

# SPECIFICATION CHANGES FOR HPC—CURING CONCRETE BRIDGE DECKS

**T**he AASHTO Standard Specifications for Highway Bridges – Division II and the AASHTO LRFD Bridge Construction Specifications currently require all newly placed concrete to be cured so as to prevent loss of water. The specifications also require that curing commences immediately after the free water has left the surface and finishing operations are completed. Curing is required for seven days unless pozzolans in excess of 10 percent of the portland cement are used in the mix. When such pozzolans are used, the curing period shall be 10 days.

Cast-in-place concrete may be cured by one or more of the following methods: forms-in-place, water, liquid membrane curing compound, or waterproof cover. For the top surface of bridge decks, a combination of the liquid membrane curing compound method and the water curing method is required. The curing compound is required to be placed progressively and immediately after finishing operations are complete. Water curing must be applied not later than four hours after completion of deck finishing or, when finishing is completed after normal working hours, water cure must be applied not later than the following morning. For high performance concrete (HPC) bridge decks, changes in curing specifications are needed.

## Proposed Specifications

For cast-in-place HPC used in bridge

decks, water cure shall be applied immediately after finishing of any portion of the deck is completed and shall remain in place for a minimum period of 7 days. If conditions prevent immediate application of the water cure, either an evaporation retardant shall be applied immediately after completion of finishing or fogging shall be used to maintain a high relative humidity above the concrete to prevent drying of the concrete surface. Following the water curing period, liquid membrane curing compound may be applied to extend the curing period.

## Proposed Commentary

HPC tends to have very little bleed water. Consequently, the evaporation protection of the bleed water on the fresh concrete is lost. The most effective way to protect the concrete is by application of water curing as soon as screeding or tining of the concrete is complete and no later than 15 minutes after the concrete is placed in any portion of the deck. In the water cure method, the concrete surface is kept continuously wet. The most appropriate method is to cover the deck with materials such as cotton mats, multiple layers of burlap, or other materials that do not discolor or damage the concrete surface and to keep these materials continuously and thoroughly wet for at least 7 days.

For a series of articles on curing HPC bridge decks, see *HPC Bridge Views*, Issue No. 15, May/June 2001.

## Editor's Note

This article is the third in a series that addresses specification changes that are needed to facilitate the implementation of HPC. The proposed revisions are based on work performed as part of FHWA Project No. DTFH61-00-C-00009.

## HPC BRIDGE CALENDAR

**October 19-22, 2003**

Third International Symposium on High Performance Concrete, Orlando, FL. Jointly sponsored by FHWA, PCI, and NCBC. Deadline for abstracts March 7, 2003. Contact Paul Johal, Precast/Prestressed Concrete Institute at 312-786-0300, [info@pci.org](mailto:info@pci.org), or [www.pci.org](http://www.pci.org)

## ERRATA

HPC Bridge Views No. 24, Page 1: The Confederation Bridge connects Prince Edward Island and New Brunswick.

HPC Bridge Views is published jointly by the Federal Highway Administration and the National Concrete Bridge Council. Previous issues can be viewed and downloaded at <http://www.cement.org/br/newsletters.asp>.

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