

# Learn & Earn Half Day Seminars

Learn precast and earn continuing education credits!

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## **NEW! Lateral Loads and Precast Concrete Design - Part II.**

This half-day seminar is dedicated to the design of precast and prestressed concrete buildings for lateral loads generated by wind and earthquake ground motion provisions. The seminar provides an overview of lateral force resisting systems for precast and prestressed concrete structures. The seminar includes the calculation of member forces for a typical five-story office building located in the Midwest. Design procedures and calculations for typical members in the building are presented.



## **Lateral Loads and Precast Concrete Design – Part I.**

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 toward 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 toward 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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Continuing education credits are available for these presentations. All Half Day Seminars are 3.5 hours long and are approved for AIA HSW 3.5 LU. A certificate for 3.5 PDH is also available. Contact PCI Midwest at 952-806-9997 or e-mail [mike@pcimidwest.org](mailto:mike@pcimidwest.org) for more information on how you can participate.

# 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](mailto: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 precast 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.