



Florida Department of Transportation

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605 Suwannee Street
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RACHEL D. CONE
INTERIM SECRETARY

March 29, 2017

Khoa Nguyen
Director, Office of Technical Services
Federal Highway Administration
3500 Financial Plaza, Suite 400
Tallahassee, Florida 32312

Re: State Specifications Office
Section: **962**
Proposed Specification: **9620101 Structural Steel Materials.**

Dear Mr. Nguyen:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

The changes are proposed by Sam Fallaha to conform the latest ASTM A 709.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via email to dan.hurtado@dot.state.fl.us.

If you have any questions relating to this specification change, please call me at 414-4130.

Sincerely,

Signature on File

Dan Hurtado, P.E.
State Specifications Engineer

DH/rf
Attachment

cc: Florida Transportation Builders' Assoc.
State Construction Engineer

STRUCTURAL STEEL AND MISCELLANEOUS METAL ITEMS (OTHER THAN ALUMINUM).

(REV ~~12-13-16~~~~12-6-16~~)

SUBARTICLE 962-1.1 is deleted and the following substituted:

962-1.1 Structural Steel Materials: Unless otherwise specified in the Contract Documents, provide structural steel for bolted or welded construction in accordance with Structural Steel for Bridges, ASTM A709. If the grade is not shown ~~in~~ elsewhere in the Contract Documents, provide the grade as directed by the Engineer. All grades, as specified in the Contract Documents, are to conform to ASTM A709, as shown in Table 962-2.1 below:

Table 962-2.1 – Structural Steel Materials			
ASTM A709 Grade	Product Form*	Yield Strength (ksi)	Tensile Strength (ksi)
36	P, S, B	36 min	58-80
50	P, S, B	50 min	65 min
50W	P, S, B	50 min	70 min
50S	S	50-65	65 min
HPS 50W	P, S, <u>B</u>	50 min	70 min
HPS 70W	<u>P, B</u>	70 min	85-110
<u>HPS 100W</u> {690} (to 2-1/2 in or less) (over 2-1/2 in)	<u>P, B</u>	100 min 90 min	<u>110-130 min</u> 130 min
<u>HPS 100W</u> {690W} (to 2-1/2 in) (over 2-1/2 in)	<u>P, B</u>	100 min 90 min	130 min <u>100-130 min</u>

* P = plates, S = structural shapes, B = bars

ARTICLE 962-6 is deleted and the following substituted:

962-6 High-Strength Bolts, Nuts, Washers and Direct-Tension-Indicator (DTI) Devices.

Use high strength bolts, nuts, washers and DTI devices meeting the following requirements:

Bolts: ~~ASTM Grade~~ A325 or Grade A-490, Heavy Hex. Only use ~~ASTM Grade~~ A490 high strength bolts with the approval of the Engineer.

Nuts: ASTM A-563, Heavy Hex. Select nuts in accordance with ASTM ~~A325~~ F3125 (~~Subsection 3.2~~Table 1). If grade C, D or C3 nuts are selected, provide with a minimum Rockwell hardness of 89 HRB or a minimum Brinell hardness of 180 HB. Use nuts meeting the requirements of ASTM A194 only when approved by the Engineer.

Washers: ASTM F436 and ASTM ~~A325~~ F3125 (~~Subsection 3.3~~Table 1). Use washers meeting the requirements of ASTM F844 only when approved by the Engineer.

Identifying Marks: in accordance with ASTM ~~A325~~ F3125 (Table 1); ~~ASTM A490~~ and ASTM A563.

DTI devices: meeting the requirements of ASTM F959. Furnish plain DTI devices for use with plain bolts if the finish coat of paint is applied after installation and testing of the

DTI device and will cover the remaining gap. Otherwise, coat the DTI device in accordance with the manufacturer's recommendations.

When the Contract Documents call for uncoated weathering steel in any component of the connected part, provide Type 3 bolts and washers, and nuts with weathering characteristics. If one side of the assembly is coated and the other exposed weathering steel, coat the fastener assembly on the coated side similarly (Such as the case for weathering steel tub girders coated on the inside only).

Ensure that fastener assemblies are properly lubricated in accordance with ASTM A563 Supplementary Requirements S1 and S2.

SUBARTICLE 962-9.2 is deleted and the following substituted:

962-9.2 Fasteners and Hardware: When zinc coating is required in the Contract Documents, fasteners and hardware items shall be galvanized in accordance with the requirements of ASTM A153, Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware, except for high strength fasteners as noted below:

1. Do not galvanize ~~ASTM~~Grade A490 bolts.
2. Mechanically galvanize ~~ASTM~~Grade A325 Type 1 bolts in accordance with ASTM B695, Class ~~50~~5.
3. For all anchor rods and hardware treat the coated rods, nuts and washers with chromate after coating in a water solution containing 0.2% sodium dichromate 3 ounces/10 gallons. Coat the bolt, nut and washer used in the fastener assembly by the same zinc process, and submit a test report on the zinc coating thickness.
4. For anchor rods fabricated from material having a yield strength greater than 80,000 psi, apply an electroplated zinc coating SC 3, Type II in accordance with ASTM B633.

STRUCTURAL STEEL AND MISCELLANEOUS METAL ITEMS (OTHER THAN ALUMINUM).

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HPS 50W	P, S, B	50 min	70 min
HPS 70W	P, B	70 min	85-110
HPS100W (2-1/2 in or less)	P, B	100 min	110-130
HPS100W (over 2-1/2 in)	P, B	90 min	100-130

* P = plates, S = structural shapes, B = bars

ARTICLE 962-6 is deleted and the following substituted:

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Bolts: Grade A325 or Grade A490, Heavy Hex. Only use Grade A490 high strength bolts with the approval of the Engineer.

Nuts: ASTM A-563, Heavy Hex. Select nuts in accordance with ASTM F3125 (Table 1). If grade C, D or C3 nuts are selected, provide with a minimum Rockwell hardness of 89 HRB or a minimum Brinell hardness of 180 HB. Use nuts meeting the requirements of ASTM A194 only when approved by the Engineer.

Washers: ASTM F436 and ASTM F3125 (Table 1). Use washers meeting the requirements of ASTM F844 only when approved by the Engineer.

Identifying Marks: in accordance with ASTM F3125 (Table 1) and ASTM A563.

DTI devices: meeting the requirements of ASTM F959. Furnish plain DTI devices for use with plain bolts if the finish coat of paint is applied after installation and testing of the DTI device and will cover the remaining gap. Otherwise, coat the DTI device in accordance with the manufacturer's recommendations.

When the Contract Documents call for uncoated weathering steel in any component of the connected part, provide Type 3 bolts and washers, and nuts with weathering characteristics. If one side of the assembly is coated and the other exposed weathering steel, coat the fastener assembly on the coated side similarly (Such as the case for weathering steel tub girders coated on the inside only).

Ensure that fastener assemblies are properly lubricated in accordance with ASTM A563 Supplementary Requirements S1 and S2.

SUBARTICLE 962-9.2 is deleted and the following substituted:

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1. Do not galvanize Grade A490 bolts.
2. Mechanically galvanize Grade A325 Type 1 bolts in accordance with ASTM B695, Class 55.
3. For all anchor rods and hardware treat the coated rods, nuts and washers with chromate after coating in a water solution containing 0.2% sodium dichromate 3 ounces/10 gallons. Coat the bolt, nut and washer used in the fastener assembly by the same zinc process, and submit a test report on the zinc coating thickness.
4. For anchor rods fabricated from material having a yield strength greater than 80,000 psi, apply an electroplated zinc coating SC 3, Type II in accordance with ASTM B633.