



## LRFD Steel Bridge Fabrication Specifications

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# TABLE OF CONTENTS

SECTION 1: GENERAL	1-1
1.1—Scope	1-1
1.2—Definitions	1-2
1.2.1—Contractor	1-2
1.2.2—Fabricator	1-2
1.2.3—Owner	1-2
1.2.4—Quality Control Inspector	1-3
1.2.5—Verification Inspector	1-3
1.2.6—Contract Documents	1-3
1.2.7—Primary and Secondary Members	1-3
1.2.8—Fracture-Critical Members	1-4
1.2.9—System Redundant Members	1-4
1.3—Fabricator Certification	1-4
1.3.1—Requirements	1-4
1.3.2—Review of Audit Results	1-5
SECTION 2: COMMUNICATION	2-1
2.1—General	2-1
2.2—Commencement of Work	2-2
2.3—Prefabrication Meeting	2-3
2.4—Progress Meetings	2-4
SECTION 3: INSPECTION	3-1
3.1—Quality Control Inspection	3-1
3.2—Verification Inspection	3-1
SECTION 4: SHOP DRAWINGS	4-1
4.1—Approval	4-1
4.2—Details	4-2
SECTION 5: WRITTEN PROCEDURES	5-1
5.1—Written Procedures	5-1
SECTION 6: MATERIALS	6-1
6.1—General	6-1
6.2—Test Reports and Certifications	6-2
6.2.1—Buy America	6-2
6.2.2—Certificates of Compliance	6-2
6.3—Identification and Traceability	6-3
6.3.1—Heat Number Traceability for Primary Members	6-3
6.3.2—Preservation of Markings	6-3
6.4—Impact Testing	6-4
6.5—Iron Castings	6-4
6.5.1—Work Quality and Finish	6-4
6.5.2—Cleaning	6-4
6.6—Turned Bolts	6-4

SECTION 7: HANDLING AND STORAGE . . . . .	7-1
7.1—Handling and Storage . . . . .	7-1
SECTION 8: CUTTING AND SHEARING PLATES AND SHAPES . . . . .	8-1
8.1—Thermal Cutting . . . . .	8-1
8.2—Direction of Rolling . . . . .	8-1
8.3—Sheared Edges . . . . .	8-2
8.4—Thermal-Cut Edges to be Coated. . . . .	8-2
SECTION 9: BASE METAL REPAIR. . . . .	9-1
9.1—Repairs of Notches or Gouges in Thermal-Cut Edges . . . . .	9-1
9.1.1—Repairs by Grinding . . . . .	9-1
9.1.2—Repairs by Welding . . . . .	9-1
9.2—Repair of Laminar Discontinuities in Base Metal Cut Edges. . . . .	9-1
9.2.1—Scope . . . . .	9-1
9.2.2—Limits . . . . .	9-2
9.2.3—Repairs by Grinding . . . . .	9-3
9.2.4—Repairs by Welding . . . . .	9-3
9.3—Repair of Base Metal Rolled Surfaces . . . . .	9-4
SECTION 10: BENDING PLATES . . . . .	10-1
10.1—General. . . . .	10-1
10.2—Minimum Plate Bending Radius . . . . .	10-1
10.3—Damage Preventing During Blending (With or Without Heat) . . . . .	10-1
10.4—Heat-Assisted Mechanical Bending . . . . .	10-2
10.5—Upset Shortening . . . . .	10-2
SECTION 11: HORIZONTALLY CURVING BEAMS AND GIRDERS. . . . .	11-1
11.1—Horizontally Curving Beams and Girders. . . . .	11-1
SECTION 12: CAMBERING BEAMS AND GIRDERS . . . . .	12-1
12.1—Cambering Beams and Girders . . . . .	12-1
SECTION 13: STRAIGHTENING . . . . .	13-1
13.1—Straightening . . . . .	13-1
SECTION 14: APPLICATION OF HEAT . . . . .	14-1
14.1—General. . . . .	14-1
14.2—General Heating Process and Equipment . . . . .	14-1
14.2.1—Maximum Temperature . . . . .	14-1
14.2.2—Artificial Cooling. . . . .	14-2
14.2.3—Heating Tips . . . . .	14-2
14.2.4—Heating Controls . . . . .	14-2
14.2.5—Sequencing . . . . .	14-2
14.3—Upset Shortening Methods . . . . .	14-3
14.3.1—General . . . . .	14-3
14.3.2—Heat Curving of Beams and Girders . . . . .	14-3
14.3.2.1—General . . . . .	14-3
14.3.2.2—Minimum Radius of Curvature . . . . .	14-4
14.3.2.2.1—General . . . . .	14-4

14.3.2.2.2—Cross-Sectional Criteria . . . . .	14-4
14.3.2.2.3—Minimum Radius for Doubly-Symmetric Beams and Girders . . . . .	14-5
14.3.2.2.4—Minimum Radius of Curvature for Singly-Symmetric Beams and Girders . . . . .	14-6
14.3.2.2.5—Minimum Radius of Curvature for Hybrid Girders . . . . .	14-7
14.3.3—Heat Cambering or Camber Correction of Beams and Girders . . . . .	14-8
14.4—Heat Assisted Mechanical Forming . . . . .	14-8
SECTION 15: THERMAL TREATMENTS . . . . .	15-1
15.1—Treatment Records . . . . .	15-1
15.2—Thermal Stress Relief . . . . .	15-1
15.3—Annealing and Normalizing . . . . .	15-1
SECTION 16: TOLERANCES . . . . .	16-1
16.1—Cut Flange Width Tolerance . . . . .	16-1
16.2—Straightness . . . . .	16-1
16.2.1—Built-Up Axial Members . . . . .	16-1
16.2.2—Built-Up Flexural Members . . . . .	16-1
16.3—Camber . . . . .	16-1
16.4—Sweep . . . . .	16-4
16.5—Web Alignment . . . . .	16-4
16.6—Web Flatness . . . . .	16-5
16.7—Flange Warp and Tilt . . . . .	16-6
16.8—Depth . . . . .	16-8
16.9—Fit of Stiffeners . . . . .	16-9
16.9.1—Bearing Stiffeners . . . . .	16-9
16.9.2—Intermediate Web Stiffeners . . . . .	16-11
16.10—Abutting Joints . . . . .	16-11
16.11—Alignment of Mechanically Connected Joints . . . . .	16-11
16.12—Facing of Bearing Surfaces . . . . .	16-12
16.13—Steel Pier Caps . . . . .	16-12
SECTION 17: BOLTED CONNECTIONS . . . . .	17-1
17.0—Bolted Connections . . . . .	17-1
17.1—Holes for High-Strength Bolts and Unfinished Bolts . . . . .	17-1
17.1.1—Tolerances and Workmanship . . . . .	17-1
17.1.2—Holemaking Methods . . . . .	17-1
17.2—Holes for Turned Bolts or Other Approved Bearing-Type Bolts . . . . .	17-2
17.3—Slot and Holes . . . . .	17-2
17.4—Accuracy of Hole Group . . . . .	17-3
17.4.1—Edge and End Distance . . . . .	17-3
17.4.2—Hole Spacing . . . . .	17-4
17.5—Methods for Aligning Connections . . . . .	17-4
17.5.1—Drilling in Assembly . . . . .	17-4
17.5.2—Drilling to Template . . . . .	17-5
17.5.3—Check Assembly for CNC Drilling . . . . .	17-5
17.6—Shop Preassembly . . . . .	17-5

17.6.1—Procedure . . . . .	17-5
17.6.2—Process . . . . .	17-9
17.6.3—Special Requirements for Trusses, Arches, and Frames . . . . .	17-10
17.7—Structural Bolting Using High-Strength Bolts. . . . .	17-10
17.7.1—Rotational Capacity Testing. . . . .	17-11
17.7.1.1—General . . . . .	17-11
17.7.1.2—Exceptions. . . . .	17-11
17.7.2—Fastener Storage and Conditions . . . . .	17-12
17.7.3—Preinstallation Verification Testing . . . . .	17-12
17.7.3.1—Turn-of-Nut and Twist-Off Bolts. . . . .	17-13
17.7.3.2—Calibrated Wrench. . . . .	17-13
17.7.3.3—Direct Tension Indicators (DTIs) . . . . .	17-14
17.7.3.4—Combined Method. . . . .	17-15
17.7.4—Initial Installation. . . . .	17-16
17.7.4.1—General . . . . .	17-16
17.7.4.2—DTIs . . . . .	17-16
17.7.4.3—Surface Conditions . . . . .	17-17
17.7.4.3.1—General. . . . .	17-17
17.7.4.3.2—Slip-Critical Connections . . . . .	17-17
17.7.4.3.2a—Non-Coated Joints . . . . .	17-17
17.7.4.3.2b—Coated Joints . . . . .	17-17
17.7.5—Snug-Tightening . . . . .	17-18
17.7.5.1—General . . . . .	17-18
17.7.5.2—DTIs . . . . .	17-19
17.7.6—Tensioning . . . . .	17-19
17.7.6.1—General . . . . .	17-19
17.7.6.2—Turn-of-Nut. . . . .	17-19
17.7.6.3—Calibrated Wrench. . . . .	17-19
17.7.6.4—Twist-Off Bolts . . . . .	17-19
17.7.6.5—DTIs . . . . .	17-20
17.7.6.6—Combined Method. . . . .	17-20
17.7.6.7—Bolt Reuse . . . . .	17-20
17.7.7—Inspection. . . . .	17-20
17.7.7.1—Inspection Before Installation. . . . .	17-20
17.7.7.2—Inspection During and After Installation . . . . .	17-21
17.7.7.3—Torque Test . . . . .	17-21
17.8—Connections Using Unfinished or Turned Bolts . . . . .	17-22
17.8.1—General . . . . .	17-22
17.8.2—Hole Quality . . . . .	17-23
SECTION 18: SURFACE PREPARATION OF UNCOATED WEATHERING STEEL (NON-FAYING SURFACES) . . . . .	18-1
18.0—Surface Preparation of Uncoated Weathering. . . . .	18-1

18.1—Blast Cleaning . . . . .	18-1
18.2—Markings . . . . .	18-1
SECTION 19: ORTHOTROPIC-DECK SUPERSTRUCTURES . . . . .	19-1
19.1—General . . . . .	19-1
19.2—Flatness of Panels . . . . .	19-1
19.3—Straightness of Longitudinal Stiffeners Subject to Calculated Compressive Stress, Including Orthotropic Deck Ribs . . . . .	19-2
19.4—Straightness of Transverse Web Stiffeners and Other Stiffeners Not Subject to Calculated Compressive Stress . . . . .	19-2
SECTION 20: PINS AND ROLLERS . . . . .	20-1
20.1—General . . . . .	20-1
20.2—Boring Pin Holes . . . . .	20-1
20.3—Threads for Bolts and Pins . . . . .	20-1
SECTION 21: EYEBARS . . . . .	21-1
21.1—Eyebars . . . . .	21-1
SECTION 22: ULTRASONIC IMPACT TREATMENT . . . . .	22-1
22.1—Ultrasonic Impact Treatment . . . . .	22-1
SECTION 23: MARKING AND SHIPPING . . . . .	23-1
23.1—Marking and Shipping . . . . .	23-1
SECTION 24: MEASUREMENT FOR PAYMENT . . . . .	24-1
24.1—Measurement for Payment . . . . .	24-1
SECTION 25: REFERENCES . . . . .	25-1
APPENDIX A (INFORMATIONAL): ITEMS TO BE SPECIFIED IN THE CONTRACT DOCUMENTS: . . . . .	A-1
APPENDIX B (INFORMATIONAL): AASHTO DESIGNATION OF PRIMARY AND SECONDARY MEMBERS (BDS TABLE 6.6.2.1-1) . . . . .	B-1
APPENDIX C (INFORMATIONAL): TABULATION OF WEB FLATNESS TOLERANCES (ARTICLE 16.6) . . . . .	C-1
APPENDIX D (INFORMATIONAL): SAMPLE ULTRASONIC IMPACT TREATMENT (UIT) PROCEDURE . . . . .	D-1

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## LIST OF ABBREVIATIONS

<b>AISC</b>	American Institute of Steel Construction
<b>AREMA</b>	American Railway Engineering and Maintenance-of-Way Association
<b>AWS</b>	American Welding Society
<b>BCS</b>	<i>AASHTO LRFD Bridge Construction Specifications</i>
<b>BDS</b>	<i>AASHTO LRFD Bridge Design Specifications</i>
<b>CNC</b>	computer-numerically-controlled
<b>CVN</b>	Charpy V-notch
<b>D1.5M/D1.5</b>	<i>AASHTO/AWS D1.5M/D1.5 Bridge Welding Code</i>
<b>DTI</b>	direct tension indicator
<b>FCM</b>	fracture-critical member
<b>HPS</b>	high-performance steel
<b>MT</b>	magnetic particle testing
<b>MTR</b>	material test report (or mill test report)
<b>NDE</b>	nondestructive evaluation
<b>PIV</b>	preinstallation verification
<b>PT</b>	penetrant testing
<b>Q&amp;T</b>	quenched and tempered
<b>QC</b>	quality control
<b>RC</b>	rotational capacity
<b>RCSC</b>	Research Council on Structural Connections
<b>RCSC Specification</b>	<i>RCSC Specification for Structural Joints Using High-Strength Bolts</i>
<b>RT</b>	radiographic testing
<b>SDLF</b>	steel dead load fit
<b>SPDI</b>	single-point diamond interchange
<b>TDLF</b>	total dead load fit
<b>TMCP</b>	thermo-mechanically controlled processing
<b>TSC</b>	thermal spray coating
<b>UIT</b>	ultrasonic impact treatment
<b>UT</b>	ultrasonic testing

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SECTION 1:  
**GENERAL**

**1.1—SCOPE**

These Specifications shall govern vehicular steel bridge fabrication. This work shall consist of furnishing and fabricating steel structures and structural steel portions of other structures in accordance with these Specifications and the contract documents.

Details of design which are permitted to be selected by the Fabricator or Contractor shall conform to the provisions of the current *AASHTO LRFD Bridge Design Specifications* (BDS). All numbered references herein to specific Articles in the BDS shall refer to the 9<sup>th</sup> Edition.

Fabrication and welding, in addition to the requirements of these Specifications, shall conform to the provisions of the current AASHTO/AWS D1.5M/D1.5 *Bridge Welding Code* (D1.5M/D1.5).

Primary members or portions thereof designated in the contract documents as fracture critical members (FCMs) or system redundant members (SRMs) shall conform to the provisions of Clause 12 of the current D1.5M/D1.5.

Coatings shall be considered outside the scope of these Specifications. Fabrication of pedestrian bridges, non-bridge structures or components such as expansion joints, bearings, or tubular members shall also be considered outside the scope of this specification.

**C1.1**

The primary objective of these Specifications is to achieve quality and value in the fabrication of vehicular steel bridges and to help standardize vehicular steel bridge fabrication across the nation.

Historically, state Departments of Transportation (DOTs) have written their fabrication specifications based on AASHTO standards and their own individual experiences. Though this approach has worked reasonably well, many owners and fabricators recognized that all would benefit from a common specification because:

- Variations among projects in the shop would be minimized because fabricators would not need different practices, procedures, and operations for each owner, and minimizing variation improves quality and reduces errors.
- Economy in bridge fabrication would improve because fabricators would not have to change their methods and production variables from owner to owner.
- Expertise in steel bridge fabrication could be shared among states, resulting in a well-rounded, consistent fabrication standard.
- Owners would be able to share their resources, minimizing the effort each would otherwise have to expend to maintain a bridge fabrication specification.

These Specifications are based on existing state specifications, the AASHTO/NSBA Steel Bridge Collaboration S2.1, *Steel Bridge Fabrication Guide Specification* (S2.1); the AASHTO *LRFD Bridge Construction Specifications* (BCS); the AASHTO *LRFD Bridge Design Specifications* (BDS); and the AASHTO/AWS D1.5M/D1.5 *Bridge Welding Code* (D1.5M/D1.5). These Specifications defer to D1.5, the U.S. customary units specification in AASHTO/AWS D1.5M/D1.5, for specific welding requirements and for weld qualification testing requirements. The Owner is also encouraged to refer to the FHWA *Welding Reference Manual* for additional detailed information on welding. More information about AWS is available from their website at <https://www.aws.org>.

These Specifications assume that coating provisions are addressed in the referring Owner's standard specifications. For painting, the Owner is encouraged to refer to Steel Bridge Collaboration