

Winning Designs

The 2009 PCI Design Award Winners once again prove that precast concrete can meet the structural, aesthetic, sustainability, scheduling, and budgetary goals of project owners.

The 47th annual Design Awards Competition sponsored by PCI drew projects from across the industry, showcasing the ways that precast concrete has become an indispensable option in the quest to build exceptional structures across North America. The award winners comprise an array of complex projects, including two buildings on the historic Boston College and University of California, Berkeley, campuses and a Leadership in Energy and Environmental Design–certified affordable housing complex that demonstrates the cost-effective sustainable attributes that precast concrete delivers.

The designers on each project used precast concrete in innovative ways, often meeting difficult schedule, design, and aesthetic challenges specifically by incorporating precast concrete solutions into the plans.

Twelve projects won awards in a variety of categories, including Best Retail/Mixed-Use Building, Best Office Building, Best Parking Structure, and Best Multi-Family Building. The judges also conferred awards for the Best Custom Solution and the Sustainable Design Award.

Eight additional projects were granted Honorable Mentions.

The following pages showcase the buildings projects selected by the Buildings and Special Awards juries. The honors will be presented to representatives of each project during PCI's 55th Annual Convention and Exhibition and National Bridge Conference September 12–15, 2009, in San Antonio, Tex., at the Marriott Rivercenter and Henry B. Gonzalez Convention Center.



Courtesy of Paul Grigoris.

Buildings jury (from left)

Drew Ranieri, AIA
Associate Principal
Solomon Cordwell Buenz & Associate
Chicago, Ill.

Josephine Minutillo
Senior Editor
McGraw-Hill Co. Inc.
New York, N.Y.

Walter Hainsfurther, FAIA
President
Kurtz Associates Architects
Des Plaines, Ill.

Randy Dhar, OAA/PP, FRAIC, Hon. FAIA
President Elect
Royal Architectural Institute of Canada
Toronto, ON, Canada

Ted Herr, AIA, CSI, CDT
Director of Technical Services
Eckenhoff Sauders Architects
Chicago, Ill.



Courtesy of Paul Grigoris.

Special awards jury (from left)

Roger Becker, P.E., S.E.
Precast Division Vice President
The Spancrete Group, Inc.
Waukesha, Wisc.

Doug Widener, LEED AP
Chicago Chapter Executive Director
U.S. Green Building Council (USGBC)
Chicago, Ill.

David P. Nasser, P.E.
Texas Office Vice President
The Consulting Engineers Group, Inc.
San Antonio, Tex.

47th Annual PCI Design Awards

Special Awards

Sustainable Design Award

Melrose Commons Site 5 Affordable Housing Building
Bronx, N.Y. 10

All-Precast Solution Award

The Aviation Rescue Swimmer School and Physical Fitness Center
Pensacola Naval Air Station, Pensacola, Fla..... 12

Stillwater Public Library
Stillwater, Minn. 14

Buildings

Best Multi-family

The Irene and George Woodruff Family Residence Center
Atlanta, Ga. 16

Best Office Building

Edward Jones North Campus Building B2
Maryland Heights, Mo. 18

Best Public/Institutional Building

Two Waters Salt River Pima-Maricopa Indian Community Tribal Government
Complex
Phoenix, Ariz. 20

Best Parking Structure

Blue Cross Blue Shield of Michigan Parking Structure
and Campus Improvements
Detroit, Mich. 22

Best Retail/Mixed-Use Building

South of Market Office and Retail Complex
Reston, Va..... 24

Best School

Restoration of Boston College's Gasson Hall Tower
Chestnut Hill, Mass. 26

Sutardja Dai Hall Technology Building
Berkeley, Calif..... 28

Best Stadium

Citizens Business Bank Arena
Ontario, Calif..... 30

Best Custom Solution

The Annenberg Community Beach House
Santa Monica, Calif. 32

Honorable Mention

Best Custom Solution

Colonnade at York University Performing Arts
and Academic Building
Toronto, ON, Canada 34

Best Office Building

U.S. Bank Tower at 621 Capitol Mall
Sacramento, Calif. 34

Harry H. Edwards Industry Advancement Award

Principal Child Development Center/Principal Parking Structure
Des Moines, Iowa 35

Sustainable Design Award

Mexico City Church of Jesus Christ of Latter-Day Saints
Mexico City, Mexico..... 35

Best School

Henry Madden Library at Fresno State University
Fresno, Calif. 36

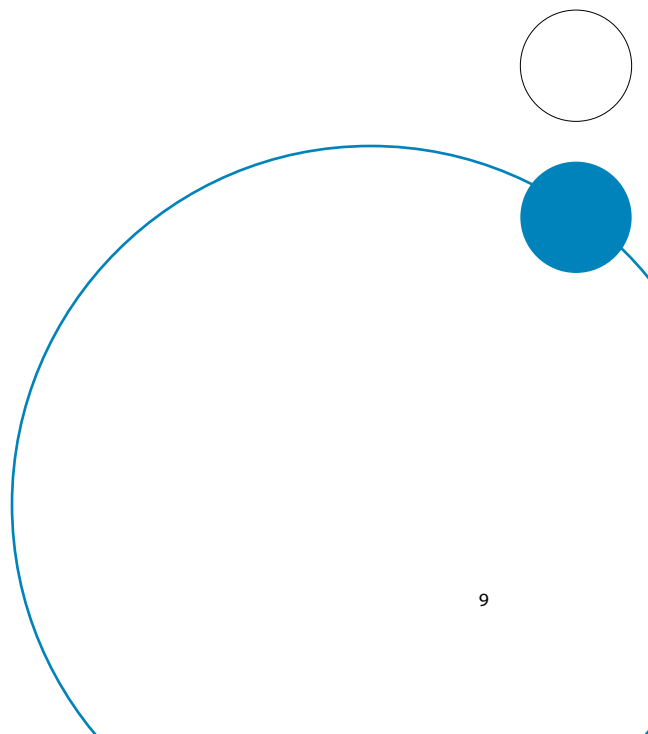
Best Stadium

Lucas Oil Stadium
Indianapolis, Ind. 36

Best Public/Institutional Building

North Central College Wentz Concert Hall and Fine Arts Center
Naperville, Ill. 37

Harm A. Weber Academic Center at Judson University
Elgin, Ill. 37



Owner

Blue Sea Development Co. LLC, New York, N.Y.

Architect

Equus Design Group, Belmont, Mass.

Architect of Record

Danois Architects, New York

Engineer of Record

William Atlas Associates, New York

Contractor

Blue Sea Construction, New York

Precaster

Oldcastle Precast Building Systems, Edgewood, Md.

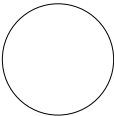
Additional Team Members

Equus Design Group, Belmont, Mass.

Sustainable Design Award Melrose Commons Site 5 Affordable Housing Building Bronx, N.Y.



The precast concrete allowed for large window openings to bring in more daylight than would typically be found on masonry-constructed affordable housing projects.



The Melrose Commons 5 affordable housing complex project is proof that affordability and environmentally friendly design can go together. Located in the heart of the Bronx in New York, this five-story, 71,640 ft² (6655 m²) building is awaiting the U.S. Green Building Council's (USGBC's) Leadership in Energy and Environmental Design platinum certification, the highest rating from the USGBC.

These accomplishments were achieved through the use of a total-precast-concrete solution.

"Originally designed as a masonry building, the owner had the project redesigned using precast concrete to take advantage of precast's speed of erection, minimal air infiltration, durability, less material waste, and inherent green building properties," says architect Michael Smith of Equus Design Group in Belmont, Mass.

The building superstructure is built entirely of precast concrete components, utilizing load-bearing exterior wall panels and an interior load-bearing corridor wall. The floors and roof are 8-in.-thick (200 mm) hollow-core, and the stairwells, stairs, landings, roof penthouses, and elevator shaft are all made of precast concrete. The voids in the hollow-core units are used to horizontally exhaust each housing unit, saving valuable floor by not requiring a vertical chase through the floors to the roof.

The use of precast concrete wall panels reduced the number of exterior joints, reducing air and moisture infiltration and creating a more energy-efficient envelope. The precast concrete also allowed for large window openings to bring in more daylight than would typically be found on masonry-constructed affordable-housing projects.

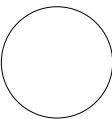
The precaster installed all of the window and door headers and sills at the plant, saving time and the need for an on-site scissor lift on the project.

"Using a total precast building system and embedded thin-brick veneer enabled the project to be quickly erected with limited disturbance or impact to adjacent properties and neighbors," Smith says.

JUDGES' COMMENTS

From an overall sustainability standpoint the judges liked this project because it was a nice mixture of affordable housing and affordable green. A lot of the unique aspects of the project that related to precast were the fact that the precast contributed so much across so many areas of sustainability, from local selection, local manufacturing, energy efficiency, everything from reduced construction waste and dealing with tight construction time lines and windows. It had three precast aspects that were well suited. One was its cost-effectiveness, the second is its attractiveness, lastly it met sustainability criteria really well, and the platinum LEED certification was probably a clincher.

Photos courtesy of Oldcastle Precast Building System.



All-Precast Solution Award, Co-winner **The Aviation Rescue Swimmer School and Physical Fitness Center** Pensacola Naval Air Station, Pensacola, Fla.



APS

Owner U.S. Navy, Pensacola, Fla.

Architect C. H. Guernsey & Co., Oklahoma City, Okla.

Engineer of Record C. H. Guernsey & Co., Oklahoma City

Contractor Dick Corp., Pittsburgh, Pa.

Precaster Gate Precast Co., Monroeville, Ala., and Gate Concrete Products Co., Jacksonville, Fla.

Precast Specialty Engineer PTAC Consulting Engineers, Pensacola

Additional Team Members Zahi-Ford, Inc., Oklahoma City



“The precast [concrete] building system can withstand both external weather elements and [take antiterrorism/force protection] measures.” — David Oman, director of architecture



Photos courtesy of J.D. Merryweather, Merryweather Photography, jdmerryweather@gmail.com.

The Aviation Rescue Swimmer School and Physical Fitness Center at the Pensacola Naval Air Station in Florida used a total-precast-concrete solution to design a facility that meets the physical fitness and training needs of the community in a structure rigorous enough to withstand hurricane-strength winds.

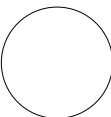
The nearly 35,000 ft² (3300 m²) Rescue Swimmer School within the center was built to train rescue swimmers to perform search-and-rescue missions in the water. At the heart of the facility is a state-of-the-art 82 ft × 168 ft (25 m × 51 m) wave pool with two 9H1 helicopter simulator towers, two open parachutes, and a hydraulic bridge to support training operations. Attached to the towers are two large spray heads that mimic rotor wash.

Architects chose a total-precast-concrete-brick paver solution for these two buildings because it met the architectural aesthetic desires, antiterrorism/force protection (AT/FP) requirements, and structural durability needs for extreme weather conditions of Florida while maintaining an environmentally responsible design.

The structures were built to withstand hurricane forces through the use of 103-ft-long (31 m) double-tees that span the entire roof structure of the pool portion of the building.

A solid, precast concrete, insulated wall system with a built-in vapor barrier was used on both facilities to separate indoor and outdoor temperatures, reducing condensation that can lead to mold and mildew. Electrical boxes and conduits were plant cast into the walls, and load-bearing wall panels replaced perimeter steel beams and columns so that there was no need for redundant exterior wall framing.

“The precast building system can withstand both external weather elements and AT/FP measures while maintaining a structure that is aesthetically pleasing, environmentally responsible, and functional for the Navy’s mission,” says David Oman, director of architecture for C. H. Guernsey & Co. in Oklahoma City, Okla.



JUDGES’ COMMENTS

The 100-foot clear span utilizing the double tees and the insulated wall panels were both ideal precast solutions for this project. A pool environment requires durability, uncracked concrete. It requires a good thermal envelopes. This was provided in this project with double-tees for a roof, very durable, insulated wall panels for the moisture resistance, the humidity that you experience in a pool building. All of the precast elements in this building were perfectly applicable to the occupancy requirements.

Owner Stillwater Public Library, Stillwater, Minn.

Architect Miller Dunwiddie Architecture, Minneapolis, Minn.

Engineer of Record MJB Consulting Structural Engineers, Minneapolis

Contractor Adolfson & Peterson, Minneapolis

Precaster Molin Concrete Products Co., Lino Lakes, Minn., and American Artstone, New Ulm, Minn.

Precaster Specialty Engineer Molin Concrete Products Co., Lino Lakes

APS

*Designers were able to mimic
the carved limestone detailing
of the original structure using
special forms for the precast concrete.*



All-Precast Solution Award, Co-winner Stillwater Public Library Stillwater, Minn.



The renovation of the Stillwater Public Library, in Stillwater, Minn., an original 1902 Andrew Carnegie design, used a total-precast-concrete solution to create open, inviting spaces and more parking while adhering to the building's turn-of-the-century design and \$10 million budget.

Designers used hollow-core units; precast, prestressed concrete beams and columns; and custom precast concrete architectural components to provide a better overall experience within the 56,000 ft² (5200 m²) space. Meetings early on in the design process allowed the design teams and precasters to coordinate their efforts and to save time and money by simultaneously producing shop drawings and general plans.

Originally designed as a cast-in-place concrete structure, precast structural concrete gave the designers a plant-cast product that could be installed during the cold Minnesota winter. A combination of precast concrete hollow-core units, beams, and columns were used to construct the parking structure as well as large open conference rooms and an open-air terrace overlooking the river valley below.

Budgetary issues early in the project slowed the progress of the building, but once funds had been raised, the owners wanted the project to push ahead as quickly as possible. This created a tight schedule that was greatly aided by the shorter lead times that precast concrete offered.

Designers were able to mimic the carved limestone detailing of the original structure using special forms for the precast concrete, thus achieving the original architectural look and feel with a more cost-effective and durable material. Topping off the entry is the signature elliptical covered archway, which is typical of all Carnegie Libraries. On the plaza deck are window surrounds and more columns, matching the expression of the original elements on that elevation of the existing structure.

"The end result was a seamless integration of the new and the old," the architect says.

JUDGES' COMMENTS

The use of precast concrete on this project caught the judges' eye because they were able to replicate the existing historical structure and do it in a timely and economical fashion. In addition to this project using all-precast elements to create the building, the structure, the facade, architectural precast was used to replicate older-style construction materials, particularly limestone. That type of construction is just not economically feasible anymore, and architectural precast just does a terrific job in replicating the unique characteristics of that older-style construction to make a wonderful-appearing project.



Photos courtesy of Adalison & Peterson.

Owner Shepard Spinal Center, Atlanta, Ga.

Architect Howell, Rusk Dodson Architects, Atlanta

Engineer of Record Rosser International, Atlanta

Contractor Choate Construction, Atlanta

Precaster Metromont USA, Dalton, Ga.

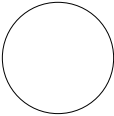
Precaster Specialty Engineer Metromont Corp., Atlanta

Project Cost \$14.1 million



*Erection of the 526
precast concrete
components
took a mere 45 days.*

Photos courtesy of R. Moon.



Best Multi-family

The Irene and George Woodruff Family Residence Center

Atlanta, Ga.



The Irene and George Woodruff Family Residence Center in Atlanta, Ga., is an on-campus residence facility of the Shepherd Spinal Center, a not-for-profit hospital dedicated to the care of catastrophic spinal-cord injuries. The objective of the 87,000 ft² (8100 m²) facility is to keep families involved in patients' rehabilitation and to provide emotional support during therapy and training.

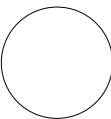
Accessibility to meet the needs of users who face innumerable physical challenges had to be the top priority for designers. Because it is a not-for-profit hospital, the \$14.1 million construction budget had to be stretched as far as possible.

The project team agreed that a total precast concrete solution would be the best way to achieve these goals, both because it would deliver schedule advantages and offer the best opportunity to control the cost of construction.

Design began in May 2006, and construction was completed in May of 2008, with erection of the 526 precast concrete components taking a mere 45 days. The precast concrete components included double-tees; beams, and inverted-tee beams; interior, insulated wall panels; and exterior wall panels with brick veneer that mimics the designs of other campus buildings.

To address usability issues, kitchens and bathrooms in the 84 residential units feature state-of-the-art, barrier-free designs, and the floor levels of the center are aligned with the parking structure levels for easy access. Small but open gathering spaces are also included on each floor to facilitate patient and family interaction.

"This approach has proven successful in meeting this client's unique needs," says architect Ron Moon of Howell, Rusk Dodson Architects in Atlanta. "It will be considered a prototype for future campus projects, [and] it should be viewed by architects as a tool that can help provide an attractive building for clients with restrictive budgets."



JUDGES' COMMENTS

The judges appreciated that the project was totally precast, including the structural frame as well as the skin, and what we liked about it in particular was the way that the architect and the fabricator blended together the different materials, different colors, to give it a lot of visual interest. One of the things that really distinguished the building was the fact that it really needs to be repetitive in order to work with precast, but it had a really lyrical rhythm that set up the nature of single-family living within a multifamily building.

Owner Edward Jones, Des Peres, Mo.

Architect Arcturis, St. Louis, Mo.

Engineer of Record Alper Audi Inc., St. Louis

Contractor McCarthy, St. Louis

Precaster High Concrete Group LLC, Denver, Pa.

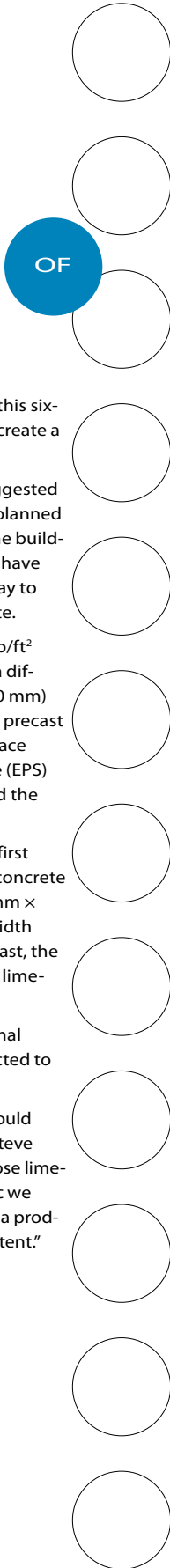
OF

*The design team found a way
to replicate the look of limestone
using precast concrete.*



Best Office Building

Edward Jones North Campus Building B2 Maryland Heights, Mo.



Photos courtesy of Arcturis, www.arcturis.com.

Limestone and precast concrete elements merge in this six-story suburban corporate headquarters building to create a sleek, sophisticated look within a limited budget.

The architect, Arcturis of St. Louis, Mo., originally suggested limestone to achieve a classic urbane style and had planned to apply 50,000 ft² (4600 m²) of it to the exterior of the building. The extensive use of limestone, however, would have exceeded the budget, so the design team found a way to replicate the look of limestone using precast concrete.

The team had to meet the skin design weight of 50 lb/ft² (243 kg/m²) or less with precast concrete or choose a different enclosure material. They chose 8-in.-thick (200 mm) CarbonCast carbon-fiber-reinforced-polymer (CFRP) precast concrete panels, consisting of a 2-in.-thick (50 mm) face backed with 6 in. (150 mm) of expanded polystyrene (EPS) foam insulation. The CFRP precast concrete delivered the same sleek look and weight as limestone.

In the final design, use of limestone is limited to the first floor, while the rest of the building features precast concrete architectural panels formed in a 30 in. × 60 in. (760 mm × 1520 mm) stack-bond appearance using identical-width reveals and panel joints. Finished with a light sandblast, the buff-colored panels create the illusion of monolithic limestone blocks.

The CFRP precast concrete panels also provide thermal efficiency through the EPS insulation, which is expected to deliver energy savings.

“Without the lightweight architectural precast, we would have looked at a metal panel cladding system,” says Steve Hoover, project architect of Arcturis. “But after we chose limestone, we knew metal would not give us the aesthetic we wanted. With precast, we knew we were going to get a product that would closely replicate the original design intent.”

JUDGES' COMMENTS

There was obviously effective reuse of minimal different panel sizes, and you had a very, very well integrated design. We liked the way the precast concrete was integrated with the curtain wall in the project, and the overall proportioning was excellent. The precast had just enough rustication to give the panels interest and not overwhelm it.

Owner

Salt River Pima-Maricopa Indian Community, Scottsdale, Ariz.

Architect

SmithGroup, Phoenix, Ariz.

Engineer of Record

PK Associates, Scottsdale

Contractor

Chuska Sahara Haselden, Centennial, Colo.

Precaster

Coreslab Structures (Ariz.) Inc., Phoenix

Additional Team Members

David Sloan Architects, Albuquerque, N.M.

Project Cost

\$70 million

Best Public/Institutional Building Two Waters Salt River Pima- Maricopa Indian Community Tribal Government Complex Phoenix, Ariz.

Precast concrete panels could easily meet the quality, cost, and schedule needs of the \$70 million project.

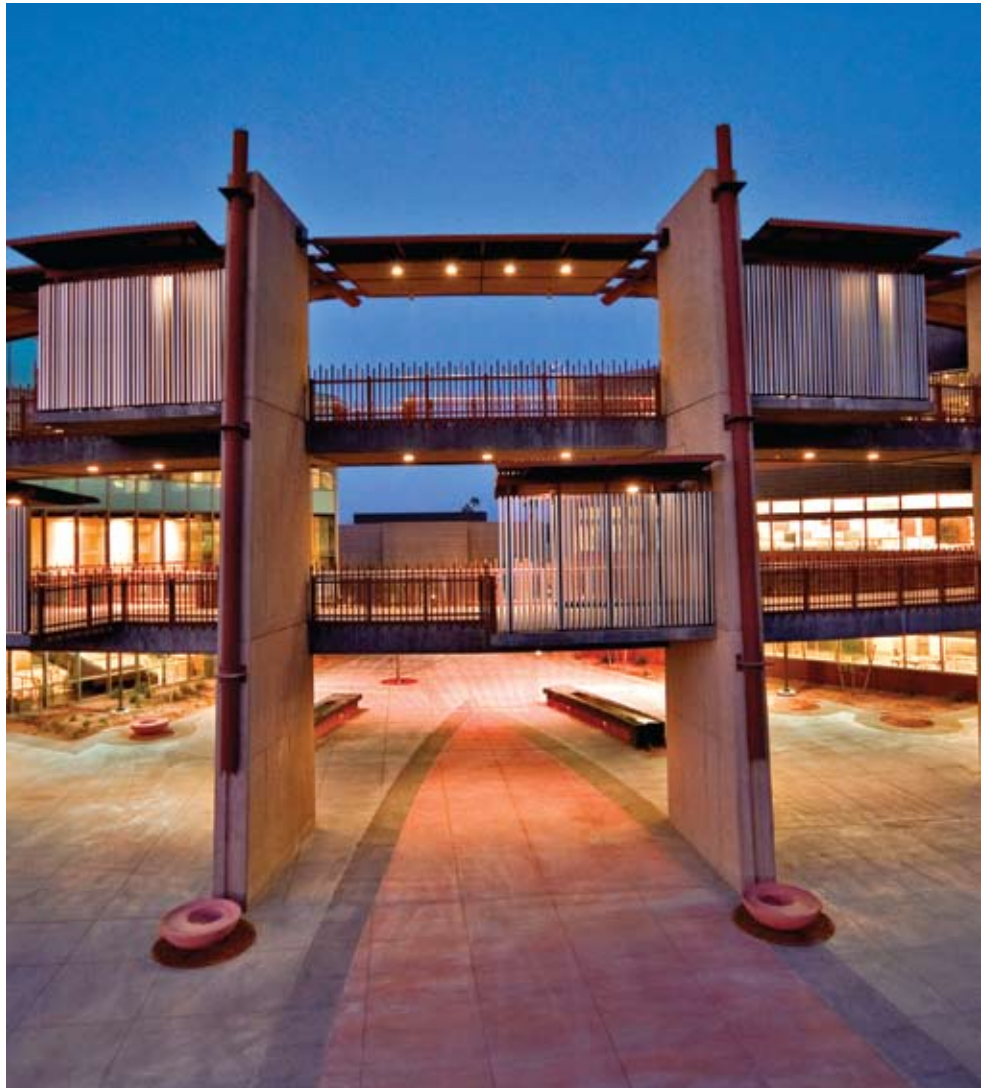
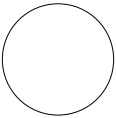


Photo courtesy of Mark Duran.



The architects of the Salt River Pima Maricopa Indian Community Tribal Government Complex in Phoenix, Ariz., wanted to design a centralized location for tribal community members that reflected the cultural belief system and environmental stewardship of the tribal population.

The project included the design of two three-story buildings connected by an open-air, three-story bridge and viewing area totaling 180,000 ft² (17,000 m²). The center would house government offices, cultural displays, and a 220-seat tribal council chamber.

To achieve a traditional look and feel in the structure, the architect had planned to use a battered cast-in-place (CIP) concrete wall and column design that would convey a regional character and sense of handmade construction. However, having a three-story battered wall of cast-in-place concrete posed challenges of quality, cost, and schedule.

Precast concrete panels could easily meet the quality, cost, and schedule needs of the \$70 million project. However, architects were initially concerned that the end product would look too pristine, ruining the weathered effect of the design.

They solved this aesthetic problem by using a varied reveal pattern, integral color, and a sandblast finish to match the natural feel of a CIP-exposed structure. The precast concrete panels were also set at an angle to create the battered look of structural CIP concrete. The addition of richly colored masonry and zinc panels complements the subdued earthen color of the concrete.

The 26 prestressed, precast concrete panels, which totaled 15,210 ft² (1413 m²), took only five days to erect in April 2009 and cost less than \$800,000.

“In working closely with the precaster and through mock-ups, the design team was able to accomplish an organic handmade look that worked with the design intent and integrated well with the cast-in-place concrete,” says Mark Roddy, design principal of SmithGroup in Phoenix.

JUDGES’ COMMENTS

The use of precast concrete in a community-based facility has been handled extremely well, and this is a community where the respect for the land, the respect for culture and tradition, and the building also respects the climatic conditions of that area. The whole project came out to be a successful one because of the use of the precast concrete in various forms, shapes, color, and texture.

Photo courtesy of Mark Duran.



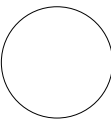
Photo courtesy of SmithGroup.



Photo courtesy of SmithGroup.



Photo courtesy of Mark Duran.



Owner Blue Cross Blue Shield of Michigan, Detroit, Mich.

Architect Neumann/Smith Architecture, Southfield, Mich.

Engineer of Record Desai/Nasr Consulting Engineers, West Bloomfield, Mich.

Contractor Turner Construction Co., Detroit

Precaster National Precast Inc., Roseville

Precaster Specialty Engineer I.E.S., Tecumseh, ON, Canada

Additional Team Members Rich & Associates Inc., Southfield



Photo courtesy of Scott R. Bonney, AIA, design director at Neumann/Smith Architecture.



Photo courtesy of Scott R. Bonney, AIA, design director at Neumann/Smith Architecture.

Photo courtesy of Scott R. Bonney, AIA, design director at Neumann/Smith Architecture.



The total precast concrete solution supports a vegetated roof and walking path, which helped the project achieve LEED certification.



PS

