



Sample Specification for Engineers and Architects

METAL PLATE CONNECTED WOOD TRUSSES

1. Work Included

- a. Design, manufacture and supply wood trusses as shown on the drawings and as specified.
- b. The *WWTABC Qualified Plant Stamp* shall be displayed on each truss to indicate trusses were manufactured by a *QTM* in compliance with *British Columbia Building Code* requirements.

2. Definitions/ Terminology

- a. **Contractor:** Has a contract with an owner for construction of all, or a portion, of a building.
- b. **Qualified Truss Manufacturer (QTM):** Complies with the latest edition of the WWTABC “Plant Quality Manual” or equivalent, regularly engaged in design and fabrication of wood truss components.
- c. **Primary Structural Element:** A beam, column or other structural design element (i.e. truss) that, when combined with others, forms the *primary structural system*.
- d. **Primary Structural System:** A combination of *primary structural elements* (i.e. trusses) that support a building's self weight and applicable live loads.
- e. **Specialty Structural Engineer or Supporting Registered Professional (SRP):** Designs/supervises and seals for the preparation of *Truss Design Drawings* while acting as an specialty structural engineer/SRP providing structural engineering services to the *SER/RPR*.
- f. **Structural Engineer of Record (SER) or Registered Professional of Record (RPR):** Designs the *primary structural system* to accommodate *primary structural elements* (i.e. trusses), and for allowing for their effects on the *primary structural system*.
- g. **TPIC:** Truss Plate Institute of Canada
- h. **Truss Design Drawing:** A written and graphic depiction of an individual truss.
- i. **Truss Installer:** Builder, contractor or sub-contractor who is responsible for the field storage, handling and installation of trusses.
- j. **Truss Layout Drawing:** Drawings supplied by the *QTM* showing the assumed location for each truss.
- k. **WWTABC Qualified Plant Stamp:** This stamp is evidence the *QTM* subscribes to regular unannounced manufacturing quality audits to verify the ongoing quality of lumber, plating, and overall manufacturing details of the trusses. It is a means to demonstrate ongoing compliance with the WWTABC “Plant Quality Manual” and *TPIC*, Appendix G, “Manufacturing and Material Variances”.

3. Design

- a. Design loads, as applicable to project location and special conditions, is the responsibility of the *SER/RPR*.
- b. Trusses shall be designed in accordance with these specifications and where any applicable design feature is not specified herein, design shall be in accordance with applicable provisions of:

WESTERN WOOD TRUSS ASSOCIATION OF BC

- i. Truss Plate Institute of Canada, *TPIC* “Truss Design Procedures and Specifications for Light Metal Plate Connected Wood Trusses, Limit States Design”,
 - ii. Canadian Standards Association, CAN/CSA O86 “Engineering Design in Wood (Limit States Design)”, (CAN/CSA O86) and,
 - iii. the British Columbia Building Code.
- c. *QTM* shall provide:
- a.i. *truss design drawings* sealed by the *specialty structural engineer/SRP* licensed in BC.
 - a.ii. *truss layout drawings* showing the assumed location for each truss as received from the *SER/RPR*. Any variance to what has been received from the *SER/RPR* will be indicated on the drawings.
 - a.iii. connection requirements (either on *truss design drawings* or *truss layout drawing*) for: truss to bearing; truss to girder; girder ply to ply, and; field splices.
 - d. Drawings shall be approved by the *SER/RPR* prior to fabrication.
 - e. Information on *truss design drawings* shall be as listed at *TPIC*, Appendix H, “Minimum Information on Truss Design Drawings”.

4. **Materials**

a. **Lumber**

- i. Lumber used for truss members shall be designed with specified strengths published by CAN/CSA O86 and grademarked by organizations accredited by the Canadian Lumber Standards Accreditation Board. (BC Building Code sentence A-9.3.2.1.(1))
- ii. Moisture content of lumber shall be no greater than 19 percent at time of fabrication, or as otherwise approved by the *SER/RPR*.
- iii. Adjustment of values for duration of load and other conditions of use shall be in accordance with *TPIC*, 4.3 *Specified Strengths*.
- iv. Preservative and Fire-Retardant treated lumber, if applicable, shall meet the requirements of *TPIC*, 4.3.4.(3) “Specified Strengths, Treatment Factor”, K_T . Lumber treaters shall supply a certificate of compliance including specified design values and use conditions, including minimum acceptable coating/galvanizing level and type of steel for steel gusset plates and fasteners used with the treated lumber.

b. **Metal Connector Plates**

- i. Metal connector plates shall be galvanized to coating designation G90 minimum requirements and have a Canadian Construction Materials Centre, Evaluation Listing in accordance with the design requirements of CAN/CSA O86, Clause 10.8, “Truss Plates”.
- ii. Where Preservative and Fire-Retardant treated lumber is used, a certificate of compliance noted in 4.a.iv. above shall apply.

- iii. In highly corrosive environments, special applied coatings or stainless steel shall be required.

c. **Truss Anchors and Hangers**

- i. Truss hangers and anchors shall conform to the design requirements of CAN/CSA O86, clause 10.10 and clause 14.5, “Joist Hangers” or have a Canadian Construction Material Centre Evaluation Listing or equivalent.
- ii. In highly corrosive environments, the *SER/RPR* shall provide instructions for special applied coatings or galvanizing, or stainless steel.

5. **Fabrication**

- a. Trusses shall be fabricated by a *QTM* complying with the latest edition of the WWTABC “Plant Qualification Manual”, or equivalent.
 - b. Trusses shall be stamped to display the WWTABC Qualification Mark providing evidence of continuing qualification, or equivalent.
6. **Handling, Installation and Temporary Restraint Bracing**
- a. During fabrication, handling and delivery, trusses shall not be subjected to excessive lateral strain.
 - b. *QTM* shall provide to the site, guidelines for handling, installation, and bracing.
 - c. Bracing during erection is always required. Professional advice should always be sought to prevent toppling and/or progressive collapse of trusses during and after installation.
 - d. *Contractor/truss installer* is responsible for handling, erection, installation, and temporary bracing. *Contractor/truss installer* is responsible for obtaining the materials for temporary bracing.
 - e. Installation shall be consistent with good workmanship and good building practices and shall be the responsibility of the *contractor/truss installer*.
 - f. Any apparent damage to trusses shall be reported to *QTM* and/or *SER/RPR* prior to installation.
 - g. Cutting and altering of trusses is not permitted unless approved by the *QTM* .
 - h. Heavy construction materials shall not be placed atop trusses until all specified bracing has been installed, and decking is permanently fastened in place.
7. **Permanent Bracing**
- a. Instructions for bracing of individual lumber members within trusses to insure proper structural performance of each truss shall be shown on the *Truss Design Drawings*.
 - b. Instructions for bracing and restraining the roof/floor *primary structural system* of assembled trusses shall be provided by the *SER/RPR*.
