SPP02560

***(Follow all instructions.  If there are no instructions above a subsection, paragraph, sentence or bullet, then include them in the project but make necessary modifications to only include project specific specifications. Delete specifications that do not apply to the project.  Remove all instructions before preparing the final document.)***

# SECTION 02560 - FASTENERS

Comply with Section 02560 of the Standard Construction Specifications modified as follows:

Add the following subsection:

**02560.05 Geometry** ‑ Bolt or rod length used shall be such that the end of the bolt or rod extends beyond or is at least flush with the outer face of the nut when properly installed.

**02560.10(b)** **Nuts** – Replace this subsection, except for the subsection number and title, with following:

Nuts for carbon steel bolts shall conform to the requirements of the following, or equivalent:

**Plain (Noncoated) Bolts:**

* 1/4" - 1 1/2" - ASTM A563, Grade A, hex

Over 1 1/2" - 4" - ASTM A563, Grade A, heavy hex

**Galvanized Bolts:**

* All - ASTM A563, Grade A, C, D, or DH, heavy hex

**02560.20(a) Bolts** – Replace this subsection, except for the subsection number and title, with following:

High-strength bolts used in noncoated weathering steel connections shall be Type 3. High-strength bolts shall conform to the requirements of the following:

**Heavy Hex Head:**

* ASTM F3125, Grade A325

**Twist-Off:**

* ASTM F3125, Grade F1852

**02560.20(b) Nuts** – Replace this subsection, except for the subsection number and title, with following:

Nuts for high-strength bolts shall conform to the requirements of the following, or equivalent:

**Type 1 Plain (Noncoated) Bolts:**

* All - Heavy hex ASTM A563, Grade C, D, or DH

**Type 1 Galvanized Bolts**:

* All - Heavy hex ASTM A563, Grade DH

**Type 3 Bolts:**

* All - Heavy hex ASTM A563, Grade C3 or DH3

**02560.20(f) Lock-Pin and Collar Fasteners** - Delete this subsection.

**02560.30(c) Nuts** – Replace this subsection, except for the subsection number and title, with following:

Nuts for tie rods, anchor bolts, and anchor rods shall conform to the requirements of the following, or equivalent:

**Plain Steel Tie Rods, Anchor Bolts, and Anchor Rods:**

* All - Heavy hex ASTM A563, Grade A

**Galvanized Steel Tie Rods, Anchor Bolts, and Anchor Rods:**

* All - Heavy hex ASTM A563, Grade A, C, D, or DH

**Plain or Galvanized High-Strength Tie Rods, Anchor Bolts, or Anchor Rods:**

* All - Heavy hex ASTM A563, Grade DH

**02560.40 Galvanizing and Coating** - Replace this subsection with the following subsection:

**02560.40 Galvanizing and Coating:**

1. **High Strength Fasteners** - When specified, hot-dip galvanize Grade A325 fasteners or mechanically deposit zinc to Grade F1852 fasteners according to ASTM F3125.
2. **Tie Rods, Anchor Bolts, Anchor Rods and Carbon Fasteners** - Hot-dip galvanize, tie rods, anchor bolts, anchor rods, nuts, washers and carbon fasteners according to ASTM F2329 as appropriate to the product.

Overtap nuts for galvanized fasteners, galvanized tie rods, galvanized anchor bolts, and galvanized anchor rods according to ASTM A563.

Measure the zinc thickness on the wrench flats or top of bolt head of galvanized bolts and on the wrench flats of galvanized nuts.

1. **Direct Tension Indicators** – When specified, apply mechanically deposited zinc according to ASTM F959.

**(d)  Repair of Hot-Dip Galvanizing** - Repair damaged hot-dip galvanizing according to ASTM A780. Minimum zinc content for Method A2 is 94 percent on the dry film.

**02560.60(b) Other Test Requirements** - In the paragraph that begins "Wedge test all bolts according…" replace the words "AASHTO M 164 (ASTM A325)" with the words "ASTM F3125, Grade A325 or Grade F1852".

**02560.70 Lubricating Fasteners** - Replace this subsection, except for the subsection number and title, with following:

Furnish all galvanized and coated fasteners with a factory applied commercial water‑soluble wax that contains a visible dye of a color that contrasts with the color of galvanizing or coating. Black fasteners shall be "oily" to the touch when installed.

Field lubricate galvanized bolts in tapped holes, galvanized anchor rods, and galvanized tie rods with a lubricant from the QPL. Apply lubricant to threads and to bearing surfaces that will turn during installation.

Protect fasteners from dirt and moisture at the Project site.

Retest heavy hex head fasteners that do not pass the field rotational capacity test. Clean and relubricate heavy hex head fasteners with a lubricant from the QPL prior to retesting.

Relubrication of Twist-Off fasteners is not permitted.