

Precast, Prestressed Concrete Overhang Panel System

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The completed Farm-to-Market Road 1885 Bridge over Rock Creek was the first bridge in Texas to use the precast, prestressed concrete overhang panel system. All photos: Texas Department of Transportation.

The Texas Department of Transportation (TxDOT) is constantly seeking innovative accelerated bridge construction methods that can reduce the impact to the traveling public, improve safety in the work zone, and reduce costs. TxDOT has a successful history of using precast, prestressed concrete panels (PCPs) as stay-in-place forms for the interior bays of bridge decks. However, the current practice for constructing the overhang sections requires the use of conventional overhang brackets and extensive formwork. An innovative precast, prestressed concrete overhang panel system has a potential to improve economy, safety, and speed of construction.

In 2008, TxDOT sponsored a research project to develop a precast, prestressed concrete overhang panel system for potential use in bridge construction. The results indicated that the flexural and shear capacities of the precast, prestressed concrete overhang panel system are comparable to those of a conventionally cast-in-place concrete deck. The precast, prestressed concrete overhang panel is a combination of a full-depth and partial-depth panel that extends from the first interior girder to the edge of the

slab. The full-depth portion of the panel extends the length of the overhang and terminates near the inflection point between the exterior and first interior girders. Also, the full-depth portion of the panel serves as a safe and convenient work platform and allows the screed to be placed directly over the girder line.

To allow for adjustment and grading of the panels during construction, leveling bolts are cast into the overhang panels. Composite action between the exterior girder and the precast, prestressed concrete overhang panel is provided by shear connectors that extend from the top of the girder into the shear pockets in the overhang panels. After the profile is established using the grade bolts, the cast-in-place concrete portion of the deck is cast. Finally, the haunch section over the exterior girders and the shear pockets are filled with non-shrink structural grout.


The precast, prestressed concrete overhang panel system was successfully implemented by TxDOT on the Farm-to-Market Road 1885 Bridge over Rock Creek in Parker County near Cool, Tex. Since this was the first project using the precast, prestressed concrete overhang panel system, no significant reduction in construction



Placing and aligning precast, prestressed concrete overhang panels used on the Farm-to-Market Road 1885 Bridge over Rock Creek.



The underside view of the Farm-to-Market Road 1885 Bridge over Rock Creek near Cool, Tex., shows the use of the precast, prestressed concrete overhang panel system.

time was observed due to the learning curve for all those involved. However, there was an improvement in safety due to the sturdy work platform provided by the precast, prestressed concrete overhang panels and the elimination for the need to set and remove overhang brackets and formwork. Overall, the precast, prestressed concrete overhang panel system worked well and shows great promise for deck construction in the future. 

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