CONCRETE
INNOVATIONS & ANSWERS

News from High Concrete Group®

Summer Issue 2006

Title: Symphony House
Location: Philadelphia, PA
Architect & Engineer: Bower Lewis Thrower
Construction Manager: L. F. Driscoll Co. & Intech Construction
Owner: Symphony House Associates, a division of Dranoff Properties

High helps building team orchestrate durable, lightweight exterior for 31-story Symphony House in Philadelphia

The developer of Symphony House, a breathtaking 31-story, $125 million condominium in Philadelphia, promises residents "a provocative design that takes from the grandeur and romance of the 1920s and gives it 21st century transformation." Coincidently, the same could be said about the building's exterior, a majority of which features next-generation CarbonCast™ Architectural Wall Panels from High Concrete Group that deliver a traditional aesthetic sensibility and a remarkable 60 percent weight reduction of precast members.

Designed by Bower Lewis Thrower Architects and constructed by a joint venture of L.F. Driscoll Co. and Intech Construction, the impressive structure is rising along Philadelphia's Avenue of the Arts. The project includes a tower with an adjacent theater and eight levels of parking—clad in conventional precast panels—and 24 residential floors that use CarbonCast.

The weight reduction provides two benefits. First, the restrictive building site necessitated a tower crane to lift the 770 exterior panels into place. The CarbonCast panels, which used 50 percent less concrete than conventional panels, were easily accommodated by the crane—even at the more distant corners of the building. In addition, the lower-weight panels reduced loads on the floor slab, where they were mounted, and the rest of the reinforced concrete structure. Conventional precast panels from High were used on most of the building's podium: although CarbonCast panels could have worked, the architect opted for thick, heavy standard panels to meet the functional impact requirements of the parking deck.

The building team had specific color and texture requirements. They wanted a textured red finish, complemented by smooth brown hued sections and trim. High Concrete Innovations was able to satisfy their exacting requirements at its all-indoor precasting facility, through the use of environmentally-friendly steel shot blasting instead of sand blasting. In addition, the seven inch thick cladding panels enabled very deep reveals, recessed planes and deep window recesses that helped cast the shade and shadow that enliven the facade. (Alternative lightweight cladding options are too thin and would have failed this demand.)

From a performance standpoint, the precast system will provide a face-sealed curtainwall to reduce moisture risk, a preferable design over rainscreen brick veneer or liability-burdened EIFS. In addition, the insulation in CarbonCast Architectural Cladding panels mitigates the chance of condensation-related mold or mildew in the cavity wall.

CarbonCast Architectural Cladding Panels use carbon fiber grid as secondary reinforcement in the panel face, replacing conventional steel mesh. Because carbon fiber will not corrode, CarbonCast panels use less than two inches of concrete in the panel face. Typical precast wall panels use six inches of concrete in the face, as extra concrete is needed to protect the steel mesh reinforcement from corrosive elements. The dramatic reduction in concrete results in panel weights up to 66 percent lighter than conventional precast and with better durability than steel-stud systems or brick cavity wall.

In addition, CarbonCast Architectural Cladding panels replace the concrete with insulating foam, which can deliver panels with substantial composite R-values. Further, the factory fabrication of panels will allow erection of the entire exterior envelope in only five months and permit other trades to begin fit-out of the 163 living units.

Project completion is expected in 2007.

Tom McEvoy—President

Letter from the President

It's been more than 30 years since the first Earth Day helped raise our collective consciousness about preserving the environment. It's been more than 30 years since the Energy Crisis showed us what a bargain a quarter's worth of "Good Gulf" had been. And, it's been about 30 years since the underground/earth-sheltered building movement enjoyed a high profile and solar architecture shone brightly. Despite these profound experiences, SUVs abound on our highways and new homes keep getting bigger and bigger, using more and more energy.

Maybe it's time to learn from history before we are doomed to repeat it, and go green. Now. One of the challenges today's building teams face is how to think green without seeing red ink. Some studies show that it costs 2 percent more than conventional construction to construct a LEED-certified building. In the interest of economy, some teams are settling for a lighter shade of green or buildings that are "green-ish." Meanwhile others, including government clients, go all the way to achieve one of the four levels of LEED certification (Basic, Silver, Gold, or Platinum) through site-sensitive development and by building buildings that have reduced embedded energy, use less energy over time, last longer, and are eventually recyclable.

However, going green does not always require more greenbacks. In fact, because it is inherently environmentally friendly, precast can help ensure that it doesn't. Precast concrete uses local materials, can offer high steady-state and performance R-values, can be light in color to reduce the heat island effect in warm climates—or dark in color to promote solar gain in cold climates, and is minimally disruptive to the construction site—all factors in LEED certification.

Over the past few years dozens of LEED-certified precast or precast-clad structures have been erected, including the Bookends residential project in Greenville, SC, the EPA Headquarters in Sacramento, CA, and the University of Florida Genetics and Cancer Center in Gainesville, FL. Perhaps the next one will be yours.

Recent Projects

Parkwood Nine Office Building
Location:
Indianapolis, IN
Architect:
CSO Architects & Engineers, Inc.
Engineer:
Haris Engineering
Construction Manager:
Duke Construction L.P.

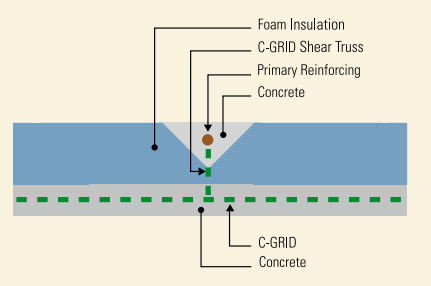
PRECAST NEWS

Thick or thin? CarbonCast panels go both ways.

The inherent design flexibility of CarbonCast Architectural Cladding Panels has enabled engineers at High Concrete Group to produce precast members of various thicknesses to meet specific functional requirements. Non-corrosive C-GRID carbon fiber reinforcement in the panel's face dramatically reduces the amount of concrete cover needed, giving designers more latitude while lowering weight up to 66 percent. Two current High Projects perfectly illustrate this design freedom.

Fat panels a hit at Heldrich Plaza

The mixed-use, nine-story Heldrich Plaza in New Brunswick, N.J. uses CarbonCast Architectural Wall Panels that are 10 inches thick, yet weighed only 32 pounds per square foot (psf)—a 70 percent reduction over conventional precast panels that would have weighed 100 psf. The extraordinary panel depth enabled deep reveals and window recesses that would have been heavy and cost prohibitive in conventional precast. In addition, CarbonCast technology was used to lighten heavy cornices.



Panels were fabricated at High Concrete's indoor Lebanon, PA plant and finished with eco-friendly shot-blasting for a highly consistent color and appearance.

Thin panels are possible too.

Expanding up rather than out? Have a lightweight superstructure that needs lightweight cladding, or poor soils that won't support heavier loads? Then consider 6" thick CarbonCast panels weighing as little as 27 pounds per square foot—a 60% weight reduction. And, when factory- or field-faced with an appropriate rigid foam on the back side, they can provide all the continuous insulation and vapor retarding value needed in a wall assembly.

LEEDing the Way—Plant Seeds Early to Grow Green Buildings

LEED certification is most successful when pursued from project inception and when all major contributors to the building are involved early on. Early involvement ensures that the best cost, environmentally friendly building program, site layout, and structure and enclosure decisions are made based on a full understanding of their effect on construction procedures; embedded energy of materials; moisture, solar, and energy management; indoor air quality; durability; and recyclability. Precast concrete enclosures and parking decks with highly reflective double tees can contribute significantly to LEED certification. If you are interested in learning more about how precast can contribute to greener building or LEED certification, please call 1-800-PRECAST.

Leed Points Available through Precast	
Sustainable Sites	3 Points
Energy & Atmosphere	2–10 Points
Materials & Resources	9 Points
Indoor Environmental Quality	1 Point
Innovation & Design Process	5 Points

Caesars Transportation Center
Location:
Atlantic City, NJ
Architect:
SOSH Architects
Engineer:
Walker Parking Consultants
Construction Manager:
Massett/Bertino
Owner:
Caesar's/Bally's

Ocean County Medical Center Parking Garage
Location:
Brick Township, NJ
Architect and Engineer:
Vitetta
Construction Manager:
William Blanchard Company
Owner:
Medical Center of Ocean County

Easton Plaza One
Location:
Columbus, OH
Architect
URS Consultants
Engineer:
P.E. Group
Construction Manager:
Duke Construction

INNOVATIONS

Concrete Innovations

Accessories Save Time and Money

Stay-in-place High Concrete casting accessories and lift device covers can help save time and money on precast projects by eliminating factory labor to jerry-rig and create blockouts. They can also eliminate field patching, which is weather dependent and may not always match the factory-cast product. They even allow you to inspect the integrity of bolted connections at any time during the life of a structure.

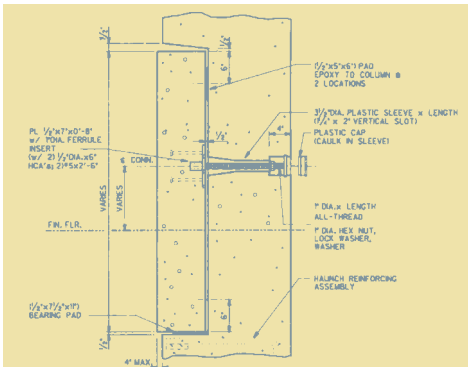
High Concrete Accessories consist of conduit blockouts placed in the stems of double tees, engineered grout tubes for panel-to-foundation connections or panel-to-panel connections (even for use in seismic zones), spandrel sleeves with concrete color-matched caps for bolted connections, girder sleeves for bolted connections and covers for lifting device or holes.

High Concrete has full CAD details and 3-D models for each of these products as well as a three-part CSI format spec. Call 1-800-PRECAST to get your copies. And reduce the time and expense of factory labor.

SpeciFacts™

Help awaits at High

Did you know that High Concrete provides full specification assistance and has three-part CSI format specifications and CAD details available for virtually any precast application?



Call 1-800-PRECAST for a CD or visit us at www.highconcrete.com to download your copies. Or, if you'd like to have us review and update your office master specification or standard details, please send them to concrete.answers@high.net and we'll make suggestions based on our experience. As the largest producer of architectural and parking garage components in the Northeast and Midwest, we are committed to helping building teams have even more positive experiences with precast.

News from AltusGroup™

The Partnership Grows

AltusGroup, the partnership of leading precasters dedicated to innovative precast technologies, has welcomed precasters Shockey and Blakeslee as Producer Members and Innovative Brick, Endicott Tile LLC, and High Concrete Accessories as Innovation Partners. The new additions will expand AltusGroup's reach and expertise, and further strengthen an organization that has quickly established itself as a pioneering force in the industry. High Concrete is proud to be a founding member of AltusGroup.

AltusGroup Goes Green and Joins USGBC

To underscore the environmental benefits of CarbonCast precast products, AltusGroup has joined the U.S. Green Building Council (USGBC), the nation's foremost coalition of leaders from across the building industry working to promote buildings that are environmentally responsible, profitable and healthy places to live and work. "We've been promoting CarbonCast as a green building product from the outset, so it's logical that we associate ourselves with other like-minded companies and organizations," said Gary Graziano, AIA, Vice President of Product, Planning & Promotion at High Concrete Structures and an officer of AltusGroup, Inc.

StructureCare™

Spring cleaning doesn't just apply to your house, but to your precast concrete parking structures as well. It's time to do your routine maintenance and clean out rock salt that vehicles and people have tracked in. With rising temperatures and extended daylight hours, maintenance crews can work longer—and concrete repairs can cure better with more predictability. With many people on vacation, traffic management logistics are easier for maintenance projects as well. Arrange for maintenance work now. Call us at 1.800.PRECAST to learn how we can help.

Concrete Innovations & Answers® Fall Seminars

Learn about precast, earn LU credits

Sign up now for the Fall Concrete Innovations & Answers Seminars and earn up to 8.0 AIA HSW LU credits while learning more about precast concrete—including brand new developments that enable lighter weight, greener, and even higher performing products.

Paxton, IL – Oct. 10, 2006
Springboro, OH – Oct. 19, 2006
Denver, PA – Nov. 9, 2006

The High Companies® is celebrating its 75th Anniversary

We will be holding four Open Houses. The dates are as follows:

Denver, PA — September 9
Paxton, IL — September 30
Springboro, OH — October 7
Lebanon, PA — October 14

HIGH CONCRETE GROUP

PCI Certified Precasters

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High Concrete Innovations, LLC
High Concrete Technology, LLC
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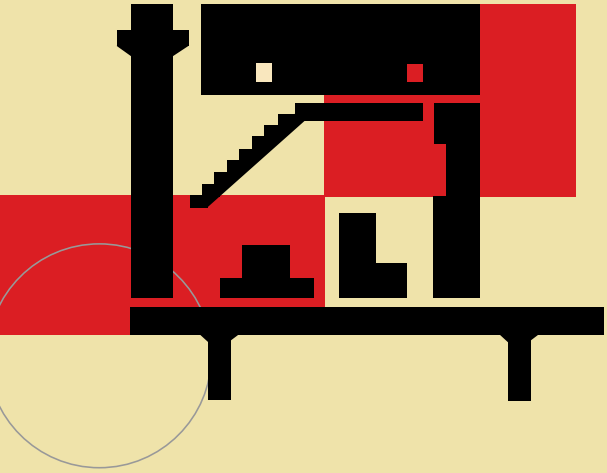

See us in the 2006 Sweets Catalog 03540/HIG

SEE US IN Directory · Catalog Files · CD · sweets.com

September is National Precast Month! High Concrete will be holding tours:

September 9 – Denver, PA
September 14 – Lebanon, PA
September 21 – Springboro, OH
September 28 – Paxton, IL

Sign up for our full-day Innovations & Answers® seminar or one-hour box lunch seminars. Call 1.800.PRECAST for more information.

CONCRETE ANSWERS

Dave Schneider—PE, Senior Director of Engineering

Q: Do precast architectural concrete panels need to be sealed?

A: The simple answer is no. High-strength precast concrete is virtually impenetrable to liquid moisture and will withstand the assault of weather without a waterproofing sealant, and perform admirably as long as reinforcing steel has enough cover to keep it below the corrosion zone. But sometimes the issue is more complex. Often, architects and building owners are concerned about long-term maintenance-related cleaning caused by staining from window systems or the accumulation of rain-, snow-, and windborne dirt on the facade.

So, sometimes breathable sealers are selected to keep panels clean. They prevent streaking caused by runoff from glazing systems and fill the tiny voids in the sand-cement matrix that binds aggregates so organic matter cannot be deposited and mold cannot get a toehold. Breathable sealers also reduce or eliminate surface condensation or dew-induced shadowing on the face of the panel by resisting or preventing liquid moisture penetration, providing uniform and consistent color whether they are wet or dry. Breathable sealers enable moisture to escape from precast—which cures for up to three years after it is cast—without letting it in. They also permit vapor drive through the precast so moisture that gets into wall assemblies during construction or in-service use can get out instead of becoming trapped and fostering mold or mildew inside the wall.

Sealers can be integral to the concrete mix or surface-applied. Integral sealants, sometimes referred to as hydrophobic admixtures, are available in various chemistries depending on desired performance. They bond with the cement and fill the space between the cement grains in hardened concrete. This decreases the concrete's permeability, thereby increasing its durability—which is especially useful in marine environments or areas where deicing salt is used.

Surface-applied sealants come in two varieties: 1) penetrating sealants, and, 2) face-filling film sealants. Penetrating sealants will last a long time, but enable some surface moisture absorption, while face-filling films prevent moisture absorption but need to be reapplied at regular intervals and can be costly.

Some sealers may affect color or finish appearance; integral sealants affect mix design. Your High Concrete representative can help you select a sealer that will best meet your needs and your budget.