Rachel J. Detwiler

Editor's Message

Bridges

For our annual Bridges issue, our cover story illustrates the use of some accelerated bridge construction technology that we reported on in our Fall 2012 cover story, "Accelerated Bridge Construction in Washington State: From Research to Practice," by Bijan Khaleghi, Eric Schultz, Stephen Seguirant, Lee Marsh, Olafur Haraldsson, Marc Eberhard, and John Stanton. That story described the development of two kinds of seismic-resistant connections: socket connections for precast concrete columns with cast-in-place footings and projecting reinforcing bars from the columns grouted into ducts in the precast concrete cap beams. The first implementation of these connections was in an experimental bridge on Interstate 5 just south of Olympia, Wash., in 2011.

In this issue we report on a different use of this technology in a bridge for airplanes at the Boeing Co. plant in Renton, Wash. The need for accelerated bridge construction techniques arose not from a desire to minimize traffic disruptions on an interstate highway but from the production requirements of a manufacturing facility and the protection of a salmon habitat. Aircraft manufactured at this plant cross the bridge over the Cedar River to Renton Municipal Airport, where they are inspected before they fly to their new owners. Accelerated bridge construction made it possible to perform the in-water work within a limited "fish window" when these activities would not be unduly disruptive to the salmon and complete the bridge before Boeing increased production at its Renton plant.

Two of our peer-reviewed papers also pertain to accelerated bridge construction, in both cases with the use of carbon-fiber-reinforced polymer posttensioning tendons. The first paper reports on the posttensioning of precast concrete deck panels to protect the joints against infiltration of water and salts, thus prolonging the service life of the most vulnerable element of the bridge deck. The second paper reports on the posttensioning of concrete segmental bridges.

We also have a paper on proposed improvements to posttensioning anchors to reduce the tendency of unbonded tendons to prematurely fracture when subjected to seismic loading. Finally, we report on the transfer length of 0.6 in. (15 mm) strand in lightweight self-consolidating concrete.

Our personality profile on the last page of *PCI Journal* keeps to the theme of this issue with a profile of Rita Seraderian, executive director of PCI Northeast. She has been actively promoting the use of precast concrete, particularly in bridges, for 25 years. She also originated the northeast extreme tee (NEXT) beam for accelerated bridge construction. You can read about a recent implementation of the NEXT beam in our Project Spotlight.

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