

Focus of This Issue: Car Parking and Miscellaneous Event Sparking

New York Botanical Gardens – PCI 2012 Design Awards Winner 0-999 Cars



This article extracted from the PCI Website: <http://www.pcidesignawards.org/2012/pages/ps01/ps01.html>

To preserve valuable landscape at the New York Botanical Garden in the Bronx, designers located the new all-precast concrete parking structure and intermodal facility just outside the facility's walls, extending its presence into the community. To visually connect the garden and this exterior structure, the designers combined geometric precast concrete shapes with channel glass featuring a metal-trellis infill to create a vertical garden on all four sides.

"We liked this entry because it exhibited a very strong structural statement that will basically improve over time," says Dave Craddock, a member of the buildings awards jury. "We were very impressed that the precast provided a framework that the environment was encouraged to basically infill."

A series of monumental forked elements, symbolic of a branch, envelops the building, forming an

overall enclosure and vertical trellised landscape. Interstices between the forked elements are covered with wire trellis planted with a variety of flowering vines. These design elements are accented by ribbed precast concrete panels that form the base of the building, adding visual interest.

The structure features 1159 precast concrete components, including double tees, columns, spandrels, lite walls, shear walls, stair walls, beams, cladding panels, stair units, and planter curbs. Due to the unusual shape of the site, which features only one 90-degree corner along the perimeter, standard forms could be used only in a few locations.

Many of the precast concrete pieces had to be modified at their ends to adjust to the irregular geometries and to produce an efficient layout that accommodated 825 parking spaces. A light well was

provided at the center, bringing daylight into the center of the building.

Several casting challenges arose in achieving the desired aesthetic goals. To handle the three-dimensional forked components, the pre-caster designed hinged steel forms that allowed adjustments to be made to provide the appropriate mirrored shape for each leg. In addition, when the original wooden form used to cast the ribbed walls proved inefficient, a recycled plastic/wood composite material was used.

"This parking structure had a nice balance of the structural aspect of precast concrete with a nice, delicate application that allowed the precast to become ornamental," says Debra Kunce, a member of the buildings awards jury. "This is a new way to look at precast on parking structures."

(continued on page 2)

PCI 2012 Design Awards Winners 0-999 Cars *(continued from page 1)*

Location: Bronx, N.Y.

Owner: The New York Botanical Garden, Bronx, N.Y.

Architect: Ennead Architects, New York, N.Y., www.ennead.com

Architect of record and engineer: Desman Associates, New York, N.Y.

Construction manager: E.W. Howell, New York, N.Y.

Precaster: Unistress Corp, Pittsfield, Mass., www.unistresscorp.com

Precast concrete specialty engineer: Stango Consulting Engineers, Chesterton, Md.

PCI-certified erector: Jemco Erectors, Shamong, N.J.

Project size: 300,000 ft² (28,000 m²)

Project cost: \$35 million

Notices:

Eastern New York Chapter American Concrete Institute

Self-Consolidating Concrete Presentation/Demonstration (1 PDH)

Date: October 17, 2012 Time: 3 pm Place: Whitacre Engineering, Liverpool, N.Y.

ACI Certification Program - Concrete Field Testing Technician Grade 1

Dates: Training – December 13, 2012 Examination – December 14, 2012

Place: Hudson Valley Community College, Vandenburg Ave (Route 4), Troy, N.Y.

NYSSPE 2012 Fall Professional Development Conference

Date: November 9, 2012 Time: 1:30 pm - 2:30 pm

The Modern Parking Structures and it's Role in Sustainable Design - 1 PDH

By: Rita L. Seraderian, PE, FPCI, LEED AP, Precast/Prestressed Concrete Institute Northeast

The Modern Parking Facility has become a community building type that is used every day. The role that it plays as the entry place to our cities, towns, campuses, and buildings presents opportunities to integrate even more seamlessly into the fabric of the overall built environment. The integration of parking into the evolving mixed-use urban setting, and transportation systems, requires the modern parking facility to address new expectations regarding sustainability; functional and operational issues;

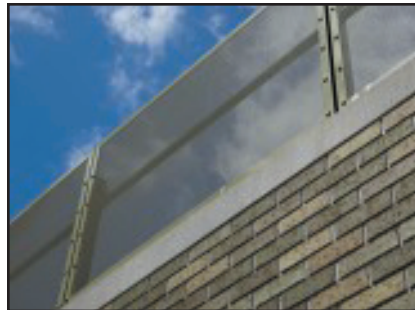
and safety and security. This is a complex challenge as automotive, engineering and traffic issues relative to site locations must be integrated to create a holistic solution. Precast concrete is one of the most popular systems for building parking structures in the United States. This session will address areas such as site impact, mixed-use applications, aesthetics, integration requirements, strategies for meeting sustainable goals, and more. Case studies will be used to highlight concepts.

Of Note, Published in 2012:

ACI 548.4-11 Specification for Latex-Modified Concrete Overlays

Abstract: This Reference Specification covers styrene-butadiene latex-modified concrete (LMC) on an overlying concrete bridge decks and other structures. It applies to both new construction and rehabilitation of existing structures. It includes certification requirements of the latex products, storage, handling, surface preparation, mixing, application, and limitations.

Ruppert Plaza Garage and Macombs Dam Rooftop Park: PCI 2012 Design Awards Winner 1000+ Cars



This article extracted from the PCI Website: <http://www.pcidesignawards.org/2012/pages/ps02/ps02.html>

A variety of challenges arose in creating a parking structure that encompassed nearly 1 million sf., provided 1,700 parking spaces on three supported levels, and was capped by a 7-acre rooftop park.

The original concept called for a steel-frame structure, but the design-build team quickly recognized that an all-precast concrete structural solution better met the design needs and construction schedule.

Foremost among the goals that precast concrete helped achieve was an open-air structure, which would eliminate the need for most of the mechanical ventilation, require fewer sprinklers, and provide other benefits. This was accomplished by creating airshafts along two sides, which combined with the long-span double tees to meet the requirements.

“Precast was a great choice for this parking structure,” says Wanda Lau, a member of the buildings awards jury. “Making it an open-air

structure made it less intimidating. It’s also a durable material that can take a lot of high traffic. The parking structure blends very nicely with the environment. You don’t really even notice it.”

The rooftop park provides a key reason for that unobtrusiveness, but it also created a number of challenges, including the need to design for heavier loads and to upgrade waterproofing and fire separation. Components were designed to account for those upgrades, and those requirements were met with no delays in scheduling.

Extremely complex logistics included a site wedged between subway lines, Interstate 95, the Macomb’s Dam Bridge, and local street traffic. In spite of these challenges, construction continued during the baseball season and even during the World Series.

Spandrels were custom designed in color, material, and shape, creating an overall palette

that suggested a grove of trees. Embedded thin brick was used in four shades of green, all of which were handmade in Nebraska and shipped to the precaster, where they were laid into the forms.

A contrasting gray shade was used for the spandrels to suggest the trunks of nearby trees. The spandrels were designed to cover only the ends of the tees, allowing thin cables to stretch from column to column. This maximized daylight that entered the building. The cables were post-tensioned through the precast concrete columns, and a friction-fit steel connector was hidden within the columns.

“We were most impressed with the care taken to select the four colored bricks and the obvious integration of those into precast panels,” says Dave Craddock, a member of the buildings awards jury. “It offers a graceful and elegant solution to the programming needs. It is very much a piece of art in the final installation.”



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PCI 2012 Design Awards Winner 1000+ Cars *(continued from page 3)*

Location: Bronx, N.Y.

Owner: New York City Department of Parks and Recreation, New York, N.Y.

Architect: Clarke Caton Hintz, Trenton, N.J.

Engineer: Fay Spofford Thorndike, New York, N.Y.

Contractor: Prismatic/Hunter Roberts, Fairfield, N.J.

Precaster: Unistress Corporation, Pittsfield, Mass.

Precast concrete specialty engineer: Hoch Associates, Ft. Wayne, Ind.

Project size: 914,760 ft² (84,980 m²)

Project cost: \$157 million

Educational Programs: PCI Lunch Box Talks (1.0 AIA Learning Unit or 1.0 PDH), with lunch provided by PCANY

- Architectural Precast Concrete
- Designing Precast Bridges
- Designing with Hollowcore
- Precast Housing Structures
- Industrial Structures Design and Construction
- Precast Parking Structures
- Precast 101 (a 1.0 hr or 1.5 hr presentation is available)
- Designing Precast Concrete School Buildings
- Precast Concrete Stadium Design
- Sustainable Building Design Using Precast Concrete
- Total Precast Structures
- Precast/Prestressed Plant Tour (2 AIA or 2 PDH)

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