Toward a Nationwide Steel Bridge Fabrication Specification

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AASHTO/NSBA Steel Bridge Collaboration and “the Fab Spec”

Collaboration 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

Collaboration Background

- Discussions began March 1997
- Idea endorsed by SCEF (Region 3); Texas Steel Quality Council; various professionals
- Effort adopted by NSBA and AASHTO SCOBS, June 1997
  - T-14 chair: Ed Wasserman, Tennessee DOT
  - SCOBS chair: Jim Siebels, Colorado DOT
- First meeting held in Cincinnati, September 8-9, 1997

Collaboration 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 - designer, inspection services

Collaboration 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

Typical Process

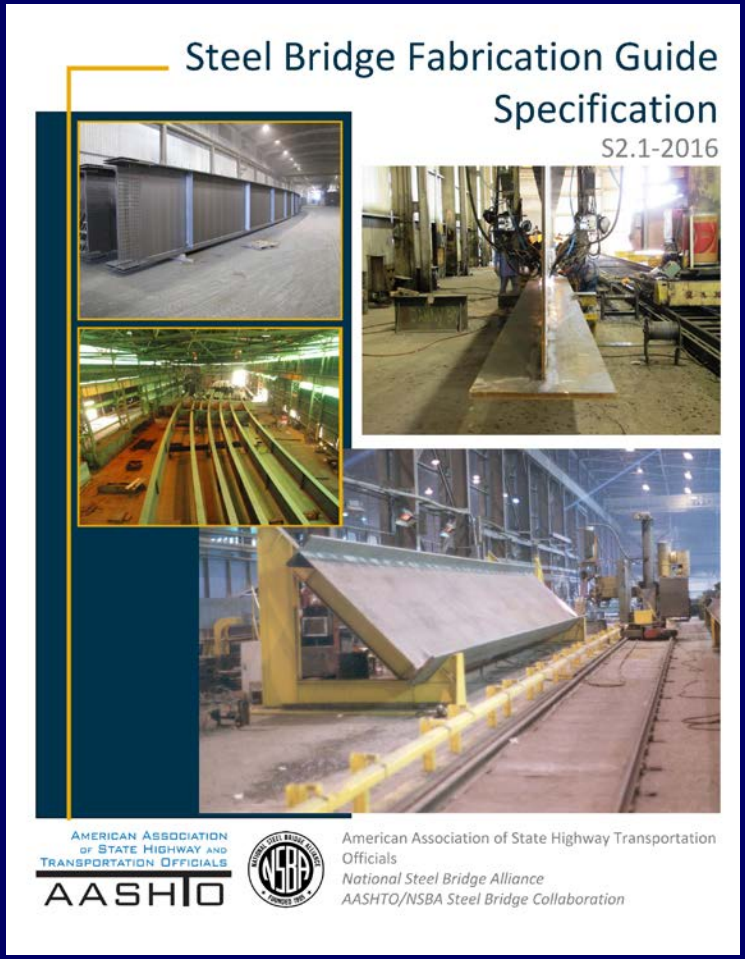
- TG develops document
  - In-person meetings
  - Online ballot or email review of draft
- Online ballot to whole Collaboration
- Comment resolution with reballot as needed
- Present to AASHTO T-14 for review
- Comment resolution with reballot as needed
- Second T-14 review & approval for SCOBS ballot

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

S2.1

Steel Bridge Fabrication



S2.1 Notable Bits

Section 2.2: Communication

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.

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.

S2.1 Notable Bits

Section 2.4: Prefabrication Meeting

Section 2.9: Progress Meetings

S2.1 Notable Bits

Section 2.5: Procedures

Includes list of processes requiring written procedures

S2.1 Notable Bits

Section 6.3: Specialty Structures

S2.1 Notable Bits

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.

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.

S2.1 Notable Bits

Commentary

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

AASHTO LRFD Bridge Construction Specifications

Section 11: Steel Structures

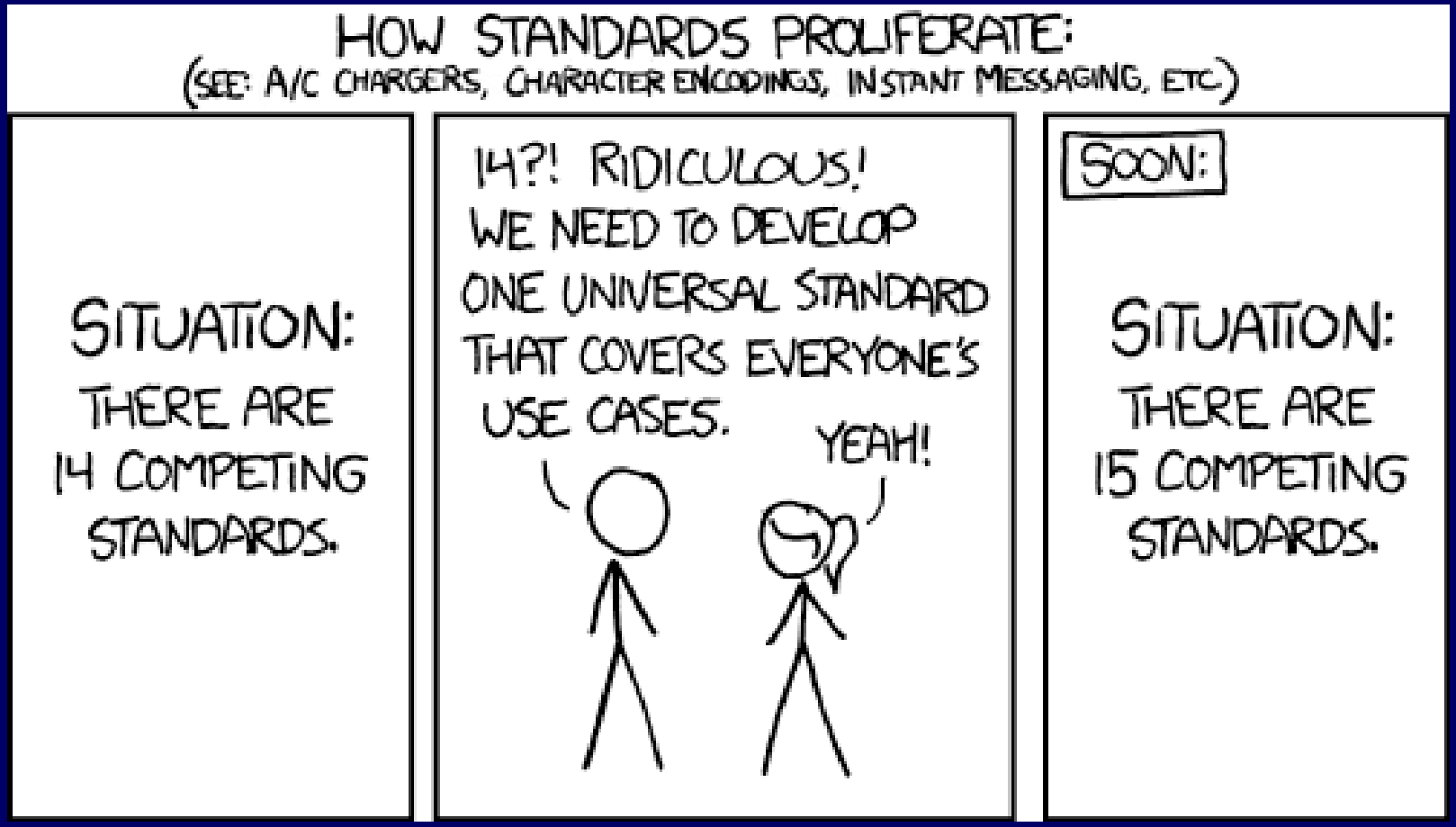
AASHTO Construction Specs

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

AASHTO/AWS D1.5

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

Now what?



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

NEW AASHTO Steel Fab Spec!

- Content:
  - AASHTO Construction Spec Section 11
  - Collaboration S2.1
  - D1.5

NEW AASHTO Steel Fab Spec!

- Implementation:
  - Remove Section 11 from Construction Specs and refer to new spec
  - Discontinue S2.1
  - Remove fabrication provisions from D1.5 and refer to new spec
  - Will states incorporate by reference??

NEW AASHTO Steel Fab Spec!

- Implications of Implementation for States:
  - Reference to AASHTO LRFD construction specs will invoke the new spec
    - Could change to direct reference
  - Reference to D1.5 will invoke certain provisions
  - Reference to S2.1 will need to be replaced with new reference

NEW AASHTO Steel Fab Spec!

- Authorship possibilities:
  - T-17 alone
  - Existing SBC TG2 provides drafts to T-17 (instead of T-14)
    - Is there trust?
  - New formal subcommittee with controlled membership (like D1.5)
    - Will states support participation?