

The Liberty Bridge opened for traffic in 1928 over the Monongahela River in Pittsburgh. Some 90 years later it serves as one of the city's major arteries. It was imperative to minimize disruption to traffic and so accelerated bridge construction products and methods were utilized.

The bridge was the first to be reconstructed with an Exodermic® deck system in Pennsylvania. The Exodermic® deck system was selected because of its high strength to weight ratio (almost a necessity due to the bridge being previously listed as "structurally deficient") and its efficient incorporation into Accelerated Bridge Construction practices.

The last section of the bridge deck, spans 12-14 (on the city side), could not be cast-in-place due to the traffic patterns as the bridge merged with the city connectors. Concrete Concepts, Inc. (CCI), the precast division of Bryan Materials Group, manufactured the remaining 40,000 SF of deck panels (150 pieces) at their facility in McKees Rocks; the average deck panel size was 9' x 28'. CCI also turned to the BMG Research and Development Center to modify the light-weight bridge deck mix design to include a self-consolidating property, which greatly improved the constructability of the deck panels at the precast facility. This was the first time a self-consolidating, light-weight concrete mix was used in conjunction with an Exodermic® bridge deck system.

CCI cast the deck panels over a 3 month time frame. The deck was delivered and installed over 5 weekends of complete bridge closures. CCI staged 12 trailer loads on the bridge after it was closed, and general contractor Joseph B Fay proceeded to remove the existing deck and stringers, install new stringers and floor beams, install the precast deck, and pour closure concrete to tie the new deck together, all in a 56 hour window of continuous work.

TAKE A NEW LOOK AT PRECAST

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PRECAST CASE STUDY

PROJECT:
LIBERTY BRIDGE

LOCATION:
PITTSBURGH, PA.

PRECAST MANUFACTURER
CONCRETE CONCEPTS, INC.
www.bryanmaterialsgroup.com

