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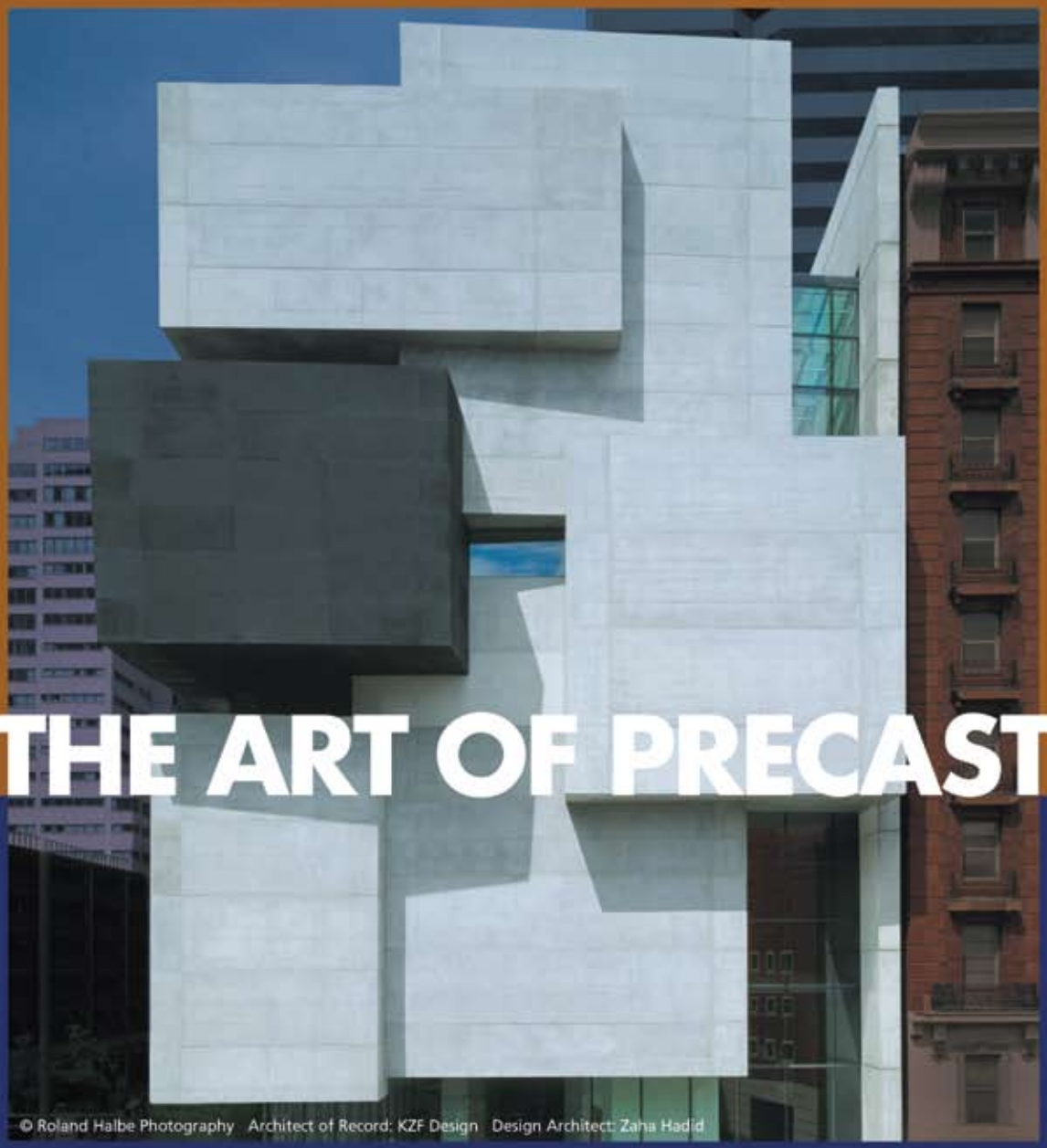

THE ART OF PRECAST™

© Roland Halbe Photography Architect of Record: KZF Design Design Architect: Zaha Hadid

Cutting-edge design meets innovative precast technology in the award-winning Rosenthal Center for Contemporary Arts in Cincinnati, OH. Architects chose High to execute the expressive, black and white, sculptural precast concrete facade because they knew High precast would be most effective in enhancing the dramatic play of light and shadow on the jigsaw puzzle-like facade. Using a blend of aggregates and a combination of innovative, high-range, water-reducing, and viscosity-modifying admixtures, structural needs were met and the finished product is stunning. High's unparalleled commitment to new technology and innovation at their PCI-certified plants has led to solutions like this and advancements including carbon fiber C-GRID® reinforced CarbonCast®—precast that's stronger, lighter, better insulating, and more durable, allowing a virtually unlimited selection of colors, textures, and finishes. And High's exclusive 15' and 16'-wide MEGA-Tee deck systems enable wider spans and more open plans with shallower tees in precast-framed buildings and parking garages. With expert technical assistance in all phases of a project, from design to erection, High gives architects and engineers the flexibility to explore unique solutions while ensuring a job is completed on schedule and on budget. Call High Concrete to learn more about the Art of Precast.

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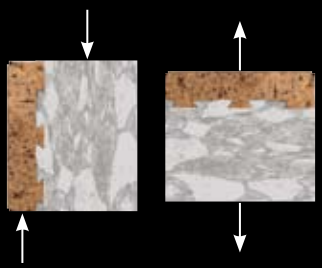
Endicott's unique "keyback" design mechanically locks Thin Brick into the concrete for maximum durability and permanence.



The "keyback" design also provides advantages of increased shear values and pull-out strengths.

Beauty and Practicality

Thin Brick is one of the favored finishes for today's high-tech precast concrete panels. Endicott's specially designed "keyback" configuration creates a natural marriage between the desired look of brick and the practicality of precast.

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Winners Showcase Precast's Capabilities

Chuck Merydith
Executive Editor

The winners of this year's 46th annual PCI Design Awards competition comprise innovative projects from throughout North America. These projects were picked from a wealth of entries, many of which had creative designs that are worthy of note. This number of this year's contributions was among the most ever received for the competition.

The projects underlined the variety of reasons why designers specify architectural and structural precast concrete components for their projects. Among those often cited by designers in their entry materials were:

- **Speed of completion:** Designers take advantage of the ability of precast concrete components to be cast under controlled conditions in the plant while site preparation begins. That helps ensure that the shell is erected quickly, giving interior trades faster access. The capability to continue construction through winter weather was often cited.
- **Economy:** Total-precast concrete structures can combine architectural and structural components, lowering costs. Long-term maintenance costs can also be minimized compared with other materials. Bringing the building on-line more quickly means that it can generate revenues sooner.
- **Aesthetic treatments:** Precast concrete can replicate the appearance of stone, granite, and other masonry products and can produce intricate details of all types. Some precasters use formliners to create brick looks or embossings.
- **Codes:** Building codes nationwide are being tightened to ensure that buildings meet stricter seismic requirements and can cope with natural disasters such as high winds and wildfires. Designers in turn see the benefits provided by precast concrete's durability and inherent fire resistance.
- **Sustainable design:** Virtually every owner today wants to maximize the building's environmental friendliness. Precast concrete helps reach those goals in a variety of categories, including energy efficiency, waste reduction, and recycled content.
- **Mixed-use capabilities:** To reduce footprints and the heat-island effect, more projects are including parking levels in their structure—and more parking structures are including revenue-generating retail spaces. Precast concrete helps create a fire separation between parking levels and other spaces, and its long-span capability ensures easy adaptability of layouts for all types of tenants.

Precasters continue to refine their techniques and expand their technologies, producing highly engineered products that can be cast to meet specific needs of many types. By bringing the precaster onto the construction team early in the design process, designers ensure that the maximum benefits are achieved. Precast concrete helps reduce costs, speed construction, and enhance aesthetics—the three most important elements when creating any project. ■

Ascent is a publication of PCI
(Precast/Prestressed Concrete Institute)

ASCENT

On the cover: Hubbell Lighting Inc. Corporate Headquarters, Greenville, S.C. (see page 29)*

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- **POSTMASTER:** Send address changes to *Ascent*, 209 W. Jackson Blvd., Suite 500, Chicago, IL 60606-6938. Periodical postage paid at Chicago, IL and additional mailing offices.
- *Ascent* (Vol. 18, No. 4, ISSN 10796983) is published quarterly by the Precast/Prestressed Concrete Institute, 209 W. Jackson Blvd., Suite 500, Chicago, IL 60606.

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High Concrete Intros Three Products

DENVER, PA.

High Concrete has introduced three new products to the market: thermally efficient insulated wall panels, lightweight precast concrete architectural facade systems, and hollow-core flooring and roofing members.

The precast concrete sandwich wall panels feature carbon-fiber shear-truss reinforcement to create composite structural performance in load-bearing and non-load-bearing applications. Panels can be finished with thin brick, tile, and other decorative treatments, or they can be sandblasted for a clean look.

The architectural facade system weighs up to 66% less than conventional precast concrete systems due to the use of carbon-fiber reinforcement. CarbonCast lightweight cladding reduces superstructure and foundation requirements, permitting lighter, larger members that reduce shipping and erection costs, embedded energy, and carbon footprint.

Dry-cast hollow-core averages a 6000 psi compressive strength and can be manufactured in a 4 ft width and 8 in. or 12 in. thicknesses. Prestressed with 3/8 in. special strand, the slabs can span up to 50 ft and provide acoustical insulation and easy routing of wiring.

– *Dean Gwin*

– *Earl Shimp*

Gate Construction Materials Group Reorganizes

MONROEVILLE, ALA.

Gate Construction Materials Group, a subsidiary of Gate Petroleum Co., has reorganized its executive team. Dean Gwin has been named president and chief operating officer and will have responsibility for all phases of the construction group, consisting of six architectural precast concrete plants and two structural precast concrete plants.

He replaces COO Joe Luke, who will serve as a board member and chairman of Gate Construction Materials Group.

Earl Shimp, former president of operations of Gate Concrete Products Co. in Jacksonville, Ala., has assumed the position of senior vice president of operations for Gate Construction Materials Group. He will be responsible for plant and field operations.

Hagen Lambert has been named senior vice president at Gate Concrete Products Co. in Jacksonville. He will be responsible for all operations at the plant, including a major expansion under way and the implementation of carbon reinforcement in the company's double-tees.

Tindall Names New Corrections Reps

SPARTANBURG, S.C.

Tindall Corp. has appointed Corey R. Cummings and Gregg Riphagen as technical sales representatives for its Corrections division.

Cummings's territory covers northern California, Oregon, Washington, Montana, and Idaho. Cummings's more than 25 years of correctional experience includes 18 years in key leadership positions associated with correctional facility and public safety communication system planning, design, construction, activation, and maintenance.

Riphagen will be responsible for the territory covering southern California, Arizona, New Mexico, Colorado, Utah, and Nevada. He previously worked for 11 years with Acorn Engineering as national sales manager.

CWC wins racetrack, casino parking structure bid

WASHINGTON, PA.

Carl Walker Construction (CWC) was recently awarded a $13.6 million contract to build a five-story, 1000-car parking structure at the Meadows Racetrack and Casino in Washington, Pa.

The new 327,000 ft^2 structure is a design-build assignment for CWC. It will incorporate a precast, prestressed concrete frame and cast-in-place concrete deck surfaces. The new structure will join the casino at a shared column line and will feature a firewall separating the two structures.

The structure is scheduled for completion in May 2009.

PCI, PCA Release Housing Video

CHICAGO, ILL.

A new DVD documenting the benefits of precast concrete construction in the residential building market has been released by **PCI** and the **Portland Cement Association (PCA).**

"Precast Housing" begins with coverage of an air-cannon test conducted last year at the site of the first "Fortified . . . for safer living" home built in Illinois. Lengths of 2 × 4 lumber were fired at 100 mph at wall samples, including typical brick- and siding-covered, wood-framed walls, as well as a reinforced brick wall and a precast concrete wall panel. In all but the precast concrete wall, the 2 × 4 caused severe damage. The brick-embossed precast concrete wall not only withstood the 2 × 4, but the slight mark left after the stud bounced off could be covered with touch-up paint.

The "Fortified . . . for safer living" home program was developed by the Institute for Business & Home Safety, a nonprofit association of insurers and reinsurers. The home, built in Aurora, Ill., featured insulated concrete wall panels produced by **Dukane Precast** in Naperville, Ill. Similar homes have since been built by the company in Bolingbrook, Ill. The program's goal is to provide new homes that are resistant to natural disasters.

"Whether it's severe weather, earthquake, fire, or mold," notes PCI President Jim Toscas on the video, "precast building systems protect the people inside the structure."

The DVD covers several major advantages of precast concrete construction, including:

- **Life safety:** In addition to precast concrete walls and floor panels, homes can feature such elements as hurricane straps, better-built windows, and hail-resistant roofing.
- **Energy efficiency:** Precast concrete walls combine the benefits of concrete's high thermal mass with insulation built within the sandwich panels. With fewer joints, the large wall panels reduce air infiltration, and since concrete walls are inert, they don't off-gas and release toxic fumes, creating a high-quality indoor air environment.

  PCA's Jim Niehoff admits that a concrete home might have a slightly higher initial in-ground cost than a wood-framed home. But on the basis of operating costs, concrete homes are more cost effective due to increased energy efficiency, lower insurance premiums, greater durability, and reduced maintenance.
- **Sustainable design:** The sustainability benefits of precast concrete sandwich wall panels are outlined in the DVD by Jim Lewis of **Gate Precast Co.** These benefits include recycled-material content, reduced site waste, energy efficiency, long-term durability, and use of local materials. Precast concrete wall panels can improve wall performance under American Society of Heating, Refrigerating, and Air Conditioning Engineers standards by as much as 25% to 30%, reduce the amount of tonnage required to heat and cool a building, and reduce temperature spikes within a structure.
- **Aesthetics:** Also showcased are the aesthetic benefits of precast concrete. Wall panels can be made to resemble brick, natural stone, stucco, or terrazzo, or they can provide creative finishes in many shapes and sizes, offering design flexibility.

Other design advantages are detailed, including quick-construction capabilities and the components' high-quality production methods in a factory setting. A typical multifamily project that would take 18 months to build with conventional materials might be completed with precast concrete in 14 months, the DVD notes.

The DVD also includes a section that follows the production and erection of typical precast concrete panels from CAD drawings and concrete placement within the factory through transportation to the jobsite and erection by crane.

Officials discussing the use of precast concrete in single- and multifamily housing include Ramy Said, R4 Development; Jeff Harris, New Vision Development; Ed Smith, City of Chicago; Dan Buonamici, Building Commissioner for Bolingbrook, Ill.; Degan Hambacher, Architectural & Structural Concrete Consultants; and PCA's Donn Thompson.

For additional information on the DVD, contact PCI's Chuck Merydith at (312) 360-3206 or cmerydith@pci.org.

New PCI Certification Webpages Launched

CHICAGO, ILL.

PCI has launched a website for its certification program. The website is designed as a tool to explain the PCI Certification Program's comprehensive oversight of fabrication, quality-control personnel, and construction techniques.

To view the new site, visit www.pci.org/about/certification. For more information on this program, contact Chuck Merydith, PCI's marketing and communications director, at (312) 360-3206 or cmerydith@pci.org, or Dean Frank, PCI's quality programs director, at (312) 583-6770 or dfrank@pci.org.

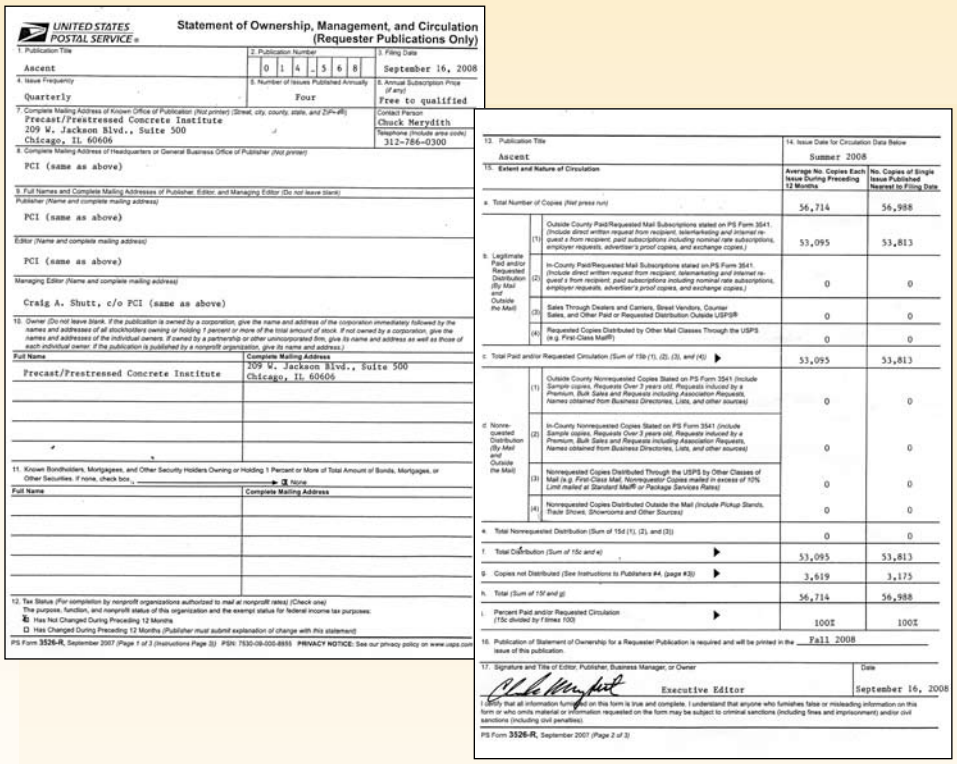
Correction

In the Summer 2008 issue, the authors' byline was inadvertently left off of a feature in the News section, "PCI Tests Parking Structure on Outdoor Shake Table." It was written by Carrie Wyrick and George Nasser.

Central Pre-Mix Prestress Upgrades

SPOKANE, WASH.

Central Pre-Mix Prestress Co. has installed new project-management software produced by VPRO Inc. The Concrete Vision program offers web-based management applications designed specifically for the precast concrete industry. Precasters using the program are said to be able to realize at least $250,000 in savings annually, the company says.



UNITED STATES POSTAL SERVICE®

Statement of Ownership, Management, and Circulation (Requester Publications Only)

1. Publication Title	2. Publication Number	3. Filing Date
Ascent	0 1 4 - 5 6 8	September 16, 2008
4. Issue Frequency	5. Number of Issues Published Annually	6. Annual Subscription Price (if any)
Quarterly	Four	Free to qualified

7. Complete Mailing Address of Known Office of Publication (Not printer) (Street, city, county, state, and ZIP+4®): Precast/Prestressed Concrete Institute, 209 W. Jackson Blvd., Suite 500, Chicago, IL 60606 — Contact Person: Chuck Merydith — Telephone (Include area code): 312-786-0300

8. Complete Mailing Address of Headquarters or General Business Office of Publisher (Not printer): PCI (same as above)

9. Full Names and Complete Mailing Addresses of Publisher, Editor, and Managing Editor (Do not leave blank)
Publisher (Name and complete mailing address): PCI (same as above)
Editor (Name and complete mailing address): PCI (same as above)
Managing Editor (Name and complete mailing address): Craig A. Shutt, c/o PCI (same as above)

10. Owner (Do not leave blank. If the publication is owned by a corporation, give the name and address of the corporation immediately followed by the names and addresses of all stockholders owning or holding 1 percent or more of the total amount of stock. If not owned by a corporation, give the names and addresses of the individual owners. If owned by a partnership or other unincorporated firm, give its name and address as well as those of each individual owner. If the publication is published by a nonprofit organization, give its name and address.)

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11. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages, or Other Securities. If none, check box → ☒ None

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12. Tax Status (For completion by nonprofit organizations authorized to mail at nonprofit rates) (Check one)
The purpose, function, and nonprofit status of this organization and the exempt status for federal income tax purposes:
☒ Has Not Changed During Preceding 12 Months
☐ Has Changed During Preceding 12 Months (Publisher must submit explanation of change with this statement)

PS Form 3526-R, September 2007 (Page 1 of 3 (Instructions Page 3)) PSN: 7530-09-000-8855 PRIVACY NOTICE: See our privacy policy on www.usps.com

13. Publication Title: Ascent	14. Issue Date for Circulation Data Below: Summer 2008	
15. Extent and Nature of Circulation	Average No. Copies Each Issue During Preceding 12 Months	No. Copies of Single Issue Published Nearest to Filing Date
a. Total Number of Copies (Net press run)	56,714	56,988
b. Legitimate Paid and/or Requested Distribution (By Mail and Outside the Mail) (1) Outside County Paid/Requested Mail Subscriptions stated on PS Form 3541. (Include direct written request from recipient, telemarketing and internet requests from recipient, paid subscriptions including nominal rate subscriptions, employer requests, advertiser's proof copies, and exchange copies.)	53,095	53,813
(2) In-County Paid/Requested Mail Subscriptions stated on PS Form 3541. (Include direct written request from recipient, telemarketing and internet requests from recipient, paid subscriptions including nominal rate subscriptions, employer requests, advertiser's proof copies, and exchange copies.)	0	0
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(4) Requested Copies Distributed by Other Mail Classes Through the USPS (e.g. First-Class Mail®)	0	0
c. Total Paid and/or Requested Circulation (Sum of 15b (1), (2), (3), and (4))	53,095	53,813
d. Nonrequested Distribution (By Mail and Outside the Mail) (1) Outside County Nonrequested Copies Stated on PS Form 3541 (Include Sample copies, Requests Over 3 years old, Requests Induced by a Premium, Bulk Sales and Requests including Association Requests, Names obtained from Business Directories, Lists, and other sources)	0	0
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(4) Nonrequested Copies Distributed Outside the Mail (Include Pickup Stands, Trade Shows, Showrooms and Other Sources)	0	0
e. Total Nonrequested Distribution (Sum of 15d (1), (2), and (3))	0	0
f. Total Distribution (Sum of 15c and e)	53,095	53,813
g. Copies not Distributed (See Instructions to Publishers #4, (page #3))	3,619	3,175
h. Total (Sum of 15f and g)	56,714	56,988
i. Percent Paid and/or Requested Circulation (15c divided by f times 100)	100%	100%

16. Publication of Statement of Ownership for a Requester Publication is required and will be printed in the Fall 2008 issue of this publication.

17. Signature and Title of Editor, Publisher, Business Manager, or Owner: Executive Editor — Date: September 16, 2008

I certify that all information furnished on this form is true and complete. I understand that anyone who furnishes false or misleading information on this form or who omits material or information requested on the form may be subject to criminal sanctions (including fines and imprisonment) and/or civil sanctions (including civil penalties).

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Cement Sustainability Initiative Asks G8 to Aid CO_2 Reductions

PARIS, FRANCE

Members of the **Cement Sustainability Initiative** (CSI) of the World Business Council for Sustainable Development have asked the members of the G8 Council and the United Nations Framework Convention on Climate Change (UNFCCC) to help accelerate the creation of a policy framework that will help speed reductions in the emission of CO_2 by cement plants.

The focus of the request is the use of sectoral approaches, under which key industry players could work together to accelerate CO_2 reductions, the group says. The cement sector is best positioned to adopt a sectoral approach on CO_2 emissions, the group adds, thanks to a CO_2 measuring and reporting protocol developed in 2002 by CSI's members. The protocol is being used by 80% of the world's cement industry.

Benefits from using sectoral approaches include mobilizing emerging economies in CO_2 mitigation, a key factor as 80% of emissions in the cement sector come from developing regions, the group says. Sectoral approaches allow a small number of key industry players or countries to act quickly.

"As an industry, we are leading in the adoption of tools that can be used to target climate change," says Bruno Lafont, chairman and CEO of **Lafarge**. "Member companies of CSI have set voluntary, individual CO_2-reduction targets, which are delivering encouraging results, and we have announced a significant drop in emissions per tonne of cement produced by our members."

CSI's figures indicate that the average net specific emissions per tonne of cement for its 18 members have fallen from more than 760 kg CO_2/tonne in 1990 to 670 kg in 2007. This reduction amounts to CO_2 savings in 2007 of more than 70 million tonnes.

"These results are encouraging and show that reducing CO_2 intensity in cement is possible," Lafont says. "To go further, we are calling on G8 members and the UNFCCC to accelerate the creation of the necessary policy framework for effective sectoral approaches."

2008 PCI 54th annual CONVENTION EXHIBITION

PCI Convention Set for Oct. 4-7

CHICAGO ILL.

The **Precast/Prestressed Concrete Institute** will hold its 54th annual convention and exhibition on October 3-7 at Rosen Shingle Creek Resort in Orlando, Fla.

Architects and building owners are invited to attend special sessions at the convention, which will focus on "Expanding opportunities in a changing world." Programs, which begin October 4, will include an emphasis on sustainable design and designing with architectural precast.

Winners in PCI's 46th annual Design Awards Competition (featured in this issue) will be honored at a special banquet on October 7.

To learn more, visit www.pci.org and click on PCI Events.

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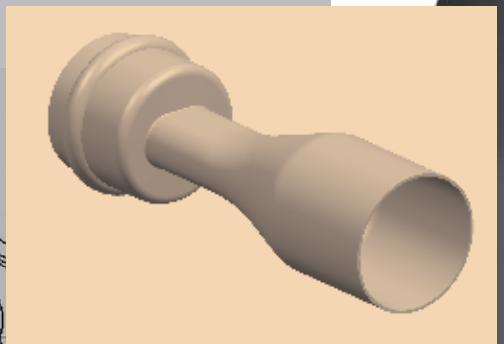

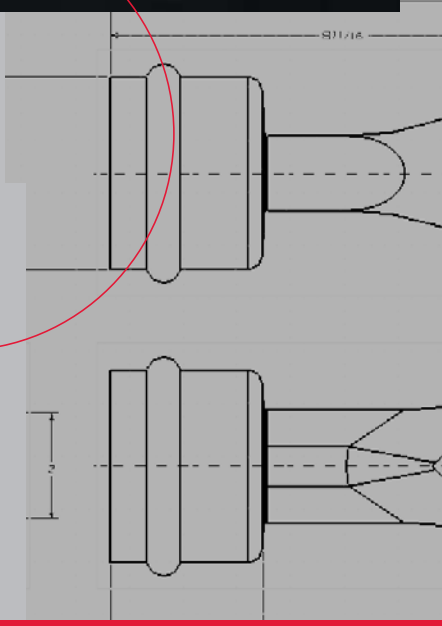

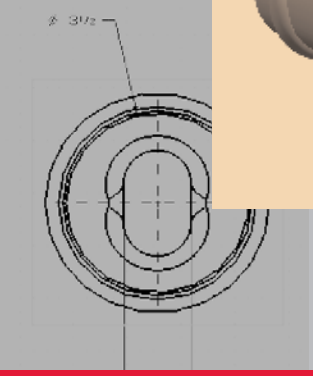

HIGH CONCRETE ACCESSORIES

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Expanding a Parking Structure's Area

Q. Can you increase the area of a free-standing parking structure based upon the allowable area table 406.3 in the 2003 and 2006 *International Building Code*?

A. Yes, a free-standing parking structure's area can be increased, based on section 406.3 of the *International Building Code* (IBC).

Parking structures with sides open on three-fourths of the building's perimeter are permitted to be increased by 25% in area and one tier in height. Structures with sides open around the entire building perimeter can be increased 50% in area and one tier in height.

In each case, IBC defines openness in a different and specific way. For a side to be considered open in these cases, the total area of openings along a perimeter side shall not be less than 50% of the interior area of the side at each tier. Such openings also have to be equally distributed along the length of the tier.

For structures that are not built to the maximum number of tiers, the allowable area per level can be increased, but it cannot exceed the total allowed if constructed to the maximum number of tiers.

In this case, openness is defined as having at least three sides of each larger tier having continuous horizontal openings that are not less than 30 in. in clear height extending for at least 80% of the length of the sides. No part of such a larger tier can be more than 200 ft horizontally from such an opening.

Structures in Type IB and II for 2003 IBC or Type II for 2006 IBC, with all sides open, are unlimited in allowable area where the height does not exceed 75 ft. In this case, for a side to be considered open, the total area of openings along the side cannot be less than 50% of the interior area of the side at each tier. Such openings have to be equally distributed along the length of the tier. All portions of the tiers also have to be within 200 ft horizontally from such openings.

As an example, if the floor is 10 ft 6 in., but the underside of the double-tee to the top of the floor below is 8 ft, the exterior opening needs to be 4 ft. That would limit the spandrel height to 6 ft 6 in.

Using the code handrail height of 3 ft 6 in., and adding 2 in. of camber, a 2 ft 6 in. double-tee would require a dap 4 in. to 11 in., depending on the ledge's height and if washers or curbs were used.

As can be seen, as the openings get bigger, the allowable spandrel height increases.

More Information

This column answers frequently asked questions about designing, casting, and erecting precast concrete components. This issue's response was provided by Harry Gleich, chair of PCI's Parking Structures Committee. If you have a question about precast concrete components, please send it to managing editor Craig Shutt at craigshutt@ameritech.net.

Photo: Nathan Cox Photography.

Parking structures with sides open on three-fourths of the building's perimeter can be increased in area by 25% and one tier in height. Shown: Lehigh University Alumni Memorial Building Parking Pavilion, a 2007 PCI Design Award winner.

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HAMILTON FORM CREATES FUNCTION

3 CASE STUDY

DALLAS COWBOYS STADIUM

'We've worked with Hamilton Form on a number of projects, including several stadiums. They evaluated our existing forms and developed a form plan that saved us time and money. We knew we could rely on them. Their experience is invaluable.

Kurt Schriefer
Vice President, Chief Estimator
Heldenfels Enterprises, Inc.
San Marcos, Texas

The Project:

The new Dallas Cowboys Stadium has a budget of $1 billion, a capacity of 100,000, and a retractable roof that duplicates the hole in the roof of the existing stadium.

The Precast:

Heldenfels Enterprises is providing close to 3,000 precast members for the project. Heldenfels needed forms, so they turned to Hamilton Form.

Hamilton Form inspected Heldenfels' existing forms to determine if they could be used or modified for the project, then designed several new, easily adjustable forms that cast several products to save costs and simplify production.

The Progress:

The precast work will be completed in 2008. When the stadum is completed, the Cowboys' new home will be the largest stadium in the NFL and the largest domed structure in the world.

Expect to hear more fanfare when the stadium opens for the 2009 season.

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Innovation in Action

Designers throughout North America display a variety of creative uses for precast concrete in winning PCI's Design Awards competition

Owners' needs have become more diverse as budgets tighten, schedules shrink, footprints become more constricted, and environmental concerns grow. With these pressures mounting, designers and engineers are finding more creative ways to use precast concrete to meet challenges and produce aesthetically pleasing designs for all types of structures.

A wide range of innovative approaches to using precast concrete's highly engineered benefits were highlighted by the winners in the 46th annual Design Awards Competition sponsored by the Precast/Prestressed Concrete Institute. Eighteen projects were singled out to receive awards by the buildings jury, and eight projects were honored by the special awards jury in categories for all-precast concrete solution, sustainable design, and innovation that advanced the industry.

The award-winning projects cover a wide array of building types, including subcategories in Best Office Building, Best Parking Structure, and Best Multifamily Building, where judges found the diversity and creativity too great to limit their selections to only one winner. Likewise, the Special Awards Jury presented Innovation Awards in the category of Best Sustainable Design category due to creative touches that significantly enhanced several project's environmental friendliness.

The judging panels also were impressed with the variety of ways precast concrete met challenges that included aesthetics, seismic needs, structural concerns, speed, economics, tight sites, and more, from a list that is growing every year.

The following pages showcase the projects selected by the bridges, buildings, and special awards juries. The honors will be presented to representatives of each project during PCI's 54th Annual Convention and Exhibition, at Rosen Shingle Creek Resort in Orlando, Fla.

Buildings jury
Front row (L–R)
Joann Gonchar, AIA
Senior Editor
Architectural Record
New York, N.Y.

Paule Boutin, FIRAC
First Vice President and President-Elect
Royal Architecture Institute of Canada
and Principal
Paule Boutin Architecte
Montreal, QC, Canada

Back row (L–R)
Neil Frankel, AIA
Principal
Frankel + Coleman Inc.
Chicago, Ill.

Mark Dewalt, AIA
Principal
Valerio Dewalt Train Associates
Palo Alto, Calif.

Lucien Lagrange, AIA
Principal
Lucien Lagrange Architects
Chicago, Ill.

Special awards jury (L–R)
Chris Kercsmar, P.E.
Vice President
Schwab Structural Engineering Inc.
New Braunfels, Tex.

Tom Brock
Founder
IIT Precast Studio
Illinois Institute of Technology
Chicago, Ill.

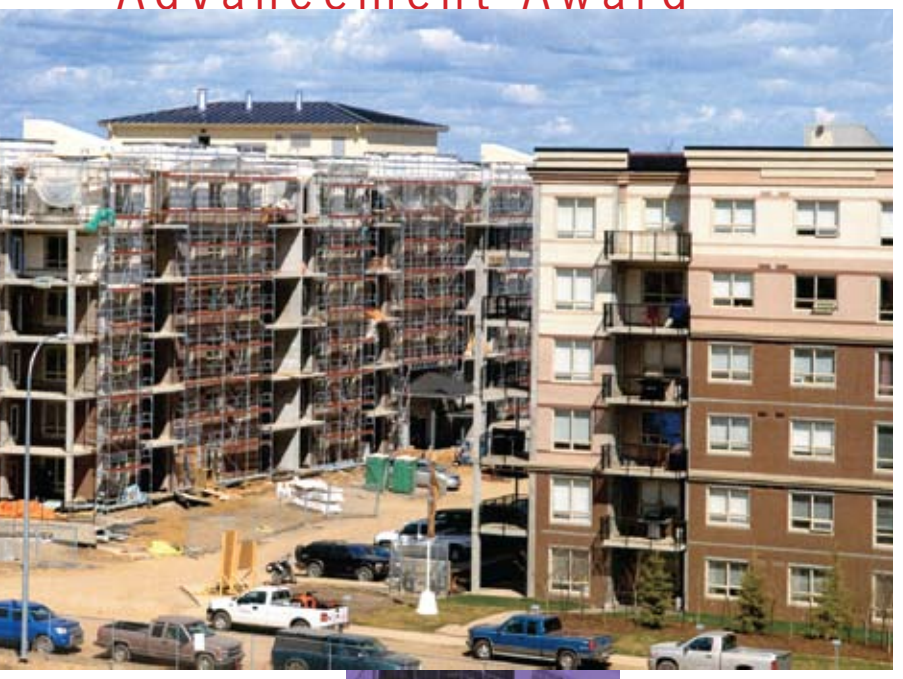
David Shepherd, AIA
Director of Sustainable Development
Portland Cement Association
Skokie, Ill.

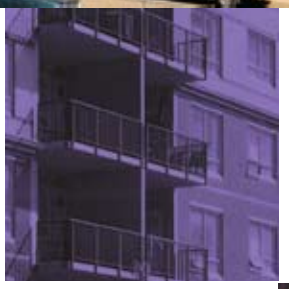
Not pictured
Jim Schneider
Senior Editor
Eco-Structure magazine
Chicago, Ill.

46th Annual PCI Design Awards

SPECIAL AWARD

Harry H. Edwards Industry Advancement Award





[The developers] find that the public is more comfortable with concrete as the primary construction material.

Courtesy of Tucker Photography, copyright 2008.

Eagle Ridge Apartment-Style Condominiums, Fort Murray, AB, Canada

Owners of the Eagle Ridge residential development wanted to create a large-scale community where families could enjoy the benefits of safe, durable homes with all the amenities. But the remote location in Fort Murray, AB, Canada, limited options for both transporting materials and bringing in trades. Designers used a total-precast concrete system to produce cost-effective and attractive designs.

Using precast concrete components allowed most of the labor to be performed where more skilled labor was available, says Rick Lewis, project manager for Gibbs Gage Architects in Calgary, AB, Canada. It also allowed construction to efficiently progress year round, which would not have been possible with other construction methods.

The project was constructed in two phases, with phase one consisting of five six-story and four four-story buildings on two sites. Phase two features 13 buildings and is still being constructed. Each floor has an average of 18 units, ranging in size from studios to two-bedroom units, and features approximately 151 hollow-core slabs, 21 interior shear walls, 22 balcony slabs, six balcony privacy walls, four columns, four stair risers, and 48 exterior insulated wall panels.

"From an acoustic and quality perspective, [the developers] find that the public is more comfortable with concrete as the primary construction material," says Lewis. The developers also took advantage of precast concrete's thermal mass, using rigid insulation in sandwich wall panels to provide high energy efficiency.

Different stains were applied to the panels, covering only the brick textures, leaving the mortar joints concrete gray. "This process replicates an exterior brick wall almost perfectly."

Judges' comments:

"A fairly conventional, market-driven housing solution with some great precast concrete innovations. We especially liked the balcony details, which were a great solution for assembly, moisture control, and a thermal break from the interior of the building. It fit together like a bookshelf in a rabbeted cabinet case—secure and simple."

Architect: Gibbs Gage Architects, Calgary, AB, Canada
Engineer: TRL & Associates, Calgary
Owner/general contractor: Centron Residential Corp., Calgary
Precaster: LaFarge Canada Inc. (Precast), Edmonton, AB
Precast concrete specialty engineer: Kassian Dyck Associates, Calgary
Precast concrete components: 36,000 pieces (11,000 in phase one and 25,000 in phase two) including insulated wall panels, interior shear walls, hollow-core slabs, balcony slabs, balcony privacy walls, columns, and stair risers
Precast project cost: $120 million ($40 million in phase one, $80 million in phase two)

Harry H. Edwards Industry Advancement Award

Courtesy of Rick Kinnell (Rich & Associates Inc.) and Norm Presello (National Precast).

Judges' comments:

"Although it is a fairly conventional parking garage in most respects, the helix ramp distinguished this project from its competitors. This project represents an innovative use of precast concrete components, and should be used as a model for helix ramp structures. The precast concrete spiral ramp could also dramatically reduce the environmental footprint of future projects because the formwork can be used over and over."

Architect/engineer: Rich & Associates Inc., Southfield, Mich.
Owner: Greektown Casino LLC, Detroit, Mich.
Construction manager: Jenkins Skanska LLC, Detroit, Mich.
Precaster: National Precast, Roseville, Mich.
Precast concrete specialty engineer: Integrated Engineering Solutions, Tecumsah, ON, Canada
Precast components: 3800 pieces, including 1180 structural components and 670 architectural pieces
Project cost: $27 million

Greektown Casino Parking Structure, Detroit, Mich.

Designers of the new Greektown Casino parking structure in downtown Detroit, Mich., faced several key challenges, including fitting the project into a congested urban area and blending it with the surrounding architecture. Meeting all of the needs led to a total-precast concrete system, including an innovative precast concrete double-threaded helix ramp.

The 13-story structure provides 2681 spaces, with seven levels connecting to additional parking spaces inside the adjacent hotel. Designing an efficient structure required the double-helix ramp, and the precasters insisted that it could be fabricated from precast concrete components. It incorporates an upbound and a downbound ramp in a 96 ft diameter.

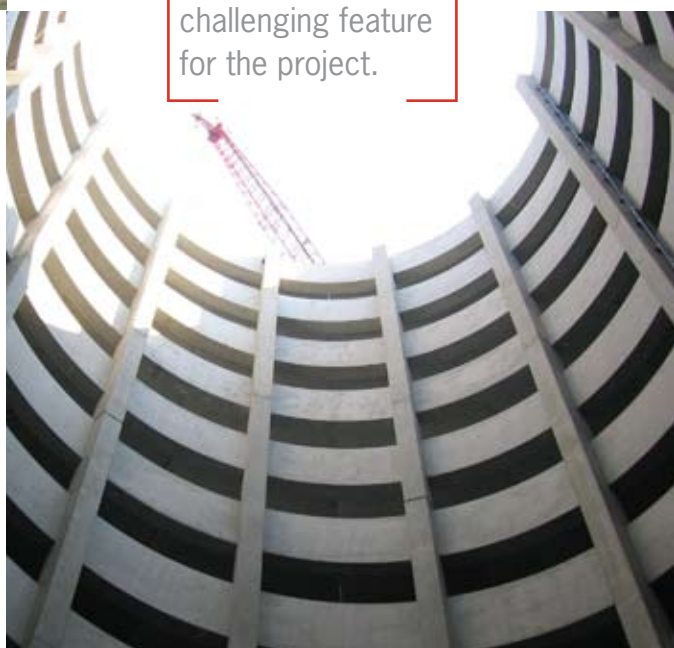
"The helical ramp was by far the most challenging feature for the project," says Matthew Jobin, project manager at Rich & Associates in Southfield, Mich. The original plan called for a cast-in-place, post-tensioned concrete design within the precast concrete structure. But the precasters warned that performing such work while precast concrete components were being erected would cause site congestion and slow down construction.

The designers worked closely with engineers at National Precast in Roseville, Mich., to create a system of precast concrete columns, curved spandrels, and warped, curved precast concrete slabs with a cast-in-place topping. "This approach saved millions of dollars in construction costs and allowed the parking structure to be erected in sequence, saving the contractor significant time," he says.

The structure's facade features cast-in thin-brick articulated pilasters along the first four levels, humanizing the scale at street level and creating visual and textural architectural interest. Six and 12-ft-wide column covers over the structural columns help balance the perceived proportions of the building.

For more on this project, see the feature article in the Summer 2008 issue of *Ascent*.

> The helical ramp was by far the most challenging feature for the project.



SPECIAL AWARD

All-Precast Concrete Solution Award

Courtesy of Ed Gross/The Image Group Inc., Honolulu, Hawaii.

Educational/Administration Building and Research Building at the University of Hawaii's John A. Burns School of Medicine, Honolulu, Hawaii

The new medical facility at the University of Hawaii was charged with two goals: revitalize the school's medical program and serve as an economic engine. To help ensure that the two-building campus could achieve these heady goals, designers used precast, prestressed concrete components to house the educational and office/administrative functions, a medical library, a multimedia auditorium, research biosafety rooms, vibration-sensitive labs, and a café.

The precast concrete components, fabricated by GPRM Prestress in Kapolei, Hawaii, comprise architectural precast concrete load-bearing window box panels, double-tees, inverted-tee beams, columns, stairways, foundation piles, and soffit girders. These pieces worked together to create the exterior facade and structural systems for two four-story facilities: the two-wing education/administration building and the L-shaped research center.

The entire building exterior utilized architectural precast concrete load-bearing window box panels, which produced "one of the more distinguishable features of the project," says Kathleen Wong, project manager for SSFM International Inc. The panels feature colored concrete with embedded motif patterns reflecting the Kapa, or native Hawaiian, art of making cloth from tree bark that is dyed with various patterns and designs. The Kapa motif merges with DNA strands and ancient Hawaiian patterns of wind, rain, water, and cane. The panels along the first floor of the Research Building are cast with embedded images of the same native Hawaiian healing plants that are planted along the main courtyard fronting the building.

"The precast panels were planned to be an integral part of the main structural-framing system," she says. The panels provide bearing supports for the floor systems and were designed to be the primary lateral-load-resisting system for wind and earthquake needs.

For more information on this project, see the July-August 2007 issue of the *PCI Journal*.

> The precast panels were planned and designed as an integral part of the main structural-framing system.

Judges' comments:

"This building was chosen for its articulation and integration of the precast concrete components into the overall design. The composition of the building is beautifully executed and appropriate to its context and, consequently, holds together well while complementing its surroundings. The idiom is reinforced by the articulation of the exterior panels, which emphasize deep-set joints in the form liners and, thus, heavy shadows on the finished product. This project went the extra mile in terms of this articulation and the results are exemplary."

Architect: Architects Hawaii Ltd., Honolulu, Hawaii
Engineer: SSFM International Inc., Honolulu
Owner: University of Hawaii, Honolulu
General contractor: Hawaiian Dredging/Kajima Construction, Honolulu
Precaster: GPRM Prestress, Kapolei, Hawaii
Precast concrete components: Architectural precast load-bearing window box panels, double-tees, inverted-tee beams, columns, stairways, piles, and soffit girders
Project cost: $150 million

SPECIAL AWARD

Best Sustainable Design

Proximity Hotel, Greensboro, N.C.

Designers of the Proximity Hotel evaluated thousands of building materials and systems to create one of the most sustainable and environmentally friendly hotels in America. They selected architectural precast concrete wall panels as the best cladding system to ensure that the hotel would achieve a platinum Leadership in Energy and Environmental Design (LEED) rating.

"The precast system offers a number of green benefits, including the use of recycled materials, minimal site disturbance, shorter transport to the construction site, and a superior building-envelope performance," says Tom Murphy, project manager for Centrepoint Architecture in Raleigh, N.C.

The hotel's insulated wall panels were made from recycled and recyclable materials only 90 miles from the construction site at the Charlotte, N.C., plant of Metromont Corp. Forms used to create the components were reused, minimizing material needs. The precast concrete also incorporated 4% fly ash to add durability to the concrete.

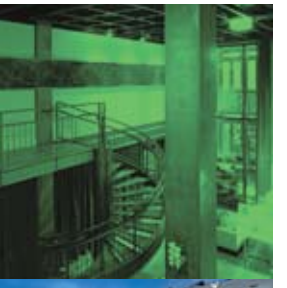
The panels featured 3½ in. of continuous EPS insulation sandwiched between a 5½-in. and a 3½-in. wythe of concrete. In some locations, the panels were designed with 4½ in. of insulation sandwiched between two equal 2½-in.-thick wythes of concrete. Carbon-fiber trusses connected the inner and outer wythes, lowering thermal conductivity and preventing any hot or cold spots from forming. The hotel is projected to use 36.5% less energy than a conventional hotel. It will also require significantly lower maintenance costs.

"Precast concrete was a stellar choice for such an environmentally friendly building," Murphy says. "It also provided exceptional aesthetic beauty befitting such a landmark project."

Judges' comments:

"A handsome contemporary design that shows off some of the aesthetic possibilities of exposed interior precast. A great-looking potential LEED platinum structure says it all!"

Architect: Centrepoint Architecture, Raleigh, N.C.
Engineer: Kaydos-Daniels Engineers, Raleigh
Owner: Quantance-Weaver Restaurants & Hotels, Greensboro, N.C.
General contractor: Weaver Cooke Construction LLC, Raleigh
Precaster: Metromont Corp., Charlotte, N.C.
Precast concrete components: 55,000 ft² of flat insulated sandwich wall panels
Project cost: $27 million



Courtesy of Metromont Corporation. Photographer: Brian Erkens.

The R-14 insulated wall panels will help the hotel use 36.5% less energy than a conventional hotel.

SPECIAL AWARD

Best Sustainable Design, Innovation Award

Courtesy of Daniel Leonard, Westmar Consultants Inc.

The precast concrete skirt maximizes vertical and horizontal ecological connectivity.

Vancouver Convention Centre Expansion Project, Vancouver, BC, Canada

Judges selected this project to receive an Innovation Award for Sustainable Design due to the design, fabrication, and installation of the precast concrete fish-habitat skirt that was produced as part of an overall $883 million expansion of the existing convention center. That project, adding 1.1 million ft² of floor space to the center, was designed to achieve a Leadership in Energy and Environmental Design gold rating—but the skirt is even more impressive.

The three offshore perimeter faces of the facility have been skirted by a bioengineered structure consisting of a series of stepped, precast concrete benches supported by precast concrete frames. The frames extend outward from the facility and down through the entire 17 ft tidal range, and are attached to specially designed cast-in-place concrete beams.

"The precast concrete skirt maximizes vertical and horizontal ecological connectivity, which will create habitats for a diverse mix of intertidal marine life," says Daniel Leonard of Westmar Consultants Inc., the engineer responsible for the skirt.

Precast concrete was chosen for this aspect of the expansion project, he notes, because of its durability, ability to provide ideal growing conditions for marine life, and aesthetics. Surespan Structures Ltd. in Duncan, BC, Canada, fabricated and installed the components.

Judges' comments:

"The attention given to the preservation of the local ecosystem despite the large-scale intervention of the convention center was admirable and the solution was elegant. We were especially impressed with the involvement of wildlife experts and the willingness of the design team to reach across disciplines to ensure the success of the new habitat. No other product than precast concrete could have achieved this as well."

Architect/engineer: Westmar Consultants Inc., North Vancouver, BC, Canada
Owner: B.C. Pavilion Corp., Vancouver
General contractor: PCL Constructors West Coast Inc., Vancouver
Precaster: Surespan Structures Ltd., Duncan, BC, Canada
Precast concrete components: 76 frames and 362 benches
Project cost: $883 million

SPECIAL AWARD

Best Sustainable Design, Innovation Award

Courtesy of Mostue & Associates Architects Inc.

Judges' comments:

"Clever solution for upgrading existing facilities and adding onto public housing. Precast concrete modular kitchen and bathroom units were used for renovations and an expansion that completely changed the look and feel of the original buildings. The rapid construction possible with precast concrete minimized the duration of displacement for the existing tenants. These modules created value while minimizing the demolition, downtime, and waste. Reusing most of the existing project is an ultimate sustainable development solution."

Architect: Mostue & Associates Architects Inc./The Casali Group Inc., a joint venture, Somerville, Mass.
Engineer: Simpson, Gumpertz & Heger, Waltham, Mass.
Owner: Somerville Housing Authority, Somerville
General contractor: Boston Building & Bridge Corp., Readville, Mass.
Precaster: Rotondo Weirich Enterprises Inc., Lederach, Pa.
Precast concrete components: 240 precast concrete modular additions (walls and floors) plus 80 roof/parapet caps
Project cost: $27.16 million

Mystic River Modernization, Somerville, Mass.

Judges singled out this residential complex to receive an Innovation Award for Sustainable Design for the design and construction of precast concrete kitchen and bathroom modules to update 240 units of state-financed public housing in Somerville, Mass.

By adding precast concrete modules into existing spaces alongside each unit, the design maximized renovation benefits and durability, increased each home's square footage, and reduced disruptions to the residents. A dozen of the units also were outfitted to make them accessible for people with disabilities. Rotondo Weirich Enterprises in Lederach, Pa., created the modules.

"The modular solution allowed the precaster to cast and outfit the additions off site while site work was completed," says Brooks A. Mostue, principal at Mostue & Associates Architects Inc., which designed the project in a joint venture with The Casali Group Inc. "Besides being more efficiently built, the new apartment complex enhances its surroundings. The modules' forms take their inspiration from the three-decker housing of the neighborhood."

This prototype building can be used for more than 3000 similar affordable-housing units in developments across the state, he notes. "This effort upgrades living conditions and public opinion while completing construction activities within a partially occupied development."

The modular solution allowed the precaster to cast and outfit the additions off site while site work was completed.

SPECIAL AWARD

Best Elementary School

Best Sustainable Design, Innovation Award

Yeshiva Keter Torah, Mexico City, Mexico

Designers of a new temple facility in Mexico City, Mexico, wanted to create "a celebration of the industrial age and technology and acknowledge the rapidly changing trend toward a new age of information and ecology," says Javier Franco, project manager. To achieve that, the designers clad the building with architectural precast concrete walls, most of which are finished on both sides, and included small circular openings that allow light to enter in decorative patterns.

"The school's modern educational model had to be reflected in their new building, so the design had to account for youth education, surrounded by religious culture and ideals," he says. The three-story building is about 35,000 ft², requiring a dramatic appearance to make it look larger than its size would seem.

Architectural precast and glass-fiber-reinforced concrete were used for walls, column covers, spandrels, a sculptured wall in the main temple, and the soffit panels, depending on structural and thickness needs. White marble aggregates and white cement were used in fabricating the panels, with the finish applied by pneumatic bush hammers.

"Each of the architectural components is part of an interrelated system that creates a solid yet translucent wall system that unifies the project, blending the interior and exterior looks and adding a unique ecological solution," Franco says. "The building is small in size, but the use of translucent elements with precast concrete panels allowed us to provide an example of technology transformed into art."

> The precast concrete followed a precise molding-support system to secure cylinders in each panel in the needed position.

Courtesy of Pretecsa.

Judges' comments:

"We absolutely loved the innovative use of these 'funnel lights' to make the walls appear light. It's a very fresh idea. The building creates a climate in which the outside and inside surfaces can be one and the same. That allowed them to take a heavy, opaque material and give it a lacy quality by infusing bits of light that stream through from the outside. It adds a layer of visual artistry. From the fabrication standpoint alone, this represents artistry by the fabricators, making precast concrete at a high level."

Design-builder: Arquitectos Manuel Roditti and José Serur, Huixquilucan, Edo. de Mexico, Mexico
Contractor: Serur Arquitectos, Col. Lomas de Chapultepec, C.P., Mexico
Owner: Yeshiva Keter Torah, Mexico City, Mexico
Precaster: Pretecsa, Higuera, Atizapan de Zaragoza, Mexico
Precast concrete components: 450 architectural precast concrete wall panels, including 346 with both interior and exterior wall finishes
Project cost: $4.7 million

Best Custom Solution

Kaumalapau Harbor Breakwater Repair, Island of Lanai, Hawaii

A uniquely constructed precast concrete component was the key to restoring the Kaumalapau Harbor Breakwater that was severely damaged by hurricanes Iwa and Iniki in 1982 and 1992, respectively. The breakwater provided protection for the island of Lanai's only commercial harbor, making its repair a critical project. To achieve this, designers created three-dimensional jack-like shapes from precast concrete that fit together and offer not only a durable protector but one onto which marine life can grow.

A number of challenges in addition to finalizing a design shape had to be met, according to Scott Sullivan, vice president at Sea Engineering Inc., the principal engineer on the project. These included developing a precise placement plan for the large concrete armor units, essentially giving each unit a specific *x,y,z* coordinate where it was to be placed on the new structure. Other issues included the logistics of having to do the construction at a somewhat remote location with limited access, and even the need to work out offloading operations to ensure that the existing dock was not overstressed.

The resulting precast concrete units are the largest such components built to date. Very high strength concrete was specified, with a flexural strength of 700 psi at 28 days. Due to their size and the lack of conventional reinforcement, designers were required to restrict the maximum concrete temperature during casting and curing to 165 °F and the maximum differential temperature between the interior and exterior concrete during curing to 36 °F to minimize thermal microcracking, he explains.

The units were cast on the island of Oahu, Hawaii, and barged to the project site on Lanai, with each load then placed onto trucks and hauled to an inland storage area. The materials then were loaded back onto trucks and transported to the site as they were needed.

The precast concrete units were placed using GPS coordinates, some in depths of 44 ft of water. Video cameras and divers were used by the crane operator to place the units, averaging 35 tons and 12 ft in height, on the breakwater in sometimes turbulent water.

"The project-delivery team truly embraced teamwork, partnering, and integrated project management at all levels," Sullivan says.

Judges' comments:

"These precast concrete components are just such cool objects. They're heroic. They're huge, providing a scale that is simply incredible. They allow the breakwater to continue to accumulate marine life, producing an extremely organic form. They're going to grow and continue to be a participant under the water landscape. Whether future designs are this size or some variation, permanent or even temporary, it creates a terrific precedent for dealing with floodwater and other marine situations."

Design engineer: Sea Engineering Inc., Waimanalo, Hawaii
Owner: State Department of Transportation, Honolulu, Hawaii
General contractor: Traylor Pacific, Irvine, Calif.
Precaster: GPRM Prestress LLC, Kapolei, Hawaii
Precast concrete specialty engineer: Baird & Associates, Madison, Wis.
Precast concrete components: 819 Core-Loc brand components
Project cost: $22.3 million

These precast concrete units are the largest such components built to date.

BUILDING
Best Justice Facility

Alameda County Juvenile Justice Center, San Leandro, Calif.

Officials in Alameda County, Calif., wanted to create a healthy indoor environment, create a sustainable design, and produce a cost-effective design when creating their new juvenile justice center. To achieve these goals, architects created an energy-efficient building clad with architectural precast concrete panels that achieved a silver Leadership in Energy and Environmental Design (LEED) rating.

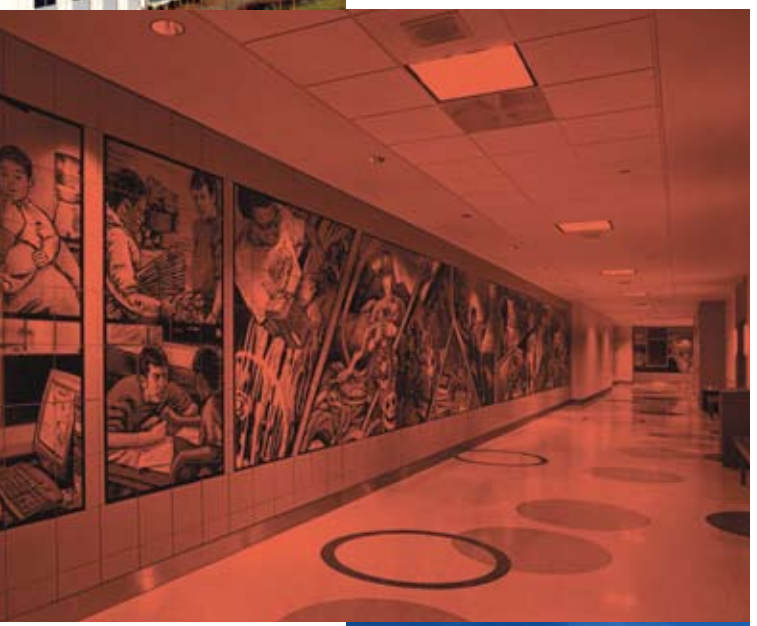
"Creating a healthy space with daylight and fresh air for facility youth and occupants was a top priority," says Beverly Prior, principal in Beverly Prior Architects in San Francisco, Calif., which served as the associate architectural firm. "However, requirements and regulations for detention and court facilities made many typical green features inappropriate." For example, security requirements limited material choices. "With no additional funding, green features had to be integrated into the overall design."

The use of architectural precast concrete panels helped the building project a softer appearance to support the collaborative approach used with the residents, she notes.

The adjacent courthouse features architectural precast concrete panels on structural steel framing, blending the appearance of the two buildings. It features a two-tiered panel system, with an upper tier of panels with a smooth gray finish and a lower tier with an integral cream color and smooth finish, with a 3 ft rusticated base.

"The use of precast concrete contributed to the noninstitutional feeling of the design," she says. "It also provided environmental benefits and contributed to the LEED credits." These aids included the use of fly ash in the structural precast concrete mixture and producing the panels within 500 miles of the site.

"The speed and affordability of precast also contributed to completing the project on schedule and on budget," she says. The exterior structural panels were fabricated in eight months and erected in five more. "That speed completed the shell in a time frame that allowed the interior trades to begin work sooner." For more details on this project, see the article in the spring 2008 issue of *Ascent*.



Courtesy of John Swain Photography.

Judges' comments:

"The justice facility and courthouse take advantage of precast concrete's ability to be used as unitized components to facilitate construction. The project adapts a design style typically used for warehouses and distribution centers to a different type of architecture. It's a very clear use of this technique that meets all of the building's specialized needs."

Architect of record: Hellmuth, Obata+Kassabaum (HOK), San Francisco, Calif.
Associate architect: Beverly Prior Architects, San Francisco
Engineer: The KPA Group, Oakland, Calif.
Owner: Alameda County General Services Agency, Oakland
Construction manager: Vanir Construction Management Inc., Sacramento, Calif.
Design-build contractor: Hensel Phelps Construction Co., San Jose, Calif.
Precaster (structural components): Mid-State Precast LP, Corcoran, Calif.
Precaster (architectural panels): Willis Construction Co., San Juan Bautista, Calif.
Precast concrete components: 488 structural panels, 112 architectural panels, 271 slabs
Project cost: $176 million

> The use of precast concrete contributed to the noninstitutional feeling of the design and contributed to the LEED credits.

Best Manufacturing Facility

Mott Haven Substation, Bronx, N.Y.

Building a new electric substation in a dense urban environment on a tight schedule can be challenging enough. Ensuring that such a massive structure fits into its neighborhood adds an extra layer to such a project. A total-precast concrete structure allowed Consolidated Edison to meet all of those needs.

The two-story, 125,000 ft² building features a combination of precast concrete structural and architectural elements. The building is clad with precast concrete panels that have 2 in. of insulation where they are adjacent to interior spaces. Inside, the facility contains transformer vaults (with high precast concrete screen walls), offices, and industrial space. Outside, perimeter fencing features a precast concrete base, and a 1000 gal. storm-water retention tank was constructed with precast concrete components. The company's engineers worked with designers from The Switzer Group Inc. in New York, N.Y., to develop a vocabulary of architectural elements common to the area, explains Michael Corcoran, senior architect for Con Edison. "We needed to break down the scale of the building to present a believable residential presence," he says.

The design team segmented the nearly 600-ft-long expanse into alternating brick patterns on every three precast concrete panels. They also changed the fenestration pattern to provide the appearance of a classic New York City rowhouse street, and added door and window details made with glass-fiber-reinforced concrete.

The company chose precast concrete components for a variety of reasons, Corcoran says. "Speed of construction was the most significant factor in deciding to use total-precast concrete construction."

The economics also favored this system, he says, over such materials as masonry walls with steel frame or cast-in-place concrete. The precast concrete system also eased sequencing challenges. Fire separations and durability also favored the precast option, he says.

Fire separations and durability also favored the precast option, he says. When combined with Commonwealth Edison's past experience with the material in a smaller substation in Westchester, N.Y., it was an easy decision. "We could rely on the good experiences from the project to guide us through this much larger, more complex project."

Judges' comments:

"This project used precast concrete to create a design and scale that accommodate the residential community surrounding the power station. There is a high level of detail, such as above the doors and windows, and the only way to achieve that detail on a tight budget is with precast concrete. It's a huge building, and the precast concrete design brings a sense of scale back to it."

Architect: The Switzer Group Inc., New York, N.Y.
Engineer/owner: Consolidated Edison Co. of New York, New York
General contractor: D'Onofrio General Contractors Corp., Brooklyn, N.Y.
Precaster: Coreslab Structures (CONN) Inc., Thomaston, Conn. (with subcontracting precasters J. P. Carrara & Sons, Middlebury, Vt., and William E. Daily Precast LLC, Shaftsbury, Vt.)
Precast concrete specialty engineer: LEAP Associates International Inc., Tampa, Fla.
Precast concrete components: 1150 components, including wall panels, prestressed double-tees, beams, columns, and fence posts.
Project cost: N/A

Courtesy of Consolidated Edison of New York.

> We needed to break down the scale of the building to present a believable residential presence.

BUILDING

Best Multifamily Building

101 Eola, Orlando, Fla.

The new condominium building at 101 Eola in Orlando, Fla., adds to a revitalized downtown neighborhood that has become a fashionable place to live.

"The construction team decided that the most practical and cost-effective way to achieve the developer's desired vision was with precast concrete construction," says Mike Houseman, AIA, principal for Baker Barrios Architects Inc. in Orlando. The designers created a total-precast concrete system, including walls, double-tees and other spanning beams, elevator/stair units, shear walls, and slabs.

The 12-story, 301,453 ft² building includes 146 living units, a fitness center, a swimming pool and clubhouse, 13,250 ft² of restaurant and retail space, and a 280-car parking garage. The building's exterior features a texture-coated finish over precast concrete panels. Cantilevered precast concrete balconies and roof overhangs add interest and amenities.

"The process of creating the desired look with precast concrete was made possible due to creative architectural design in collaboration with the expertise of the structural and precast engineers," he says. "Efficient construction methods aided the success of the project."

"Our entire A/E and construction team was pleased with the benefits of a precast concrete system," Houseman says. "The structural strength and high quality of the material were advantageous to the architectural-design objectives." By phasing the concrete erection, various trades could start work sooner than with cast-in-place construction, he says. "The contractor was able to generate savings due to the speedy and repetitive construction of the precast."

Precast concrete's fire-resistive properties also worked well for the project, and its long-span capabilities aided interior-design flexibility. "The owner and all involved felt good knowing that precast construction utilizes environmentally-friendly materials," Houseman says.

Judges' comments:

"We were taken by the thinness of the proportion of the slabs and the mass of the elements, in comparison to the glass. It has a very light appearance, with a light, ethereal quality to it, given the bulk of the building. The building's high level of transparency no doubt produces a very interesting structure at night."

Architect: Baker Barrios Architects Inc., Orlando, Fla.
Engineer: Finfrock Design-Manufacture-Construct, Orlando
Owner: Real Estate Inverlad, Orlando
General contractor: Jack Jennings & Sons, Orlando
Precaster: Finfrock Industries Inc., Orlando
Precast concrete components: 2644 pieces, including double-tees, single-tees, inverted-tee beams, hollow-core slabs, spandrels, stair/elevator walls, shear walls, truss beams, column covers, and wall panels
Project cost: $36 million

Courtesy of Raymond Martinot.

> Our entire A/E and construction team was pleased with the advantages of a precast concrete system.

BUILDING

Best High-Rise Multifamily Building

Courtesy of Steinkamp Photography.

Westhaven Park, Chicago, Ill.

The nine-story, 113-unit Westhaven Park in Chicago, Ill., was designed as the city's first mixed-use market-rate/affordable midrise project to replace existing public housing. Part of a comprehensive redevelopment of an urban neighborhood, it was created using a total-precast concrete system that offered a variety of advantages.

The project was originally planned with a conventional masonry design. But when it costed out $2 million higher than the budget allowed, the project was value-engineered to the precast concrete option.

"Rethinking the design using precast concrete cladding and structure allowed us to greatly improve design and construction quality while meeting stringent budget requirements for affordable housing," says John Clark, principal in Cordogan Clark & Associates, the architectural firm. The use of precast concrete also sped construction, which aided the budget, he says. "Precast structural elements and floor planks allowed immediate access to each floor as it was erected, speeding construction time," he says. Face brick was cast into the panels at the plant, providing the elevations with a variety of colors and textures. Its use eliminated the need for scaffolded masonry construction at the site and cut construction time.

"The design prominently features green architecture, first among those elements being the precast concrete components themselves," he says. Other green features include a dramatic planted cornice overhang at the entrance and trellises above upper balconies.

Abstracted, green-stained precast concrete, loosely inspired by the ornamental terra cotta designed by Frank Lloyd Wright, flanks the entrance and invokes the spirit of wall ivy (until real ivy can take its place).

"This project represents an innovative design that enhances people's lives and the surrounding neighborhood fabric," Clark says. "It represents the highest-quality affordable-housing design.

Judges' comments:

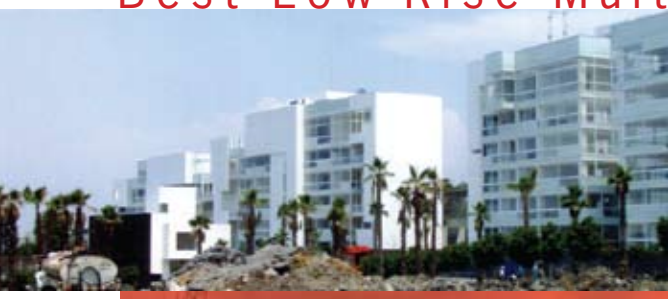
"This design created affordable housing that is not the typical approach that involves brutal and stripped-down structures. This building has a lot of quality to it, and there's a lot of detail that raises the bar. The material allowed for variations in the scale, reacting to the neighborhood around it. It provides a strong choice for this urban context."

Architect/engineer: Cordogan Clark & Associates Inc., Chicago, Ill.
Owner: Chicago Housing Authority, Chicago
General contractor: McShane Construction Co., Rosemont, Ill.
Precaster: ATMI Precast, Aurora, Ill.
Precast concrete specialty engineer: J. W. Peters, Waukesha, Wis.
Precast concrete components: 2189 pieces, including interior, exterior, and garage walls; double-tees; balconies; and hollow-core slabs
Project cost: $24 million

> Rethinking the design allowed us to greatly improve design and construction quality while meeting stringent budget requirements.

BUILDING

Best Low-Rise Multifamily Building



Courtesy of Inpresa.

Residencial Lomas del Pedregal, Mexico City, Mexico

Seven buildings, each seven stories tall, were combined into one multifamily project to create Lomas Del Pedregal in Mexico City, Mexico. Designers used a total-precast concrete system that included a unique connection system that left a gap in each column for insertion of the precast concrete beam.

"This structure challenges the concept that prevails in Mexico regarding precast concrete structures, adapting itself to forms and lines that satisfy the more and more demanding contemporary architecture," says Germán González Soto, CEO of Industrial Prefabricadora in Mexico City. "We wanted this project to contribute to breaking the mold by demonstrating the material's versatility with any architectural concept."

The building features precast concrete beams and columns, spanned by double-tee beams to create open spaces below. The precast concrete design sped construction and allowed the project to be completed earlier than other formats would have allowed. "A key challenge was creating double-tee elements that could span 49 ft while only offering a 19.7-in. depth section," González says. The shallow depth allowed the building to meet height requirements while providing the durability and strength required.

The precasters also created a distinctive connection approach, with a gap created in the columns so the beams could be fit into them, rather than adding a haunch that would project into the space. The space around the inset piece was then grouted with concrete to secure it in place.

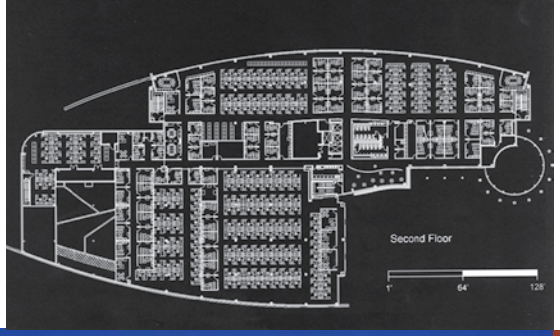
"This project is, for us, a symbol of consolidation and confidence gained from working with precast concrete," says Carlos Araujo, projects director for Industrial Prefabricadora. "We worked closely with the entire construction team and the owner to achieve the best solution for a building that encompasses beauty and functionality."

> This structure challenges the concept that prevails in Mexico regarding precast concrete structures.

Judges' comments:

"The articulated volumes in this design break down the building's mass, using slender slits to create visual interest. The structural system is also interesting, using precast concrete columns with gaps into which the beams are inserted, casting a concrete 'knuckle' to bring it together. It produced a very slim structural system without having the haunches that a precast concrete structure typically includes. The precast design produced very sleek, clean lines and a very contemporary look."

Architect: Taller Aragones/Gutierrez Arquitectos, Mexico City, Mexico
Engineer: Industrial Prefabricadora S.A. de C.V., Mexico City
Owner/general contractor: Geo D.F., Mexico City
Precaster: Inpresa, Mexico City
Precast concrete components: 1235 pieces including columns, beams, and architectural panels
Project cost: $4.6 million



BUILDING

Best Office Building

> The concrete cladding system blends seamlessly with other components and finishes.

Hubbell Lighting Inc. Corporate Headquarters, Greenville, S.C.

Executives at Hubbell Lighting presented designers at the architectural firm of McMillan Smith & Partners Architects with a host of challenges when they decided to consolidate a variety of divisions from around the country into one corporate headquarters. Two key ingredients were the need to reflect the company's lean manufacturing process and the desire to create a strong presence as the first structure in a new private research and development park.

The designers produced a four-story, 185,000 ft^2 structure that met Leadership in Energy and Environmental Design silver certification requirements while also meeting a compressed timetable and an aggressive budget allowance. A major element of that program was the use of architectural precast concrete wall panels to clad the building. The combination of materials provides texture and interest while meeting the environmental goals.

The panels include reveals and horizontal bands that allow for the integration and continuation of horizontal mullions in the curtain-wall glazing system. The precast concrete mixture comprised white cement, Fletcher granite, and Lilesville sand.

"The concrete cladding system blends seamlessly with other components and finishes," says K. J. Jacobs, project manager for McMillan Smith. "From daylight to dusk, the materials respond in a unique way to the variety of lighting techniques applied to the facades and interior of the structure, complementing the stately structure."

An illuminated entry rotunda provides the building's signature architectural element and marks the entry into the facility's Lighting Solutions Center. Punched-window openings on the south elevation and an expansive curtain wall on the north side provide dramatic views, while high-performing glazing reduces intrusive heat and harmful UV rays.

"The use of architectural precast concrete supported goals for an economical facility with an aggressive schedule and strengthened sustainability initiatives, which were achieved through careful planning and execution," Jacobs says. "Specifying precast concrete supported the desire to use regional materials and recycled content, including its steel reinforcement. And, because the precast concrete components were fabricated off site, construction waste was minimized and contributed to lowering site disturbance and noise pollution."

Judges' comments:

"Within a single structure, the variation of forms, textures, surfaces, and scale is intriguing. The overall composition of these elements provided visual interest and certainly will aid future applications. They varied the fenestration patterns on each side, going against the traditional thinking that every building has to be the same all the way around. It is an admirable approach."

Architect/engineer: McMillan Smith & Partners Architects, Spartanburg, S.C.
Owner: Hubbell Lighting Inc., Greenville, S.C.
General contractor: The Harper Corp., Greenville
Precaster: Metromont Corp., Greenville
Precast concrete components: 36,363 ft^2 of architectural precast concrete wall panels
Project cost: $41 million

BUILDING

Best High-Rise Office Building

Courtesy of Carpenter Sellers Architects and Bill Timmerman.

University of Phoenix Riverpoint Center, Phoenix, Ariz.

In addition to providing strong aesthetics, the designers of the new University of Phoenix office building focused on achieving a variety of sustainable-design concepts that will help reduce costs and lower maintenance needs through the structure's service life.

"The owners weren't looking to achieve LEED [Leadership in Energy and Environmental Design] certification, but they did want a project that was sustainable and environmentally friendly," says Stacey Howell at Carpenter Sellers Architects, which worked on the project in conjunction with SmithGroup. "The owners asked for a design that responded to the region and was easily maintainable." To achieve that, the designers used precast concrete structural elements and spandrel panels in conjunction with a cast-in-place concrete structure.

The projects feature precast concrete double-tees for flooring units, along with precast concrete columns, beams, and shear walls. Each structure uses precast concrete spandrels to achieve a distinctive look that blends the three buildings without allowing them to overwhelm the space. Glazing was maximized on the southern exposure but was completed with horizontal shading devices that protect against high summer sun while allowing low winter sun to heat the building.

"The advantage to using precast concrete was the thermal mass that was provided on the east and west exposures, where we used small, narrow windows," Howell says. The panels feature integral color that, combined with the material's durability, will eliminate the need to repaint or stain the facade. Locally manufacturing the components also helped minimize transportation energy while aiding the local community, she notes.

An under-floor air-distribution system allows each occupant to control thermal comfort. The under-floor plenum significantly reduces the amount of ductwork that was needed, and it also was used to run line and low-voltage cabling, reducing conduit. The elimination of ductwork also reduced floor-to-floor height requirements, minimizing the materials needed for construction.

> Concrete has a quality to it that other materials don't.

Judges' comments:

"The overall composition of the different volumes, treated in different ways, created an outstanding appearance. The use of precast concrete was thoughtfully and simply detailed, and yet there is a lot of artistic quality. The rustication joints and the arrangement of the windows capture interest and differentiate it from other buildings in this context."

Architect: Carpenter Sellers Architects, Las Vegas, Nev., in association with SmithGroup, Phoenix, Ariz.
Engineer: Caruso Turbey Scott, Tempe, Ariz.
Owner: Apollo Group, Phoenix
General contractor: Sundt Construction, Tempe
Precaster: Tpac-a Division of Kiewit Western Co., Phoenix
Precast concrete components: 160 components, comprising double tees, beams, columns, shear walls, and spandrel panels
Project Cost: N/A

Best Low-Rise Office Building

Courtesy of Ament Commerical Photography.

The Golden 1 Credit Union Corporate Headquarters, Sacramento, Calif.

Designers on the Golden 1 Credit Union building faced a major hurdle in meeting a tight construction deadline, calling for an 18-month time frame from groundbreaking to client move-in. To meet that goal while providing a variety of programmatic and aesthetic needs, they specified architectural precast concrete panels for the building's cladding, which was erected on a steel moment frame.

The six-story building was erected on a 33,000 ft^2 footprint, providing 200,000 ft^2 of office space. The precast concrete cladding comprised 65 types of panels, averaging about 47 ft^2 apiece. The components included roof spandrels, beam covers, column covers (some two stories high), trellis column covers, wall panels, and penthouse panels.

The panels were colored and textured to create high visual interest while also serving functional needs. "Precast concrete allowed for a unique look and feel that could not be achieved with other types of materials. It met our program requirements for design and aesthetics, durability and longevity, ease of maintenance, and budget," says Alvin Wong, studio manager, commercial architecture, for the architectural firm of Ware Malcomb. "It gave the building a sense of permanence and timelessness, qualities any financial institution would be proud of."

The owners were eager to gain access to the building after outgrowing their previous office space. This new building would give them the space and functionality necessary to continue the growth of their company. "The architectural precast concrete allowed for greater ease of accelerating construction because the pieces were delivered from a local fabricator who could supply the large variety of sizes that were needed. Another benefit is that since the architectural precast concrete panels were manufactured in a controlled environment, there was an assurance of quality in the product," Wong says.

> The architectural precast concrete allowed for greater ease of accelerating construction.

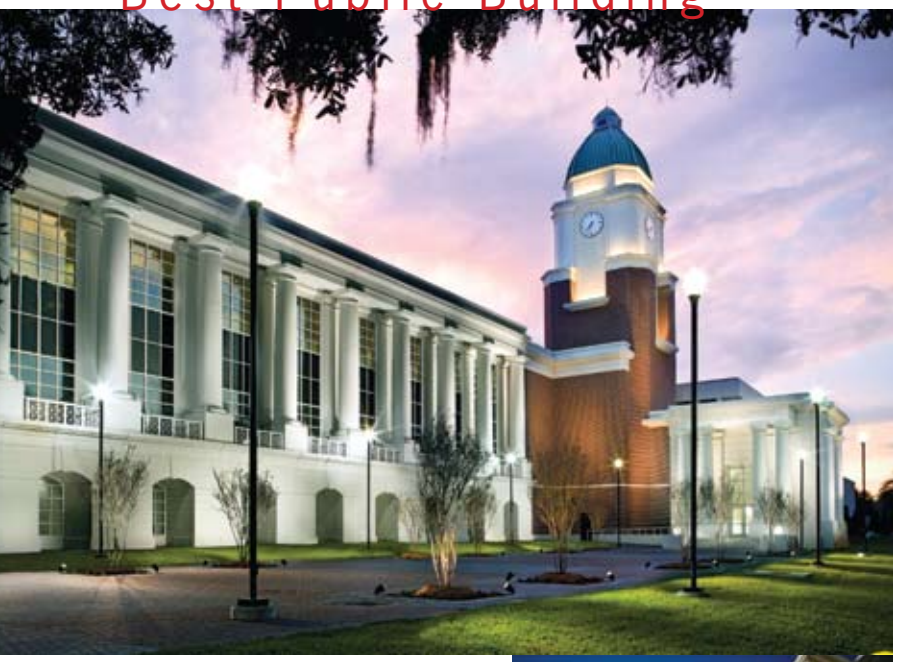
Judges' comments:

"The way the material was used achieved a very crisp building. The design stands out because, rather than providing punched windows, the precast concrete is integrated into the glass curtain wall very seamlessly. It all works together to create a taut skin that's very reflective and smooth. It demonstrates the ability of designers to adjust scale and shift pattern from what's usually expected."

Architect: Ware Malcomb, West Sacramento, Calif.
Engineer: Miyamoto, West Sacramento
Owner: The Golden 1 Credit Union, Sacramento, Calif.
General contractor: McCarthy Building Cos., San Francisco, Calif.
Precaster: Clark Pacific, West Sacramento
Precast concrete components: 293 architectural precast concrete wall panels
Project Cost: N/A

BUILDING

Best Public Building

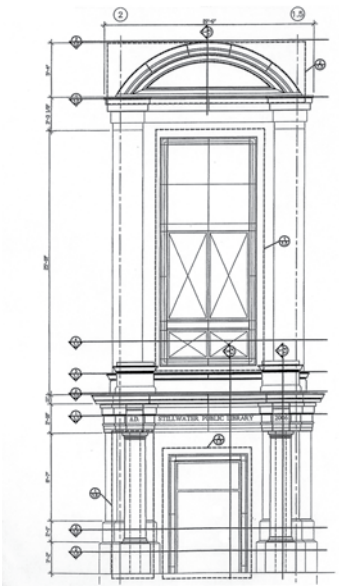


> The precast panels with in-laid brick eliminated time in the critical path to enclose this building.

Judges' comments:

"The traditional design and classicism of this project really stood out, because it is not a characteristic typically identified with precast concrete. It is very well proportioned and well done. There is a high degree of three-dimensionality, with a lot of overhangs and recesses that avoid normal, flat walls. It shows precast concrete's capabilities for molding to create columns and cornices, which allowed them to deliver, within budget, an iconic example of a historic type of architecture without trying to replicate stone."

Architect/engineer: Spillis Candela DMJM, Coral Gables, Fla.
Owner: Clay County Board of County Commissioners, Green Cove Springs, Fla.
General contractor: Elkins Constructors, Jacksonville, Fla.
Precaster: Gate Precast Co., Monroeville, Ala.
Precast components: 552 pieces of architectural precast concrete wall panels
Project cost: $25.4 million



Clay County Courthouse, Green Cove Springs, Fla.

The Clay County Board of County Commissioners wanted to convey a powerful image for the expansion and renovation of their county courthouse, which was built in the 1970s. To achieve that goal, designers added a new wing and clad both buildings with architectural precast concrete wall panels embedded with thin brick to provide a distinctive, classic look.

The building's symbolic clock tower and projecting entry pavilion serve as unifying elements for the new and old wings. The vertical piers and new brick cladding balance the monumental Tuscan order colonnade of the new wing.

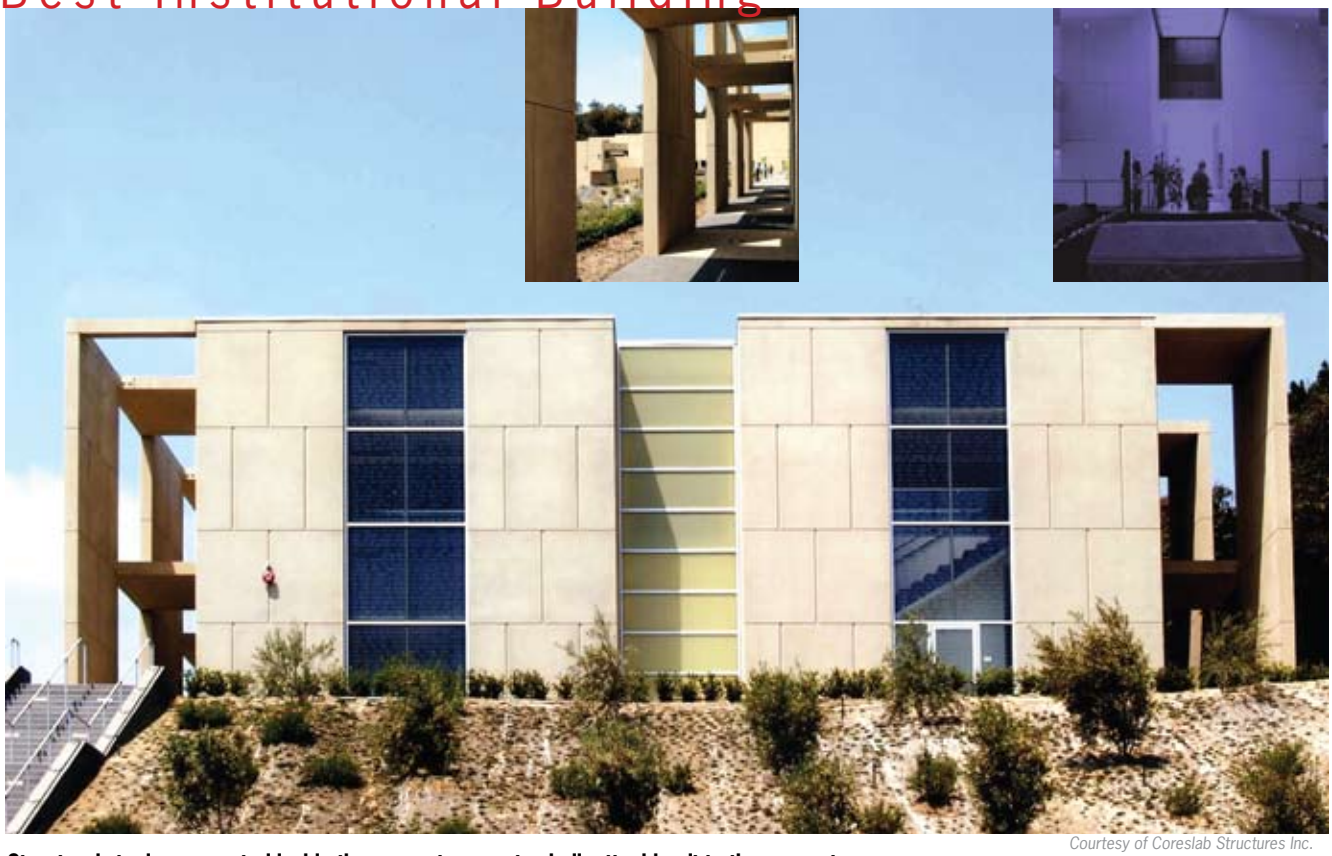
The new four-story wing includes eight courtrooms, holding cells, eight judicial chambers, and consolidated offices for the clerk of court and support services. The renovated existing spaces include redesigned offices for the state attorney, public defender, and court support spaces that allow the public to seamlessly access various services. Spaces were designed to complement the traditional exterior look.

"The new image for the courthouse was specifically intended to capture the strength and dignity of the classic pre-war American courthouse, with its brick facades and neo-classical vocabulary," says Enrique J. Maciá, project manager for architectural firm Spillis Candela DMJM in Coral Gables, Fla. "The new courthouse takes full advantage of state-of-the-art construction techniques to reinterpret traditional design elements."

These techniques included the use of clay-brick infill on the architectural precast concrete panels, which facilitated construction and reduced the overall schedule for applying stone elements. "The use of the clay-brick infill provides a richly textured and marked contrast to the smooth, white precast panels and trim, giving the courthouse an extremely dynamic facade expression," he says.

The precast concrete panels, fabricated by Gate Precast Co. in Monroeville, Ala., saved approximately two months of construction time, allowing the project to be complete in only 20 months, he notes. "The precast panels with in-laid brick eliminated time in the critical path to enclose this building over what would have been needed with traditional cast-in-place concrete column-and-beam structure, with back-up masonry block-and-brick cladding."

Best Institutional Building



Courtesy of Coreslab Structures Inc.

Structural steel was erected inside the precast concrete shell, attaching it to the concrete.

Congregation Beth El Sanctuary, La Jolla, Calif.

From the inception of their project, the members of the Congregation Beth El Sanctuary set out to create a new sanctuary that would serve as a focal point and landmark building for the existing campus. To achieve that, the building committee invited the precast concrete fabricator and the general contractor to participate in the early design-development phase with architect Stanley Saitowitz/Natoma Architects Inc. The resulting design uses architectural precast concrete wall panels to balance the look of a massive facade while maintaining an openness that allows light to reach the building's interior.

The design combines staggered architectural precast concrete panels and a glass wall system throughout the exterior elevations. These are enhanced with imposing precast concrete colonnades flanking the north and south elevations. The colonnades use precast concrete sunshades to tie the inner and outer walls together at both the mezzanine and roof levels.

The designers visited the precasting plant to review options before deciding on a mixture of white cement and color to simulate limestone. The panels' surface had a light sandblast finish with form-cast and hand-set reveals added on both sides to create a large block pattern. Finishing on all four sides included knife-edge corners. "These were a critical element to achieving the desired appearance," says Michael Luke, project manager for Stanley Saitowitz/Natoma Architects Inc.

The site's 100 ft change in elevation between the street and the back of the site created access challenges for cranes and panel delivery. Construction began by pouring the panel footings and placing the panels onto dowels, with reinforcing bar extended from the footings. The crane was carefully maneuvered onto the site to the center of where the sanctuary would be constructed. It then worked in a circular pattern, erecting panels with bracing to hold both the wall panel and colonnade panels until the precast concrete sunshade was added to complete the designed support system.

With three sides completed, the crane was backed out and the final panels were erected. With the last panels aligned and welded, the structural steel was erected inside the precast concrete shell, attaching it to the concrete. Then the rest of the structure was built inside.

Judges' comments:

"The use of the material not only for the exterior cladding but also inside the building created continuity. It shows that precast concrete can be used on contemporary designs as well as on more traditional appearances. It uses precast concrete as a total component throughout the entire building in a very honest use of materials. Through its simplicity, it creates a high level of design that stands out."

Architect: Stanley Saitowitz/Natoma Architects Inc., San Francisco, Calif.
Engineer: KPFF Consulting Engineers, San Francisco
Owner: Congregation Beth El, La Jolla, Calif.
General contractor: DPR Construction Inc., San Diego, Calif.
Precaster: Coreslab Structures (L.A.) Inc., Perris, Calif.
Precast concrete components: 90 pieces of architectural precast concrete wall panels
Project cost: $9.5 million

Best Parking Structure

Courtesy of Carolina Photo Group, Charlotte, N.C.

Atlantic Station Parking Structure, Atlanta, Ga.

A precast, prestressed concrete superstructure and parking system lies at the heart—or perhaps at the feet—of a redevelopment project in Atlanta, Ga. The project was designed to reclaim acreage previously used by a former steel mill, creating 15 million ft² of retail, office, residential, and hotel space plus several acres of public parks. Parking for more than 7000 vehicles was provided underground in the $2 billion project.

More than 3 million ft² of precast concrete superstructure and parking were created to support the new facilities. The street-level roadways feature 47-in.-deep double-tees cut down to 10 ft wide with an 8-in.-thick cast-in-place concrete composite slab.

The use of double-tees for roadways was a first-time application in the state, requiring Department of Transportation approval and a sign-off by the governor, says Derick Bridges, structural engineer and managing principal for Carl Walker Inc. in Atlanta. The cast-in-place concrete roadway base and asphalt were installed over the precast concrete structure providing drainage contours for the roads, he notes.

An extensive expansion-joint system was created to accommodate the large surface areas. In general, building footprints were segregated from the parking levels and roadway structures. As a result, the structural framework directly below the buildings required a system of precast concrete column, shear-wall and shear-frame components to support each building.

This structure provided the base for 10 cast-in-place concrete buildings that rise above street level to anchor the redevelopment district. The typical 30 ft x 60 ft bay spacing of the precast concrete structure below was maintained in the buildings' framing system above, he says. Some of the buildings and precast concrete structures were designed with vertical expansion in mind as well.

"All of this was accomplished with the integration of precast, prestressed concrete; clever engineering; and a brave owner," he says. "The property and project serve as a national model for smart growth and new urbanism." For more on this project, see the article in the Winter 2007 issue of *Ascent*.

Judges' comments:

"This mega-project used such an interesting design approach. Raising the level of the perceived street and connecting into the city grid produced an efficient, effective option. It allows 7000 cars to basically disappear off the street, so the buildings can offer a smaller scale and create a more enjoyable streetscape. The long spans were made possible with the use of precast concrete components, producing a project on a grandiose scale that serves a distinctive urban-design purpose. It's a natural material for this application."

Architect/engineer: Carl Walker Inc., Atlanta, Ga.
Owner: Jacoby Development, Atlanta
General contractor: Vratsinas, Atlanta
Precaster: Metromont Corp., Hiram, Ga.
Precast concrete specialty engineer: PTAC, Pensacola, Fla.
Precast concrete components: 4592 pieces, including double-tees, columns, girders, shear walls, wall panels, and spandrels
Project cost: $2 billion

The use of the large parking plate provided substantial economic impact to the municipal tax base.

PARKING

Best Large Parking Structure (More Than 1000 Vehicles)

West General Robinson Street Garage, Pittsburgh, Pa.

The West General Robinson Street parking structure has a dual personality, serving two distinct markets from one location, depending on the day. To meet all of these needs on a site ringed by infrastructure, designers used a total-precast concrete system to create a double-thread helix ramp that coordinates with entrances on three streets.

On a daily basis, the 10-story, 1233-car garage serves commuters working in the developing neighborhood and downtown areas. At other times, it is used by patrons of the nearby stadium complex. Two ramps were created so that one helix thread can serve event patrons coming from the north, while the other serves those coming from other directions. Speed ramps on the north side allow rapid egress.

"Precast concrete was chosen because it offered the shortest erection time and the lowest cost," says Kevin Wagstaff, principal with the architectural firm of Perfido Weiskopf Wagstaff+Goettel. It also offered the built-in fire rating required of a 10-story parking structure. "We could integrate architectural and structural components to maximize efficiency."

Precast concrete components were used for the entire structure, setting it on cast-in-place concrete foundation elements with cast-in-place concrete speed ramps.

At the perimeter, decks were wrapped with a skin of architectural precast concrete bearing-wall panels. "This treatment gives the structure a more monolithic and enclosed character than is typical of parking structures while also concealing the sloped parking decks," he says. Integral color pigments with gray cement and granulated blast-furnace slag give the concrete an earth-tone color that complements the brick and stone of the nearby stadiums.

> Precast concrete was chosen because it offered the shortest erection time and the lowest cost.

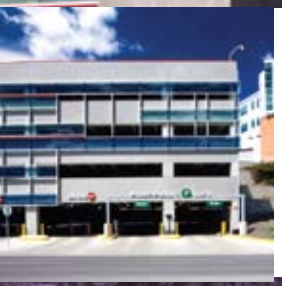
Judges' comments:

"This is a very large building that uses precast concrete in a simple but interesting way that keeps it from being relentless. By pulling the concrete away at the corners and exposing areas, while detailing the vertical circulation access points to a really high level, the building produces contrasts that work well for such a large mass. It creates a very unified and dignified application of the material."

Architect/engineer joint venture: Perfido Weiskopf Wagstaff+Goettel, Pittsburgh, Pa., and Walker Parking Consultants, Kalamazoo, Mich.
Owner: Sports & Exhibition Authority, Pittsburgh
General contractor: Mascaro Construction Co., Pittsburgh
Precaster: Sidley Precast Group, Thompson, Ohio
Precast concrete components: 1292 pieces, including double-tees; inverted tees; walkway, floor, and wall slabs; wall panels; lite walls; shear walls; ledge and curved beams; and stair units
Project cost: $23.2 million

Courtesy of Perfido Weiskopf Wagstaff+Goettel/Walker Parking Consultants-joint venture. Copyright Ed Massery.

Best Small Parking Structure (Fewer Than 1000 Vehicles)



Design attention focused on carefully detailing the precast concrete structure.

Rockyview General Hospital Parkade, Calgary, AB, Canada

An integral part of the Rockyview General Hospital Expansion Project, the new East Parkade sits prominently in front of the hospital along a busy street in Calgary, AB, Canada.

Designers had to account for future plans for the parking structure, which includes a two-story clinic addition on top and another potential addition to be built to the side. "Knowing the future addition would enlarge the building's mass and make the front elevation's aesthetics more important, design attention focused on carefully detailing the precast concrete structure," says Doug Little, engineer for Read Jones Christoffersen Ltd. in Calgary.

Precast concrete beams, slabs, and walls were integrated and recessed within the footprint of the parking floor to keep the building within the property boundaries and out of the plenum areas around the perimeter. "Due to the precision found in the precast shop drawings, it was simple to accommodate the tolerances for elevator recesses, embed plates, and expansion-joint assemblies," Little says.

The efficiency of the precast concrete end-to-end helix-ramping system, enhanced with a simple, repetitive interior layout, offset the cost premium for having to add cast-in-place retaining walls behind the structure, where it fits into a hillside. The decks were constructed with precast concrete double-tees and beams with high-coulomb-rating concrete containing silica fume and a chloride-inhibiting admixture.

To accommodate the future addition, the precast concrete structure was designed to withstand the seismic forces generated from the mass of the parking structure and the future steel two-story clinic addition on top and the future parking structure extension. "Precast concrete shear walls proved the most effective means to handle the additional lateral loads, and it allowed the erection to flow continuously. Mixing cast-in-place concrete or steel lateral systems would not have allowed that flow."

The precast concrete will provide durability as well as flexibility. "Precast was an economical solution that also allowed for a quick erection process, which was critical for this fast-tracked project."

Judges' comments:

"This structure has a totally different function from the hospital it serves, but it succeeds as a companion that fits well with the total complex. The use of the precast concrete cladding to serve as a background for the colorful glazing and aluminum provided a creative appearance. It compositionally supports the design and elevates the entire quality of the building. It's straightforward, honest, and simple, but it works very well."

Architect: Stantec Architecture, Calgary, AB, Canada
Engineer: Read Jones Christoffersen Ltd., Calgary
Owner: Calgary Health Region, Calgary
General contractor: CANA Construction Ltd., Calgary
Precaster: Con-Force Structures, Calgary
Precast concrete components: 637 pieces, including columns, beams, spandrels, double-tees, reinforced beams, architectural and structural panels, and exterior walkway slabs
Project cost: $21 million

Courtesy of Roy Ooms/Lightworks Photography.

Best Retail Store

Judges' comments:

"This project provides a great use of precast concrete to create long spans with minimal columns and a high ceiling, which are great benefits in a retail space. It also offered a great solution by adapting an existing building with an entirely different original function. It encourages us to think about precast concrete in renovation and adaptive reuse projects, in addition to the inclination about it being appropriate to ground-up new construction."

Architect: Lowney Architecture, Oakland, Calif.
Engineer: KPFF Consulting Engineers, San Francisco, Calif.
Owner: Bond Cos., Los Angeles, Calif.
General contractor: Charles Pankow Builders Inc., Oakland
Precaster: Mid-State Precast, Corcoran, Calif.
Precast concrete components: 215 pieces, including columns, beams, double-tees, spandrels
Project cost: $20 million (core and shell)

Courtesy of Hixson Photography and Mid-State Precast LP.

Whole Foods Market, Oakland, Calif.

Rehabilitating any older building can be challenging, but designers faced significant obstacles in creating a new Whole Foods Market retail store in Oakland, Calif. Their commission was to turn an abandoned auto dealership—which had been neglected for 20 years—into the first major supermarket to be built in the city in 25 years. To achieve that, they used long-span precast concrete double-tees and other structural components that produced an open, inviting design.

The precaster's involvement allowed the company to advise on design issues and provide early planning for the design and production of the structural members. "Overall, the precaster's early involvement was an important part of the project's progress and success," says Ken Lowney, principal at the architectural firm of Lowney Architecture in Oakland.

The owners wanted to maintain the look and feel of the original building, in keeping with Whole Foods' commitment to sustainability and conservation, while ensuring that they had appropriate retail space as well as parking for 200 cars.

The precast concrete structural components acted as the new roof for the structure's expansion, adding to the "industrial loft aesthetic" of the space, Lowney says. The double-tees provided a dual purpose, he notes, in creating open, column-free space in the retail store while offering open spaces for the added parking area.

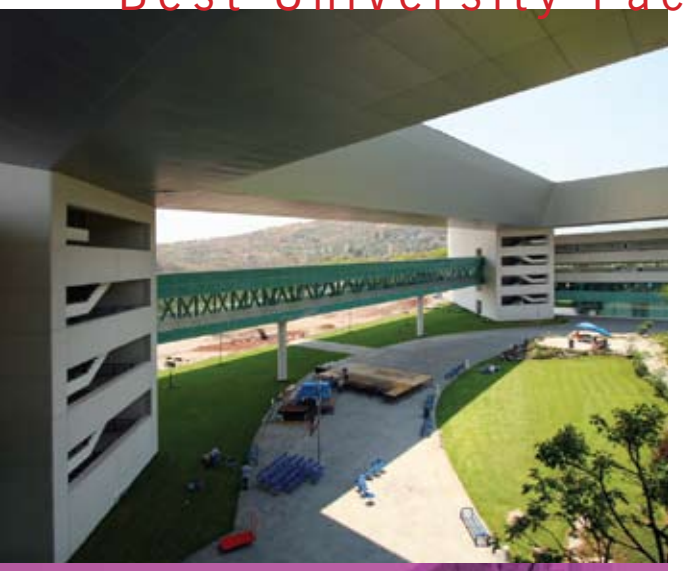
A total-precast solution also mitigated the challenge of a tight urban infill site. "The project site was sandwiched in tight between a hillside and the historic structure, leaving no proper lay down area," says Scott Anderson, project executive of Charles Pankow Builders Inc. in Oakland. "Through design-build, we were able plan early for and mitigate the site constraints through the use of precast and its ease of erection."

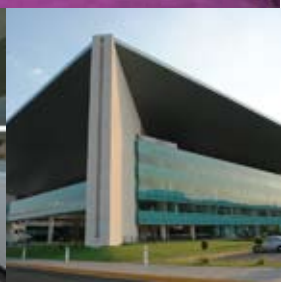
The precast concrete components speeded up construction by beginning the casting process while site preparation work was under way. Prep work included extensive environmental clean-up, as well as extensive brace supporting and retrofitting. "Precast's speed of erection helped to mitigate the schedule challenges that we faced," Lowney says.

> The precaster's early involvement was an important part of the project's progress and success.

BUILDING

Best University Facility





ITESM International Cuernavaca Campus, Xochitepec, Morelos, Mexico

Designing the main building for the new international campus of the Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM) required meeting a host of programmatic needs, creating a dramatic presence, and handling a variety of site restraints. Designers created a complex of several buildings clad in architectural precast concrete panels that unify the structures and project a distinctive image.

The project is located on 81.5 acres in Xochitepec, with its magnificent landscapes, in a volcanic zone. A key ingredient was respecting the environment of the area, says architect Juan Carlos Perez of JCP&A in Monterrey, Nuevo León, Mexico. "The architecture reflects a sustainable project that respects the local nature and uses last generation's materials and construction procedures. The monumental dimensions provide a scale and vision that settles the project to its roots and points to innovations in the future."

Unifying the project are 833 architectural precast concrete panels, which feature 3 in. ribbed reveals and a white chisel-hammered finish. Flat panels clad the entire complex, with returns used in hallways and emergency-stair areas. Producing the panels took 19 weeks, and they were erected in 17 weeks by Pretecsa in Atizapán de Zaragoza, Edo. de Mexico, Mexico.

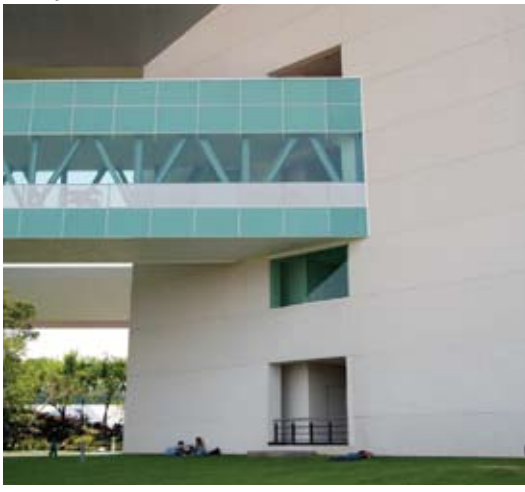
With a wide expanse of open space surrounding the complex, the structures can be seen from a long distance, making it the focal point for the area. "It serves the urban territory as a landmark, and from the sky can be seen as a monumental piece of reference for the landscape," Perez says.

Judges' comments:

"Bold, relentless, uncompromising…powerful. This project is both bold and monumental, yet it remains people friendly. The program is very apparent from the outside of the building, with a lot of clarity at the pedestrian level. There's no subtlety in this building whatsoever, but it's very sophisticated in the detail. The precast concrete pieces are very crisp and tightly joined in the detail, which adds scale."

Architect/engineer: JCP&A, Monterrey, Nuevo León, Mexico
Owner: ITESM International Cuernavaca Campus, Xochitepec, Morelos, Mexico
General contractor: Dirección Profesional de Proyectos Darqtec, S.A. de C.V., San Pedro Garza Garcia, Nuevo León
Precaster: Pretecsa, Atizapán de Zaragoza, Edo. de Mexico, Mexico
Precast concrete components: 833 architectural precast concrete panels
Project cost: $40 million

Courtesy of Pretecsa.



The architecture reflects a sustainable project that respects the local nature.

Best Warehouse

PEI Genesis, South Bend, Ind.

Executives at PEI-Genesis wanted more than simply a plant where the company's employees could assemble and sell electronic wiring connectors. "The owner wanted the building to make a bold statement about PEI-Genesis's place in the global interconnect business," says architect Philip Panzica, principal in Panzica Building Corp. in South Bend, Ind. "We were charged with creating not only an efficient, clean, secure, and affordable environment but to do so with a head-turning design that transcends a big shoebox."

They succeeded, thanks in part to the use of precast concrete insulated wall panels, plus hollow-core deck slabs for the mezzanine. The components provided the optimum marriage of speed of erection, economy, durability, and flexibility, Panzica says.

The building's design stresses movement, Panzica says. "Our vision was for something that looks like it's moving yet standing still, evoking a sense of how PEI's electronic connectors are incorporated into various dynamic platforms." Executives also wanted the building to integrate principles of energy efficiency and sustainable design.

To achieve those goals, the building's plan was expressed as an arrangement of cubes, angles, and stepped-curve or scalloped walls, he says. These variations created openings and slots for glass to add a rhythm to the graceful structure while ensuring that ample daylight poured into areas where miniature components are assembled by hand and also by means of industrial robots. The massing was organized into blocks that were arranged in a logical plan segregating warehouse/shipping, assembly, and office functions while optimizing flow.

The ability to cast and erect precast concrete components in any weather provided a significant boost to the schedule, he notes, as the schedule required construction to continue through a harsh northern Indiana winter. The precast concrete design saved at least four to six weeks plus tens of thousands of dollars that would have been needed for tenting and heating costs.

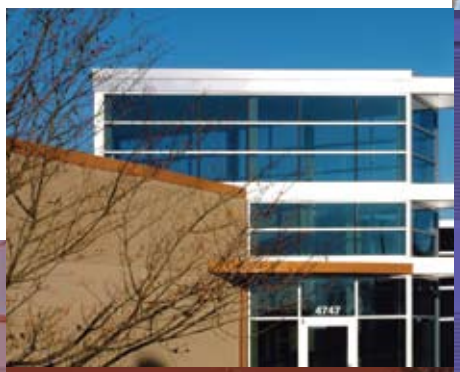
Judges' comments:

"This design took what is basically a big box and broke it into pieces and reassembled those pieces. It has wings as well as some energy and texture. It obviously is a huge improvement over the standard big box with 30 ft clear spans. It is a building type that can easily become boring because it never gets architectural attention. It's amazing how just a little architectural attention can produce a standout structure."

Architect/contractor: Panzica Building Corp., South Bend, Ind.
Engineer: AJ & Associates PC, Carmel, Ind.
Owner: PEI-Genesis, Philadelphia, Pa.
Precaster (panels): ATMI-Indy LLC, Greenfield, Ind.
Precaster (hollow-core): StresCore Inc., South Bend
Precast concrete components: 105 insulated wall/spandrel panels, hollow-core panels
Project cost: $7.1 million

> We were charged with creating . . . a head-turning design that transcends a big shoebox.

Courtesy of Hilliard Photographs and Panzica Building Corp.



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Guide Specification

To be sure that you are getting the full benefit of the PCI Plant Certification Program, use the following guide specification for your next project:

"***Manufacturer Qualification:*** The precast concrete manufacturing plant shall be certified by the Precast/Prestressed Concrete Institute Plant Certification Program. Manufacturer shall be certified at time of bidding. Certification shall be in the following product group(s) and category(ies): [Select appropriate groups and categories (AT or A1), (B1,2,3, or 4), (C1,2,3, or 4), (G)]."

Product Groups and Categories

The PCI Plant Certification Program is focused around four groups of products, designated A, B, C, and G. Products in Group A are audited to the standards in MNL–117. Products in Groups B and C are audited to the standards in MNL–116. Products in Group G are audited according to the standards in MNL–130. The standards referenced above are found in the following manuals:

MNL–116 *Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products*

MNL–117 *Manual for Quality Control for Plants and Production of Architectural Precast Concrete*

MNL–130 *Manual for Quality Control for Plants and Production of Glass-Fiber-Reinforced Concrete Products*

Within Groups A, B, and C are categories that identify product types and the product capability of the individual plant. The categories reflect similarities in the ways in which the products are produced. In addition, categories in Groups A, B, and C are listed in ascending order. In other words, a plant certified to produce products in Category C4 is automatically certified for products in the preceding Categories C1, C2, and C3. A plant certified to produce products in Category B2 is automatically qualified for Category B1 but not Categories B3 or B4.

Please note for Group B, Category B1: Some precast concrete products such as highway median barriers, box culverts, and three-sided arches are not automatically included in routine plant audits. They may be included at the request of the precaster or if required by the project specifications.

GROUPS

GROUP A – Architectural Products

Category AT – Architectural Trim Units
Wet-cast, nonprestressed products with a high standard of finish quality and of relatively small size that can be installed with equipment of limited capacity such as sills, lintels, coping, cornices, quoins, medallions, bollards, benches, planters, and pavers.

Category A1 – Architectural Cladding and Load-Bearing Units
Precast or precast, prestressed concrete building elements such as exterior cladding, load-bearing and non-load-bearing wall panels, spandrels, beams, mullions, columns, column covers, and miscellaneous shapes. This category includes Category AT.

GROUP B – Bridges

Category B1 – Precast Concrete Bridge Products
Mild-steel-reinforced precast concrete elements that include some types of bridge beams or slabs, sheet piling, pile caps, retaining-wall elements, parapet walls, sound barriers, and box culverts.

Category B2 – Prestressed Miscellaneous Bridge Products
Any precast, prestressed element excluding superstructure beams. Includes piling, sheet piling, retaining-wall elements, stay-in-place bridge deck panels, and products in Category B1.

Category B3 – Prestressed Straight-Strand Bridge Members
Includes all superstructure elements such as box beams, I-beams, bulb-tees, stemmed members, solid slabs, full-depth bridge deck slabs, and products in Categories B1 and B2.

Category B4 – Prestressed Deflected-Strand Bridge Members
Includes all products covered in Categories B1, B2, and B3.

GROUP BA – Bridge Products with an Architectural Finish

These products are the same as those in the categories within Group B, but they are produced with an architectural finish. They will have a form, machine, or special finish. Certification for Group BA production supersedes Group B in the same category. For instance, a plant certified to produce products in Category B2A is also certified to produce products in Categories B1, B1A, and B2 (while it is not certified to produce any products in B3A or B4A).

GROUP C – Commercial (Structural)

Category C1 – Precast Concrete Products
Mild-steel-reinforced precast concrete elements including sheet piling, pile caps, piling, retaining-wall elements, floor and roof slabs, joists, stairs, seating members, columns, beams, walls, spandrels, etc.

Category C2 – Prestressed Hollow-Core and Repetitive Products
Standard shapes made in a repetitive process prestressed with straight strands. Included are hollow-core slabs, railroad ties, flat slabs, poles, wall panels, and products in Category C1.

Category C3 – Prestressed Straight-Strand Structural Members
Includes stemmed members, beams, columns, joists, seating members, and products in Categories C1 and C2.

Category C4 – Prestressed Deflected-Strand Structural Members
Includes stemmed members, beams, joists, and products in Categories C1, C2, and C3.

GROUP CA – Commercial Products with an Architectural Finish

These products are the same as those in the categories within Group C, but they are produced with an architectural finish. They will have a form, machine, or special finish. Certification for Group CA production supersedes Group C in the same category. For instance, a plant certified to produce products in Category C2A is also certified to produce products in C1, C1A, and C2 (while it is not certified to produce any products in Groups C3 or C4A).

Group G – Glass-Fiber-Reinforced Concrete (GFRC)

These products are reinforced with glass fibers that are randomly dispersed throughout the product and are made by spraying a cement/sand slurry onto molds. This produces thin-walled, lightweight cladding panels.

Visit www.pci.org for the most up-to-date listing of PCI-Certified plants.

ALABAMA

Gate Precast Company, Monroeville (251) 575-2803 **A1, C1A**
Hanson Pipe and Precast Southeast, Birmingham (205) 663-4681 **B4, C4**
Standard Concrete Products, Theodore (251) 443-1113 **B4, C2**

ARIZONA

Coreslab Structures (ARIZ) Inc., Phoenix (602) 237-3875 **A1, C4A**
TPAC, Phoenix (602) 262-1360 **A1, B4, C4A**

ARKANSAS

Coreslab Structures (ARK) Inc., Conway (501) 329-3763 **C4A**

CALIFORNIA

Bethlehem Construction, Inc., Shafter (661) 391-9704 **C3**
Clark Pacific, West Sacramento (916) 371-0305 **A1, C3**
Clark Pacific, Fontana (909) 823-1433 **A1, C3, G**
Con-Fab California Corporation, Lathrop (209) 249-4700 **B4, C4**
Coreslab Structures (L.A.) Inc., Perris (951) 943-9119 **A1, B4, C4A**
Fintech Precast, Inc., Redding (530) 241-8397 **C2**
Hanson Structural Precast, Irwindale (626) 962-8751 **C4**
Hanson Structural Precast, San Diego (619) 423-9030 **C4**
Mid-State Precast, L.P., Corcoran (559) 992-8180 **A1, C3A**
Pomeroy Corporation, Perris (951) 657-6093 **B4, C2**
Walters & Wolf Precast, Fremont (510) 226-5162 **A1, , G**
Willis Construction Co., Inc., San Juan Bautista (831) 623-2900 **A1, C1, G**
Willis De Mexico S.A. de C.V., Tecate **A1, C1**

COLORADO

EnCon Colorado, Denver (303) 287-4312 **B4, C1**
Plum Creek Structures, Littleton (303) 471-1569 **B4, C3**
Rocky Mountain Prestress, Inc., Denver (303) 480-1111 **B4, C4**
Rocky Mountain Prestress, Inc., Denver (303) 480-1111 **A1, C3A**
Rocla Concrete Tie, Inc., Denver (303) 296-3505 **C2**
Stresscon Corporation, Colorado Springs (719) 390-5041 **A1, B4, C4A**
Stresscon Corporation, Dacono (303) 659-6661 **C4**

CONNECTICUT

Blakeslee Prestress Inc., Branford (203) 481-5306 **A1, B4, C4A**
Coreslab Structures (CONN) Inc., Thomaston (860) 283-8281 **A1**
Oldcastle Precast, Inc./dba Rotondo Precast, Avon (860) 673-3291 **B1, C1A**

DELAWARE

Concrete Building Systems of Delaware, Inc., Delmar (302) 846-3645 **B3, C4**
Rocla Concrete Tie, Inc., Bear (302) 836-5304 **C2**

FLORIDA

Castlestone Inc., Winter Garden (407) 877-2120 **AT**
CDS Manufacturing Inc., Gretna (850) 875-4651 **B4**
CDS Manufacturing Inc., Midway (850) 875-4651 **B3, C4**
Cement Industries, Inc., Fort Myers (239) 332-1440 **B3, C3**
Coreslab Structures (MIAMI) Inc., Medley (305) 823-8950 **A1, C4A**
Coreslab Structures (ORLANDO) Inc., Orlando (407) 855-3191 **C2**
Coreslab Structures (TAMPA) Inc., Tampa (813) 626-1141 **B3, C3A**
Dura-Stress, Inc., Leesburg (800) 342-9239 **A1, B4A, C3A**
Finfrock Industries, Inc., Orlando (407) 293-4000 **C4**
Florida Precast Industries, Inc., Sebring (863) 655-1515 **C2**
Florida Rock and Sand Prestress Precast Co., Inc.,
Florida City (305) 247-9611 **B2, C3**
Gate Concrete Products Company, Jacksonville (904) 757-0860 **B4, C4**
Gate Precast Company, Kissimmee (407) 847-5285 **A1**
South Eastern Prestressed Concrete, Inc.,
West Palm Beach (561) 793-1177 **B3, C3**
Standard Concrete Products, Inc., Tampa (813) 831-9520 **B4, C3**

GEORGIA

Atlanta Structural Concrete Co., Buchanan (770) 646-1888 **C4A**
ConArt, Inc., Cobb (229) 853-5000 **A1, AT, C3**
Coreslab Structures (ATLANTA) Inc., Jonesboro (770) 471-1150 **C3A**
Metromont Corporation, Hiram (770) 943-8688 **A1, C4A**
Standard Concrete Products, Inc., Savannah (912) 233-8263 **B4, C4**
Standard Concrete Products, Inc., Atlanta (404) 792-1600 **B4,**
Tindall Corporation, Conley (800) 849-6383 **C2**
Tindall Corporation, Conley (800) 849-6383 **C4A**

HAWAII

GPRM Prestress, Kapolei (808) 682-6000 **A1, B3, C4**

IDAHO

Hanson Structural Precast Eagle, Caldwell (208) 454-8116 **A1, B4, C4**
Teton Prestress Concrete, LLC., Idaho Falls (208) 523-6410 **B4, C3**

ILLINOIS

ATMI Dynacore, Lockport (815) 838-9492 **C2**
ATMI Precast, Aurora (630) 896-4679 **C3A**
County Materials Corporation, Champaign (217) 352-4181 **B3,**
Dukane Precast, Inc., Aurora (630) 355-8118 **A1, C3**
Egyptian Concrete Company, Salem (618) 548-1190 **A1, B4, C4**
High Concrete Group LLC, Paxton (217) 379-9790 **A1, C3A**
J.W. Peters, Inc., Rochelle (815) 562-4136 **A1, B4, C4A**
Lombard Architectural Precast Products Co., Alsip (708) 389-1060 **A1**
Mid-States Concrete Industries, South Beloit (608) 364-1072 **C3**
Prestress Engineering Corporation, Blackstone (815) 586-4239 **B4, C4**
Spancrete of Illinois, Inc., Crystal Lake (815) 459-5580 **C2**
St. Louis Prestress, Inc., Glen Carbon (618) 656-8934 **B3, C3**

INDIANA

ATMI Indy, LLC, Greenfield (317) 891-6280 **C2**
Coreslab Structures (INDIANAPOLIS) Inc.,
Indianapolis (317) 353-2118 **A1, C4A**
Hoosier Precast LLC, Salem (812) 883-4665 **B3, C1A**
Precast Specialties, Inc., Monroeville (260) 623-6131 **A1**
Prestress Services Industries LLC, Decatur (260) 724-7117 **B4, C4A**
StresCore, Inc., South Bend (574) 233-1117 **C2**

IOWA

Andrews Prestressed Concrete, Inc., Clear Lake (641) 357-5217 **B4, C4**
IPC, Inc., West Burlington (515) 243-5118 **A1, B4, C3A**
IPC, Inc., Iowa Falls (515) 243-5118 **B4, C4A**
IPC, Inc., Des Moines (515) 243-5118 **C4**
MPC Enterprises, Inc., Mount Pleasant (319) 986-2226 **C3A**

KANSAS

Coreslab Structures (KANSAS) Inc., Kansas City (913) 287-5725 **B4, C4**
Prestressed Concrete, Inc., Newton (316) 283-2277 **A1, B4, C4**
Stress-Cast, Inc., Assaria (785) 667-3905 **C3A**
Waffle-Crete International, Inc., Hays (785) 625-3486 **C3A**

KENTUCKY

de AM - RON Building Systems LLC, Owensboro (270) 684-6226 **A1, C4**
Gate Precast Company, Winchester (859) 744-9481 **A1**
Prestress Services Industries LLC, Henderson (270) 826-6244 **B4, C3**
Prestress Services Industries LLC, Lexington (859) 299-0461 **A1, B4, C4A**
Prestress Services Industries LLC, Melbourne (859) 441-0068 **B4, C3**

LOUISIANA

Boykin Brothers, Inc./Louisiana Concrete Products,
Baton Rouge (225) 753-8722 **A1, B4, C3A**
F-S Prestress, LLC, Princeton (318) 949-2444 **B4, C3**
Fibrebond Corporation, Minden (318) 377-1030 **A1, C1**
Rotondo Weirich, Pollock (215) 256-7940 **C1**

MARYLAND

Atlantic Metrocast, Inc., LaPlata (301) 870-3289 **B3, C1**
Larry E. Knight, Inc., Glyndon (410) 833-7800 **C2**
Oldcastle Precast Building Systems Div., Edgewood (410) 612-1213 **A1, C3A**

MASSACHUSETTS

Oldcastle Precast, Inc./dba Rotondo Precast, Rehoboth (508) 336-7600 **B4, C3**
Unistress Corporation, Pittsfield (413) 499-1441 **A1, B4, C4A**
Vynorius Prestress, Inc., Salisbury (978) 462-7765 **C2**

MICHIGAN

Dura-Crete Products, Warren (586) 759-4286 **B2,**
Gerace Construction Company, Inc., Midland (989) 496-2440 **A1, B3, C3**
Grand River Infrastructure, Inc., Grand Rapids (616) 534-9645 **B4, C1**
Kerkstra Precast Inc., Grandville (800) 434-5830 **B1, C3A**
National Precast Structural, Inc., Shelby (586) 247-1201 **C3**
National Precast, Inc., Roseville (586) 294-6430 **A1, C3**
Nucon Schokbeton / Stress-Con Industries, Inc.,
Kalamazoo (269) 381-1550 **A1, B4, C3A**
Stress Con Industries, Inc., Saginaw (989) 239-2447 **B4, C3**

MINNESOTA

Cretex Concrete Products North, Inc., Elk River (763) 545-7473 **B4, C2**
Hanson Structural Precast Midwest, Inc.,
Maple Grove (763) 425-5555 **A1, C4A**
Molin Concrete Products Co., Lino Lakes (651) 786-7722 **C3A**
Wells Concrete Products Co., Wells (507) 553-3138 **A1, C4A**

MISSISSIPPI

F-S Prestress, LLC, Hattiesburg (601) 268-2006 **B4, C4**

Visit *www.pci.org* for the most up-to-date listing of PCI-Certified plants.

Gulf Coast Pre-Stress, Inc., Pass Christian (228) 452-9486 **B4, C4**
J.J. Ferguson Prestress-Precast Company, Inc., Greenwood (662) 453-5451 **B4**
Jackson Precast, Inc., Jackson (601) 321-8787 **A1, C2A**
Prestress Services Industries of MS, LLC, Ridgeland (601) 856-4135 **B4, C1**
Tindall Corporation, Moss Point (228) 435-0160 **C4A**

MISSOURI

Coreslab Structures (MISSOURI) Inc., Marshall (660) 886-3306 **A1, B4, C4A**
Egyptian Concrete Company, Bonne Terre (573) 358-2773 **B4,**
Mid America Precast, Inc., Fulton (573) 642-6400 **A1, B1, C1**
Mid West Prestress, LLC, Wright City (636) 745-7480 **C3**
Prestressed Casting Company, Ozark (417) 581-7009 **C4**
Prestressed Casting Company, Springfield (417) 869-1263 **A1, C3A**

MONTANA

Missoula Concrete Construction, Missoula (406) 549-9682 **A1, B3, C3**
Montana Prestressed Concrete, Billings (605) 718-4111 **B4, C3**

NEBRASKA

Concrete Industries, Inc., Lincoln (402) 434-1800 **B4, C4A**
Coreslab Structures (OMAHA) Inc., LaPlatte (402) 291-0733 **A1, B4, C4A**
CXT, Inc., Grand Island (308) 382-5400 **C2**
Enterprise Precast Concrete, Inc., Omaha (402) 895-3848 **A1**
GFRC, Inc., Lincoln (402) 466-3200 **G**
Stonco, Inc., Omaha (402) 556-5544 **A1**

NEW HAMPSHIRE

Architectural Cladding Systems, Inc., Hollis (603) 889-6310 **G**
Newstress Inc., Epsom (603) 736-9348 **B3, C3**

NEW JERSEY

High Concrete Group LLC, Buena (856) 697-3600 **C3**
Jersey Precast Corp., Hamilton Township (609) 689-3700 **B4, C3**
Precast Systems, Inc., Allentown (609) 208-1987 **B4, C4**
Universal Concrete Products of NJ, Inc., Folsom (609) 704-9400 **A1, C1**

NEW MEXICO

Castillo Prestress, Belen (505) 864-0238 **B1, C1**
Coreslab Structures (ALBUQUERQUE) Inc., Albuquerque (505) 247-3725 **A1, B4, C4**
Ferreri Concrete Structures, Inc., Albuquerque (505) 344-8823 **A1, C4**

NEW YORK

David Kucera Inc., Gardiner (845) 255-1044 **A1, , G**
Lakelands Concrete Products, Inc., Lima (585) 624-1990 **A1, B3A, C3A**
Oldcastle Precast Building Systems Div., South Bethlehem (518) 767-2116 **B3, C3A**
Oldcastle Precast Building Systems Div., Manchester (585) 289-3530 **C3**
Rotondo Weirich Enterprises, Inc., Yaphank (404) 414-4649 **C1**
The Fort Miller Co., Inc., Greenwich (518) 695-5000 **B1, C1**
The L.C. Whitford Materials Co., Inc., Wellsville (585) 593-2741 **B3, C3**

NORTH CAROLINA

Gate Precast Company, Oxford (919) 603-1633 **A1, C2**
Metromont Corporation, Charlotte (704) 372-1080 **A1, C3**
Oldcastle Precast, Inc / dba NC Products, Raleigh (919) 772-6301 **C1**
Prestress of the Carolinas, LLC, Charlotte (704) 587-4273 **B4, C4**
S & G Prestress Company, Wilmington (910) 763-7702 **B4, C3**
S & G Prestress Company, Leland (910) 397-6255 **B4,**
Utility Precast, Inc., Charlotte (704) 596-6283 **B3A,**

NORTH DAKOTA

Concrete Inc., Grand Forks (701) 772-6687 **C4A**

OHIO

DBS Prestress of Ohio, Huber Heights (937) 878-8232 **C2**
High Concrete Group LLC, Springboro (937) 748-2412 **A1, C3**
Hollowcore Midwest, LLC, Fairfield (513) 829-1555 **B1, C3**
KSA, Sciotoville (740) 776-3238 **C2**
Mack Industries, Inc., Valley City (330) 483-3111 **C2**
Prestress Services Industries LLC, Grove City (614) 871-2900 **B4,**
Sidley Precast, Thompson (440) 298-3232 **A1, C4A**
United Precast, Inc., Mt.Vernon (800) 366-8740 **B4, C3**
United Precast, Inc., Mt.Vernon (740) 393-1121 **B3, C1**

OKLAHOMA

Coreslab Structures (OKLA) Inc. (Plant No.1), Oklahoma City (405) 632-4944 **A1, C4A**
Coreslab Structures (OKLA) Inc. (Plant No.2), Oklahoma City (405) 672-2325 **B4, C1**
Coreslab Structures (TULSA) Inc., Tulsa (918) 438-0230 **B4, C4**
Rotondo Weirich Enterprises, Inc., Sayre (215) 239-7589 **C1**
Tulsa Dynaspan, Inc., Broken Arrow (918) 258-1549 **C3**

OREGON

Knife River Corporation, Harrisburg (541) 995-6327 **A1, B4, C4**
R.B. Johnson Co., McMinnville (503) 472-2430 **B4,**

PENNSYLVANIA

Architectural Precast LLC, Middleburg (570) 837-1774 **A1, C2A**
Castcon Stone, Inc., Saxonburg (724) 352-2200 **C1**
Concrete Safety Systems, LLC, Bethel (717) 933-4107 **B1, C1**
Conewago Precast Building Systems, Hanover (717) 632-7722 **A1, C2A**
Hanson Pipe & Precast, Pottstown (610) 970-2216 **B1A, C1A**
High Concrete Group LLC, Williamsport (570) 329-4228 **C3**
High Concrete Group LLC, Denver (717) 336-9300 **A1, C3A**
J & R Slaw, Inc., Lehighton (610) 852-2020 **A1, B3, C3**
Newcrete Products, Roaring Spring (814) 224-2121 **B4, C4**
Nitterhouse Concrete Products, Inc., Chambersburg (717) 267-4505 **A1, C4A**
Oldcastle Precast Building Systems Div., Morrisville (215) 736-9576 **C3**
Pittsburgh Flexicore Company, Inc., Monongahela (724) 258-4450 **C2**
Say-Core, Inc., Portage (814) 736-8018 **C2**
Schuylkill Products, Inc., Cressona (570) 385-2352 **B4, C3**
Sidley Precast, Youngwood (724) 755-0205 **C3**
Top Roc Newcrete Products Company, Erie (814) 838-2011 **B4,**
Universal Concrete Products Corporation, Stowe (610) 323-0700 **A1, C3A**

SOUTH CAROLINA

Coreslab Structures (COLUMBIA) Inc., Hopkins (803) 783-5460 **A1**
Florence Concrete Products, Inc., Sumter (803) 775-4372 **B4, C3A**
Metromont Corporation, Greenville (864) 295-0295 **A1, C4A**
Tekna Corporation, Charleston (843) 853-9118 **B4, C2**
Tindall Corporation, Fairforest (864) 576-3230 **A1, C4A**

SOUTH DAKOTA

Gage Brothers Concrete Products Inc., Sioux Falls (605) 336-1180 **A1, B4, C4A**

TENNESSEE

Construction Products, Inc. of Tennessee, Jackson (731) 668-7305 **B4, C4**
Gate Precast Company, Ashland City (615) 792-4871 **A1**
Metromont Corporation, LaVergne (615) 793-3393 **C4A**
Mid South Prestress, LLC, Pleasant View (615) 746-6606 **C3**
Prestress Services Industries of TN, LLC, Memphis (901) 775-9880 **B4, C3**
Ross Prestressed Concrete, Inc., Knoxville (865) 524-1485 **B4, C4**
Ross Prestressed Concrete, Inc., Bristol (423) 323-1777 **B4, C3**
Rotondo Weirich Enterprises, Inc., Hartsville (215) 631-4264 **C1**
Sequatchie Concrete Service, Inc., Knoxville (423) 867-4510 **C2**
Southeast Precast Corporation, Knoxville (865) 524-3615 **A1**

TEXAS

Coreslab Structures (TEXAS) Inc., Cedar Park (512) 250-0755 **A1, C4A**
Enterprise Concrete Products, LLC, Dallas (214) 631-7006 **B3, C3**
CXT, Inc., Hillsboro (254) 580-9100 **B1, C1**
Gate Concrete Products Company, Pearland (281) 485-3273 **C2**
GFRC Cladding Systems, LLC, Garland (972) 494-9000 **, G**
Heldenfels Enterprises, Inc., Corpus Christi (361) 883-9334 **B4, C4**
Heldenfels Enterprises, Inc., San Marcos (512) 396-2376 **B4, C4**
Lowe Precast, Inc., Waco (254) 776-9690 **A1, C3A**
Manco Structures, Ltd., Schertz (210) 690-1705 **B4, C4A**
North American Precast Company, San Antonio (210) 509-9100 **A1, C4A**
Rocla Concrete Tie, Inc., Amarillo (806) 383-7071 **C2**

UTAH

EnCon Utah, LLC, Tooele (435) 843-4230 **A1, B4, C3A**
Hanson Structural Precast Eagle, Salt Lake City (801) 966-1060 **A1, B4, C4A, G**
Owell Precast LLC, Bluffdale (801) 571-5041 **C3**

VERMONT

Dailey Precast, Shaftsbury (802) 442-4418 **A1, B2A, C3A**
J. P. Carrara & Sons, Inc., Middlebury (802) 388-6363 **A1, B4A, C3A**

VIRGINIA

Atlantic Metrocast, Inc., Portsmouth (757) 397-2317 **B4, C3**
Bayshore Concrete Products Corporation, Cape Charles (757) 331-2300 **B4, C4**
Bayshore Concrete Products/Chesapeake, Inc., Chesapeake (757) 549-1630 **B4, C3**
Coastal Precast Systems, LLC, Chesapeake (757) 545-5215 **B4, C3**

Metromont Corporation, Richmond (804) 222-8111 **C4A**
Rockingham Precast, Inc. Harrisonburg (540) 433-8282 **B4, C3**
Rotondo Weirich Enterprises, Inc., Salem (215) 631-4264 **C1**
Smith-Midland Corporation, Midland (540) 439-3266 **A1, B1, C3**
The Shockey Precast Group, Winchester (540) 667-7700 **A1, C4A**
The Shockey Precast Group, Fredericksburg (540) 898-1221 **A1, C3A**
Tindall Corporation, Petersburg (804) 861-8447 **C4A**

WASHINGTON

Bellingham Marine Industries, Inc., Ferndale (360) 676-2800 **C1**
Bethlehem Construction, Inc., Cashmere (509) 782-1001 **B1, C3A**
Central Pre-Mix Prestress Co., Spokane (509) 533-0267 **A1, B4, C4**
Concrete Technology Corporation, Tacoma (253) 383-3545 **B4, C4**
CXT, Inc., Spokane (509) 921-8716 **B1,**
CXT, Inc., Spokane (509) 921-7878 **C2**
EnCon Washington, LLC, Puyallup (253) 846-2774 **B1, C2**
Wilbert Precast, Inc., Yakima (509) 248-1984 **B3, C3**

WEST VIRGINIA

Carr Concrete Corporation, Waverly (304) 464-4441 **B4, C3**
Eastern Vault Company, Inc., Princeton (304) 425-8955 **B3, C3**

WISCONSIN

Architectural Precast, Inc., Browntown (608) 966-4370 **C3A**
County Materials Corporation, Roberts (800) 426-1126 **B4, C3**
County Materials Corporation, Eau Claire (800) 729-7701 **B4,**
International Concrete Products, Inc., Germantown (262) 242-7840 **A1, C1**
J.W. Peters, Inc., Burlington (800) 877-9040 **A1, C3A**
MidCon Products, Inc., Hortonville (920) 779-4032 **A1, C1**
Precast Concrete Specialties, Inc., Omro (920) 685-2727 **A1**
Spancrete Industries, Inc., Waukesha (414) 290-9000 **A1, B2A, C3A**
Spancrete, Inc., Valders (920) 775-4121 **A1, C3A**
Spancrete, Inc., Green Bay (920) 494-0274 **B4, C4**

CANADA

ALBERTA

Con-Force Structures, Calgary (403) 248-3171 **A1, B4, C4**
P. Kruger Concrete Products, Ltd., Edmonton (780) 438-2072 **A1, C1**

BRITISH COLUMBIA

Con-Force Structures, Richmond (604) 278-9766 **A1, B4, C3**

MANITOBA

Con-Force Structures, Winnipeg (204) 338-9311 **B4, C3A**
Lafarge Canada Inc., Winnipeg (204) 958-6381 **C2**

NEW BRUNSWICK

Strescon Limited, Saint John (506) 633-8877 **A1, B4, C4**

NOVA SCOTIA

Strescon Limited, Beford (902) 494-7400 **A1, B4, C4**

ONTARIO

Artex Systems Inc., Concord (905) 669-1425 **A1**
Global Precast INC, Maple (905) 832-4307 **A1**
Prestressed Systems, Inc., Windsor (519) 737-1216 **B4, C4**

QUEBEC

Betons Prefabriques du Lac Inc., Alma (418) 668-6161 **A1, C3, G**
Betons Prefabriques du Lac, Inc., Alma (418) 668-6161 **A1, C1**
Betons Prefabriques Trans. Canada Inc.
St. Eugene De Grantham (819) 396-2624 **A1, B4, C3A**
Saramac Inc., Lachenaie (450) 966-1000 **A1**
Schokbeton Quebec, Inc., St. Eustache (450) 473-6831 **A1, B4A, C3**
Prefab De Beauce, Sainte-Marie (418) 387-7152 **A1, C3**

MEXICO

PRETECSA, S.A. DE C.V., Atizapan De Zaragoza (011) 52-1036077 **A1, G**

Visit *www.pci.org* for the most up-to-date listing of PCI-Certified plants.

PCI-Qualified & PCI-Certified Erectors

(as of August 2008)

When it comes to quality, why take chances? When you need precast or precast, prestressed concrete products, choose a PCI-Qualified/Certified Erector. You'll get confirmed capability with a quality assurance program you can count on.

Whatever your needs, working with an erector who is PCI qualified/certified in the structure categories listed will benefit you and your project.

- You'll find easier identification of erectors prepared to fulfill special needs.
- You'll deal with established erectors.
- Using a PCI-Qualified/Certified Erector is the first step toward getting the job done right the first time, thus keeping labor costs down.
- PCI-Qualified/Certified erectors help construction proceed smoothly, expediting project completion.

Guide Specification

To be sure that you are getting an erector from the PCI Field Certification Program, use the following guide specification for your next project:

"Erector Qualification: The precast concrete erector shall be fully qualified or certified by the Precast/Prestressed Concrete Institute (PCI) prior to the beginning of any work at the jobsite. The precast concrete erector shall be qualified or certified in Structure Category(ies): [Select appropriate groups and categories S1 or S2 and/or A1]."

Erector Classifications

The PCI Field Certification Program is focused around three erector classifications. The standards referenced are found in the following manuals:

MNL–127 *Erector's Manual - Standards and Guidelines for the Erection of Precast Concrete Products*

MNL–132 *Erection Safety Manual for Precast and Prestressed Concrete*

GROUPS

Category S1 - Simple Structural Systems
This category includes horizontal decking members (e.g., hollow-core slabs on masonry walls), bridge beams placed on cast-in-place abutments or piers, and single-lift wall panels.

Category S2 - Complex Structural Systems
This category includes everything outlined in Category S1 as well as total-precast, multi-product structures (vertical and horizontal members combined) and single- or multistory load-bearing members (including those with architectural finishes).

Category A - Architectural Systems
This category includes non-load-bearing cladding and GFRC products, which may be attached to a supporting structure.

Certified erectors are listed in red.

ARKANSAS

Coreslab Structures (ARK) Inc., Conway (501) 329-3763 — **S2**

ARIZONA

Coreslab Structures (ARIZ), Inc., Phoenix (602) 237-3875 — **S2, A**
TPAC, Phoenix (602) 262-1360 — **S2, A**

CALIFORNIA

Coreslab Structures (L.A.), Inc., Perris (951) 943-9119 — **S2, A**
Walters & Wolf Precast, Fremont (510) 226-9800 — **A**

COLORADO

Colorado Fabricators & Constructors, Inc., Centennial (303) 471-9902 — **S2**
Gibbons Erectors, Inc., Parker (303) 841-0457 — **S2**
Hardrock Structures Inc., Penrose (719) 372-6269 — **S2**
Mehring Welding & Erection, Penrose (719) 372-6607 — **S2**
Rocky Mountain Prestress, Denver (303) 480-1111 — **S2**
S. F. Erectors Inc., Elizabeth (303) 646-6411 — **S2**

CONNECTICUT

Blakeslee Prestress, Inc., Branford (203) 481-5306 — **S2**
Echelon Erectors, LLC, New Haven (203) 389-4300 — **S2, A**

FLORIDA

All Florida Erectors and Welding, Inc., Apopka (407) 880-3717 — **S2, A**
Concrete Erectors Inc., Altamonte Springs (407) 862-7100 — **S2**
Finfrock Industries, Inc., Orlando (407) 293-4000 — **S2**
Florida Precast Industries, Sebring (863) 655-1515 — **S2, A**
Gate Precast Erection Co., Jacksonville (904) 757-0860 — **S2, A**
James Toffoli Construction Company, Inc., Fort Myers (239) 479-5100 — **S2**
Pre-Con Construction of Tampa Inc., Tampa (813) 626-2545 — **S2, A**
Randy J. Mellor Construction, Inc., Nokomis (941) 321-1826 — **S1**
Solar Erectors U. S. Inc., Medley (305) 825-2514 — **S2, A**
Southeast Tilt-Wall Erectors, Inc., Deltona (407) 402-9664 — **S1**
Specialty Concrete Services, Inc., Altoona (352) 669-8888 — **S2, A**
Summit Erectors, Inc., Jacksonville (904) 783-6002 — **S2, A**

GEORGIA

ConArt, Inc., Cobb (229) 853-5000 — **S2, A**
Precision Stone Setting Co., Inc., Hiram (770) 439-1068 — **S2, A**
Rutledge & Son's, Woodstock (770) 592-0380 — **S2**

IOWA

Cedar Valley Steel, Inc., Cedar Rapids (319) 373-0291 — **S2**

ILLINOIS

Creative Erectors, LLC, Rockford (815) 229-8303 — **S1**
Mid-States Concrete Industries, South Beloit (800) 236-1072 — **S2**
Spancrete of Illinois, Inc., Crystal Lake (815) 459-5580 — **S2**

INDIANA

Sofco Erectors, Inc., Indianapolis (317) 352-9680 — **S2, A**
Stres Core Inc., South Bend (574) 233-1117 — **S1**

KANSAS

Carl Harris Co., Inc., Wichita (316) 267-8700 — **S2**

MASSACHUSETTS

Concrete Structures, Inc., Marshfield (781) 837-1931 — **S1, A**
Prime Steel Erecting, Inc., North Billerica (978) 671-0111 — **S2**

MARYLAND

E & B Erectors, Inc., Pasadena (410) 360-7800 — **S2, A**
E.E. Marr Erectors, Inc., Baltimore (410) 837-1641 — **S2, A**
EDI, Inc., Upper Marlboro (301) 568-4585 — **S1, A**
L.R. Willson & Sons, Inc., Gambrills (410) 987-5414 — **S2, A**
Mid Atlantic Precast Erectors, Inc., Baltimore (410) 837-1641 — **A**
Oldcastle Building Systems Div. / Project Services, Baltimore (518) 767-2116 — **S2, A**

MAINE

Reed & Reed, Inc., Woolwich (207) 443-9747 — **S2, A**

MICHIGAN

Alpha Omega Development, Saginaw (989) 399-9436 — **S2**
American Erectors Inc., Waterford (248) 674-0060 — **S2, A**
Assemblers Precast & Steel Services, Inc., Saline (734) 429-1358 — **S2, A**
Devon Contracting, Inc., Detroit (313) 965-3455 — **S2**
Kerkstra Precast Inc., Grandville (616) 224-6176 — **S2**
Moyle Construction, Houghton (906) 482-3000 — **S1**
Pioneer Construction Inc., Grand Rapids (616) 247-6966 — **S2**

MINNESOTA

Amerect, Inc., Newport (651) 459-9909 — **A**
Hanson Structural Precast Midwest, Inc., Maple Grove (763) 425-5555 — **S2, A**
Molin Concrete Products Company, Lino Lakes (651) 786-7722 — **S2**
Wells Concrete Products Co., Wells (507) 553-3138 — **S2, A**

MISSOURI

Acme Erectors, Inc., St Louis (314) 647-1923 — **S2**
J. E. Dunn Construction Company, Kansas City (816) 474-8600 — **S2, A**
Prestressed Casting Co., Springfield (417) 869-7350 — **S2, A**

NORTH CAROLINA

Buckner Steel Erection Inc., Graham (336) 376-8888 — **S2**
Carolina Precast Erectors, Inc., Taylorsville (828) 635-1721 — **S2**
Rabon Erectors, Inc., Archdale (336) 434-3308 — **S2, A**
T & M Concrete, Inc., Waxhaw (704) 843-3292 — **S2**
Tri State Erectors, Inc., Oxford (919) 603-0922 — **S1, A**

NORTH DAKOTA

Concrete, Inc., Grand Forks (701) 772-6687 — **S2**

NEBRASKA

Concrete Industries, Inc., Lincoln (402) 434-1800 — **S2**

NEW HAMPSHIRE

American Steel & Precast Erectors, Inc., Greenfield (603) 547-6311 — **S2, A**

NEW JERSEY

Car-Win Construction, Eastampton (800) 352-1523 — **S2, A**
J. L. Erectors, Inc., Blackwood (856) 232-9400 — **S2, A**
JEM-Erectors, Inc., Shamong (609) 268-0332 — **S2, A**
Jonasz Precast, Inc., Westville (856) 456-7788 — **S2, A**

NEW MEXICO

Ferreri Concrete Structures, Inc., Albuquerque (505) 344-8823 — **S2**

NEW YORK

All Systems Precast, Inc., Farmingdale (631) 694-4720 — **S2**
Arben Group LLC, Pleasantville (914) 741-5459 — **S2**
Oldcastle Building Systems Div. / Project Services, South Bethlehem (518) 767-2116 — **S2, A**
Oldcastle Building Systems Div. / Project Services, Manchester (518) 767-2116 — **S2, A**

OHIO

Capital City Group, Inc., Columbus (614) 278-2120 — **S2, A**
Precast Services, Inc., Twinsburg (330) 425-2880 — **S2, A**
Sidley Precast Group, Thompson (440) 298-3232 — **S2**
Sofco Erectors, Inc., Cincinnati (513) 771-1600 — **S2, A**

OKLAHOMA

Coreslab Structures (OKLA), Inc., Oklahoma City (405) 632-4944 — **S2, A**

PENNSYLVANIA

Century Steel Erectors, Kittanning (724) 545-3444 — **S1, A**
Conewago Enterprises, Inc., Hanover (717) 632-7722 — **S2**
High Concrete Group, Denver (717) 336-9300 — **S2, A**
Maccabee Industrial, Inc., Belle Vernon (724) 930-7557 — **A**
Nitterhouse Concrete Products, Inc., Chambersburg (717) 267-4505 — **S2**
Patterson Construction Company, Inc., Monongahela (724) 258-4450 — **S1**
Say-Core, Inc., Portage (814) 736-8018 — **S1**
Structural Services, Inc., Bethlehm (610) 282-5810 — **S1**

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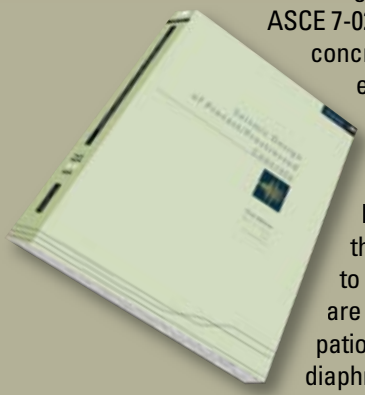

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