Florida Department of Transportation

JEB BUSH
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

DENVER J. STUTLER, JR.
SECRETARY

October 25, 2006

Mr. Greg Williams
Program Operations Engineer
Federal Highway Administration
545 John Knox Road, Suite 200
Tallahassee, Florida 32303

Re: Office of Design, Specifications
Section **400**
Proposed Specification: **4000700.D01**

Dear Mr. Williams:

We are submitting, for your approval, two copies of a proposed Supplemental Specification for Placing, Curing and Protecting Concrete.

This change was proposed by Steven Plotkin of the Office of Construction to modify the requirements for placing, curing and protecting concrete.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via Email to SP965DB or duane.brautigam@dot.state.fl.us.

If you have any questions relating to this specification change, please call Duane F. Brautigam, State Specifications Engineer at 414-4110.

Sincerely,

Duane F. Brautigam, P.E.
State Specifications Engineer

DFB/dr
Attachment
cc: General Counsel
Florida Transportation Builders' Assoc.
State Construction Engineer

CONCRETE STRUCTURES.
(REV ~~8-11-06~~*10-25-06*)

SUBARTICLE 400-7.1 (Pages 368 and 369) is deleted and the following substituted:

400-7.1 ~~Temperature~~ *Weather* Restrictions:

400-7.1.1 Concreting in Cold Weather: Do not place concrete when the temperature of the concrete at placement is below 45ºF.

Meet the air temperature requirements for mixing and placing concrete in cold weather as specified in Section 346. During the curing period, if NOAA predicts the ambient temperature to fall below 35ºF for 12 hours or more or to fall below 30ºF for more than 4 hours, enclose the structure in such a way that the concrete and air within the enclosure can be kept above 60ºF for a period of 3 days after placing the concrete or until the concrete reaches a minimum compressive strength of 1,500 psi.

Assume all risks connected with the placing and curing of concrete. Although the Engineer may give permission to place concrete, the Contractor is responsible for satisfactory results. If the placed concrete is determined to be unsatisfactory, remove, dispose of, and replace the concrete at no expense to the Department.

400-7.1.2 Concreting in Hot Weather: Meet the temperature requirements and special measures for mixing and placing concrete in hot weather as specified in Section 346.

When the temperature of the concrete as placed exceeds 75ºF, incorporate in the concrete mix a water-reducing retarder or water reducer if allowed by Section 346.

Spray reinforcing steel and metal forms with cool fresh water just prior to placing the concrete in a method approved by the Engineer.

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400-7.1.3 Wind Velocity Restrictions: *Do not place concrete for bridge decks if the forecast of average wind velocity at any time during the planned hours of concrete placement exceeds 15 mph. Obtain weather forecasts from the National Weather Service "Hourly Weather Graph" for the city closest to the project site.*

SUBARTICLE 400-16.1 (Page 384) is deleted and the following substituted:

400-16.1 General: Cure cast-in-place and precast (non-prestressed) concrete as required herein for a minimum duration of 72 hours. If forms are loosened or removed before the 72 hour curing period is complete, expand the curing to cover these surfaces by either coating with curing compound or extending the continuous moist cure area.

Until curing has begun, retain~~Maintain~~ concrete surface moisture at all times *by maintaining a surface moisture evaporation rate less than 0.1 lb/ft^2/hr.* ~~until~~

~~curing is begun. Prevent water sheen loss on flat work by use of an evaporation retarder and/or by applying supplemental moisture by misting. During the construction of footings and bridge decks when the forecasted or actual wind speed exceeds 10 mph, evaporation counter measures are required. The Quality Control Plan shall ensure evaporation counter measures which will limit evaporation to less than 0.20 lb/ft^2/hr.~~*Periodically, at the site of concrete placement prior to and during the operation, measure the ambient air temperature, relative humidity and wind velocity with industrial grade weather monitoring instruments to determine the on-site evaporation rate. If the evaporation is, or is likely to become 0.1 lb/ft^2/hr or greater, employ measures to prevent moisture loss such as application of evaporation retarder, application of supplemental moisture by fogging or reduction of the concrete temperature during batching. Compute the evaporation rate by using the nomograph in the ACI manual of Concrete Practice Part 2, Section 308R Guide to Curing Concrete, or by using an evaporation rate calculator approved by the Engineer.*

SUBARTICLE 400-17.3 (Page 388) is deleted and the following substituted:

400-17.3 Time of Placing Superstructure: In the case of piers or bents with concrete caps, do not place the weight of the superstructure or of beams on the caps until they have reached the *age of 10 days.*~~ages required in the following table:~~

~~Superstructure~~	~~seven days~~
~~Beams~~	~~three days~~

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