

ORINATION FORM

Specification: 700-2.5.3

Subject: 700-2.5.3, Highway signing – Overhead Sign Structures – Installation

Origination date: 5/14/08

Originator: Steven Plotkin

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Problem statement: (649-5 and 700-2.5.3) Specification revisions that were implemented not too long ago require overhead sign and traffic signal structure Contractors to meet bolting procedures that previously only applied to the erection of bridge superstructures and this has created unnecessary effort and expense.

(649-6) The gap beneath base plates of steel poles for signs and traffic signals is currently grouted or is covered with vermin screens: however, the grout has been failing at numerous locations statewide in spite of efforts to prevent the failures.

Proposed solution: (649-5 and 700-2.5.3) Careful study of this problem has revealed that bridge bolting procedures in the current specification are not required for sign and traffic signal structures; therefore, these revisions delete the procedures which in turn eliminate the unnecessary effort and expense that Contractors are incurring.

(649-6) These revisions eliminate the use of grout and instead require the installation of vermin screens which have a reliable and consistent performance record.

Information source: Rafiq Darji, Andre Pavlov, Charles Harvey, Jeff Pouliotte

Recommended Usage Note: Use on all projects with overhead sign and traffic signal structures

Estimated fiscal impact, if implemented: Implementation of these revisions will save construction costs for the Department.

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

Specifications Office Use Only

Begin date: June 1, 2008

File Number: 7000205

Scheduled completion date: August 29, 2008

Implementation team member: Dwayne Moore



Florida Department of Transportation

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STEPHANIE KOPELOUSOS
SECRETARY

MEMORANDUM

DATE: July 3, 2008

TO: Specification Review Distribution List

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

SUBJECT: **Proposed Specification: 7000205-Highway Signing-Sign Assembly Design Requirements-Overhead Sign Structures**

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 July 31, 2008 may not be considered. Your input is encouraged.

RP/dm

Attachment

HIGHWAY SIGNING.**(REV 11-9-07-14-08) (FA 12-19-07) (7-08)**

SUBARTICLE 700-2.5 (of the Supplemental Specifications) is deleted and the following substituted:

700-2.5 Overhead Sign Structures:

700-2.5.1 Department's Design: When the overhead sign structure is detailed in the plans, submit shop drawings to the Department for approval as specified in Section 5. Prior to the submittal of the shop drawings, determine the actual length of support columns for all sign structures on the basis of existing field conditions and include these lengths on the shop drawings.

700-2.5.2 Contractor's Design: When the overhead sign structure is not detailed in the plans, submit to the Department a foundation design and a sign structure design utilizing steel structural members. Meet the requirements of this Section and the FDOT Structures Manual.

Have designs and shop drawings prepared by a Specialty Engineer or the Contractor's Engineer of Record, and submit them to the Department for review and approval in accordance with Section 5.

Determine the actual length of support columns for all sign structures on the basis of existing field conditions, and include these lengths in the shop drawings and calculations.

700-2.5.3 Installation: ~~Install high strength ASTM A325 bolt, nut and washer assemblies for Span Sign Structure alternate splice connections in accordance with Section 460. Install nuts on anchor bolts in accordance with 649-5 and 649-6. Install all other~~ *Use ASTM A325 bolt (ASTM A307 or substitute ASTM A325), nut and washer assemblies for all installations other than anchor bolts as follows. in accordance with the following:* Use bolt, nut and washer assemblies that are free of rust and corrosion *and that are lubricated properly as demonstrated by being able to easily hand turn the nut on the bolt thread for its entire length. Tighten nuts to the full effort of an ironworker using an ordinary spud wrench to bring the faying surfaces of the assembly into full contact which is referred to as "snug tight." Tsnug tight. ighten nuts, as necessary, to bring the faying surfaces of the assembly into full contact from the interior of the connection outwards in a symmetrical pattern. After bringing the faying surfaces of the assembly into full contact and to a snug tight condition, tighten nuts to achieve the minimum torque as specified in Table A-700-1 unless the connection is an alternate splice connection of a span sign structure, in which case, tighten nuts in accordance with the turn-of-nut method of Table 460-7 of Specification Section 460. Maintain uniform contact pressure on the faying surfaces during snugging and the subsequent final tightening process, by using a bolt tightening pattern that balances the clamping force of each bolt, as closely as possible, with the equal clamping force of a companion bolt.* Within 24 hours after final tightening, the Engineer will witness a check of the minimum torque using a calibrated torque wrench for ~~no less than 3 bolts~~ *or* and a minimum of 10% of the ~~bolts fastener assemblies, whichever is greater,~~ *bolts fastener assemblies, whichever is greater,* for each connection; *however, do not perform this check on alternate splice connections of span sign structures.*

All Jobs with Overhead Sign and Traffic Signal Structures

Bolt Diameter (in.)	Minimum Torque (ft.-lbs.)
3/8	15
1/2	37
5/8	74
3/4	120
7/8	190
1	275
1 1/8	375
1 1/4	525