

Special Specification 4054

Prefabricated Steel Truss Span



1. DESCRIPTION

Design, fabricate, and install prefabricated steel truss span.

2. MATERIALS

Provide materials for the prefabricated steel truss span and bearing devices in accordance with the following:

- Item 434, "Bridge Bearings,"
- Item 441, "Steel Structures,"
- Item 442, "Metal for Structures,"
- Item 447, "Structural Bolting,"
- Item 448, "Structural Field Welding," and
- Item 449, "Anchor Bolts."

Provide A588 weathering steel for bridge members. Bolts and nuts must be in accordance with the specifications for structural joints using ASTM A325 bolts. ASTM A490 bolts are not allowed. Galvanize (Hot-dip) anchor bolts in accordance with Item 445, "Galvanizing." Length and diameter of anchor bolts will be as determined by the truss designer.

3. DESIGN

Submit engineering details and design calculations, signed and sealed by a professional engineer, for the prefabricated steel truss span and concrete deck for review and approval. Design all truss components per the latest AISC LRFD Specifications and the American Association of State Highway and Transportation Officials (AASHTO) Guide Specifications for Design of Pedestrian Bridges. Design all truss components for H10 live load and for a pedestrian live load of 90 psf. Vehicle impact allowance is not required. The maintenance vehicle live load need not be placed in combination with the pedestrian live load. Design trusses for the stream flow pressures based on hydraulic data provided on the plans.

Provide the engineering details and design calculations to the Engineer no less than 28 calendar days before start of fabrication.

Provide chord members that do not collect or retain water.

Provide redundant bottom chords. Provide design calculations showing the bottom chord members are structurally redundant members capable of carrying full dead and live load under the fracture or loss of one member.

Include in the submittal, the design and details for the steel truss span superstructure, any required bearing devices, and any pedestals, haunches or other modifications necessary for the interface of the steel truss span with the concrete deck and abutments as shown on the plans, as well as erection/assembly drawings showing construction phasing.

Provide the engineering details and design calculations to the Engineer no less than 28 calendar days before start of fabrication.

4. FABRICATION

Prepare and submit detailed shop drawings for the pedestrian truss bridge, bearing devices, and supporting structures in accordance with Article 5.2., "Plans and Working Drawings," for approval. Allow the Engineer no less than twenty-eight (28) calendar days to review and approve each shop drawing submittal. Provide unique and specific drawings, prepared to illustrate specific portions of the work to be done. Clearly specify all relevant design information such as member sizes, connections, and general notes on the drawings. These shop drawings must be so detailed that referring to the plans will not be required.

Fabricate the steel for trusses, floor beams, stringers, bearing devices and other permanent metal components for the steel truss span in accordance with Item 441, "Steel Structures." Fabricate all members by a fabricator listed in the material producer list for "Steel Bridge Fabrication Shops" or by a fabricator approved by the Engineer and certified by the American Institute of Steel Construction (AISC) Quality Certification Program as a fabrication shop for Major Steel Bridges (Cbr).

5. CONSTRUCTION

The 2014 issue of Texas Standard Specifications for Construction of Highways, Streets, and Bridges governs all construction, unless changed by special specification, special provision, or plan details.

Verify all dimension of the prefabricated steel truss span with the manufacturer prior to construction of the substructure and foundation.

Provide bolted connections at field splices in accordance with Item 447, "Structural Bolting." Field welding of secondary members will be allowed in accordance with Item 448, "Structural Field Welding."

Construct reinforced concrete slab and deck joints as shown on the plans.

6. MEASUREMENT

This Item will be measured by each steel truss span in the completed and accepted final position.

7. PAYMENT

The work performed and materials furnished in accordance with this Item, and measured as provided under "Measurement" will be paid for at the unit price bid for "Prefabricated Steel Truss Span" of the length shown. This price is full compensation for designing, fabricating, transporting, and erecting truss spans; installing bearing devices with anchor bolts; and for all materials, labor, tools, equipment and incidentals necessary to complete the work. Placing reinforced concrete bridge deck and expansion joints is paid for by other items of work.