

**Project Specifications  
For  
Prefabricated Steel Truss Bridge**

**General:**

These specifications are for a fully engineered clear span bridge of welded steel construction and shall be regarded as minimum standards for design and construction as manufactured by Echo Bridge, Inc.

Manufacturers other than Echo Bridge, Inc. may be used provided they are pre-approved by the Project Engineer ten (10) days prior to bid and they meet or exceed all the following specifications.

The bridge manufacturer shall have been in the business of design and fabrication of bridges for a minimum of five (5) years and provide a list of ten (10) successful bridge projects of comparable construction, each of which has been in service for at least three (3) years.

The engineer's decision shall be final. All suppliers will be rejected if the engineer decides that the contractor does not meet qualifying criteria.

The bridge Supplier shall be certified by the American Institute of Steel Construction (AISC) to produce fabricated structural steel in the AISC Certification Program.

**Bridge Dimensions:**

**Span:**

Center to Center of bearing of the bridge shall be \_\_\_ feet, \_\_\_ inches

**Width:**

Inside clear width of bridge shall be \_\_\_ feet, \_\_\_ inches

**Misc. Dimensions:**

The top of the top chord shall be no less than \_\_\_ inches above the deck (measured from the high point of the deck) on bridges used for pedestrian traffic.

Horizontal safety rails shall be placed on the structure up to a minimum height of \_\_\_ feet-\_\_\_ inches above the deck surface. Rails shall be placed so that they would prevent a sphere from passing through the truss.

**Camber:**

The bridge shall have a vertical camber to offset dead load and appear flat.

**Design:**

**Uniform Live Load:**

Pedestrian bridges shall be designed for an evenly distributed live load of 85 pounds per square foot (psf) of deck. When the deck area exceeds 400 square feet (sq. ft.), the load may be reduced in accordance with the following formula:

$$W = 85(0.25 + 15/(a^{.5}))$$

W = Pedestrian Load (psf)  
A = Deck influence area (sq. ft.)

The reduced design load shall be no less than 65 psf.

### **Vehicle Load:**

Pedestrian bridges with the occasional slow moving maintenance or emergency vehicles, impact is not required.

Vehicular bridges will also be designed to withstand a moving concentrated load of a vehicle weighing 1000 pounds per foot of bridge width (up to 10,000 pounds).

For bridges used where snow removal is a concern, the vehicle load shall be in addition to a 20-pounds-per-square-foot, evenly distributed, live load. The vehicle load shall be distributed such that 80% of the load is on the rear axle per (AASHTO).

### **Wind Load:**

All bridges shall be designed with a minimum wind load of 30 pounds per square foot on the full vertical projected area of the bridge.

### **Deflection:**

The vertical deflection of the truss due to pedestrian live load shall not exceed  $L/500$ . The maximum deflection due to vehicular loads shall not exceed  $L/800$ . For pedestrian comfort, the minimum live load used for the deflection check shall be a minimum of 600 pounds per lineal foot of bridge. The horizontal deflection due to lateral wind load shall not exceed  $L/500$  of the span length.

### **Seismic:**

All bridges shall be designed for seismic loads of the intensity required by local codes.

### **Design Criteria:**

The design of the bridge shall be in accordance with the "American Institute of Steel Construction"; "Allowable Stress Design", June 1, 1989 or latest edition. Tubular members and their connections shall be designed per the AISC "Hollow Structural Sections Connections Manual" latest edition.

### **Materials:**

All structural members shall be made of weathering steel and have a minimum thickness of material of at least  $3/16$  of an inch.

Steel material shall be corrosion resistant high-strength low alloy material meeting ASTM A242, A588, A606 or A847 with a minimum corrosion index of 5.8 per ASTM G101. All members of the truss and deck system shall be fabricated from square/ rectangular hollow structural sections, wide flange may be used for floor beams. Open ends of posts and floor beams shall be capped.

Wood Decking shall be No. 1 grade Southern Yellow Pine. Wood decking shall be treated to a minimum of .40 pounds of preservative per cubic foot of wood. The wood deck shall be designed for a minimum 100 psf local loading condition in addition to the wheel loadings produced by the vehicle load section. Floor planks shall be attached with at least two plated fasteners where planks cross-supporting members.

Field splices shall be bolted with High Strength ASTM A325 bolts; type 3 bolts are required for weathering steel bridges.

Welding materials shall be in strict accordance with the American Welding Society (AWS) Structural welding code, D1.1. Filler metal will match characteristics of the base material. Welders will be certified in accordance with AWS D1.1. (Bridge Welding Code)

\*All welds are to be 100% visually inspected.

### **Railings & Accessories:**

All railings shall have a smooth inside surface with no protrusions or depressions. All ends of angles and tubes shall be closed and ground smooth. In accordance with AASHTO, railings for bicycle use should be a minimum height of 54 inches above the floor deck.

### **Safety Rails:**

Continuous rails shall be located on the inside of the trusses.

### **Toe Plate:**

A 5 inch steel channel shall be located 2 inches above the floor deck.

### **Traffic Rails:**

Bridges designated as vehicular bridges shall be equipped with traffic rails conforming to AASHTO Test Level 1 (TL-1).

\*Rub Rails, handrails and toe rails shall be designed per AASHTO as horizontal.

### **Delivery and Erection:**

Delivery is made to a location nearest the site, which is easily accessible to normal, over the road tractor/ trailer equipment. All trucks delivering bridge materials will need to be unloaded at the time of arrival. Erection of the bridge structure to be done by manufacturer or AISC Certified Erector.

The manufacturer will provide detailed, written instruction n the proper lifting procedures and splicing procedure (if required). The method and sequence of erection shall be the responsibility of the Manufacturer of the supplied bridge or a AISC Certified Erector.

The bridge manufacturer shall provide written inspection and maintenance procedures to be followed by the bridge owner.

### **Warranty:**

The bridge manufacturer shall warrant their steel truss structure(s) to be free of design, material and workmanship defects for a period of ten years from date of delivery.



This document was created with Win2PDF available at <http://www.win2pdf.com>.  
The unregistered version of Win2PDF is for evaluation or non-commercial use only.  
This page will not be added after purchasing Win2PDF.