

## 1615 - ANCHOR BOLTS FOR STRUCTURAL USES

### SECTION 1615

#### ANCHOR BOLTS FOR STRUCTURAL USES

##### 1615.1 DESCRIPTION

This specification governs the threaded and non-threaded fastener components utilized for anchoring structural components to a concrete foundation or base.

##### 1615.2 REQUIREMENTS

**a. General.** Fastener components and coatings governed through this specification must comply with **subsection 1615.2b** unless specified otherwise in the Contract Documents. For threaded fastener components, comply with the thread series requirements of ANSI/ASME B1.1 Coarse Thread Series, with a tolerance class that accommodates the corrosion protective coating when applicable.

##### **b. Material Specifications.**

(1) Provide externally threaded steel rods or anchor bolts that comply with AASHTO M 314 with the thread series as denoted in **subsection 1615.2a**. Provide cut or rolled threads for bridge bearing applications. Provide rolled threads for all other applications. The Grade and coating for corrosion protection is dictated by the intended application and specified in the Contract Documents. Provide nuts intended for use with these anchor bolts that comply with ASTM A 563 inclusive of the Appendices. They also must be compatible with the strength requirements for the Grade of anchor bolt specified according to the guidelines of ASTM A 563 for the Property Class and design style of the nut. All nuts must comply with their respective Property Class requirements of ASTM A 563. Plain, or flat, washers for use with these fastener components must comply with ASTM F 436. The washer type and series are determined by the intended application.

(2) Provide swedge anchor bolts with deformations that comply with the following requirements.

- Depth - no more than 1/8 inches.
- Radius – not less than 1/2 inches.
- No more than one deformation occurring in any plane perpendicular to the shaft of the bolt.
- At least one deformation within each 1 inch length of bolt.
- Adjacent deformations shall be out of phase by a minimum of 90 degrees.

(3) If not governed by the component specification, when corrosion protection coatings are specified for fastener components, zinc coat these components in compliance with ASTM F 2329 for hot dip galvanizing or by the mechanical deposition of a zinc coating in compliance with ASTM B 695, Class 50. Aluminum coating is acceptable when permitted and regulated by the specification that governs the component.

##### 1615.3 TEST METHODS

Conduct all tests required by the applicable AASHTO, ASTM, ASME, ANSI, or other component or material specifications of **subsection 1615.2b**. Measure the coating thickness by any one of the methods specified in ASTM B 633 and by eddy current methods, ASTM B 244, provided that appropriate calibration procedures and standards have been applied. The magnetic induction and eddy current methods are nondestructive in nature and are preferred. Destructive techniques, i.e., coating removal, may be utilized as referee methods.

##### 1615.4 PREQUALIFICATION

Not applicable.

##### 1615.5 BASIS OF ACCEPTANCE

Submit for approval a Type A certification (certified mill test report), as specified in **DIVISION 2600**, for all fastener components.

In the event **subsection 1615.5a** cannot be complied with, submit samples representative of the lot(s) and heat(s) of the components and materials provided to the Engineer of Tests for testing. These samples must comply with **subsection 1615.2**.

Inspection by field personnel of all fastener components for compliance with corrosion protection and dimensional requirements.

The final disposition of fastener components will be completed at the final destination as the result of inspection for the quality of workmanship, the delivery condition.