When studying the benefits of precast concrete products, it’s readily apparent that those benefits would be well utilized at a school or similar setting. The start date for students arriving for the first day of school cannot change. When a new school building needs to be ready before fall semester begins, using precast concrete is the solution. With precast concrete, school districts benefit from accelerated project schedules that become possible when building with precast panels, hollow core plank and precast columns and beams.

In addition to accelerated project schedules, precast concrete provides innate sound-attenuation, wind and fire resistance. This means classrooms are quieter and better suited to learning, and students, teachers and faculty are kept safer from the dangers of fire and weather hazards.

Colleges and universities basically operate as their own small cities, with diverse requirements for their variety of users in a range of building types. These include classrooms, offices, residential units, parking structures, community-gathering facilities, recreational centers, theaters, stadiums, and even highly specialized laboratories.

Meeting the requirements for these buildings—some of which may combine two or more functions—creates challenges. Their design and construction can become even more daunting when the new buildings must fit seamlessly into an existing campus aesthetic, be constructed without disrupting activities around them, and be ready for the new semester when students arrive back at school.

Many administrators, designers, and contractors are finding that precast concrete components can help them achieve their goals in a cost efficient way. Total precast concrete structural solutions offer a variety of benefits in speed of construction, quality control, elimination of site congestion, sound and vibration control, fire resistance, and other areas.

Architectural precast concrete panels offer many of these benefits, as well as the plasticity to blend with any existing aesthetic style, from historic to contemporary. Precast concrete also contributes to an energy efficient envelope system, which has become increasingly important, especially as sustainable design requirements continue to increase.

It’s not just precast concrete schools that benefit from the advantages of concrete poured and cured offsite, however. Parking structures, office buildings, multi-family housing structures and more benefit from the use of precast concrete because it’s fast, safe and affordable, and it also allows for unique designs to be incorporated into commercial and residential structures.

Mike Johnsrud, Executive Director
Phone: 952-806-9997
Minnesota Senate Building

Sited northwest of Cass Gilbert’s historic 1905 State Capitol Building, the Minnesota Senate Building was designed to meet the need for an expansion of the Capitol Campus and, as a 100-year building, to serve the citizens for generations. Its design purposefully facilitates greater interaction and communication with the citizens of Minnesota and responds to Senate Majority Leader Tom Bakk’s vision for “a landmark in its own right, architecturally distinctive and worthy of the twenty-first century.”

Radially arcing around the Capitol dome, the building’s massing gently curves to maximize views back to the Capitol. At four-stories, with two levels of below-grade parking across the sloped site, the building is considered an extension of the Capitol with offices and support space for senators and their staff. At ground level, a main entry provides public access and accommodates other program functions as well as parking and mechanical spaces. The first level comprises public gathering spaces and hearing rooms and opens out to a large public plaza atop underground parking. Senate offices and ancillary spaces are located on the second and third floors.

A critical aspect of the schedule was to accommodate the 2016 legislative term while the neighboring Capitol building was closed for a major renovation. There was a drop dead date as to when the state senate had to hold sessions in the new building. In addition, the design team faced immense budget pressure to hit the targeted cost-per-square foot goal and responded with a building that was extremely efficient.

The precast concrete façade was selected to keep costs under control and to meet the schedule goals. Along with the design-build method and accelerated schedule, construction did not start until August 2014. It was imperative to finish on time and the precast was installed 12 months earlier, providing time for the interior fit out.

The Minnesota Senate Building makes use of Minnesota stone embedded in precast concrete panels on the entire south façade that faces the capitol. A complementary architectural precast concrete panel with light sandblast is used on the other three sides. The end result honors the capitol while being judicious with the budget.

The Minnesota Senate Building was recently selected by Design Build Institute of America (DBIA) Upper Midwest Region as the 2017 Project of the Year.

Augsburg College

The urban Minneapolis school nears completion of the Norman and Evangeline Hagfors Center for Science, Business and Religion complex. The $73 million, 135,000-square-foot, integrated-discipline collaborative learning space includes 24 labs and 6,000 square feet of student-faculty research facilities such as biology, business, chemistry, computer science, physics, psychology, math and statistics, and religion.

The intention behind Hagfors is to encourage mixing among branches of academia. “First, the building is student-centered. Everything about the Hagfors Center is meant to support learning experiences from the formal to informal spaces,” Augsburg spokesperson Stephanie Weiss said, “It’s meant to encourage collaboration among disciplines.”

Augsburg broke ground on the project in April 2016. To date, Hagfors is on budget and on schedule. The project reached its halfway point this past February; it should open in January 2018 as planned. The center was the focus of a successful fundraising campaign, which met and exceeded its goal of $50 million by last May.

To help bring this project to fruition, Wells Concrete provided 294 pieces of 10 1/2” insulated precast pieces with cast in thin brick.

The compact campus is located along Riverside Avenue, across from the West Bank of the University of Minnesota in the Cedar-Riverside neighborhood. Augsburg, founded as a Lutheran seminary in 1869, cites its strengths as its urban location, diversity, and being a small institution with strong ties to the community and around the globe. It also sponsors the annual Nobel Peace Prize Forum in America.
Moore Middle School / Copple Family YMCA

With Lincoln’s ever growing student population, a new middle school in the Southeast side of town was required to relieve the overcrowding at existing schools and to prepare for the predicted future growth in the student population. The solution was to not only construct a new middle school, but to also incorporate a new YMCA facility to service that part of Lincoln. The collaborative effort ensures the 30,000 sf of shared facilities, including gyms and classrooms, get used in the most efficient manner. This partnership between Lincoln Public Schools and the YMCA has proven to be extremely beneficial to both parties since 2009 when they built their first joint-use facility in Northwest Lincoln.

Moore Middle School compromises about 186,700 sf of the 243,300 sf facility. When full, it will eventually be home to about 850 students in the three-story classroom wing. The seamlessly integrated YMCA boasts such features as both indoor and outdoor pools. The architect decided early on that precast concrete would be the best material to meet the different and demanding design requirements for both entities. Both the school and the YMCA were designed with potential expansions in mind. The use of precast now and in the future insures an elegant and economical expansion.

The harmonious structure is comprised of over 1,450 individual pieces of precast concrete columns, beams, hollowcore, accent banding, solid and insulated wall panels. The exterior of the precast is a mixture of finishes including integral color, sandblasting, form liner and field laid brick veneer. Much of the interior of the precast was produced with a smooth finish that was painted in the field to provide an extremely durable wall finish.

www.concreteindustries.com

Banaadir Academy

Architectural precast wall panels were used for an addition to an existing building for the new Banaadir Academy which is located in Minneapolis, MN. The Banaadir Academy project is a free K-8 charter school connected to Minnesota Transitions Charter School and this project is located in the diverse North Minneapolis neighborhood. The new addition that will boost the school’s size by 28 percent, was constructed by The Bainey Group. The addition will include additional classrooms, offices, a 14,725 sf gymnasium, a community gathering space as well as additional restrooms to serve 300+ students in the community.

According to Brady Mueller, principal architect for Krech O’Brien Mueller & Associates, “The addition at Banaadir is unique in that the school leases its building which means both the school and the owner are actively involved in the project.” The City of Minneapolis was also involved in the design review including feedback on the desired color and texture of the exterior architectural precast panels.

“We are excited about the opportunities the new addition creates for our students and their learning,” said Shawn Fondow, Director of Banaadir Academy.

www.molin.com
Learn & Earn Box Lunches

PCI Midwest provides continuing education programs on a variety of topics. These programs are easily tailored to conference room or classroom lunch programs. Architects and engineers can learn about precast concrete hollow-core floors and walls, architectural precast concrete, precast parking structures, glass fiber reinforced concrete, high performance precast concrete and much, much more. Contact mike@pcimidwest.org to request a program for you or your company.

The following programs are prepared and ready for presentation. Please allow a minimum of two- to three-weeks from the date of your submission to the date of your requested presentation.

Discover High Performance Precast (Credits: 1.0) Recent code changes, increasing sustainability requirements, and a challenging economy are just some of the factors increasing demand for high-performance structures. However, high performance is not business-as-usual. The concept of ‘high-performance’ encompasses sustainability; however, it goes beyond a ‘this-or-that’ approach by requiring optimization of all relevant attributes for a project on a life cycle basis. This presentation will explain what high performance structures are, and how precast concrete can help you achieve your high performance project goals. The presentation also covers the basics of precast concrete, its applications, finishes, etc.

Artist’s Palette: The Aesthetic Versatility of Precast Concrete (Credits: 1.0) The aesthetics of a structure are very important, as it is what most people identify with. High performance materials should provide aesthetic versatility in order to efficiently meet a structure’s architectural requirements. Precast concrete provides incredible aesthetic versatility from providing multiple colors and textures, to developing shapes, forms and very ornate details. Precast can also simulate or be veneered with natural materials providing all of their beauty, but with the added speed, durability, many other benefits of precast. This presentation will provide an overview of the many finishes available with precast concrete, along with methodologies for achieving them. We will also discuss combining multiple finishes into single panels, veneers and embedded materials, selection of mix designs, approaches to achieving colors, proper specification, and procedures to ensure expectations are aligned.

High Performance Precast Concrete Envelope Systems (Credits: 1.0) A structure’s envelope has considerable impact on its overall performance, as highlighted by recent code changes. The envelope not only serves as a barrier between the outside environment and conditioned space, but also as a part of the aesthetic expression for the structure. It must also serve as a protective shield against environmental forces. High-performance building envelopes can help reduce the overall energy consumption of a structure throughout the structure’s life, and maintain and protect its interior environment and occupants. This presentation addresses what high performance building envelopes are, as well as key elements to their performance. It will discuss how to use precast concrete wall systems to meet the latest code requirements such as continuous insulation and air barriers, and include topics such as moisture management, thermal mass effect and how to calculate effective R-values, integration with other building systems, and more. This session will also touch on the idea of resilience. A structure must be able to resist environmental forces, such as high winds and earthquakes in order to protect life and fulfill its intended purpose. Case studies are used to highlight information presented.

Designing Precast Concrete School Buildings (Credits: 1.0) After attending this presentation, participants will be able to: Discuss how different Precast/Prestressed components are used in school designs Use the aesthetic features of precast to create structures to meet the unique needs of schools Understand the Precast design process

Designing with Precast/Prestressed Hollow-Core Concrete (Credits: 1.0) This course instructs participants about hollow-core products and how to design and build utilizing hollow-core floors and walls. Participants also learn about the inherent fire resistance of hollow-core, a major life-safety consideration. After this program, participants will be able to: Identify the different precast, prestressed hollow-core concrete systems Explain the benefits of using precast, prestressed hollow-core concrete Discuss the benefits of using hollow-core concrete with owners and other designers.

Parking Garage Design and Construction (Credits: 1.0) In this course, participants are instructed in improving security and lighting in parking structures and the inherent safety issues. They are also instructed in architectural treatment options for
facades which can make garages more aesthetically pleasing. Participants will also discuss ways to avoid parking structure leakage. From this course, they will be able to use a construction procedure to avoid this leakage.

**Precast Housing Structures** (Credits: 1.0) In this program, participants will discuss precast, prestressed concrete in the housing market. Precast, prestressed concrete provides long clear spans, shallow cross sections, high load capacities, high durability, compatibility with block, steel and cast-in-place concrete, and attractive appearance. Also learn how owners and residents benefit from low maintenance, two- or four-hour fire ratings, lower fire insurance rates, and strong acoustical control. After this program, participants will be able to: Identify the different precast concrete systems used in housing Explain the benefits of using precast concrete in housing structures Utilize precast concrete structures to benefit clients with fire suppression and environmental issues.

**Precast Industrial Structures Design & Construction** (Credits: 1.0) Box lunch attendees will learn the key benefits of precast, prestressed components and see the advantages of an integrated design approach.

**Precast Stadiums Design & Construction** (Credits: 1.0) Box lunch attendees will learn how working with your precast, prestressed specialist at the earliest stages of design can mean a winning combination of advantages for your next stadium. These include flexibility of design, including long spans; high quality of manufactured products; versatility; high-performance, durable materials; and speed of construction because precast components can be erected quickly once they arrive at the site. After attending this program, participants will be able to: Identify the different precast, prestressed concrete systems used in stadium designs Explain the benefits of using precast, prestressed concrete in stadiums Discuss the benefits of PCI-certified precast producers

**Precast/Prestressed Concrete 101** (Credits: 1.50) Participants will explore building design solutions using precast and prestressed concrete products. They will learn what precast, prestressed concrete products are, how they are manufactured, including structural theory of prestressing, and quality assurance procedures. They will learn about the industry certification program (PCI) of plants, people and performance. Participants will explore numerous examples of architectural and structural concrete solutions for numerous building markets. They will explore a variety of architectural finishes and how each is created in terms of color, form and texture. They will explore common structural solutions using prestressed concrete products and explore integrated solutions; realizing the full potential of loadbearing architectural precast units. The session will end with an overview of industry support available to the design community, including published and electronic media and a question and answer session.

**Precast/Prestressed Plant Tour** (Credits: 2.0) Attendees will observe firsthand how designs and engineering details are executed in the precast manufacturing process. They will also observe the entire precast and prestressed manufacturing process from engineering and connections, forms set-up, casting and finishing. Attendees will gain a better understanding of precast and prestressed capabilities and related quality issues. Attendees will learn how precast fits within the entire building system and how to specify precast concrete accurately and safely.

**Sustainable Building Design Using Precast Concrete** (Credits: 1.0) After this presentation, participants will understand the following concepts: (1) The key to sustainable building lies in long-life, adaptable, low-energy design. (2) The earth’s resources are best conserved if the service life of a building is prolonged. (3) Using precast concrete in buildings conserves energy and resources during and after construction because of the following characteristics of precast concrete: (a) The materials used in precast buildings are natural, renewable, and locally available. (b) Water and materials used in precast buildings are often recyclable and recycled. (c) Indoor and outdoor air quality are improved in precast buildings because less (or no) VOC-based preservatives and paints are required, and because of the thermal mass qualities of precast concrete.

**Total Precast Structures** (Credits: 1.0) After this program, participants will be more familiar with what a total precast concrete structure is, how a total percast structure can benefit a project, and what components are used to construct a total precast structure. Participants will also learn how to manage a successful project.

**Architectural Precast Production & Application** (Credits: 1.0) In this program, students will learn about the practical application of a wide variety of architectural precast solutions. The discussion will include design choices and cost considerations.
## Associate Members

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**Continental Cement**  
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www.endicott.com  
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Rep: Dalton Holtzen 402-729-3315  

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800-542-7393  

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www.gccusa.com  
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www.iconxusa.com  
Phone: 913-208-4274  
Contact: Joel Foderberg  

If you are a PCI Associate Member and need to update your listing or if your company is interested in becoming a PCI Associate Member, please contact Mike Johnsrud at mike@pcimidwest.org.
### Producer Members

**Key:**
- **Architectural**
- **Structural**
- **Bridge – Transportation**

<table>
<thead>
<tr>
<th>Company</th>
<th>Location/Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Precast Co. (Mike Decker)</td>
<td>Farley, IA, 563-744-3909 • <a href="http://www.advancedprecastcompany.com">www.advancedprecastcompany.com</a></td>
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<td>Concrete Industries, Inc. (Randy Schultz)</td>
<td>Lincoln, NE, 402-434-1800 • <a href="http://www.concreteindustries.com">www.concreteindustries.com</a></td>
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<td>Coreslab Structures (Missouri) Inc. (Michael Saint)</td>
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<td>La Crescent, MN, 507-895-2342 • <a href="http://www.crestprecastconcrete.com">www.crestprecastconcrete.com</a></td>
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<td>Omaha, NE (Shawn Wentworth) 402.895.3848 • Overland Park, KS (Dirk Mc-</td>
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<td>Assaria, KS, 785-667-3905</td>
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<td>Wells Concrete</td>
<td>Wells, MN, Albany, MN and Maple Grove, MN (Spencer Kubat, 800-658-7049) • Grand Forks, ND (Mike Mortenson, 800-732-4261) • <a href="http://www.wellsconcrete.com">www.wellsconcrete.com</a></td>
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### Key:
- **Architectural Precast**
- **Architectural Trim**
- **Beams/Columns**
- **Wall Panels**
- **Poles**
- **Hollow-core Slabs**
- **Single Tees**
- **Double Tees**
- **Stadium Seats**
- **Modular Cells**
- **Soundwalls**
- **Piles**
- **Boxed Beams/Slabs**
- **I Beams/Girders**