

ORIGINATION FORM

THE INFORMATION BELOW IS TO BE PROVIDED BY THE ORIGINATOR

Specification: 416
Subject: 416-6 Testing of Anchors or Dowels.
Origination date: May , 2008
Originator: Tom Malerk
Office/Phone: State Materials Office/352-955-6620

Problem statement: Questions have arisen from Construction personnel regarding how to apply current laboratory qualifications in 416 for anchors and dowel bars. Current requirements are not clear and may be difficult to verify.

Proposed solution: The proposed revision will modify laboratory qualification requirements to simpler criteria while still providing the Department with test results that are signed and sealed.

Information source: No other office has been consulted on this change. For more information, contact Mike Bergin, State Materials Office (352) 955-6666.

**Recommended
Usage Note:** All contracts

**Estimated fiscal
impact, if
implemented:** No fiscal impact. The testing requirements have not changed.

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

For Specifications Office Use Only

Begin date: June 20, 2008
File Number: 4160600
Scheduled completion date: September 17, 2008
Implementation team member: Dwayne Moore



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M E M O R A N D U M

DATE: July 17, 2008

TO: Specification Review Distribution List

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

SUBJECT: Article 4160600- Installing Adhesive-Bonded Anchors and Dowels for Structural Applications

In accordance with Specification Development Procedures, we are sending you a copy of a proposed specification change.

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 August 14, 2008 may not be considered. Your input is encouraged.

RP/dm

Attachment

**INSTALLING ADHESIVE-BONDED ANCHORS AND DOWELS FOR STRUCTURAL APPLICATIONS.
(REV 7-8-08)**

ARTICLE 416-6 (page 414) is deleted and the following is substituted.

416-6 Testing of Anchors or Dowels.

Field test installed anchors and dowels for traffic railing barrier applications using Type HSHV adhesives. The Engineer may also require testing of installed anchors and dowels for other applications. ~~Testing must be conducted by an Independent Testing Agency approved by the Engineer.~~

416-6.1 Field Testing: Provide ~~an qualified professional~~ Independent Testing Agency to perform field testing of the installed anchors and dowels ~~in accordance with the applicable sections of ASTM E 488 and ASTM E 1512, in the presence of the Engineer~~ *under the direction of a Professional Engineer registered in the State of Florida. Submit test reports for each LOT signed and sealed by the Professional Engineer.* Perform restrained static tension tests to prevent damage to the surrounding concrete. *A restrained test is defined as a test conducted in accordance with ASTM E 488 except that the test equipment support clearance requirements of ASTM E 488 do not apply. The reaction base shall be approximately equal to the drilled hole diameter for the anchor to preclude concrete or masonry failure, but allow bond failure.* Displacement measurement for field testing is not required. Test individual anchors and dowels by proof loading in tension to 85% of the Specified Bond Strength in Section 937, based on the nominal anchor or dowel diameter and embedment depth, but not more than 90% of the yield strength of the anchor or dowel, *unless otherwise shown in the Contract Documents.*

Divide the anchors and dowels into LOTs for testing and acceptance. Each LOT must contain a maximum of 100 anchors or dowels, of the same diameter, embedment length and Adhesive Bonding Material System. Randomly select four of the anchors and dowels in each LOT for testing, except if there are three or less in the LOT, in which case, test all anchors ~~in accordance with ASTM E 488,~~ unless otherwise directed by the Engineer. If three consecutive LOTs have no failing tests, sample the next three LOTs at a 2% rate and if these LOTs have no failing tests, sample at a rate of 1% for the remaining LOTs unless there is a failure; however, regardless of LOT size, sample at ~~less~~ *least* one dowel per LOT. For every failed field test, perform two additional field tests on adjacent untested anchors or dowels within the LOT. Continue additional field tests until no more test failures occur, or all anchors and dowels within the LOT are tested. For the next LOT after a failed LOT, the sampling rate must be 4% but not less than one dowel per LOT and conform to the sampling rate procedure above including rate reductions as appropriate. ~~Determine failure of the field test Test the anchors and dowels in accordance with ASTM E 488. Submit certified test reports from the Independent Testing Agency to the Engineer for each LOT.~~

416-6.2 Removal & Replacement of Failed Test Specimens: Remove all anchors and dowels that fail the field test, without damage to the surrounding concrete. Redrill holes to remove adhesive bonding material residue and clean in accordance with 416-4. Reinstall new anchors and dowels in accordance with 416-5. Do not reuse the failed anchors and dowels unless approved by the Engineer. Assign reinstalled anchors into new LOTs only containing reinstalled

anchors or dowels of the same diameter, embedment length and adhesive bonding material system, and field test in accordance with 416-6.1.