

SIGN STRUCTURES

Sign structures and foundations for overhead signs and CMS signs shall conform to the provisions in Section 56-1, "Overhead Sign Structures," of the Standard Specifications, "Welding", "Steel Structures" and "Clean and Paint (Miscellaneous Facilities)" of these special provisions, and the following requirements.

Before commencing fabrication of sign structures, the Contractor shall submit 2 sets of working drawings to the Engineer in conformance with the provisions in "Working Drawings" of these special provisions. The working drawings shall include sign panel dimensions, span lengths, post heights, anchorage layouts, proposed splice locations, a snugging and tensioning pattern for anchor bolts and high-strength bolted connections, and details for permanent steel anchor bolt templates. The working drawings shall be supplemented with a written quality control program that includes methods, equipment, and personnel necessary to satisfy the requirements specified herein and in these special provisions.

Working drawings shall be 559 mm x 864 mm or 279 mm x 432 mm in size and each drawing and calculation sheet shall include the State assigned designations for the sign structure type and reference as shown on the contract plans, District-County-Route-Kilometer Post, and contract number.

The Engineer shall have 30 days to review the sign structure working drawings after a complete submittal has been received. No fabrication or installation of sign structures shall be performed until the working drawings are approved in writing by the Engineer.

Should the Engineer fail to complete the review within the time allowance and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the sign structure working drawings, the delay will be considered a right of way delay in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

Attention is directed to Section 56-1.02, "Bars, Plates and Shapes," of the Standard Specifications.

Pentagon pole sign structures structural materials shall be in conformance with the following:

Tapered steel post and base plate	ASTM Designation A 709, Grade 50
Hollow structural section	ASTM Designation A 500, Grade B
Materials not otherwise indicated	ASTM Designation A 709, Grade 36

Steel bolts not designated on the plans as high strength (HS) or stainless steel shall be for general applications and shall conform to the requirements in ASTM Designation: A 307.

A permanent steel template shall be used to maintain the proper anchor bolt spacing.

One top nut, one leveling nut, and 2 washers shall be provided for the upper threaded portion of each anchor bolt.

Flatness of surfaces for the following shall conform to the requirements in ASTM Designation: A 6/A 6M:

1. Base plates that are to come in contact with concrete, grout, or washers and leveling nuts
2. Plates in high-strength bolted connections

No holes shall be made in members unless the holes are shown on the plans or are approved in writing by the Engineer.

Steel members used for overhead sign structures shall receive nondestructive testing (NDT) in conformance with AWS D1.1 and the following:

- A written procedure approved by the Engineer shall be used when performing UT on material less than 8 mm thick. These written procedures shall conform to the requirements in AWS D1.1, Annex K. The acceptance and repair criteria for other welded joints receiving UT shall conform to the requirements in AWS D1.1, Section 6, Table 6.3 for cyclically loaded nontubular connections.
3. The acceptance and repair criteria for radiographic or real time image testing shall conform to the requirements of AWS D1.1 for tensile stress welds.
 4. For longitudinal seam welds, the random locations for NDT will be selected by the Engineer. The cover pass shall be ground smooth at the locations to be tested. If repairs are required in a portion of a tested weld, the repaired portion shall receive NDT, and additional NDT shall be performed on untested portions of the weld. The additional NDT shall be performed on 25 percent of that longitudinal seam weld. After this additional NDT is performed and if more repairs are required, then that entire longitudinal seam weld shall receive NDT.

Circumferential welds and base plate to post welds may be repaired only one time without written permission from the Engineer.

Structure mounted signs shall not be installed until the supporting concrete structure has attained the specified compressive strength in conformance with the provisions in Section 90-9, "Compressive Strength," of the Standard Specifications, except that corbels for mounting signs will not be accepted if any test result is less than the specified compressive strength.

After each structure mounted sign post is in place and accepted, mortar shall be placed under the base plate as shown on the plans. The exposed portion of the mortar shall be formed to present a neat appearance. Mortar shall consist of one part by volume of Portland cement and 3 parts of clean sand, shall contain only sufficient moisture to permit packing and shall be cured by keeping it damp for not less than three days.

All ferrous metal parts of tubular sign structures shall be galvanized and painted in conformance with the requirements in "Clean and Paint (Miscellaneous Facilities)" of these special provisions.

Full compensation for furnishing anchor bolt templates and for testing of welds shall be considered as included in the contract price paid per kilogram for furnish sign structure, and no additional compensation will be allowed therefor.