

Focus of this Issue: BRIDGES

NYS Thruway “Hooked” on Prestressed Concrete Bridges

SpaanSpan™ bridges are jointless and post-tensioned in transverse and longitudinal directions. Combining the strong performance of post-tensioning with quality precast concrete promises low long term maintenance costs. Driving under the new Hook Road and Farmington Road bridges over the New York State Thruway outside of Rochester, you don't see the rusted steel beams that seem ever present; instead you are visually attracted to the stone appearance of the girders, which carefully matches that of the end abutments and graceful center pier.

This system is similar to the Channel Bridge concept of years past. However, you do not have to “build a bridge to build a bridge”. The required shoring for the previous match-cast “U” shaped sections was expensive and slow. Both Hook Road and Farmington Road Bridges were the same, except for a slight change in the skew. The finished bridge spans were



Edge girder finish matches abutments and center pier.

just under 100' and each bridge was 2-span continuous. The replaced bridges were four spans each.



Hook Road over the New York State Thruway.

The installation steps are very straightforward: (1) erect edge girders (2) drop in deck panels (3) cast edge and closure pours (4) post tension and grout edge girders and deck panels (5) install barrier rail (6) overlay deck panels. The low profile of the SpaanSpan™ through-girder design increases under-clearance and minimizes bridge approach work. The superstructure depth is primarily limited to the thickness of the panels. Because there is no extensive false work, traffic is maintained under the structure during construction except for brief periods when elements are erected. This obviously reduces shutdown periods, which is a benefit to all moving traffic. The Sedley Bridge in Indiana over an operating railroad is another example of how the clean lines, architectural facades, and minimum deck thicknesses, make these structures visually appealing, as well as long lasting.



Girders shipped on special trailers- note the absence of a supporting ledge or shelf.



Girder-mounted hangers support slabs until pours and post-tensioning are complete.

The transverse steel beams seen above right were compression struts to prevent the beams from rotating while the panels were being erected. Since the panels were being supported on falsework eccentric to the beam, rotation had to be restrained until the joint was concreted and the transverse post tensioning installed.



Transverse post-tensioning underway.



Sedley Bridge, Porter County, Indiana.

The photos and story above were submitted by The Fort Miller Co., Inc, Schuylerville, NY. Project design services were provided by Janssen & Spaans Engineering of Indianapolis, IN.



Story and photo improvised from Maine Trails Aug/Sept 06.

Mother's Day Flood 2006

That was the day many MaineDOT maintenance staffers woke up to phone calls informing them that York County was being hit by a record rainfall, washing out 3 state bridges and temporarily closing 12 state roads. The roads were repaired within weeks, just in time for the tourist season. MaineDOT erected a temporary bridge to replace the Passaconway Bridge in York, and started plans for a permanent replacement.

continued on page 3

NPCA will be holding a Production and Quality School in Manchester, NH sometime the week of June 19-20.

Mother's Day Flood 2006 *continued from page 2*



Inside a prestressed voided slab.



Exterior beams cast with a cobblestone finish.

Photos by J.P. Carrara & Sons.

Photo above left is looking into a replacement beam before casting. All rebar is epoxy coated. Cardboard tubes form the internal longitudinal voids. Dual plastic pipes form the transverse post tensioning ducts. The transverse P/T accommodations can be clearly seen on the project's outside beams (photo above right) which featured a cobblestone finish, as well as the interior beam stacked on top. The new Passaconway Bridge consisted of 3 spans, each consisting of 8 beams 4' wide x 21" deep x 50' long.

ACI/PCI SEMINAR

Design, Build, and Maintain Concrete Parking Structures

There is still room at the April 17 full day seminar in Albany; PCANY, ACI, and PCI members are entitled to a registration fee reduction.

SEMINAR TOPICS

Introduction

Design and Material Considerations

- Selecting the structural system
- Good design practices for all types of construction
- Designing for loads
- Provisions for forces and deformations due to restraint of volume change and differential settlement
- Joints
- Cracks and crack control
- Drainage planning and design
- Corrosion resistance
- Fire performance (rational design)
- Future expansion
- Lighting
- Security (life/safety considerations)
- Stair/elevator (vertical egress) shaft design and location
- Specifications for materials, construction, and means and methods

Requirements for Durability

- Concrete
- Additives (silica fume, corrosion inhibitors, and admixtures)
- Epoxy coated reinforcing
- Concrete sealers and waterproofing systems
- Membranes

- Cover of reinforcing
- Joint sealing
- Protection of embedded hardware
- Sloping for adequate drainage (durability design for targeted service life)

Design Benefits, Materials, and Construction Considerations

- Special considerations for precast/prestressed concrete
- Lateral load resisting systems
- Cast-in-place concrete (post-tensioned systems)
- General
- Life cycle costs and service life expectation

Maintenance for Durability

- General
- Maintenance schedules and manuals
- Condition audits
- Repairs

Innovations in the Concrete Parking Garage Market

- Mixed use
- Architectural considerations

PCANY Website

All PCANY members now have access to the Members Only Page, where varied reports, communications, meeting notes, etc. will be posted. There is also a new category listing, Complimentary One Year Membership, which will be given to every attendee at a PCANY seminar or workshop; or it may be requested simply by visiting...

www.pcany.org

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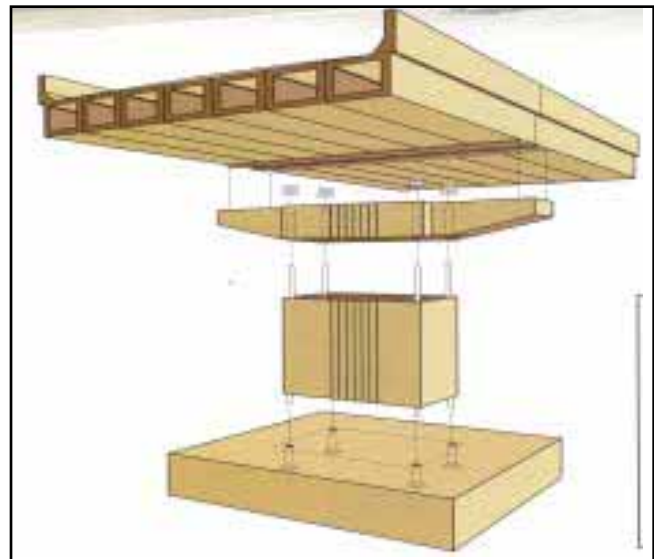
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Accelerated Bridge Lunch Box Program

PCANY has been presenting an hour long session for the NYSDOT Regional Offices, showing several examples of the Accelerated Bridge program, plus a segment offering information on evaluating and repairing adjacent box beam bridges. Coincidentally, the Spring 2007 Aspire magazine from PCI focuses on Solutions for Accelerated Construction and Rapid Response, with 11 excellent in-depth articles, loaded with great photos, on this topic.

For any other private firms or public agencies interested in having this presented in their offices, contact PCANY. In addition, we have eleven different one hour lunch box talks available on varied precast structural types, prepared jointly by AIA and PCI, each carrying one hour AIA credit.



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