



**2011 Interim
Revisions to**

**AASHTO
LRFD Bridge Construction Specifications**
3rd Edition • 2010



**American Association of State
Highway and Transportation Officials**

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INSTRUCTIONS AND INFORMATION

General

AASHTO has issued proposed interim revisions to *AASHTO LRFD Bridge Construction Specifications*, Third Edition (2010). This packet contains the revised pages. They are not designed to replace the corresponding pages in the book but rather to be kept with the book for fast reference.

Affected Articles

Underlined text indicates revisions that were approved in 2011 by the AASHTO Highways Subcommittee on Bridges and Structures. ~~Strikethrough text~~ indicates any deletions that were likewise approved by the Subcommittee. A list of affected articles is included below.

All interim pages are printed on pink paper to make the changes stand out when inserted in the third edition binder. They also have a page header displaying the section number affected and the interim publication year. Please note that these pages may also contain nontechnical (e.g. editorial) changes made by AASHTO publications staff; any changes of this type will not be marked in any way so as not to distract the reader from the technical changes.

Table i—2011 Changed Articles

SECTION 11: STEEL STRUCTURES

11.3.2.6	C11.3.2.6	11.5.6.4.7a	11.5.6.4.7b
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SECTION 18: BEARING DEVICES

18.3.3.1	C18.3.3.1	18.8.3.3
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SECTION 26: METAL CULVERTS

26.4.3	C26.4.3	26.5.4.5
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REFERENCES

SECTION 11: STEEL STRUCTURES

11.3.2.6—Load-Indicator Devices

Revise paragraph 1 of this Article:

Load-indicating devices may be used in conjunction with bolts, nuts and washers specified in Article 11.3.2.1. All load-indicating devices shall conform to the requirements of ASTM Specification for Compressible-Washer Type Direct Tension Indicators for Use with Structural Fasteners, ASTM F 959, except as provided in the following paragraph. Load-indicating devices which are incorporated into assemblies with hardened heavy hex AASHTO M 291 (ASTM A 563) (AASHTO M 291M (ASTM A 563M)) Grade DH nuts shall be considered permissible for use, provided both the load-indicating device and heavy hex nut meet the mechanical property requirements of their respective ASTM standards. Load-indicating devices which incorporate a self-indicating feature to signal sufficient bump compression shall also be considered permissible for use.

C11.3.2.6

Add the following sentence to the end of this Article:

An assembly which incorporates a self-indicating feature to signal sufficient bump compression is referred to herein as a self-indicating DTI.

11.5.6.4.7a—Verification

Add the following sentence to the end of paragraph 2 of this Article:

In addition to the feeler gage test, the visual appearance of self-indicating DTIs shall be noted and compared with the Manufacturer's written instructions to verify the self-indicating feature of the DTI.

11.5.6.4.7b—Installation

Revise paragraph 2 of this Article:

For uncoated DTIs used under a stationary or turned element and for coated DTIs used under a stationary element, the bolts shall be further tensioned until the number of refusals of the 0.005-in. feeler gage shall be equal to or greater than the number listed under Minimum Installation Refusals in Table 11.5.6.4.7a-1. If the bolt is tensioned so that no visible gap in any space remains, the bolt and DTI shall be removed and replaced by a new properly tensioned bolt and DTI. For self-indicating DTIs, if the visual appearance of the installed DTI is also not in accordance with the Manufacturer's written instructions, the bolt and DTI shall be removed and replaced by a new properly tensioned bolt and DTI.

11.10—REFERENCES

Add the following reference:

Szewczyk, M. 2009. "High Strength Bolt Tensioning Using ASTM F 959 Direct Tension Indicating Washers with Silicone Rubber as a Visual Indicator." A project submitted in conformity with the requirements of the degree of Masters in Engineering, Graduate Department of Civil Engineering, University of Toronto, Toronto, Ontario, Canada, 63 pp.

SECTION 18: BEARING DEVICES

18.3.3.1—General

Replace paragraphs 5 and 6 with the following:

Stainless steel shall be attached to a steel substrate with a continuous seal weld. The welding shall conform to and all welders shall be qualified in accordance with the requirements of the current AWS D1.6M/D1.6 *Structural Welding Code-Stainless Steel*. Welding for metals other than stainless steel, as identified in Article 11.3, shall conform to and all welders shall be qualified in accordance with the requirements of the current AASHTO/AWS D1.5 M/D1.5 *Bridge Welding Code*.

C18.3.3.1

Revise the Article as follows:

Stainless steel should be attached by welding all around. This not only ensures a uniform transfer of stress from the PTFE to the backing plate ~~when~~ where the stainless steel is subjected to shear from sliding forces but it also minimizes the corrosion which can occur behind the stainless steel plate. AWS D1.6M/D1.6 *Structural Welding Code-Stainless Steel* requires that welds be performed with the addition of an appropriate alloy filler metal to mitigate solidification cracking tendencies.

18.8.3.3—Stainless Steel Mating Surface

Revise the Article as follows:

Each stainless steel element specified in the contract documents as a single piece shall be so supplied. Each sheet shall be attached to its backing material by seal-welding around the entire perimeter so as to prevent entry of moisture between the stainless steel and the backing material. Welds shall conform to the current ~~AASHTO/AWS D1.5M/D1.5~~ D1.6M/D1.6 *Bridge Structural Welding Code-Stainless Steel*. After welding, the stainless steel sheet shall be flat, free from wrinkles, and in continuous contact with its backing plate.

SECTION 26: METAL CULVERTS

26.4.3—Assembly of Long-Span Structures

Revise paragraph 2 of this Article as follows:

When required by structural design, reinforcing ribs shall be attached to the structural plate corrugation ~~erown crest~~ at the necessary locations around the circumference of the structure prior to backfilling, using a bolt spacing of not more than 12.0 in. ~~or 16.0 in. for deep corrugated structural plate structures.~~ Legible identifying letters or numbers shall be placed on each rib to designate its proper position in the finished structure.

C26.4.3

In this Article, add the following paragraph vertically aligned with paragraph 2 of 26.4.3:

It is acceptable to measure bolt spacing either at the centroid or crest of the structural plate corrugation.

In this Article, add the following paragraph vertically aligned with the last paragraph of 26.4.3:

Where reinforcing ribs are only used as an installation tool during backfill, they may be clamped or bolted as necessary to provide shape control.

Insert new Article 26.5.4.5

26.5.4.5—Deep Corrugated Structural Plate Structures

Prior to construction, the Manufacturer shall conduct a preconstruction conference to advise the Contractor(s) and Engineer of the more critical functions to be performed during backfilling and to present the intended quality control steps to be used to control loads, shape, and movements.

Equipment and construction procedures used to backfill deep corrugated structural plate structures shall be such that excessive structure distortion will not occur. A Manufacturer's representative shall be on site during initial sidefill placement and compaction, and shall review data on the shape when backfill reaches the minimum cover level over the top of the structure as set forth in the *AASHTO LRFD Bridge Design Specifications*. Structure backfill material shall be placed in horizontal uniform layers not exceeding an 8.0 in. loose lift thickness and shall be brought up uniformly on both sides of the structure. Each layer shall be compacted per the contract documents, but not less than 90 percent maximum density per AASHTO T 180 (modified Proctor test). The structure backfill shall be constructed to the lines and grades shown on the contract documents, keeping it at or below the level of adjacent soil.