AASHTO Steel Fabrication Specification

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WHAT DO WE HAVE NOW?

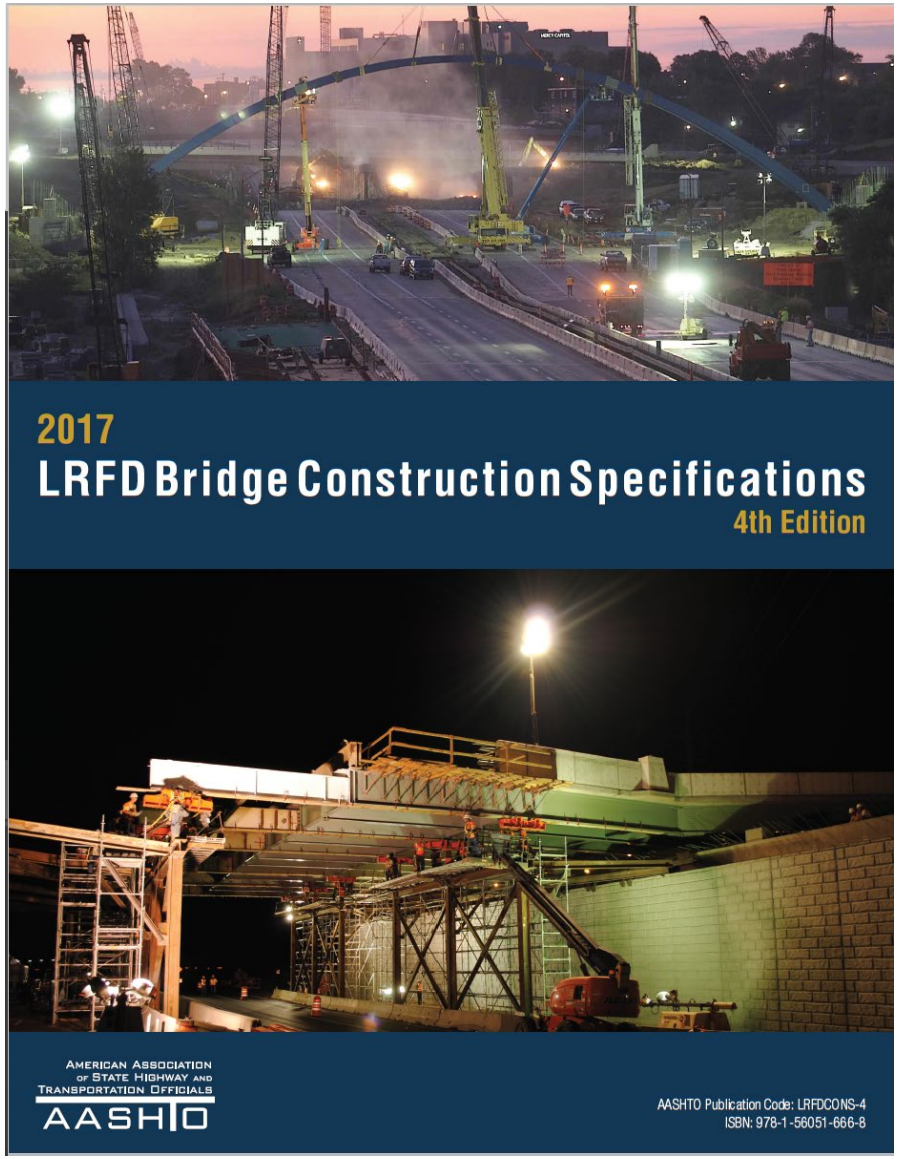
- Lots and lots of DOT steel fabrication specs
- AASHTO Bridge Construction Specs, Chapter 11
- AASHTO/NSBA Steel Bridge Collaboration S2.1
- Fabrication provisions in AASHTO/AWS D1.5

State (or other agency) Standard Specifications

- Many different ways of doing things
  - Makes errors more likely
  - Can be inefficient with no gain in quality
- Some states better than others at updating to state of the art

AASHTO LRFD Bridge Construction Specs, Chapter 11

- Until recently, not kept up to date
- As of 2017 edition, much better maintained
- Very few states adopt by direct reference
- Many use as source for state specs



S2.1

Steel Bridge Fabrication

AASHTO/NSBA STEEL BRIDGE COLLABORATION S2.1: SBC Objectives

- Standardize requirements and practices - try to do things one way instead of 50 ways
- Share resources and expertise - exchange information about best practices and technology and help agencies who have lost expertise and resources

AASHTO/NSBA STEEL BRIDGE COLLABORATION S2.1: SBC Background

- Discussions began March 1997
- Adopted by NSBA and AASHTO SCOBS, June 1997
- First meeting held in Cincinnati, September 1997

AASHTO/NSBA STEEL BRIDGE COLLABORATION S2.1: SBC Participants

- DOTs - designers, fabrication personnel, erection personnel
- Industry - fabricators, detailers, erectors, material producers
- FHWA - national, regional and division bridge and technology transfer engineers
- Academia
- Consultants - designers, inspection services

AASHTO/NSBA STEEL BRIDGE COLLABORATION S2.1: SBC Task Groups

- TG1: Detailing
- **TG2: Fabrication & Repair**
- TG4: QC/QA
- TG8: Coatings
- TG9: Bearings
- TG10: Erection
- TG11: Steel Bridge Handbook
- TG13: Analysis
- TG14: Field Repairs
- TG15: Data Modeling for Interoperability
- TG16: Orthotropic Deck Panels

AASHTO/NSBA STEEL BRIDGE COLLABORATION S2.1: SBC Process

- TG develops document (meetings, ballots)
- Online ballot to whole Collaboration
- Comment resolution with reballot as needed
- AASHTO T-14 review
- Comment resolution with reballot as needed
- Second T-14 review & approval for CBS ballot

AASHTO/NSBA STEEL BRIDGE COLLABORATION S2.1: SBC Standards

- "S" documents: Guide Specifications
  - More recently just "Specifications"
  - Written in spec-type language
  - Intended to be adopted by reference in their entirety (with or without exceptions—like D1.5)
  - Or "borrow" portions, use as source of good ideas

AASHTO/NSBA STEEL BRIDGE COLLABORATION S2.1: SBC Standards

- “G” documents: Guides
  - Recommendations
  - Best practices

AASHTO/NSBA STEEL BRIDGE COLLABORATION S2.1: Notable Bits

Section 2.2: Communication

2.2.3: During the project, maintain effective communications with the Owner's representatives. Address problems and concerns as early as possible in the work.

AASHTO/NSBA STEEL BRIDGE COLLABORATION S2.1: Notable Bits

Section 2.2: Communication

2.2.4: On complex projects, start communication about special aspects of the job, including tolerances or other requirements, very early in the project.

AASHTO/NSBA STEEL BRIDGE COLLABORATION S2.1: Notable Bits

Section 2.4: Prefabrication Meeting

Section 2.9: Progress Meetings

AASHTO/NSBA STEEL BRIDGE COLLABORATION S2.1: Notable Bits

Section 2.5: Procedures

Includes list of processes requiring written procedures

AASHTO/NSBA STEEL BRIDGE COLLABORATION S2.1: Notable Bits

Section 6.3: Specialty Structures

6.3.2: At a prefabrication meeting with the Contractor, Owner, and Erector, establish critical dimensions and tolerances required to ensure proper installation and performance of the structure.

AASHTO/NSBA STEEL BRIDGE COLLABORATION S2.1: Notable Bits

Section 7.5: Alternate geometry control methods

Fabricators may propose alternate methods of geometry control for continuous girder bridges based on demonstrated accuracy that precludes the necessity for assembly.

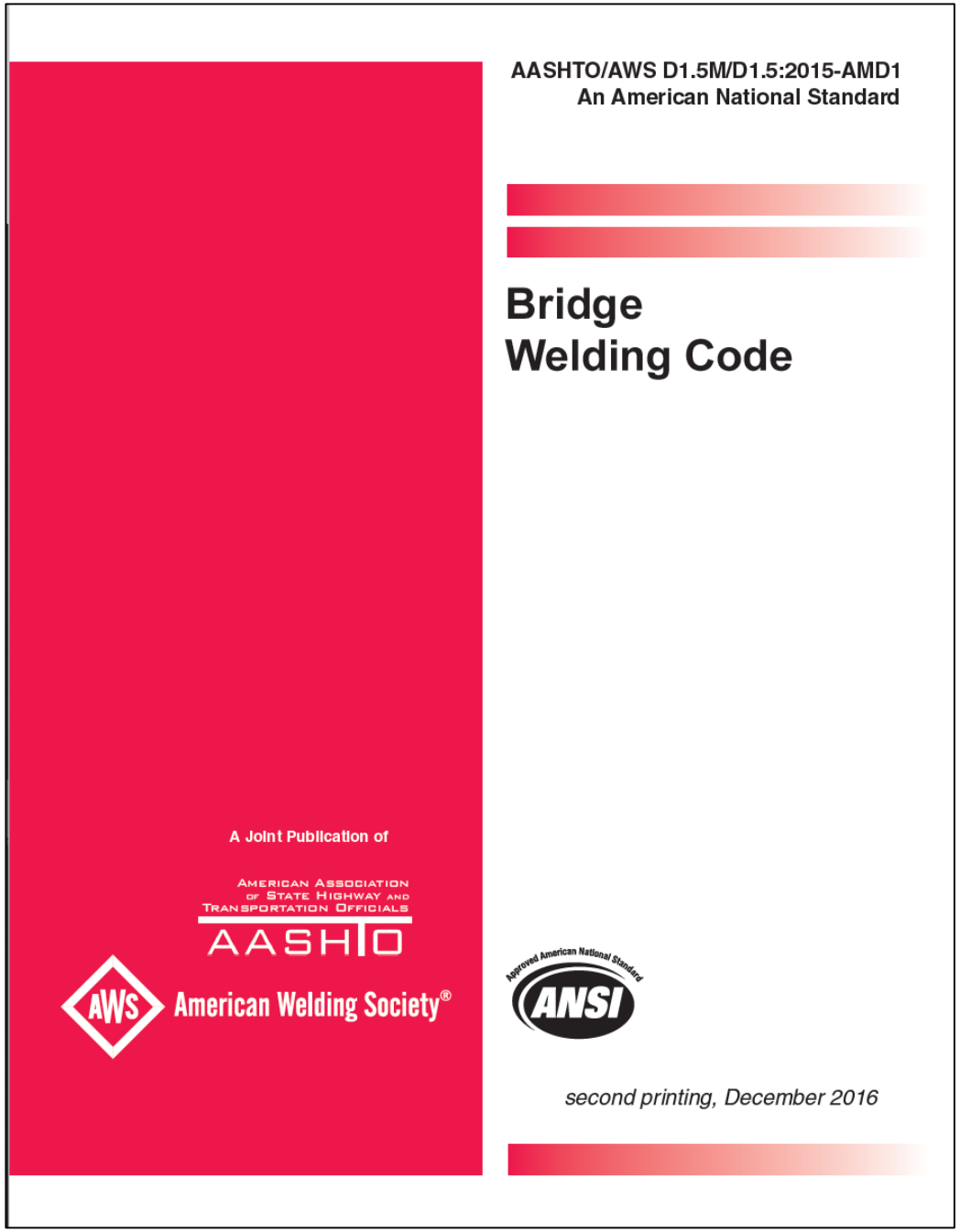
AASHTO/NSBA STEEL BRIDGE COLLABORATION S2.1: Notable Bits

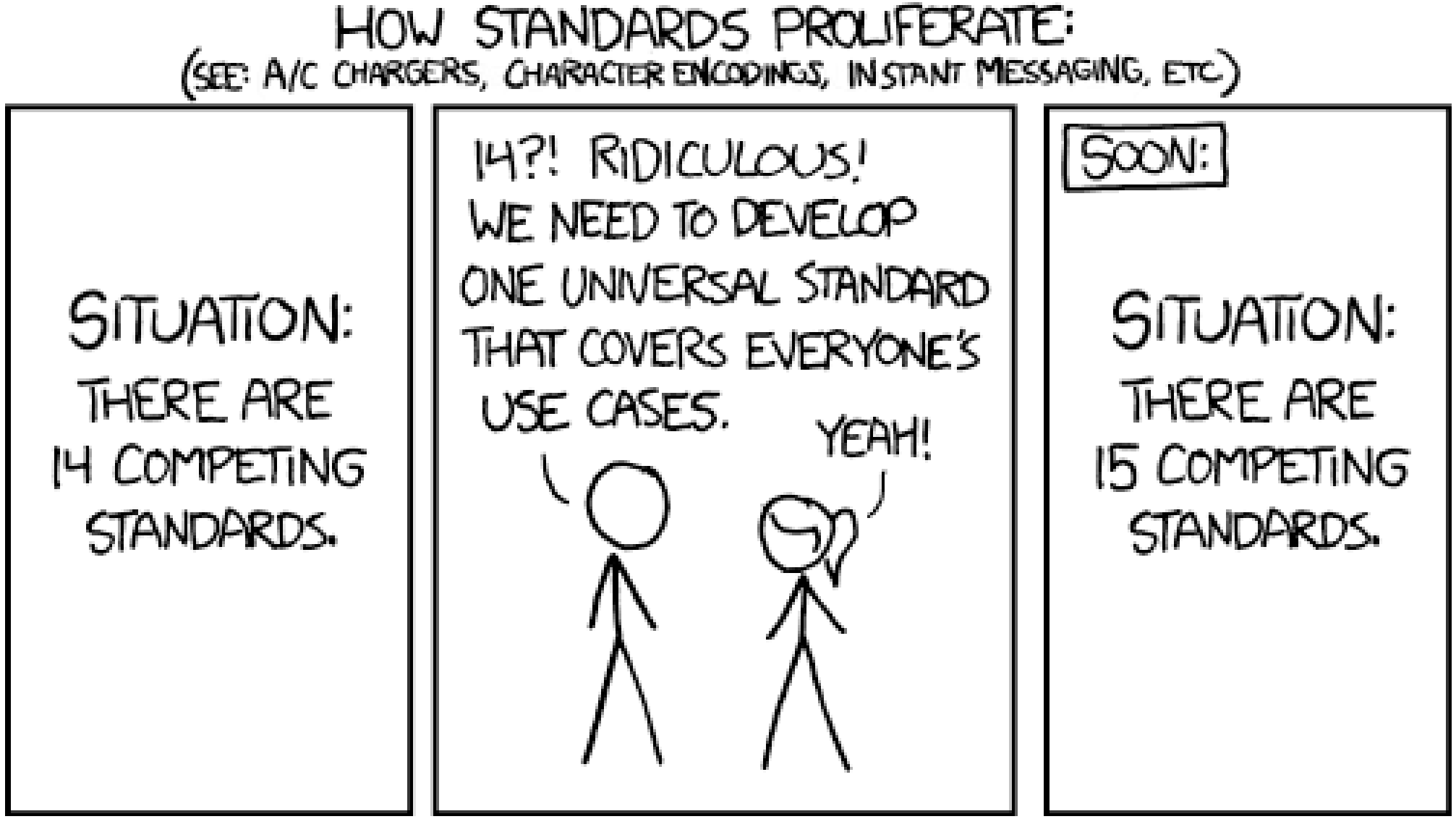
Commentary

- Welding tubular members
- Extra end distance for bolted field splices
- Rotational capacity & preinstallation verification tests
- Shop assembly methods

AASHTO/AWS D1.5

- Base metal requirements
- Thermal cutting
- Dimensional tolerances
  - Welding distortion
- Bending/straightening
- Fracture-critical:
  - Definitions
  - Engineer responsibilities
  - Material requirements





Source: https://m.xkcd.com/927/

FAB SPEC OF THE FUTURE

PARTICIPANTS

- AASHTO T-17 owns
  - Was Welding
  - Now Metals Fabrication
- SBC TG2 will advise & maintain
  - Annual co-location
- AASHTO T-14

INGREDIENTS

- AASHTO LRFD BCS Ch. 11
- SBC S2.1
- D1.5
- RCSC
- AREMA
- AISC Certification Programs

SCOPE

- 1st Edition: Vehicular bridge superstructure only
- Later:
  - Tubular members
  - Pedestrian bridges
  - Transportation structures
  - Bearings

SEQUENCE

- Publish Fab Spec
- Archive S2.1
- Cut BCS Ch 11; leave erection
- Cut some D1.5 & refer to Fab Spec
- DOTs…

STATUS

- 1ST draft has gone to T-17
- Questions & outstanding issues have been discussed at T-17/SBC TG2 meetings
- 2nd draft in progress

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

INFORMATIONAL ANNEXES

A. AASHTO BDS Designation of Primary and Secondary Members
B. Sample Ultrasonic Impact Treatment Procedure (deleted from chapter)
C. Items to be Specified in the Contract Documents

INFORMATIONAL ANNEXES

C. Items to be Specified in the Contract Documents
   - Procedures & submittals
   - Start of fabrication (cutting vs. welding)
   - Torque test
   - Other tolerances
   - Additional testing
   - Which measurement method (nominal or computed)
   - Payment

Questions?

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