



SECTION 32 34 00

PEDESTRIAN AND LIGHT VEHICLE BRIDGES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. This section contains requirements for a fully engineered clear span bridge and shall be the minimum standards for design and construction. Clear span length and width of the bridge shall be as shown on the DRAWINGS.

1.02 RELATED SECTIONS

- A. The following is a list of SPECIFICATIONS which may be related to this section:
 1. Section 01 57 19, Temporary Environmental Controls
 2. Section 31 23 00, Excavation and Fill.
 3. Section 31 23 19, Dewatering.
 4. Section 31 23 33, Trenching and Backfilling.
 5. Section 31 25 00, Erosion and Sedimentation Controls

1.03 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
 1. American Institute of Steel Construction (AISC).
 2. ASTM International (ASTM):
 - a. A36/A36M, Standard Specification for Carbon Structural Steel.
 - b. A242, Standard Specification for High-Strength Low-Alloy Structural Steel.
 - c. A307, Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
 - d. A325, Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
 - e. A490, Standard Specification for Structural Bolts, Alloy Steel, Heat Treated, 150 ksi Minimum Tensile Strength.
 - f. A588/A588M, Standard Specification for High-Strength Low-Alloy Structural Steel, up to 50 ksi (345 MPa) Minimum Yield Point, with Atmospheric Corrosion Resistance.



- g. A606, Standard Specification for Steel, Sheet and Strip, High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, with Improved Atmospheric Corrosion Resistance.
3. American Wood Preservers' Association (AWPA): P5, Standard for Waterborne Preservatives.
4. American Welding Society (AWS): D1.1/D1.1M, Structural Welding Code – Steel.
5. The Society for Protective Coatings (SSPC): SP6, Commercial Blast Cleaning.
6. Uniform Building Code (UBC).
7. West Coast Lumber Inspection Bureau (WCLIB).

1.04 SUBMITTALS

- A. Submit complete SHOP DRAWINGS to ENGINEER for review.
- B. Submit manufacturer's certification of compliance with referenced standards.

1.05 QUALITY ASSURANCE

- A. Bridge design shall be signed and sealed by a Registered Colorado Professional Engineer.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Coordinate delivery requirements with manufacturer.
- B. Comply with manufacturer's requirements for unloading, lifting, and placement.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Materials, equipment, and accessories specified in this section shall be products of:
 1. Continental Bridges; 1-800-328-2047.
 2. Big 'R' Manufacturing; 1-800-234-0734.
 3. Excel Bridges; 1-800-548-0054.
 4. Bridge America; 1-320-763-5600.
 5. Steadfast Bridges; 1-800-749-7515.

2.02 DESIGN REQUIREMENTS

- A. General:
 1. Bridge shall meet the referenced standards as called for in the following paragraphs.



2. All allowable design stresses shall be in compliance with the SPECIFICATIONS of the design, fabrication, and erection of structural steel for buildings by the American Institute of Steel Construction (AISC) and Uniform Building Code (UBC).
3. Minimum height of fifty four (54) inches (top of truss top chord), or as shown on the DRAWINGS.
4. Maximum horizontal opening in railing of nine inches or as shown on the DRAWINGS.
5. Unless otherwise shown on the DRAWINGS, the minimum loading shall be as follows:
 - a. Uniform live load of sixty pounds per square foot (60 psf).
 - b. Concentrated live load of ten thousand (10,000) pounds vehicle weight on bridge plus thirty percent (30%) impact.
 - c. Minimum wind load of twenty-five (25) pounds per square foot (psf).
 - d. Horizontal pressure as if enclosed surface.
 - e. Railing load of fifty pounds per linear foot (50 lbs/lf) of horizontal load.
6. Mounting plates shall allow for thermal expansion.

B. Dimensions and Requirements:

1. Length: As shown on DRAWINGS.
2. Width: Clear unobstructed inside width as shown on DRAWINGS.
3. Railings: Install for full length of bridge.
4. Camber: Five percent (5%) of one-half (1/2) of span (if required) or as shown on the DRAWINGS.
5. Abutments: Bridge to accommodate abutment elevations noted on the DRAWINGS.
6. Decking: All decking shall be secured to the bridge members along the centerline of the bridge with a minimum of two (2) screws per board or as shown on the DRAWINGS.
7. Rub Rails: Nominal two-inch by six-inch (2" x 6") wood rub rails on inside of bridge shall be placed thirty two (32) inches above the top of the bridge deck or as shown on the DRAWINGS.

C. Materials:

1. Metal Fabrication:



- a. Material thickness and design of member shall be fully engineered for the length and style of each bridge requirement specified.
 - b. Bridge shall be fabricated from high strength low-alloy atmospheric corrosion-resistance ASTM A606 Type 4 steel, self-weathering, (U.S.S. Cor Ten) ASTM A242, or ASTM A588/A588M structural steel shapes and tubing (FY = fifty thousand pounds per square inch [50,000 psi]).
 - c. Bolts and nuts shall be in accordance with SPECIFICATIONS for structural joints using ASTM A325 or ASTM A490 bolts. Anchor bolts shall be ASTM A307 or ASTM A36/A36M.
 - d. E8018 Series electrodes or equivalent shall be used for welding.
2. Wood Decking: All standard bridges shall have nominal three-inch by twelve-inch (3" x 12") planks of west coast region Douglas Fir or No. 1 Southern Yellow Pine, selected structural planks graded according to WCLIB standard grading or equal. Decking shall be treated to AWWA P5 or equal. Preservatives utilized shall be Chromated Copper Arsenate (CCA) or Ammoniacal Copper Arsenate (ACA) or equal.
 3. Concrete Decking: As shown on the DRAWINGS.

2.03 FABRICATION

- A. Workmanship, fabrication, and shop connections shall be in accordance with AWS and AISC specifications.
- B. All welding shall be done by welders certified for AWS D1.1/D1.1M structural welding requirements.
- C. Welding electrodes for self-weathering, corrosion-resistant steel shall have the same weathering characteristics as E5018 or equivalent.
- D. All boldly exposed members shall have mill scale removed according to SSPC SP6.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install bridge and decking per manufacturer's recommendations. Wood decking shall be "rattle proof" and installed to the greatest extent possible to prevent warping. Confirm that concrete abutments have obtained sufficient strength before placement of steel structure.

END OF SECTION