



Durability and the Pembroke Bridge

The topic of the cover story in this issue, the Pembroke Bridge, was the inspiration for the idea of including a cover story in each issue of the *PCI Journal*. While editing “Transverse Posttensioning Arrangement for Side-by-Side Box Beam Bridges” by Nabil Grace, Elin Jensen, and Mina Bebawy, I noticed in their acknowledgments that the design tools they had developed were being implemented by the Michigan Department of Transportation. Would it be possible for us to document the application in the *PCI Journal*? See for yourself.

The theme of this issue is durability. Engineers often think of durability in terms of materials—a topic to be covered in the Summer issue—but some aspects of it relate more to structural design and detailing. For example, good drainage keeps water from ponding. Locating joints away from bridge piers keeps salt water from draining onto the piers when (not if) the joints leak. Control of cracking is especially important; cracks are a direct means of ingress for water, chlorides, and other deleterious species. Prestressed concrete has a distinct advantage over cast-in-place concrete because prestressing helps to limit cracking. In this issue we have two different approaches to the problem of longitudinal cracking in box girder bridges. We also have an investigation of corrosion of steel and spalling of concrete caused by chloride ions migrating to the steel via reflective cracks and a study of end-zone cracking of girders with repair criteria and methods to maintain durability.

You may notice some changes to the *PCI Journal* that we've started to implement. Beginning with the introduction of the cover story in the Winter issue, we're placing more emphasis on the theme of each issue. Our intent is to have two-thirds or more of the technical content related to the theme. Of course, we'll still have content unrelated to the theme so that manuscripts aren't too old by the time they're published. As mentioned, the theme of the Summer issue is materials; the theme of the Fall issue is bridges.

Another change is to the appearance of our peer-reviewed papers. Changes to the graphics appeared for the first time in the Winter issue. Based on discussions with the Journal Advisory Committee, we are retaining color graphics for the figures but toning down the overall appearance of the page. These changes further distinguish the appearance of peer-reviewed papers from the rest of the technical content. ▮

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