

TOOLBOX TALK #10

Installation of Anchor Rods, Foundation Bolts, and Other Embedded Items

(10 minutes)

ODRD: Owner's designated representative for design

The owner or the entity that is responsible to the owner for the overall structural design of the project, including the structural steel frame. This is usually the structural engineer of record.

ODRC: Owner's designated representative for construction

The owner or the entity that is responsible to the owner for the overall construction of the project, including its planning, quality, and completion. This is usually the general contractor, the construction manager, or similar authority at the jobsite.

QUESTION: What is the general contractor's responsibility for anchor rods, foundation bolts, and other embedded items?

The *Code* says...

7.5. Installation of Anchor Rods, Foundation Bolts, and Other Embedded Items

7.5.1. *Anchor rods*, foundation bolts, and other embedded items shall be set by the *ODRC* in accordance with *embedding drawings* that have been approved by the *owner's designated representatives for design (ODRD)* and the *ODRC*. The variation in location of these items from the dimensions shown in the approved *embedding drawings* shall be as follows:

- (a) The vertical variation in location from the specified top of *anchor rod* location shall be equal to or less than plus or minus ½ in. (13 mm).
- (b) The horizontal variation in location from the specified position of each *anchor rod* centerline at any location along its projection above the concrete shall be equal to or less than the dimensions given for the *anchor rod* diameters listed as follows:

Anchor rod diameter, in. (mm)	Horizontal Variation, in. (mm)
¾ and 7/8 (19 and 22)	¼ (6)
1, 1¼, 1½, (25, 31, 38)	¾ (10)
1¾, 2, 2½ (44, 50, 63)	½ (13)



TOOLBOX TALKS

If you're using structural steel, the *Code of Standard Practice for Steel Buildings and Bridges (ANSI/AISC 303-22)* applies to your contract.

Simply put, the AISC *Code* defines who's in charge of what, when, where—including before any potential conflict arises—and other members of your project team are already using it in their own contracts. Download it for free at aisc.org/code.

Section 7 of the *Code* provides the requirements for installation of anchor rods, foundation bolts, and other embedded items and should be referenced during preconstruction for managing these activities with your fabricator and/or erector.

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Commentary:

The tolerances established in this Section have been selected for compatibility with the holes sizes that are recommended for base plates in the AISC *Steel Construction Manual*. If special conditions require more restrictive tolerances, such as for smaller holes, the required tolerances should be stated in the *contract documents*. When the *anchor rods* are set in sleeves, the adjustment provided may be used to satisfy the required *anchor-rod* setting tolerances.

- 7.5.2. Unless otherwise specified in the *contract documents*, *anchor rods* shall be set with their longitudinal axis perpendicular to the theoretical bearing surface.
- 7.5.3. Embedded items and *connection* materials that are part of the work of other trades, but that will receive *structural steel*, shall be located and set by the *ODRC* in accordance with an approved *embedment drawing*. The variation in location of these items shall be limited to a magnitude that is consistent with the tolerances that are specified in Section 11.3 for the erection of the *structural steel*.
- 7.5.4. All work that is performed by the *ODRC* shall be completed so as not to delay or interfere with the work of the *fabricator* and the *erector*. The *ODRC* shall conduct a survey of the as-built locations of *anchor rods*, foundation bolts, and other embedded items, and shall verify that all items covered in Section 7.5 meet the corresponding tolerances. When corrective action is necessary, the *ODRC* shall obtain the guidance and approval of the *ODRD*.

Commentary:

Few *fabricators* or *erectors* have the capability to provide this survey. Under standard practice, it is the responsibility of others.

Need help understanding the Code?



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