

TENNESSEE DEPARTMENT
OF
TRANSPORTATION



STANDARD SPECIFICATIONS
FOR ROAD AND BRIDGE
CONSTRUCTION

January 1, 2015

604.08

604.08 Reinforcement

A. General

All reinforcement shall consist of deformed steel bars meeting the requirements of ASTM A615 Grade 60, unless otherwise shown on the Plans or directed by the Engineer. Use standard CRSI hook details unless otherwise specified. Reinforcing steel designated with the suffix E shall be epoxy coated as specified in **907.01**. Deformed steel bars shall have a net area at all sections equivalent to that of plain round or square bars of the corresponding nominal size.

Steel wire fabric may be furnished in rolls or sheets.

B. Protection of Material

Store reinforcing steel above the ground surface on platforms, skids, or other supports located outside the scope of the active construction operations. Protect the reinforcing steel from physical damage, rust, and other surface deterioration. Remove all brush and weeds from the storage area immediately before storing reinforcing steel in the area.

C. Bending

Cold bend reinforcing steel, where indicated, to the forms and dimensions shown on the Plans. Unless otherwise indicated, ensure that all bends are in one plane. Uncoated bars of 3/4 inch or less that have only hooks or a single bend may be bent in the field, provided satisfactory equipment for proper and accurate work is used, and provided the bending is accomplished true to form and dimensions without damage to the bars. Perform all other bending in the shop before shipment.

D. Substitution

The Contractor may substitute bars of different sizes from those shown on the Plans only with the Engineer's written permission. If substitution is allowed, comply with the following:

1. Do not reduce the total area of steel in any 1 foot in each direction.

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and bolted around them, or secure with wire in a manner satisfactory to the Engineer.

Splice steel shapes only as shown on the Plans.

Splice steel fabric by overlapping the sheets by not less than 12 inches, matching at least three transverse members, and by securely wiring the overlapped sections in a manner satisfactory to the Engineer.

F. Placing and Fastening

Before placing reinforcing steel, thoroughly clean it of mill scale, rust, dirt, paint, oil, or other foreign substances or coating of any character that will reduce the bond. Once in-place, if reinforcement becomes dirty, rusty, or spattered with mortar that dries before concrete is placed around it, thoroughly clean such reinforcement, or the part affected, before covering it with concrete.

Accurately place and firmly hold in position all reinforcement as shown on the Plans or as directed by the Engineer. Fasten uncoated steel bars together with metal clips or wire at each intersection. Fasten coated steel bars with coated wire ties or coated clips. Where spacing is less than 1 foot in each direction, fasten alternate intersections. Securely space all reinforcing steel from the forms and between adjacent reinforcement with approved metal spacers, concrete blocks, or other approved devices or methods, except only use metal spacers in slabs of bridges and top slabs of box type structures. Where possible, arrange spacer devices so that their use cannot be detected in the completed structure. Mix concrete for spacer block construction in the same proportions as that used in the concrete mixture. Construct the blocks to be rectangular in shape with uniform surfaces and with no dimension greater than the depth required for proper spacing from the forms or between adjacent reinforcement. Do not use gravel, brick, or wooden blocks.

Before depositing concrete, ensure that all reinforcing steel in the section of the concrete pour is accurately and securely placed and the Engineer has approved the placement. Do not disturb the spacers during concrete placement.

All dimensions relating to the spacing or cover of reinforcing bars are to the centers of the bars or the clear distance respectively, unless