

**Structural
Bolting
Handbook
2016**



Structural Bolting Handbook 2016

a reference guide for fabricators,
erectors, ironworkers, inspectors, and
all others involved in bolting for
structural steel buildings and bridges



STEEL STRUCTURES TECHNOLOGY CENTER, INC.

4" by 8" pocket-sized convenience, 144 pages

This 2016 edition of the Structural Bolting Handbook is based principally upon the June 2014 edition of the RCSC *Specification for Structural Joints Using High-Strength Bolts*, cited by the 2010 AISC *Specification for Structural Steel Buildings* (AISC 360-10). However, significant changes regarding structural bolting were implemented by the 2016 AISC *Specification for Structural Steel Buildings* (AISC 360-16) that are not addressed by the 2014 RCSC *Specification*, including:

- an increase in STD bolt hole diameter and SSL and LSL slot width for bolts 1 inch diameter and above,
- recognition of the new ASTM F3125 standard, which consolidates and replaces ASTM A325, A325M, A490, A490M, F1852 and F2280,
- increased minimum bolt pretensions for Grade A325 bolts of 1-1/8 inch diameter and greater, which also affects pre-installation verification testing, and
- introduction of new AISC Group C bolts with 200 ksi tensile strength, ASTM F3043 and ASTM F3111

This Handbook has included information using both:

- the 2010 AISC *Specification* with 2014 RCSC *Specification* provisions, and
- the 2016 AISC *Specification* provisions with appropriate updated information, where possible, for use until such time as the RCSC *Specification* is updated.

This Handbook provides:

- Step-by-step instructions for performing bolt installation using RCSC turn-of-the-nut, calibrated wrench, twist-off bolt and direct tension indicator methods
- Step-by-step instructions for performing bolt installation of new 200 ksi ASTM F3043 and F3111 Grade 2 assemblies, ASTM F3148 TnA144 assemblies, and Squirter® DTIs
- Step-by-step pre-installation tests for each method
- Step-by-step inspection procedures for each method
- Step-by-step arbitration of disputes procedure
- AASHTO / FHWA rotational capacity test procedures
- Bolted joint descriptions
- Snug-tight joint acceptance criteria
- Bolt, nut and washer product identification markings
- Manufacturer mark and source information
- Torque estimation tables
- Installation wrench selection tables
- Bolt length tables

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