SPECIFICATION DEVELOPMENT PROCESS

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.)

☐ **Modify Specification This change is a result of changes to either Sections 560, 561, 562, 971 or 975.**

☐ New Section _____.

Section number

Subject:

Origination date:
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Problem statement:

Information source:

Background data:

Florida Department of Transportation

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JOSÉ ABREU
SECRETARY

M E M O R A N D U M

DATE: May 27, 2005

TO: Specification Review Distribution List

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

SUBJECT: **PROPOSED SPECIFICATION: 4610200 – Multirotational Bearings - Materials.**

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

This change is a result of the proposed changes to Sections 560, 561 or 971.

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 SP965DB or duane.brautigam@dot.state.fl.us. Comments received after June 24, 2005 may not be considered. Your input is encouraged.

DFB/jho
Attachment

COMMENTS: _____

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Submitted by: _____ Phone #: _____

MULTIROTATIONAL BEARINGS.

(REV ~~4-3-03~~*4-15-05*) ~~(FA 5-20-03) (1-04)~~

ARTICLE 461-2 (of the supplemental Specifications) is deleted and the following substituted:

461-2 Materials.

Provide materials in accordance with the AASHTO LRFD Bridge Design Specifications and as follows. Furnish structural steel conforming to ASTM A 709 Grade 50W [ASTM A 709M Grade 345W]. Coat all exposed steel surfaces with a thermal sprayed coating (metalization). Blast clean surfaces with grit abrasive in accordance with Steel Structures Painting Council Surface Preparation Specification No. 10, SSPC-SP10, Near-White Blast Cleaning, to a surface profile of .002 - .004 inch [0.05 - 0.10 mm]. Use the electric arc spraying process. Provide wire material for the metalized primer consisting of 85% zinc and 15% aluminum, each being 99.9% pure metal. Apply the metalized primer to obtain a thickness of 0.01 inch [0.3 mm] minimum and 0.02 inch [0.5 mm] maximum. Do not apply when the surface temperature of the steel is less than 5ºF [3ºC] above the dew point. Prepare a sample coupon using the same processes used to prepare the surface and apply the coating to the bearing. Test the coating bond strength on the coupon in accordance with ASTM D4541. The bond strength must be a minimum of 700 psi [4.8 MPa]. If the bond strength of the coating on the coupon is deficient, test the coating on the bearing. If the required bond strength is achieved, repair the coating. Provide the Engineer with a certified statement that the coating applicator has performed successful thermal spray operations within the last 12 months.

Perform any required touchup repair and field metalizing after any field welding with materials and procedures in accordance with ~~971-15~~*975*.

Use stainless steel sheet meeting ASTM A 240, Type 316.

Use a stainless steel sheet in the expansion multirotational bearings at least 1/16 inch [1.5 mm] thick and polished to a surface finish of less than 10 micro inches root mean square [0.2 µm R_a] on the side of contact with the PTFE.

Blast clean the surface of plates to which the stainless steel sheet is to be attached to near white, SSPC-SP10. Abrade the back of the stainless steel sheet that is to be in contact with the steel plate using emery cloth. Position the stainless steel sheet on the steel plate, clamp and bond firmly in place using a quick-set epoxy applied in the center portion only. Apply the stainless steel sheet to the blast cleaned surface of the steel plate as soon as possible after blasting and before any visible oxidation of the blast cleaned surface occurs. Ensure that the epoxy conforms to Federal Specification MMM-A-134 Type I. Weld the stainless steel sheet to the steel plate continuously around its perimeter using a tungsten inert gas welder. Weld in a controlled manner using multiple passes or stitch welding techniques to control heat build-up. As a mating surface for the stainless steel sheet, use an unfilled virgin PTFE sheet (recessed) or a glass-fiber filled PTFE sheet (recessed). Obtain the PTFE sheet by skiving fillets formed under hydraulic pressure and heat. The resin shall meet the requirements for ASTM D 1457.Bond the PTFE and the piston using a heat cured, high temperature epoxy capable of withstanding temperatures of -40^{o}F to 250^{o}F [-40^{o}C to 121^{o}C]