



# CONCRETE

## INNOVATIONS & ANSWERS

News from The High Concrete Group Companies

Issue number 3



### Southwestern Bell Telephone

Location:  
Des Peres, MO  
Architect:  
Gromatsky, Dupree & Associates  
General Contractor:  
Ben Hur Construction Co.



### Three Lakeview Place

Location:  
Nashville, TN  
Architect:  
Cooper Carry Architects  
General Contractor:  
D.F. Chase Construction Co.



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## Rethink Precast

**T**he High Concrete Group companies' latest ad in *Architectural Record* magazine features the stunning Ohio Center of Science & Industry (COSI) riverfront museum in Columbus, designed by Arata Isozaki & Associates in collaboration with NBBJ Architects and MoodyNolan. The 326,000 s.f. project, completed in 1999 by general contractor Ruscilli Construction Co., was chosen as the feature for the ad because: it employed 3-D modeling—a still cutting-edge design technology; it is predominantly an all-precast structure; and, because it is a design and engineering marvel that pushed the limits of the precast envelope.

The center's unique design serves as a mathematics and construction principles teaching opportunity for visitors. But, to make the challenging "plastic" design a reality, new precast concrete innovations and answers were required. The Japanese precast industry, with whom Isozaki initially consulted on technical and logistical feasibility, said that the structure's 62' 4" tall, load-bearing, discontinuous "clothoid" curved wall panels—segments of a spiral that were curved in two directions—"couldn't be done." But Concrete Technology Inc, now High Concrete Technology, LLC, didn't think they were right, and set about to proving it.

High worked closely with the design and construction team and erection subcontractor PSI, Inc. to engineer the structure. High also built small-scale models so that potential manufacturing, handling and erection problems could be uncovered and solved prior to completion of the construction documents. The collaboration resulted in 49,600 pound, 6,000 p.s.i., post-tensioned concrete panels with two vertical back stems and several cross-ribs to add stiffness or facilitate erection.

While determining how the panels would be constructed, the designers considered using a titanium skin, but decided against it once they understood more about the colors and finishes available in precast and how well precast would withstand the test of time. The architects chose a light acid-etched, light grey concrete accented by raised, bullnose-shaped, stainless-steel joint caps. The visual effect of this facade was similar to the look they initially sought, but at a much lower cost. Precast also eliminated additional trades and time in the construction schedule that would have been needed to install the titanium cladding.

To make the design a reality the precast team fabricated and erected 47 round and square precast columns, 52 prestressed beams, 158 curved wall panels—approximately one quarter mile of panels curving 8½' off vertical, 1½ miles of bullnose-shaped, stainless steel joint covers, and 118, 32" deep double tees—no two of which were alike and some of which cantilevered up to 19'!

According to the general contractor, the state-funded project had a very rigid bidding process which required special attention to bid scopes, so that the precast components included the necessary bracing to other structures and coordination with other trades. This is one of the reasons why they sought guidance from High and PSI in the preplanning stage. For High, working with the design and construction team was an exciting and welcome endeavor. And, the end result is a monument of which Columbus—and everyone involved with the project—can be proud.

*To learn more about how you can push the limits of the precast on your next project, call Gary Reed at 1.800.PRECAST.*

**312 Walnut Office Building**

Location:  
Cincinnati, OH  
Architect:  
Glaser Associates  
General Contractor:  
Duke Construction Management

## PRECAST NEWS



**C**ornell University students are lucky for many reasons, including the new accommodations they'll have as the University replaces 1950's residence halls with

quiet, safe, energy-efficient precast concrete.

Architects Ewing Cole and Kieran Timberlake Associates, LLC made a great decision when they choose precast concrete even though other structural systems would have "met code". Why? Because precast cost-effectively exceeds code minimum standards. While wood- and steel-framed buildings need fire and acoustic insulation together with sprinkler systems to meet minimum noise control and safety standards, precast is inherently quiet and fire resistant—providing an improved level of protection and containment before sprinkler systems are factored in.

Call it a "belt and suspenders" approach—or call it Balanced Design to protect the lives of these lucky students. Either way, the concept is taking hold with fire officials and the National Institute of Standards and Technology. Balanced Design suggests that naturally fire resistant products, such as precast, coupled with sprinkler systems, provide protection from both code-considered events and unforeseen calamities. Contrast this to a conversation I had with a university official who was building a wood-framed "dorm". When asked what would happen if the sprinkler system didn't function when needed, he answered: "it meets code." As the father of a college student, I didn't feel good about his answer.

Apart from fire safety and acoustics, there are many other reasons to design in precast. It goes up fast, reducing jobsite costs; it will be durable, and virtually impermeable—so that mold will be less likely to find a home; and, it offers superior thermal performance, especially if foam insulation is used. But these reasons pale compared to what precast does to keep people safe.

Those kids at Cornell sure are lucky.

Best Regards,

Tom McEvoy  
President



## Put PCI Resources to Work for You

**D**id you know that the Precast Concrete Institute (PCI), the industry association that certifies precaster plants; conducts valuable industry research; and, helps develop codes and standards, also has tools that can help you design and engineer precast projects? And, did you know that many of these tools are free?

One of PCI's missions is to educate and inform the building team about how to use the benefits of precast/prestressed concrete to deliver projects on scope, on time, and on budget. In fulfilling its mission, PCI has amassed a wealth of technical communications over the past 50 years. These resources are available to you from us, or directly from PCI. A few examples of the valuable tools PCI enables us to share with you include:

### Periodicals

- ASSENT Magazine—a quarterly, photo-rich, project-oriented publication for architects, developers, owners and contractors
- PCI Journal—a world-renowned, bi-monthly technical publication with the latest in precast/prestressed concrete research, materials, design, construction practices and industry developments

### Publications

- Visions—a 50th anniversary coffee table book profiling the history of precast, 50 amazing projects, and many PCI-certified firms
- Designer's Notebook Briefs—photo-rich project and technology profiles
- Architectural Precast Manual—all about cladding; a guide for architects, specifiers, and engineers
- Color & Texture Guide—to help with architectural precast color and texture selection
- PCI Design Handbook—a technical design manual for designers, specifiers, and engineers
- PCI Fire Design Manual—a technical resource for determining the fire resistance of concrete elements and examples using the Rational Design Method.

Contests & Awards—to encourage and reward good precast design

- The Big Beam Contest—an annual event for college students and a great opportunity to interact with engineers in the precast design community
- PCI Design Awards—special recognition for the design and construction teams that do great things with precast

PCI also has an excellent website at [www.pci.org](http://www.pci.org) where you can access the Designer's Knowledge Bank—a free precast concrete research and ideas library. This is a great place to learn what's been done before—and what you can do next. When you visit The Designer's Knowledge Bank you will find:

- Articles—case studies including project data, photographs and technical information
- Interactive "How to" Presentations—for Parking Structures, Commercial Buildings, Stadiums, Industrial Facilities and Housing
- Abstracts of Books & Manuals—so you can preview before you buy online
- Technical & Research Papers—a continuously updated collection of peer-reviewed technical papers and specifications plus research reports and technical bulletins
- Industry Recommended Practices—scores of recommended practices and guidelines from PCI technical committees
- Continuing Education Programs—nearly 50 seminars for architects and engineers

*To sign up for a CES seminar, learn about awards and contests, or find out how you can get PCI materials call the Concrete AnswerLine™—1.800.PRECAST—and ask for Gary Reed. He can arrange a seminar, sign you up for free subscriptions to ASSENT Magazine and the PCI Journal, and even get you discounted prices on the latest edition of the PCI Design Handbook. (PCI Design Handbooks are free to college students and professors!)*



### Northwestern Memorial Hospital

Location: Chicago, IL  
Architect: Ellerbe Becker / HOK  
Construction Manager: Power/CSS



### Rahway Transportation Center Parking Garage

Location: Rahway, NJ  
Architect & Engineer: Timothy Haahs & Associates  
General Contractor: Fitzpatrick & Associates

## MARKETING AND INNOVATION

### Gary Graziano, AIA—Vice President of Marketing



**A**s part of the High Concrete Group companies' commitment to providing building teams the concrete innovations and answers they need, we began offering a day-long continuing education seminar two years ago at our Denver facility. Now, we have partnered with Sika Construction Products division ([www.sikaconstruction.com](http://www.sikaconstruction.com)) to offer two different seminars each year—one in the spring, and one in the fall. And, we are conducting each of them in three different locations—Pennsylvania, Ohio and Illinois.

By attending both seminars, design professionals can receive up to 14 AIA CES LUs—and fulfill their annual requirement for HSW (Health, Safety & Welfare) content. To date, hundreds of professionals have taken advantage of this free opportunity to fulfill their annual professional registration or AIA membership requirements and learn more about precast.

Our Spring Seminar—Meet the New Face of Precast—will be focused on precast cladding—including brand new developments that enable lighter weight, greener and even higher performing products. Each seminar will feature five separate

courses and a plant tour. Plant tours are a great way to learn how precast is made—and pick up design ideas that you won't learn anywhere else.

The Spring Seminars will be held:

- May 5—Springboro, OH (between Cincinnati and Dayton)
- May 12—Denver, PA (between Lancaster and Reading)
- May 26—Chicago, IL (downtown)

If you are unable to attend our Spring Seminar, but would like to reserve a space at one of our Fall Seminars, they will be held:

- September 22—Chicago, IL (downtown)
- September 29—Springboro, OH (between Cincinnati and Dayton)
- October, 27—Denver, PA (West of Philadelphia between Lancaster and Reading)

Since space is limited, and food must be ordered in advance, reservations are required. To sign up and get directions or more information, call Gary Reed at 1.800.PRECAST or send an e-mail to: [concrete.answers@high.net](mailto:concrete.answers@high.net). There is a \$50 reservation fee (credit card or check) that will be refunded when you attend the seminar.

### Meet the New Face of Precast—7.0 AIA CES LUs

8:30–9:00am:	Registration and Continental Breakfast
9:00–10:00am:	New Developments in Precast Concrete Reinforcing, Products and Delivery Systems 1.0 LU
10:00–10:15am:	Break
10:15–11:15am:	Carbon Fiber Reinforced Precast Concrete: Commercial Products 1.0 LU
11:15am–12:15pm:	High Performance Insulated Wall Panels 1.5 LU
12:15–1:45pm:	Working Lunch & Plant Tour (Chicago: Virtual tour and mock-up review) 1.0 LU
1:45–2:00pm:	Break
2:00–3:30pm:	PCI Architectural Precast: Detailing and Structural Considerations 1.5 LU
3:30–4:30pm:	Total Corrosion Management (Sika) 1.0 LU
4:30–5:30pm:	Reception

## STRUCTURECARE™

### Franc Genoese—Sr. Director of Project Management



**A**s part of High's commitment to delivering "concrete innovations and answers", a year ago we launched the StructureCare™ program of preventive inspection, maintenance and repair services for both precast and cast-in-place parking garages. We decided to offer these services because, since producing our first precast garage more than 40 years ago, we've observed that the way a garage is maintained can significantly affect users' safety as well as the appearance, useful life, and long-term value of the structure.

Common maintenance-related problems include dark and dirty interiors from dirt and exhaust build-up, cracked or spalling concrete caused by chloride build-up from snow and ice management, leaking pour strips and caulking often caused by damage from snow removal equipment, gravel and leaf-clogged drains that cause ponding and leaking, and damaged signs, doors and access control equipment.

In the year since we launched StructureCare we've contracted with several Mid-Atlantic garage owners to provide ongoing, annual maintenance services and construction management of restoration projects. Why would an owner choose High to help with the planning and execution of renovations to an aging cast-in-place garage? Because...

- **We know garages**—after constructing over 350 garages and inspecting countless others our trained staff of engineers, project managers, and field technicians bring valuable experience to the table. Design, fabrication, construction, repair and project management are what we do every day.
- **We know the industry**—High maintains excellent working relationships with the industry's top consultants, contractors and material suppliers. When needed, we can bring these collective talents together with our team to provide the highest level

of expertise necessary to solve today's complex structural and maintenance problems.

- **We are a single point of service**—Owners can rely on High to provide the complete service package. No matter what the need, we can customize our services to address a total solution. One call = Peace of Mind.
- **We provide long-term solutions**—StructureCare is all about preserving value, lowering cost and providing repair/maintenance predictability.

Together, these attributes help us uniquely satisfy owners' specific needs for safety, hassle-free ownership, and creation of long-term value.

Want to learn more? Call Bo Kusznir at 1.800.PRECAST to ask how the StructureCare™ team can help you design and implement a cost effective maintenance program or help plan renovations or additions to your parking facilities.

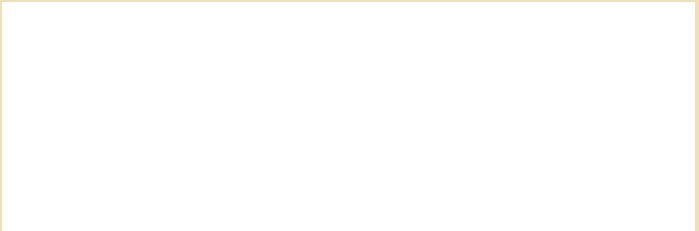


PCI-Certified Precasters

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 High Concrete Innovations, LLC  
 High Concrete Technology, LLC  
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 Denver, PA 17517

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**See us in the 2005  
 Sweets Catalog!**

**Sign up for our Concrete Innovations & Answers™ Seminars, 7.0 AIA CES LUs**

- May 12, 2005—Denver, PA
- May 26, 2005—Chicago, IL

**Call for a box lunch presentation.  
 Act NOW to reserve your space! Time is  
 running out! Call 1.800.PRECAST today.**

## CONCRETE ANSWERS

Dave Schneider—PE, Senior Director of Engineering



High performance CarbonCast™ insulated sandwich wall panels are finding their way into an increasing number of building types ranging from schools to stores, theatres, datacenters, manufacturing facilities and warehouses. This is because they are fast, cost-effective, aesthetically appealing, energy efficient and safe.

CarbonCast panels use prestressed, mesh-reinforced inner and outer wythes of concrete connected by C-GRID™ epoxy-coated carbon fiber shear trusses sandwiched between foam insulation. These 1mm thick trusses are virtually thermally non-conductive and create 100% structurally composite action. As a result, CarbonCast panels are very thermally-efficient with

values between R12 and R24, and are relatively light and thin (i.e., 8" to 12" thick). The unique construction of these panels, which employ 4"+ interior pilasters, also enables them to be load-bearing and fire-rated so they can serve as both the structure and exterior and interior walls. These panels can be fabricated in widths of up to 15' and heights up to 55'. And, they can be used for load bearing panels in buildings up to four stories tall.

Non-combustible and impact-resistant CarbonCast panels offer other significant benefits too. For example, they are unlikely to support mold growth (which can occur in cavity wall designs) because:

- The 2"+ thick, high-strength concrete face of an insulated sandwich wall panel is virtually impenetrable by moisture

- Sandwich panels are solid construction and have no air voids where mold or mildew might occur (dew points usually occur within the insect and mold-resistant foam insulation core where no free air or moisture is present)
- Their large size reduces opportunities for moisture infiltration through exterior caulk joints

Add it all up, and these panels are a great solution to the cost, aesthetic, indoor air quality, fire safety, and structural design challenges we face in constructing buildings that will be appealing, safe and efficient today and into the future.

*For more information on how to design with highly-efficient, safe CarbonCast panels call Gary Reed at 1.800.PRECAST.*

