ORIGINATION FORM

THE INFORMATION BELOW IS TO BE PROVIDED BY THE ORIGINATOR
(The person who receives or originates the issue and needs to forward the issue for action.)

X Modify Specification _____400_____.
Section/File number

☐ New Section _____.
Section number

Subject: 400-14 Removal of Forms

Origination date: April 21, 2008

Originator: Tom Malerk
Office/Phone: State Materials Office / 352-955-6620
Email address/
Userid: tom.makerk@dot.state.fl.us
rt820tm

Problem statement: The propose revision is to clarify the requirements for two cylinders to be broken at each data point when a curve is used to verify strength requirements so that forms can be removed.

Information source: This change was developed by the State Construction Office and State Materials Office to clarify the number of cylinders required.

Background data: For more information please contact Michael Bergin at 352-955-6666.

Recommended Usage Note: All contracts with concrete structures.

Expected fiscal impact, if implemented: The change clarifies the number of cylinders required to be broken. There will be no fiscal impact for this change.

Implementation of these changes, if and when approved, will begin with the January 2009 letting.

Florida Department of Transportation

CHARLIE CRIST
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

STEPHANIE KOPELOUSOS
SECRETARY

M E M O R A N D U M

DATE: May 20, 2008

TO: Specification Review Distribution List

FROM: Rudy Powell, Jr., P.E., State Specifications Engineer

SUBJECT: Proposed Specifications Change: 4001400 – Concrete Structures-Removal of Forms

In accordance with Specification Development Procedures, we are sending you a copy of a proposed new specification change for Concrete Structures-Removal of Forms.

This change was proposed by Tom Malerk of the State Materials Office to clarify requirements for cylinder breaks for removal of forms.

Please share this proposal with others within your responsibility. Review comments are due within four weeks and should be sent to Mail Station 75 or to my attention via e-mail at ST986RP or rudy.powell@dot.state.fl.us. Comments received after June 17, 2008 may not be considered. Your input is encouraged.

RP/sh

Attachment

COMMENTS: _____

_____

_____

_____

_____

_____

Submitted by: _____ Phone #: _____

CONCRETE STRUCTURES-REMOVAL OF FORMS.
(REV ~~4-21-08~~*5-8-08*)

ARTICLE 400-14 (Pages 378 and 379) is deleted and the following substituted:

400-14 Removal of Forms.

Use the table below as the criterion for minimum time or compressive strength required before removal of forms or supports.

When using the time period criterion, include in the time period all days except days in which the temperature falls below 40ºF.

Use the specified 28-day minimum compressive strength value as stated in 346-3.1 for each Class of Concrete utilized.

Location of Concrete Placement	Minimum Time for Form Removal for any Strength Concrete	Minimum (%) of 28-day Compressive Strength for Form Removal
(1) Deck slabs, top slabs of culverts and bottom of caps, forms under sidewalks, and safety curb overhangs extending more than 2 feet		
(a) Class II (Bridge Deck)	7 days*	75*
(b) Class II (Other than Bridge Deck)	7 days	75
(c) Class III	7 days	70
(d) Class IV	7 days	60
(e) Class V	7 days	50
(2) Walls, piers, columns, sides of beams and other vertical surfaces	24 hours**	50**
(3) Front face form of curbs	6 hours	70

* Reference 400-16.4
**Do not place additional load on the section until 70% of the specified 28-day concrete strength is attained. Also, refer to 400-7.4.

When using the percent of required strength, cast test cylinders from representative concrete for compressive strength determination *or develop a curing time versus concrete strength curve (T/S Curve) which can be used in lieu of multiple test cylinders to determine when percent of required strength has been met*.

Prior to curve use; obtain the Engineer's approval of the T/S Curve and its supporting data. An approved testing laboratory may be used to provide this information with approval of the Engineer. Plot T/S Curves using at least three different elapsed times that begin once test cylinders are cast; however, one of the elapsed times must be shorter than the elapsed time desired for form removal. Each elapsed time plotted must have a corresponding compressive strength computed by averaging the compressive strength of two test cylinders.

~~Provide the Engineer with a minimum of three cylinder breaks, established at different curing times and concrete strength, so he can develop a curve relating curing time to concrete strength.~~ Cure such test cylinders as nearly as practical in the same manner as the concrete in the corresponding structural component, and test them in accordance with ASTM C 39 and ASTM C 31. Perform *cylinder* casting, curing, and testing at no expense to the Department and under the observation of the Engineer. ~~When approved by the Engineer, the Contractor may use~~

~~test results certified by a testing laboratory approved by the Department as a basis for form removal.~~ When ~~concrete strength tests~~*the T/S~~data~~ curve* indicate*s* a compressive strength equal to or greater than the percentage of specified strength shown in the table above *for form removal*, the Contractor may remove the forms. ~~Curing periods so established may be used so long as the ambient temperature is equal to or greater than the temperature existing during the curing of the test cylinders.~~ When the *ambient air* temperature falls 15ºF or more below the ambient *air* temperature *that* exist~~ing~~*ed* during *development of a T/S Curve*~~the test cylinder curing period~~, ~~repeat the test procedure outlined above, and establish a different curing period for the different ambient temperature.~~*use a T/S curve that corresponds to the lower temperature and that is developed in accordance with this* ~~*provision*~~*section*.

Do not remove forms at any time without the consent of the Engineer. Even when the Engineer provides consent to remove the forms, the Contractor is responsible for the work.