

**SECTION 06 17 53
SHOP-FABRICATED WOOD TRUSSES**

PART 1 - GENERAL

1.01 RELATED SECTIONS

- A. Division 1 Sections
- B. Section 061000 - Rough Carpentry.

1.02 REFERENCES

AF&PA – National Design Specification for Wood Construction with 2005 Supplement.

ANSI/TPI 1 – National Design Standard for Metal Plate Connected Wood Truss Construction.

ASTM A653 – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.

TPI DSB – Recommended Design Specification for Temporary Bracing of Metal Plate Connected Wood Trusses.

1.03 DESIGN REQUIREMENTS

- A. Design of wood trusses, including header truss units at openings or change of framing, is the sole responsibility of the Contractor.
- B. Fabricated wood trusses shall be designed by a Structural Engineer licensed in the Project state for the loads shown in the Structural Drawings.
- C. Design shall comply with the National Design Specification for Wood Construction (NDS), ANSI/TPI 1, and the requirements of the Building Code.
- D. For trusses spanning 60 feet or greater, temporary installation restraint/bracing and permanent individual truss member restraint/bracing shall be designed by the wood truss Engineer for the specific project conditions.

1.04 SUBMITTALS

- A. Refer to Structural Quality Assurance Plan in the Structural Drawings for additional submittal requirements.
- B. Shop Drawings:
 - 1. Shall include truss design drawings that show for each truss, as a minimum, the following:
 - a. Slope or depth, span and spacing.
 - b. Location of all joints and support locations.
 - c. Number of plies, if greater than one.
 - d. Required bearing widths.
 - e. Design loads as applicable, including:
 - 1) Top chord dead and live load.
 - 2) Bottom chord dead and live load.
 - 3) Additional loads and locations.

- 4) Environmental design criteria and loads (wind, rain, snow, seismic, etc.)
 - f. Other lateral loads, including drag strut loads.
 - g. Adjustments to wood member and metal connector plate design value for conditions of use.
 - h. Maximum reaction force and direction, including maximum uplift reaction forces where applicable.
 - i. Metal-connector-plate type, size, and thickness or gage, and the dimensional location of each metal connector plate except where symmetrically located relative to the joint interface.
 - j. Size, species, and grade for each wood member.
 - k. Truss-to-truss connections and truss field assembly requirements.
 - l. Calculated span-to-deflection ratio and maximum vertical and horizontal deflection for live and total load as applicable.
 - m. Maximum axial tension and compression forces in the truss members.
 - n. Required permanent individual truss member restraint location and the method and details of restraint/bracing.
2. Shall include truss placement drawings that identifies the proposed location for each individually designated truss and references the corresponding truss design drawing.
3. Shall include instructions for erection.
4. Shall be sealed by an Engineer licensed in the Project state.

- C. Submit erector's qualifications.

1.05 QUALITY ASSURANCE

- A. Refer to the Structural Quality Assurance Plan in the Structural Drawings.

1.06 FABRICATOR'S QUALIFICATIONS

- A. Truss fabricator shall meet the requirements in the Structural Quality Assurance Plan in the Structural Drawings.

1.07 ERECTOR'S QUALIFICATIONS

- A. Erector shall have a minimum of 5 years experience in the erection of wood trusses similar in complexity to this Project as evidenced by 10 completed projects.

1.08 DELIVERY, STORAGE AND HANDLING

- A. Deliver, handle and store trusses with care and in accordance with manufacturer's instructions and TPI recommendations to avoid damage from bending, overturning or other cause for which trusses are not designed to resist or endure.

PART 2 - PRODUCTS

2.01 LUMBER

- A. Lumber: Lumber shall be identified by the grade mark of a lumber grading or inspection agency accredited by the Board of Review of the American Lumber Standard Committee (ALSC).
- B. Lumber Moisture Content: Moisture content shall be no less than 7 percent nor greater than 19 percent at time of fabrication.

2.02 CONNECTOR PLATES

- A. Connector Plates: Connector plates to comply with the AF&PA National Design Specification for Wood Construction and ANSI/TPI 1.
- B. Connector Plates: Minimum thickness of 0.036 inch (20 gage) with G60 coating complying with ASTM A653.
- C. Connector Plates with Fire Retardant Lumber: Connector plates are to be a minimum thickness of 0.036 inch (20 gage), stainless steel.

2.03 FIRE-RETARDANT-TREATED WOOD

- A. Fire-retardant-treated wood shall be treated, dried, and labeled in accordance with the Building Code.

PART 3 - EXECUTION

3.01 FABRICATION

- A. Cut truss members to accurate lengths, angles and sizes to produce close fitting joints with proper wood-to-wood bearing in assembled units.
- B. Fabricate metal connector plates to size, configuration, thickness and anchorage details required for types of joint designs indicated.
- C. Assemble truss members in design configuration indicated on the structural drawings using jigs or other means to ensure uniformity and accuracy of assembly with close fitting joints. Position members to produce design camber indicated.
- D. Connect truss members by means of metal connector plates accurately located and securely fastened to wood members by means indicated or approved.
- E. Truss shall be fabricated in accordance with ANSI/TPI 1.

3.02 ERECTION

- A. Erect and brace trusses in accordance with the approved shop drawings and TPI DSB.

3.03 BEARING

- A. Anchor trusses securely at all bearing points to comply with methods and details indicated.

3.04 TRUSS MODIFICATIONS

- A. Truss members and components shall not be cut, notched, drilled, spliced, or otherwise altered in any way without written concurrence of the truss manufacturer and Structural Engineer.

END OF SECTION