ORIGINATION FORM
Proposed Revisions to the Specifications

(Please provide all information - incomplete forms will be returned)

Date: January 17, 2017

Specification Section: 458

Originator: John Westphal

Articles/Subarticles: 458-2.6 Modular Joint; 458-4.5.1 Fabrication

Telephone: 850-414-4141

email: John.Westphal@dot.state.fl.us

Will the proposed revision involve Design Standard Index changes? Yes ○ No ●

Roadway Design staff contacted (name): N/A

Structures Design staff contacted (name): Charles Boyd

Will the proposed revision involve PPM changes? Yes ○ No ●

Roadway Design staff contacted (name): N/A

Will the proposed revision involve CPAM changes? Yes ○ No ●

Construction staff contacted (name): John Westphal

Will the proposed revision involve Pay Item changes? Yes ○ No ●

Estimates staff contacted (name):

Will the proposed revision involve SDG changes? Yes ○ No ●

Structures staff contacted (name): Charles Boyd

Will the proposed revision involve APL changes? Yes ○ No ●

Product Evaluation staff contacted (name):

Will the proposed revision involve Material Manual changes? Yes ○ No ●

State Materials Office staff contacted (name): Steve Duke

Will this revision necessitate any of the following:

Design Bulletin ☐ **Construction Bulletin** ☐ **Estimates Bulletin** ☐ **Materials Bulletin** ☐

Are all references to external publications current? Yes ● No ○

If not, what references need to be updated? (Please include changes in the redline document.)

Why does the existing language need to be changed?

Currently, Specification 458 calls for a 3/8" thick stainless steel sliding plate. It has been brought to the Department's attention that this thickness is much larger than what is typically used in the industry. The minimum thickness requirement is now removed from the Specification.

Summary of the changes:

Updated the thickness requirements for specific components of modular joints to match the industry standard. Revised references to ASTM Specifications.

Are these changes applicable to all Department jobs? Yes ● No ○

If not, what are the restrictions?

Contact the State Specifications Office for assistance in completing this form.
Dan Hurtado 850-414-4130 dan.hurtado@dot.state.fl.us Debbie Toole 850-414-4114 deborah.toole@dot.state.fl.us
Frances Thomas 850-414-4101 frances.thomas@dot.state.fl.us Rebecca Frimmel 850-414-4155 rebecca.frimmel@dot.state.fl.us

Florida Department of Transportation

RICK SCOTT
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

RACHEL D. CONE
INTERIM SECRETARY

M E M O R A N D U M

DATE: March 10, 2017

TO: Specification Review Distribution List

FROM: Dan Hurtado, P.E., State Specifications Engineer

SUBJECT: Proposed Specification: **4580206 Bridge Deck Joints.**

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

This change was proposed by John Westphal of the State Construction Office to update the language for consistency with industry practice.

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 online at http://www2.dot.state.fl.us/ProgramManagement/Development/IndustryReview.aspx . Comments received after **April 7, 2017,** may not be considered. Your input is encouraged.

DH/dt
Attachment

BRIDGE DECK JOINTS.
(REV 3-1-17)

SUBARTICLE 458-2.6 is deleted and the following substituted:

458-2.6 Modular Joint: Furnish modular joints meeting the requirements of this Section. Submit manufacturer certification that modular joint components meet the following material requirements.

Table 2-6.1 Component Material Requirements	
Solid Separation Beams, Steel Extrusions, Support Bars, Plate and Milled Steel Shapes	ASTM A588 or ASTM A572, Grade 50
Box Seals	ASTM D~~2628*~~3542
Strip Seals	ASTM D5973
Seal Adhesive	ASTM D4070
Stud Shear Connectors and Threaded Studs	ASTM A108
~~Connection Plates – 3/8 inch minimum thickness~~	~~ASTM A588 or ASTM A572~~
Stainless Steel Sliding Plates~~ – 3/8 inch minimum thickness~~	ASTM A240, Type 316
PTFE Sliding ~~Plates~~Surface~~ – 3/8 inch minimum thickness~~	ASTM D4895~~-10~~
~~Railing and Sidewalk Cover Plates – 1/2 inch minimum thickness~~	~~ASTM A36**~~
*Provide seals with hardness Type A durometer equal to 55 (plus or minus 5) by ASTM D2240. ~~**Hot-dip galvanize railing and sidewalk cover plates in accordance with Section 962.~~	

Supply test results from the manufacturer verifying the maximum coefficient of friction between mating surfaces. Testing must be performed by an independent testing laboratory according to the manufacturer's stated precompression values for the system to a minimum of two million cycles. Maximum allowed coefficient of friction is 0.10.

~~Provide~~Bond PTFE (polytetrafluorethylene)~~bonded steel sliding plates~~ using a heat cured, high temperature epoxy capable of withstanding temperatures of minus 40°F to plus 250°F.

~~Use preformed elastomeric joint seals of multiple-web design that comply with ASTM D3542. Use preformed elastomeric joint seals of the strip type that comply with ASTM D5973.~~

For springs, bearing, and equidistance devices (i.e. control springs), use the same material composition and formulation, manufacturer, fabrication procedure and configuration as those used in the prequalification test. Components manufactured from polyurethane compounds are not permitted.

SUBARTICLE 458-4.5.1 is deleted and the following substituted:

458-4.5.1 Fabrication: Perform all steel fabrication in accordance with the requirements of Section 460.

After fabrication, hot-dip galvanize all non-stainless steel metal surfaces in accordance with Section 962.

Joint systems must be designed in accordance with the latest edition of AASHTO LRFD Bridge Design Specifications or as required by the Contract Documents. Supply joint systems for which identical full-size specimens have been subjected to full life-cycle fatigue testing. Obtain all joint system components from the same manufacturer, fabricated at their approved corporate facilities, using subcomponents meeting the testing requirements of this Section.

Except for sliding plates, ~~P~~provide all load bearing structural steel components with a ~~1/4~~3/8 inch minimum thickness in any direction. Construct edge rails consisting of a monolithic steel shape with a machined or extruded retainer cavity. Multiple component welded steel shapes to achieve a final member cross section or seal retainer cavity are not permitted. Attach separation beams to individual support bars with a complete joint penetration weld.

Support each separation beam with a dedicated support bar connected by a complete joint penetration welded connection. Use of bolted connections, yokes, or other means to directly attach separation beams to support bars is not permitted. Maintain equal spacing between separation beams at all stages of movement.

Contain support bars with bearings capable of transferring all imposed loads to the structure and allow the support bar to freely move within the limits of the expansion joint.

Fabricate a full length modular joint system as one piece. Only a minimal number of splices in an individual joint may be permitted where a construction joint is specifically required by the Plans, joint segment length exceeds 50 feet, or approved by the Engineer in writing.

When phased construction is permitted or required by the Contract Documents, fabricate each segment to exactly fit that portion of superstructure, including sidewalks, under construction in each specific phase. Connect segments with a bolted splice to ensure continuity. Fit segments with temporary seals. Lubricant adhesive is not required for temporary seals. Submit watertight seal details for the splice. Shop inspection will be conducted at the discretion of the Engineer in accordance with Article 5-6.

Fabricate final seal assembly as one single, continuous component. Splicing of seals in the field is not permitted.

Provide lifting devices and devices to maintain the preset opening of the joint at a uniform spacing of not greater than 15 feet along the length of the joint. Provide at least three of these preset opening devices per joint segment. Provide lifting and preset opening devices that function and then are removed without damaging the modular joint system assemblies or galvanized coating.

~~Direct the manufacturer to~~Prior to shipment, preset the joint opening in accordance with the joint opening as shown in the Plans at 70°F~~, prior to shipment~~.

Prior to installation, place the centerbeam/support bar assembly on a flat surface to verify the support bars lay in a single plane, with no part of the bottom of any support bar exceeding 0.25 inches off the surface. The subassembly may be straightened. No more than three attempts may be made to heat-straighten the subassembly.

Polish stainless steel sliding surfaces to an 8 µ-inch mirror finish.