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focus

summer 13

Half-Day Seminars

PCI Midwest is pleased to announce that three brand-new half-day seminars have been recently released. The seminars, Lateral Loads and Precast Concrete Design, Total Precast Concrete Design and Designing Precast Concrete Parking Structures, are each AIA HSW approved for 3.5 hours and also carry 3.5 PDH. The seminars are being presented in small-group settings throughout the Midwest.



Photo Credit: Gage Brothers Concrete

"Heart of the City"
in Burnsville, MN.

Designing Precast Concrete Parking Structures. Learn how to design and detail precast concrete parking structures during this half-day seminar. Advantages such as decreased construction time, efficiencies of combining a variety of exterior finishes with exposed structural members, and precast concrete's potential contribution towards LEED certification will be discussed. Integration of HVAC systems, building code requirements, long-term durability, ramp and vehicle circulation types, safety, and maintenance issues will also be presented.

For additional information about how you can participate in one of these seminars, contact PCI Midwest's Executive Director Mike Johnsrud via e-mail: mike@pcimidwest.org

Mike Johnsrud, Executive Director

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Larson Building

The Larson Building is a ten-level cast-in-place and precast concrete parking garage with retail on the ground floor level and light gauge metal-framed residential units on the upper three floors. The vertical structure is comprised of CIP columns, transfer walls, transfer girders poured monolithic with the post tensioned deck slabs and upturned beams. In addition, over 80,000 SF of architectural precast cladding covers this high rise with buff and white colored precast panels. The buff colored precast spandrel panels act as a guardrail for the parking ramp while the white column covers hide the CIP support columns. Accents at the entrances are visually set off by using polished precast to mimic a smooth stone and hand laid stone is located at the retail storefronts. The two precast concrete stair towers include structural precast wall panels, stair risers, and landings. The precast concrete package included a total of 770 individual pieces. With



Owner: **Scott, Woodbury, Wiegert, LLC** • Architect: **Sinclair Hille Architects** • Contractor: **Sampson Construction** • Location: **Lincoln, NE**

the project located directly between the main campus of the University of Nebraska and downtown Lincoln, a highly coordinated delivery and erection sequence was required and it was maintained. This project has added much needed parking spaces

while adding a highly aesthetic structure to this vibrant area of Lincoln.



www.enterprise.com

Greystone Homes

The Des Moines Greystones is a Low Income Housing Tax Credit (LIHTC) project consisting of 26 single-family homes utilizing infill lots in Des Moines. The design is inspired by the unique Chicago Greystone architectural style, variations of which are ubiquitous throughout the City of Chicago. The project's goal is to replace the traditional "cookie-cutter" style of infill housing, which is primarily stick-built framing, siding, insulation, pitched roof with shingles, and sheetrock. The lifespan of such housing is minimal when compared to the durability of concrete, which is becoming a common building material for houses throughout the Midwest due to its resistance to fire, termites, mold and adverse weather.

PDM Precast, Inc. provided the



Owner/Developer: **Hatch Development Group** • Architect: **Simonson & Associates Architect** • General Contractor: **Koester Construction** • Engineer: **Raker Rhodes Engineering** • Location: **Des Moines, IA**

insulated precast concrete wall panels, with stone face form liner, for six of the 26 units. The remaining 20 units were produced with other building materials. The design of the panels was a true collaborative effort between the Owner, Architect,

Contractor, Engineer, and precaster, and the end result is something Des Moines can be proud of.



www.pdmprecast.com

Lumber Exchange Parking Ramp

Located in the heart of downtown Sioux Falls, the Lumber Exchange building project provided the opportunity to create a landmark office complex and parking ramp that met the owner's business needs while serving as the East Gateway to historic downtown. Conceptually, the project infuses modern urban design principles while considering the historic downtown character. The attached parking ramp includes on surface and below grade parking with 489 parking spaces.

Due to the project's location, the site was very tight and confined to the heart of historical downtown. The architect also wanted to incorporate building details and character that to fit with its surroundings, while avoiding the hard look of concrete. Thin brick clad precast was the best choice to fulfill the design intent.

The 681 pieces of precast concrete provided over 150,000 square feet of structural precast for the parking ramp. Featuring multiple mixes and finishes, the perimeter of the ramp features 2,630 linear feet of architectural spandrel beams, providing



Owner: **Lloyd Companies** • Architect: **Perspective, Inc.** • Structural Engineer: **BKBM Engineers** • Contractor: **Lloyd Companie** • Location: **Sioux Falls, SD**

both function and design. While there was 22,850 square feet of 12" Corefloor, the bulk of the structural pieces consisted of 8 foot double tees (81,900 square feet) and 10 foot double tees (43,000 square feet). The inverted tee beams included sloping ledges to facilitate draining; on some double tees, each side sloped differently. Considering future development, the north side of the parking ramp was left open in order to allow a future ramp to be connected.

It was very important to the architect that the project blended well with

the historic downtown fabric in material use and proportion, as well as overall context. The architect was very pleased with the level of detail the precaster was able to contribute to the project. The execution of the panel designs helped to create a brand new building and parking ramp that blends with structures that are over 100 years old. The project redefined what precast could do for the architect, as well as the local community.

Gage
Brothers

www.gagebrothers.com

Waterfront Lodging Parking Garage

At 245 stalls the Waterfront Lodging total precast parking ramp is connected to two different hotels in downtown Des Moines. The project was a design-build project and Wells Concrete provided all precast design. The City of Des Moines maintains strict aesthetic requirements for amount of brick as well as color requirements. The location of this project along the downtown riverfront prompted the use of durable, long lasting and strong materials that provide a quality, attractive appearance.



www.wellsconcrete.com



Architect: **LLW Architects** • Engineer: **Clark Engineering** • Location: **Des Moines, Iowa**

The Challenges of Matching Old and New

Putting a new precast addition on an old cast-in-place parking garage can be tricky. The existing ramp at One Southwest Crossing in Eden Prairie had two supported levels, but the last 60-ft bay stepped down to one level. The challenge for Hanson Structural Precast was to stack a new two-level, two-bay garage next to and on top of this old deck using precast beams, columns, double tees, and spandrels. The finished 200-space structure would visually extend the old deck with three levels of parking, including the open roof-top level.

The challenge, says Hanson's Gary Pooley, was to build on top of the old deck, which was only mildly reinforced, handle a complicated drainage situation, and match the decades-old color and finish of the existing garage.

For the one-story vertical addition, the contractor did not want to put any additional load on the old structure. Working with the engineer, Hanson developed a plan to strategically cut



holes in the existing deck slab and slide precast columns down to new footings. Since the ramp is built on a hillside with entrances at three levels, circulation ramps were not required.

The new deck aligns with the old so that you can drive directly from one to the other. But this created a drainage issue. The existing ramp drained to the south. The new ramp had to drain away from the structure to the east. This was accomplished by sloping the exterior spandrels up and down so that the new garage drains to these low points and out to a retention tank buried in the hill.

An even bigger challenge, says Pooley,

was matching the rose and buff colors and finish of the existing garage. "We couldn't locate the original precaster, so we had to start from scratch. We ended up trying two or three different rocks, two different sands, and numerous test samples." In addition, both a light sandblast and a heavy acid etch was needed to bring out the right color. Moreover, the spandrels have a white border, so Hanson had to pay close attention not to stain the lighter border during the acid wash. "It took time to get it right," adds Pooley, "but now it looks beautiful."



www.hansonstructuralprecast.com

About PCI Midwest

PCI Midwest serves Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota and Western Wisconsin. Formerly the Midwest Precast Association, the organization was first incorporated in 2003. Its mission is to promote the use of precast/prestressed concrete, to further educate the construction industry about precast/prestressed concrete, and to expand and nurture relationships between industry-related individuals and companies.

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Learn & Earn Box Lunches

Learn precast and earn continuing education credits! Here's a sampling of what's on the menu:

Total Precast Structures. What is a total Precast concrete structure? How can a total Precast structure benefit a project? What components are used to construct a total Precast structure?

Precast Stadium Design & Construction. Participants will learn the basics of designing athletic stadiums using precast/prestressed concrete.

Precast Concrete Design for Schools. Participants will learn the basics of designing school buildings using precast/prestressed concrete.

Architectural Precast Concrete. Participants will learn about the color, form and texture of architectural precast concrete as well as the design flexibility and economy of using precast concrete.

Insulated Concrete "Sandwich" Wall Panels. Learn the construction techniques and architectural applications for Insulated Concrete "Sandwich" Wall Panels.

Hollow-Core Design and Construction. Participants will learn the basics of hollow-core concrete floors and walls including: fire safety, acoustic properties, maintenance needs, speed of construction, and environmental properties (indoor and outdoor).

Environmental Advantages of Thin Brick in Construction. This program explores the many different brick wall systems available to architects today.

Precast/Prestressed Parking Garage Design. Participants will learn the basics of precast concrete parking structures including personal safety issues (lighting), fire safety properties, and the environmental benefits of precast concrete.

The Basics of Precast/Prestressed Concrete (Precast 101). Attendees will learn what precast, prestressed concrete products are, how they are manufactured (including the structural theory of prestressing), examples of architectural and structural precast solutions, quality assurance procedures and the industry certification program (PCI) of plants, people and performance.

HALF DAY SEMINARS

Lateral Loads and Precast Concrete Design. This half-day seminar is dedicated to the design of precast and prestressed concrete buildings for lateral loads generated by wind and earthquake ground motions. The seminar provides an overview of lateral load determination for precast concrete buildings, including both architectural and structural precast concrete. The seminar includes a brief history of wind and seismic lateral loads in building codes in the United States in conformance with IBC 2009, ASCE 7-05, and ACI 318-08. Numerical examples are presented for a typical five-story office building located in the Midwest.

Total Precast Concrete Design. Learn the advantages of a total precast building system during this half-day seminar. Strategies such as increased efficiency and shorter construction schedules of "dual use" structural and exterior cladding systems will be presented, as well as guidelines for the design and detailing of architecturally finished exterior walls, concrete tees, hollowcore plank, and precast concrete stairs. Integration of HVAC systems, building code requirements, and total precast's potential contribution towards LEED certification will also be discussed.

Designing Precast Concrete Parking Structures. Learn how to design and detail precast concrete parking structures during this half-day seminar. Advantages such as decreased construction time, efficiencies of combining a variety of exterior finishes with exposed structural members, and precast concrete's potential contribution towards LEED certification will be discussed. Integration of HVAC systems, building code requirements, long-term durability, ramp and vehicle circulation types, safety, and maintenance issues will also be presented.

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