

Focus of This Issue: Lunch Box Talks

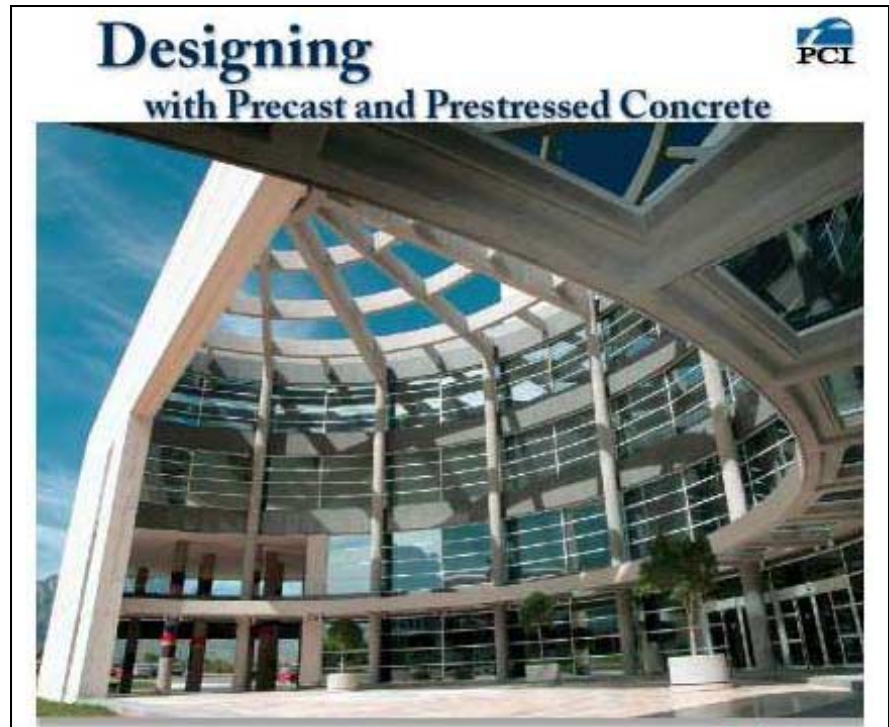
Designing with Precast and Prestressed Concrete

This presentation includes:

- (1) Introduction to precast concrete,
- (2) Building types commonly using precast,
- (3) Design considerations when using precast concrete,
- (4) Components, systems and connections,
- (5) Specifications, and
- (6) PCI resources.

PCANY currently offers thirteen different lunch box talks, which you can schedule in your office, at a time and date convenient for you. Each carries either 1 PDH or 1 AIA LU, which should be at least as valuable as the presentation (let alone the lunch). These are offered as continuing education through the Prestressed Concrete Institute. Where possible, PCANY will also leave a copy of a related PCI Publication. But please, don't everyone call at the same time, for the same day.....

The following are selected powerpoint slides from each presentation, to give a basic idea of each.



Construction Issues Erection considerations

- Site restrictions
- Owner requirements
- Site logistics
- Scheduling
- Project management



Logan International Airport Central Parking Garage Expansion, Boston, MA
Architect: TAMS/Fennick/McCredie Architecture Ltd.
Photo: Blakeslee Prestress Inc.

LUNCH BOX TALKS *(topics continued)*

DESIGNING PRECAST CONCRETE SCHOOL BUILDINGS



St. Mary School Multi-purpose room is underneath the Gymnasium. Long span double tees were used for the Gym floor.

SUSTAINABLE BUILDING DESIGN USING PRECAST CONCRETE

LEED Category: Energy and Atmosphere Reducing Energy Consumption

- Lighting accounts for 25% of annual electricity usage – when combined with reflective precast concrete, efficiency is enhanced.
- Lighting enhances security, reducing crime.



One of the ways that precast concrete can reduce energy use is by reducing the need for additional lighting. By using reflective or light colored concrete, less artificial light is needed to illuminate the structure. In well-lit structures, like parking garages, lighting enhances security which tends to reduce crime.

PRECAST CONCRETE STADIUM DESIGN



New stadiums and multipurpose arenas in cities all around the country, designed using precast, prestressed concrete components crowd-pleasing designs: attractive, well conceived and cost-efficient. Precast is the winning choice for professional sports facilities, collegiate stadiums and multi-purpose arenas. Precast offers a wide variety of stadium components, and precast producers are willing and able to work with you and your team brand when designing a stadium, arena or sports complex.

DESIGNING WITH ARCHITECTURAL CONCRETE



This surface-retarding technique allows for exposing almost any granite, marble or other colorful coarse aggregate to almost any depth desired. When this technique is used in combination with other surface features, the result can be as dramatic as shown in this Washington University parking structure.

Washington University Hilltop Campus Parking,
St. Louis, MO

Skidmore Owings & Merrill/Sverdrup Corporation

DESIGNING PRECAST BRIDGES

TOTALLY PRECAST BRIDGES – CASE STUDIES



- Each of four bridges, ranging in length from 700 to 900 feet, was erected in about 24 hours. This was well within the owner's construction allowance of 72 hours per bridge, a condition established to minimize disruption to one of the city's highly traveled corridors.

Puerto Rico - A totally precast bridge

MAIN BACK FORWARD

Is it possible to design an "Instant Bridge?" Almost! There are many ways to put a bridge together quickly with precast concrete products. The speed and variety of precast prestressed products and methods give designers many options.

PRECAST HOUSING STRUCTURES

Precast Housing Systems: Single Family



- Chicago developer Affordable Concepts has been extremely successful with this design for an all-precast concrete home.
- Created by Flekarz & Associates, it uses vertically-oriented soundwall panels in a horizontal format to create a brick-like single-family design. The structure can be enclosed in less than a day.

Precast single family home

PRECAST 101

Precast Industry Markets: Housing




- In multi-family housing structures, precast concrete provides:
- Durability
- Acoustic control
- Shallow cross-section, which saves material costs and helps meet maximum building height requirements in some zoning areas
- and Fire resistance ...

PRECAST PRESTRESSED CONCRETE INDUSTRIAL BUILDINGS

CLICK AND LEARN ...

- Advantages of Precast
- Mini Case Studies of Five Different Building Types
- Upgrade Performance With Sandwich Insulated Panels
- Design & Connection Diagrams
- Building Material Comparisons



In this presentation, we will explore the key benefits of precast, prestressed components, and see the advantages of an integrated design approach. We will discuss how these benefits are realized in the design of specific types of structures, and see examples of outstanding precast applications from around the country. We will also discuss the benefits of insulated sandwich wall panels as architectural and/or structural systems, view connection and design diagrams, and compare the benefits of precast to other types of building materials.

DESIGNING WITH HOLLOW CORE

How do you start designing and building with hollow-core products yourself?



First, contact your local PCI-Certified hollow-core producer as early in the specification and design stage as possible. Make use of his details and design aids. He will work closely with you to lay out your project and help you take advantage of the economical benefits that precast concrete can create. Most producers can provide a budget price after reviewing any preliminary project design.

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