman Y. Mineta San José Airport Department, San José, Calif.

Architect TranSystems, Phoenix, Ariz. (www.transystems.com)

Architect Fentress Architects, San José, Calif.

Engineer Watry Design, Redwood City, Calif.

Engineer TranSystems, Phoenix, Ariz.

Contractor Hensel Phelps, San José, Calif.

Precaster Clark Pacific, West Sacramento, Calif. (www.clarkpacific.com)

Project Size 1.8 million ft² (170,000 m²)

Project Cost $260 million

© Mikki Piper

The nation's first on-site integrated car-rental and quick-turnaround (QTA) operations facility, the new airport parking structure at Mineta San José International Airport in San José, Calif., features a precast concrete structural system that shaved more than five months from the construction schedule. The facility combines an eight-story, 3000-car rental-car parking area and a four-story QTA area that includes refueling stations and car washes. The combination allows rental cars to be located within walking distance of the terminals.

The 1.8 million ft² (170,000 m²) structure is nearly twice the size of the state's previous largest precast concrete parking structure. The facility contains 3817 precast concrete components, consisting of double tees, L-beams, inverted-tee beams, transfer girders, rectangular collector beams, columns, and spandrels.

To match the curved shape of the structure's north end, both the shear walls and double tees in that area were curved, with the tees cast in pie-shaped wedges. Precast concrete spandrels serve as car-impact shields as well as a base skin for metal mesh and artwork murals. Façade features were still being decided by the city while the project was being erected, so blockouts were provided in the precast concrete to allow final materials to be erected later.

Providing the fuel and water requirements for the QTA portion created key challenges. Wash and rinse water was supplied in multiple 2000 gal. (7600 l) tanks on each level, including a reverse-osmosis system for spot-free finishing. To provide moisture resistance, a $3^1/_2$-in. (90 mm) topping was applied to the top of the double tee, followed by a hot-asphaltic waterproofing layer and another 4-in (100 mm) concrete topping. The fueling tanks are secured at grade level, with fuel delivered to pumps on each level via pressurized pipes.

The precast concrete design was the key to reducing first costs and construction time, providing seismic resistance, providing a flexible design to enable post-applied architectural treatments, and easing congestion on the construction site.

JUDGES' COMMENTS

"This project used the structure as a blank canvas to create a strong framework of precast concrete that was then layered with incredible artwork. It highlights the versatility of precast as a form and shape maker on its façade. It works well both as a framework for the art and for creating a nice structure of its own. It has a very large scale and is very linear, creating an interesting design without being overwhelming. It really demonstrates a versatility of precast as an architectural building element."

Best Parking Structure (1000+ Cars), Cowinner
Orlando Health Parking Deck C
Orlando, Fla.

Owner Orlando Health, Orlando, Fla.

Architect Baker Barrios Architects, Tampa, Fla. (www.bakerbarrios.com)

Engineer Finfrock Design Inc., Apopka, Fla.

Contractor Jack Jennings & Sons, Orlando, Fla.

Precaster Finfrock Industries Inc., Apopka, Fla. (www.finfrock.cc)

Project Size 767,300 ft² 71,300 m²)

Project Cost $27.5 million

Chad Byerly Photography

This nine-level, open parking structure, part of a new medical office and surgery center for the Orlando Regional Medical Center in Florida, stands out for its palm-tree murals installed on the precast concrete wall panels. The decorative accent softens the scale of the structure and allows it to better blend with the surrounding medical-office campus.

The facility, with a footprint of 310 ft × 280 ft (94 m × 85 m), stands 100 ft (30 m) tall. It features a total–precast concrete structural system, including columns, shear walls, lite walls (shear walls with openings cast into them to provide visual continuity), double tees, inverted-tee beams, stairs, horizontal frames, flat slabs, and spandrel panels. The panels form frames on the structure's façade that help to reduce the visual mass. Metal-framed grilles were used to mimic windows on a building, providing a more pleasing appearance and aiding in mass reduction.

The murals, which were fit into the precast concrete frames, range in height from 32 ft to 61 ft (10 m to 19 m). The palm trees replicate original artwork created by nationally known local artist Maria Reyes-Jones. To further downsize the huge structure and heighten visual interest, colorful graphic banners dress up portions of the elevation.

A total of 1656 precast concrete components were erected on the project. The project went from start to completion in 15 months.

JUDGES' COMMENTS

"This parking structure avoided a utilitarian look by employing architectural precast concrete to create a façade that eliminated the parking structure vocabulary. Using precast concrete in two color tones created some layering and depth, while the addition of metal mesh added a layer of richness. The facility fits in nicely with the level of the quality of the rest of the medical campus. Using a number of repetitive forms allowed the designers to put the panels together in an economical way that still creates interest and variety."

Best Stadium, Cowinner
Indiana University Stadium North End Zone Addition
Bloomington, Ind.

Owner Indiana University, Bloomington, Ind.

Architect RATIO Architects Inc., Indianapolis, Ind. (www.ratioarchitects.com)

Associate Architect Moody-Nolan Inc., Indianapolis, Ind.

Engineer Fink, Roberts & Petrie Inc., Indianapolis, Ind.

Contractor Pepper Construction Co. of Indiana LLC, Indianapolis, Ind.

Precaster Gate Precast Co., Winchester, Ky. (www.gateprecast.com)

Precast Concrete Specialty Engineer CSD, Milwaukee, Wis.

Project Size 130,000 ft^2 (12,000 m^2)

Project Cost $21.5 million

In designing a 130,000 ft^2 (12,000 m^2) addition onto Indiana University's football stadium in Bloomington, Ind., architects needed to ensure that it both matched the existing stadium on a campus where limestone is the predominant material and provided a collegiate gothic architectural style for a highly functional structure.

Narrow, smooth-faced precast concrete piers rise from the structure's base, framing curtain-wall openings. The addition connects the stadium's two original seating sides, forming a bowl shape. It also figuratively connects the past and the future by providing space for the Hall of Champions, a museum-quality exhibit displaying the school's athletic history. Spaces include a student-athlete physical-development center, administrative offices, football offices, team meeting rooms, and an academic-support commons.

The design team used architectural precast concrete panels to help create a style that not only flows with the original stadium but also ties in with the rest of the campus. The team saved considerable cost and scheduling time by using precast concrete's flexibility in color, shape, and scale to match cut-stone limestone.

Formliners, created by taking impressions from actual blocks of stone, provided the split-faced texture needed to emulate giant blocks of quarried limestone. Bands of smooth-faced precast concrete panels were integrated with the textured areas to help articulate the look of individual stone blocks.

The corners of the towers feature panels cast with an invisible cold-formed joint at the outside corner, which provided significant depth to each leg. Cast into the architectural panels is a one-story-tall Indiana University logo. The university's name is also cast into the panels with an incised font.

Insulated punched windows with large variances of projection in the precast concrete panel's face allowed for a more practical section than a more conventional system would have allowed.

JUDGES' COMMENTS

"There were a number of great stadium projects, but this one stood out for its capabilities in replicating limestone, for which the area is justly famous. This replication provided a nice way to marry limestone with the Gothic style while maintaining the sporting-event functions. Logistics and scheduling no doubt were challenges to ensure the stadium was completed on time. The design captured the feeling of the campus as a whole while creating a unique expression in this particular location. Precast concrete is a good solution for stadiums in general."

Photo courtesy of MV2 Photography

Best Stadium, Cowinner
Target Field, Minnesota Twins
Minneapolis, Minn.

Owner Minnesota Ballpark Authority, Minneapolis, Minn.

Architect Populous, Kansas City, Mo. (www.populous.com)

Contractor Mortenson Construction, Minneapolis, Minn.

Precaster Gage Brothers Concrete Products Inc., Sioux Falls, S.Dak. (www.gagebrothers.com)

Precaster Hanson Structural Precast, Maple Grove, Minn.

Precast Specialty Engineer The Consulting Engineers Group, Apple Valley, Minn.

Project Size 80,000 ft^2 (7400m^2)

Project Cost $544.4 million

JUDGES' COMMENTS

"This was a great project, producing a very attractive but very different-looking structure for a baseball stadium. It provides a terrific use of limestone on precast panels, bringing economy to the project yet still providing an attractive look. It shows precast concrete's versatility and its ability to work with more traditional materials, uniting them into an easy package to mount and install. The design helps open doors for revisiting some older or more expensive materials that often are ruled out that now can be put back onto the agenda."

Photo courtesy of Bob Perzel

Precast concrete architectural panels proved an essential component for achieving the aesthetic goals for Target Field, which serves as home to Major League Baseball's Minnesota Twins in Minneapolis. The urban location and surrounding light-rail and commuter-train services added appeal, but they also created site restrictions that the precast concrete helped to overcome.

There was nothing square, straight, or plumb about the 88-ft-tall (27 m) exterior precast concrete wall system, which features large, cast-in limestone blocks. These blocks consisted of honed and quarry-creek rocked-faced stone in various thicknesses. Casting odd-sized blocks with nonuniform surfaces and thicknesses, which varied by up to 2 in. (50 mm), presented major manufacturing challenges.

To achieve the desired look, the limestone blocks were placed face down into the forms with $^3/_4$ in. (19 mm) joints. Stainless steel ties anchored the blocks to the precast concrete wall. A bond breaker prevented concrete from entering the joints and allows thermal expansion of the dissimilar materials. The design also includes a gradation in stone color from darker at the base to lighter at the top.

The superstructure consisted of a multilevel waffle-slab floor system with concrete columns. Walls are battered a variety of degrees, while corners seem to intersect at different angles. To achieve this look, the precaster had to mark foundations, project the walls, and determine the corner conditions so panels could be fabricated to meet the as-built site conditions.

The precaster provided a tube-based, steel-frame subwall assembly to support the precast concrete well system. The limestone-faced precast concrete components were set from inside the bowl because there was no perimeter access. =

In 2010, the stadium was voted by ESPN as offering the best sports experience in all professional sports in the United States.

Best Custom Solution
International Brotherhood of Electrical Workers Local No. 697 and Joint Apprenticeship Training Center
Merrillville, Ind.

Owner International Brotherhood of Electrical Workers, Merrillville, Ind.

Architect Design Organization, Chicago, Ill. (www.designorg.com)

Engineer McCluskey Engineering, Naperville, Ill.

Contractor Berglund Construction Co., Chesterton, Ind.

Precaster National Precast Inc., Roseville, Mich.

Project Size 40,000 ft^2 (3700 m^2)

Project Cost $9 million

The use of a precast concrete structural frame allowed quick completion of the building envelope on this training facility, which was designed to emphasize sustainability and to achieve LEED certification. The design reflects the owner's commitment to new technology and training in alternative energy for photovoltaic and wind energy. Architectural precast concrete wall panels helped achieve those goals, including helping the envelope to be enclosed quickly so photovoltaic panels could be installed to power the construction site.

Designed as a living laboratory, the facility features glass-enclosed electrical and technology rooms in the main lobby with video displays monitoring building performance. The rooftop serves as an outdoor classroom, with photovoltaic arrays monitored by the apprentices. The architectural precast concrete panels allowed extensive design detailing, including an embossed random stick pattern around the perimeter of the panels. In all, 94 precast concrete panels were used on the project, with the largest measuring 11 ft × 31 ft (3.4 m × 9.4 m). They were connected to a steel-frame structure.

The project includes such sustainable features a slow-cutoff LED lighting, plug-ins for hybrid and electric vehicles, and a high percentage of recycled and regional materials. A significant portion of the native habitat was preserved.

The construction team also worked with the Save the Dunes Council to preserve a significant amount of the native habitat during construction. An arborist assisted in proper stewardship of the wooded areas, while hardwoods in the area of the building footprint were harvested, milled, and reused in the building.

JUDGES' COMMENTS

"What we liked about this project was the simple massing and composition of the building, but it was really the combination of precast with other materials that made it stand out. The precast concrete helps support the aluminum banding and the glass panels very well. They work terrifically in concert to raise the eye to the photovoltaic array, which the client wanted to emphasize. This type of facility often has a boxy, unattractive look, but this design is very striking."

Photo courtesy of Design Organization, Inc.

Best Public/Institutional Building, Cowinner

City of Miami College of Policing/ Miami-Dade School of Law Studies, Homeland Security and Forensic Sciences

Miami, Fla.

Owner City of Miami, Fla.

Architect/Engineer AECOM, Coral Gables, Fla. (www.aecom.com)

Contractor James B. Pirtle Construction, Davie, Fla.

Precaster Gate Precast Co., Kissimmee, Fla. (www.gateprecast.com)

Precast Concrete Specialty Engineer Gate Precast Co., West Chester, Ohio

Project Size 116,000 ft² (10,800 m²)

Project Cost $36.47 million

Photo by Mike Butler

A sleek, contemporary design with a richly textured exterior was created for this combination police academy training center and magnet high school for students interested in legal studies and forensic science in Miami, Fla. Architectural precast concrete panels were used to tie together a mix of materials.

The City of Miami College of Policing and Miami-Dade School of Law Studies, Homeland Security and Forensic Sciences facility was designed specifically to reinforce the goals of the new Miami 21 zoning and planning guidelines. The building creates a rich pedestrian environment with lush landscaping, multicolored patterned sidewalks, multiple street-level entrances, textured exterior materials and built-in benches. The design helps define the urban street edge and creates a formal plaza suitable for public gatherings between the facility and the adjacent police headquarters.

The main police entrance is defined by a four-story-tall wall of light, buff-colored architectural panels with a light sandblast finish. The panels include incised building signage, a detailed recess, and a large cast-metal police badge set into the precast concrete. The southeast corner contains a similar four-story-high precast concrete element with the high school name and logo.

On other façades, four-story elements continue as thinner precast concrete strips, which mark the edge of a stucco infill wall. The wall's lower portion is defined by black-colored precast concrete panels. Black precast concrete panels with a richly textured light-sandblast finish also clad a shared auditorium. Formliners were used to create enhanced shadow and texture on the auditorium façade, providing a visual focal point.

The design incorporates numerous sustainable-design features, including the high-efficiency precast concrete exterior skin with excellent thermal properties. A large east-facing great window opening mitigates heat loads through the use of low-emittance, fritted glazing with extensive sun shades to maximize daylight. The HVAC and electrical systems also use high-efficiency components, including the light fixtures and air-handling equipment.

JUDGES' COMMENTS

"This beautiful project uses different colors and textures of precast in conjunction with massing techniques to create a great result. The rustication, reveals, and joinery provide an excellent example of how precast concrete can work successfully. The designers worked very hard to create a unique solution that utilized the different materials quite well and tied them together perfectly. This project was a natural for precast concrete, providing all the attributes and showing that it was absolutely the right material."

Best Public/Institutional Building, Cowinner
The National World War II Museum Phase IV Expansion
New Orleans, La.

Owner The National World War II Museum Inc., New Orleans, La.

Architect Voorsanger Mathes LLC, New Orleans, La. (www.voorsanger.com)

Engineer Weidlinger Associates Inc., New York, N.Y.

Contractor Satterfield & Pontikes Construction Inc., Kenner, La.

Precaster Gate Precast Co., Monroeville, Ala. (www.gateprecast.com)

Project Size 75,140 ft² (6980 m²)

Project Cost $42 million

Photo courtesy of Thomas Damgaard

This extensive expansion to the National World War II Museum in New Orleans, La., showcases the ability of precast concrete to be formed into different shapes, angles, and sizes.

Multiple exhibit pavilions are set onto a symbolic parade ground. Created in four phases, the completed building integrates three historic structures and completes most of the new construction.

At the northern end, the Theater Pavilion functions as an interface hub between the existing museum and future pavilions. It consists mostly of large-scale precast concrete panels with angular edges and joints. In contrast, through the extensive use of glazing and metal panels, the parade ground façade provides a more open and lightweight appearance.

The building's overall design was planned to represent the cliffs of Normandy, and the large precast concrete panels help achieve this goal by being cast with multiple angular edges and joints. There are no 90° corners on the project. On different façades, the panels lean in and out at varying angles. On one elevation, for instance, panels lean out at 84° and gradually lean farther near the top of the building. On another elevation, the panels are set at 90° but angle out near the top.

The panels attach to a steel frame, with vertical tube steels located along the grids for connecting the panels. Close coordination between the precaster and the steel subcontractor was required to ensure that the connections aligned perfectly.

Thirteen precast concrete panels serve as a roof deck, with some cantilevering more than 10 ft (3 m). Other panels were erected inside, requiring special coordination to ensure no structure was created that would prevent erection of these panels.

JUDGES' COMMENTS

"This project provides one of the best pieces of design in the entire competition. The unique shapes and the way they were articulated on the façade, with planes in and out, made its appearance very effective. We also liked the cornice and the capability to accomplish goals with precast that traditionally would be done with other materials. The designers made good use of precast concrete's versatility to create forms while gaining strength to avoid wind- and weather-related issues. It's a beautiful building that's well detailed, nicely handled, and very interesting in form and development."

Best University Project, Cowinner
Indiana University Innovation Center
Bloomington, Ind.

Owner Indiana University Department of Facilities, Bloomington, Ind.

Architect/Engineer BSA Lifestructures, Indianapolis, Ind. (www.bsalifestructures.com)

Contractor Messer Construction, Indianapolis, Ind.

Precaster High Concrete Group LLC, Denver, Ind. (www.highconcrete.com)

Project Size 40,000 ft² (3700 m²)

Project Cost $10 million

JUDGES' COMMENTS

"This building was singled out for the ways that it uses precast concrete both for its forming ability and for its ability to meet sustainability goals that perhaps other materials couldn't have met. It's also an interesting piece of architecture. It integrates different materials well into the overall context of the building, and it's also beautifully integrated into the landscape. It was well put together and nicely detailed. It creates a nice solution for this need."

Photo courtesy of High Concrete Group LLC

The ability of insulated precast concrete wall panels to quickly be erected while providing an aesthetic design that allowed a university business-park structure to fit into the surrounding architectural context created early innovation for the Indiana University Innovation Center in Bloomington. The insulated panels also helped the two-story project achieve LEED silver certification.

The building, which represents the first phase of an information-technology and technology-transfer economic-development zone, consists of an innovation center that provides modular labs and offices to emerging companies. By the time the university awarded the project, three months of its available 15-month inception-to-occupancy time frame had been used. To expedite its aggressive schedule, university officials included a precast concrete option in its RFP, which the team used.

Buff-colored precast concrete walls emulate the Indiana limestone of nearby buildings and counterbalance the structure's glass curtain wall and dark brown metal panels. Reveals break up the precast concrete panels. Curtain-wall mullions bleed across to continue the line established in the precast concrete panel spacing. In one vestibule, the precast concrete is turned inside to provide visual continuation and also a durable surface in a high-traffic area.

The precast concrete sandwich panels feature a 3 in. (75 mm) layer of rigid extruded polystyrene foam insulation and carbon-fiber wythe ties to deliver an *R*-value of 15 with extremely low thermal conductivity. The insulated panels were applied heavily to the north and south elevations, while metal panels and continuous-glass curtain walls were used on the upper portions of the east and west façades.

A canopy over the entrance was mounted using outriggers attached to embeds in the precast concrete panels. The canopy implies the continuation of other metal elements on the façade, with a second metal panel on the east elevation serving as a visual connector.

Best University Project, Cowinner
CEDETEC
Atizapán de Zaragoza, Mexico

Owner/Engineer/Contractor Instituto Tecnologico de Estudios Superiores Monterrey, Atizapán de Zaragoza, Mexico

Architect LANDA Arquitectos, San Pedro, Mexico (www.landaarquitectos.com)

Precaster PRETECSA, Atizapán de Zaragoza, Mexico (www.pretecsa.com)

Project Size 157,500 ft² (14,600 m²)

Project Cost $4.5 million

JUDGES' COMMENTS

"This academic center creates a striking yet simple form with its circular tower and basic structure. We liked the way the precast concrete forms created different appearances from just one form, providing a cost-effective solution. The building stands out. It's not a project that blends in at all, which was the intent. It has a unique look that works quite well, and the colors are perfect. No other material would have provided this level of fine finish in this particular shape with this kind of patterning."

PPRETECSA Archive

A creative combination of architectural precast concrete panels in varying positions and textures creates a pictorial composition in a rustic, brutalist style for this academic center in Atizapán de Zaragoza, Mexico. The unique shape for the 12-story CEDETEC building, which from a distance resembles a cylindrical circuit board, was achieved with more than 300 curved architectural precast concrete panels cast with a white-marble aggregate.

The building, which is dedicated to technology education and academic research, houses classrooms and laboratories for the development of low-cost energy and sustainable-design techniques, digital systems, prototypes, multimedia, and network systems. As such, officials wanted an architectural plan that exalted creativity, research, and knowledge.

The curved precast concrete panel sections were combined in different positions to create pictorial compositions, which minimize the required casting beds while achieving a varied look. The variety of the façade appearance was enhanced with randomly placed embedded windows. Imitation tier wires were cast into the panels to simulate a cast-in-place look, and the panels were attached to a cast-in-place frame.

The combination of designs contributed to the building's objective of communicating a sober and innovative image in harmony with its essential function. It also was accomplished quickly: The panels ranged in size from 26 ft² to 97 ft² (2.4 m² to 9.0 m²) and were erected in three months.

Best Healthcare Facility, Cowinner
Methodist Women's Hospital
Omaha, Neb.

Owner Methodist Health System, Omaha, Neb.

Architect/Engineer HDR Inc., Omaha, Neb. (www.hdrinc.com)

Contractor MCL Construction, Omaha, Neb.

Precaster Coreslab Structures (OMAHA) Inc., LaPlatte, Neb. (www.coreslab.com)

Project Size 443,000 ft² (41,100 m²)

Project Cost $101 million

The new 116-bed, all-private-room hospital and companion medical-office building at Methodist Women's Hospital was designed to meet the increasing demand for high-quality women's healthcare in the Omaha, Neb., area. The design team chose to feature architectural precast concrete panels with embedded thin brick on the façade, providing a traditional look with a contemporary material that sped up construction and added durability.

The project highlights how the look of masonry can be replicated or even enhanced with thin-brick precast concrete panels without having to deal with the challenges of weather and mason availability, which typically are concerns associated with field-laid masonry. Serving as a canvas to allow architects to stretch the limits of design, the embedded thin brick features darker-colored bricks in the reveal areas to produce shadow effects.

The thin-brick panels provided a clean look without through-wall flashing or weep holes. A stack-bond pattern was used to lessen the visual impact of the vertical joints between panels. Creating the intricate, embedded thin-brick reveals required precision during the manufacturing process. Corner and edge-cap bricks are located around the recesses to create the dramatic reveal effect without exposing the concrete. Plane changes in several panels provide transitions from the buff panels to projected thin-brick facing.

The panels aided the project's fast-track schedule because components could be fabricated off-site while progress on other activities continued on-site. The building's enclosure coincided with the end of the construction season, bringing the project in on a schedule that could not have been met using other materials.

JUDGES' COMMENTS

"This project was very successful with its composition. It strongly distinguishes between the procedural platform at the base clad in architectural precast concrete that combines a limestone and brick aesthetic and the glass podium …. The precast concrete does a wonderful job of anchoring the project to the site, while the patient care tower floats above. Another successful aspect is the use of landscape plazas and public green spaces, which are enhanced by the thin-brick panels to create a nice pedestrian scale for these spaces."

Photo courtesy of HDR Architecture, Inc.; © 2010 Ari Burling

Best Healthcare Facility, Cowinner
St. Joseph Regional Medical Center
Mishawaka, Ind.

Owner St. Joseph Regional Medical Center, South Bend, Ind.

Architect/Engineer HOK, St. Louis, Mo. (www.hok.com)

Contractor Mortenson/Tonn & Blank, Elk Grove, Ill.

Precaster Gate Precast Co., Winchester, Ky. (www.gateprecast.com)

Precast Specialty Engineer Gate Precast Co., Lexington, Ky.

Project Size 663,000 ft² (61,600 m²)

Project Cost $355 million

Photo by Paül Rivera, archphoto 2009

The exterior design for the St. Joseph Regional Medical Center, a 254-bed replacement community hospital in Mishawaka, Ind., was designed to integrate the building seamlessly into the local community. To achieve this, architects combined architectural precast concrete panels cast to simulate native limestone with panels embedded with a thin-brick veneer.

Warm, buff-colored precast concrete panels with a sandblasted finish define the three-story diagnostic and treatment spaces that form the base of the structure. The five stories devoted to intensive-care and patient rooms are clad with red thin-brick panels. The brick was a last-minute decision by the client that was incorporated smoothly into the design process. Horizontal bands matching the buff precast concrete panels unify the tower and base. Unique windows with extended top lights bring natural light into the patient rooms. A five-story precast concrete cross, with a white glazed ceramic inset, is integrated into the stair tower.

The insulated panels eliminate thermal breaks at corners and optimize the building's thermal characteristics. Plastic sheathing extends into the panel joints with two lines of caulk, creating a complete water-vapor barrier.

Earthquake-design requirements also created challenges in which the precast concrete panels provided help. The exterior brick-inlay architectural precast concrete skin was designed to allow 2 in. (50 mm) of story drift to meet seismic design requirements. This was accomplished more easily with the panelized design, which spanned from floor to floor and column to column. Each panel was independent from adjacent panels in every direction, allowing sufficient movement if needed.

The panels also reduced enclosure time over hand-set, bed-depth brick, which sped up the schedule while reducing costs.

JUDGES' COMMENTS

"A community hospital has to have a strong identity. This project achieved that goal with a strong entrance component, which created a highly visible entry to direct visitors as they approach. The precast concrete was integrated well, with a lot of nice detailing and use of different cladding materials to break down the large massing. This design was quite successful at making people feel welcome and not intimidated as they come to the hospital."

Best Multifamily Building
The Carlyle (The Century Wilshire Condominiums)
Los Angeles, Calif.

Owner EI Ad Group, New York, N.Y.

Architect KMD, San Francisco, Calif. (www.kmdarchitects.com)

Executive Architect Harley Ellis Devereaux, Los Angeles, Calif.

Engineer Englekirk Partners, Los Angeles, Calif.

Contractor Swinerton Builders, Los Angeles, Calif.

Precaster Clark Pacific, Fontana, Calif. (www.clarkpacific.com)

Project Size 300,000 ft² (28,000 m²)

Project Cost $90 million

© Paul Turang

Precast concrete architectural panels played a key role in achieving the dramatic aesthetic design sought for The Carlyle (Century Wilshire Condominiums), a 24-story, luxury high-rise condominium project in Los Angeles, Calif. Complicating the production of the required wall and spandrel panels, as well as column covers, was that each floor contains 48 corners, creating a highly vertically articulated structure.

With a kinetic, piston-like twin-tower design, the building features a boomerang floor-plan configuration that captures streetscape views to the east and west with outstretched arms. The 65 ft (20 m) front setback provides opportunities for passersby to inspect the changing visage of the building's architectural image as they move along the 200 ft (61 m) boulevard frontage.

The design harks back to classic tripartite architectural systems, with a base, shaft, and capital. The base consists of limestone- and granite-clad precast concrete panels with some unique joinery used to create overlapping stones, epoxied cornerstones, and 1 in. (25 mm) of recessed, exposed precast concrete backup on the horizontal stone joints with a smooth finish.

The shaft portion features 23 stories of residential units, 4 per floor, clad with 5-in.- (130 mm) thick architectural precast concrete wall and spandrel panels. Reveal patterns predominantly in a 2 ft × 2 ft (0.6 m × 0.6 m) size with random light- to heavy sandblast patterns were used to simulate the limestone on the base. The precaster masked off different portions of each panel in the yard prior to finishing them to create some deeper sandblasted finish, creating more variety.

In all, 762 panels were used, with 80% of them consisting of corner column covers. Due to their varied shapes and sizes, as well as the consistent high-quality finish desired, the panels required more than 1200 castings. The 2 ft (0.6 m) reveals and metal accents emphasize the classical architectural motifs while providing a contemporary appearance.

JUDGES' COMMENTS

"This project provided an excellent marriage between the precast concrete and the other materials, creating a lot of detail and good articulation both at the crown and at the pedestrian level. The precast concrete showed its capability for creating a stone appearance on a smaller budget. It provided a nice solution to enhancing value while also ensuring resistance to wind that is necessary for a taller structure. It also provided a good speed of construction, which minimized speed to market, which developers always are interested in accomplishing."

Best Hotel
Conjunto Paragon
Santa Fe, Mexico

Owner Condominio Paragon, Santa Fe, Mexico

Architect IDEA Asociados de México S.A. de C.V., Alvaro Obregon, DF, Mexico (www.ideasociados.com)

Precast Concrete Specialty Architect PRETECSA, Atizapán de Zaragoza, Mexico

Engineer DYS S.A., Col. Del Valle, Mexico

Contractor DEZ Construcciones, S.C., Miguel Hidalgo, Mexico

Precaster PRETECSA, Atizapán de Zaragoza, Mexico (www.pretecsa.com)

Project Size 414,400 ft^2 (38,500 m^2)

Project Cost $35 million

PRETECSA Archive

This high-rise Conjunto Paragon hotel in Santa Fe, DF, Mexico, boasts a winding, S-shaped design that created challenges in fabricating the architectural precast concrete wall panels with which it was clad. Precisely fabrication of the panels was the key to defining the unique shapes needed. Complicated geometry, curved panels, intricate medallions, cubic protruding shapes, and balconies called for high-quality manufacturing.

The 29-story building was sited on the highest ground in the recently developed area, making it a prominent landmark. Its massive size was slimmed visually with the undulating design, which blends the precast concrete panels with large windows that give expansive views of the landscape.

The panels had to be vertically aligned with the façade's harmonious curves while providing easy fabrication and installation of curved precast concrete elements. The panel shapes were optimized using three-dimensional modeling. A flexible-form casting system significantly reduced the number of molds needed, requiring only a few turns of nuts and bolts to adjust them to the next needed radius.

The panels were erected in a horizontal sequence, which led erectors to maintain close spacing between panels at an early stage of the project. This format released large sections of the façade for the placement of glass and protected crews working on interior finishes as each portion was completed.

The early close-in also allowed owners to offer the space to hotel chains before the interiors were finished. This, in turn, allowed the selected hotels to adapt interiors to their specific needs as each was constructed.

Wind, site restraints, project height, the winding design, the protruding windows at the top floors, and the construction schedule all created challenges that could have only been met with the precast concrete architectural panels.

JUDGES' COMMENTS

"This hotel jumped out at all the jurors and spoke to us as being well thought out. There were a number of innovative elements. These included the curved panels cladding the complicated S shape and the repetitive recesses that added an interesting detail to the curve's simplicity. The precast concrete also provided a durable material that projects a strong, fireproof image, one that speaks to both goals of solidity and comfort. The patterning was well detailed and finely handled. It's a beautiful application of precast."

Best Retirement/Assisted Living Center
Résidence Le Saint-Jude
Alma, QC, Canada

Owner BPDL, Alma, QC, Canada

Architect EPA Èric Painchaud Architecte, Chicoutimi, QC, Canada (www.epaarchitecte.com)

Engineer Gemel Experts Conseils, Alma, QC, Canada

Contractor BPDL, Alma, QC, Canada

Precaster Bétons Préfabriqués du Lac, Alma, QC, Canada (www.bpdl.com)

Precast Concrete Specialty Engineer Axys Consultants, Ste-Marie de Beauce, QC, Canada

Project Size 115,200 ft² (10,700 m²)

Project Cost $15 million (Canadian)

Photo courtesy of Èric Painchaud, architecte

An all–precast concrete structural system, along with architectural precast concrete panels in varying shapes, finishes, and colors, created a dynamic exterior appearance for the Résidence Le Saint-Jude retirement facility in Alma, QC, Canada. Designers chose total–precast concrete construction for its aesthetic possibilities; durability; resistance to fire, earthquakes, and high winds; and its speed of erection.

The structural frame for the project, a six-story residential center with 126 units, consists of precast concrete columns, beams, floor slabs, insulated wall panels, stairs, and balconies. The precast concrete frame created large open spaces while maintaining excellent sound insulation between floors. It also sped construction; electrical and plumbing work began as each section of the frame was completed. Precast concrete stairs also allowed quick access between floors, ensuring a clean and safe working area.

The exterior wall design juxtaposes a red hammered finish on balconies with a sandblasted beige finish at the apartment levels. At the ground floor, a mosaic integrates cast stone in large sections of the precast concrete walls with false joints and several abrasive treatments. In the corridors, the panels were given a slight sandblast finish, reducing maintenance requirements.

The precast concrete walls also are part of a seismic- and wind-forces recovery system that was spread across several structural elements. This system reduced the number of connections between panels, which enhanced construction speed.

The panels were transported to the site using special trailers, which allowed all windows and other glass areas to be installed at the precaster's plant in advance. This saved time and money by reducing the number of components that had to be installed on-site. The panels' textures and shapes were highlighted further after erection with a special exterior lighting system.

JUDGES' COMMENTS

"The jury liked this retirement home because it didn't look like a retirement home, thanks in part to the use of precast concrete. It provides a strong image while also retaining a sense of home that is important. It speaks to the versatility of precast that it could be so flexible with curved spandrel panels that could be rusticated to stand out so well. This project speaks to the beauty of precast concrete in its ability to be cost effective while providing design flexibility beyond what most materials can do."