THE CANADIAN WOOD TRUSS ASSOCIATION

L'ASSOCIATION CANADIENNE DES FABRICANTS DE FERMES DE BOIS

NATIONAL QUALITY STANDARD
FOR
METAL PLATE CONNECTED WOOD TRUSSES

Rev. Sept 6, 2024

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ANNEX A Truss Fabricator Guidelines on the Use of Finger Jointed Lumber in Metal Plate Connected Wood Trusses

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REFERENCE PUBLICATIONS

- Truss Plate Institute of Canada (TPIC), Truss Design Procedures and Specifications for Light Metal Plate Connected Wood Trusses
- National Lumber Grade Authority (NLGA), Standard Grading Rules/Special Product Standards
- FPInnovations, Truss Fabricator Guidelines on the Use of Finger Jointed Lumber in Metal Plate Connected Trusses

1. GENERAL

1.1. Scope

This standard is a quality standard for the manufacturing of metal plate connected wood trusses and shall be used in conjunction with an in-plant quality assurance program. It is intended to provide the basic requirements to enable truss plants to attain and maintain Regional Association[1] Quality Certification.

1.2. Alternative Materials

Where alternative material is used, additional requirements will be provided in the Annexes.

1.2.1 Finger Jointed Lumber

If finger jointed lumber is used Annex A, "Truss Fabricator Guidelines on the Use of Finger Jointed Lumber in Metal Plate Connected Wood Trusses" shall also apply.

2. IN-PLANT QUALIFICATION PROGRAM

2.1. Plant Quality Assurance Manual

Each qualified truss plant shall have a plant quality assurance manual complying with this standard and approved by the Regional Association[1]. It shall contain documentation of quality control procedures which include the requirements for initial plant qualification and for ongoing quality control.

2.2. Manufacturing Tolerances

Manufacturing tolerances shall be in accordance with the TPIC design manual[2], Appendix G and this standard.

2.3. In-Plant Inspections

A minimum inspection of three trusses per operational set-up location per shift, per week shall be completed and duly recorded. Trusses sampled for inspection shall be “as finished” off the production line or from yard storage. They shall, as much as practicable, be the type representative of the range of production. Inspections shall follow a format that includes the manufacturing and material variances prescribed in the TPIC design manual[2], Appendix G, and this standard.

2.4. Non-Conforming Inspections

Trusses that do not meet minimum allowances for material defects and variances in workmanship shall be documented with follow-up repair, rework or replacement as instructed and documented by the truss designer.

2.5. Outside Party Audits

Plants must pass a qualification audit for initial certification from the Regional Association[1].
In order to maintain certification. Plants must pass a full audit annually. Audits shall be random.
Plants must also comply with the Regional Association's[1] surveillance/maintenance requirements in order to maintain certification.
When non-conformance is noted during the audit, the certifying body may, at its discretion, make additional inspections of certified plants as frequently as necessary to ensure that certified plants and personnel have resolved all non- conformance items and continue to satisfy the requirements of this Standard on an ongoing basis.
Audits are to be conducted by qualified individuals approved by the Regional Association[1].

2.6. Documentation

The plant shall maintain all records of in-house inspections including outside party audits for a minimum of 5 years. The Regional Association[1] shall maintain a current list of qualified plants that can be made available to interested parties.

3. TRUSS DESIGN DRAWINGS

3.1. Design Procedures

All trusses shall be designed in accordance with the TPIC design manual[2] procedures.

3.2. Minimum Information

Minimum information shall be in accordance with the TPIC design manual[2] "Minimum Information on Truss Design Drawings", Appendix H.

4. MATERIALS

4.1. Lumber

All trusses shall be manufactured using dimension lumber graded and stamped according to NLGA Rules including applicable NLGA Special Products Standards.

4.2. Metal Connector Plates

All trusses shall be manufactured with metal connector plates in accordance with the minimum tolerances provided in the TPIC design manual[2] Appendix G or better. Substitute (larger) sizes are acceptable provided the plate is the same type, gauge and orientation as the plate being specified. No dimension can be less, and the tooth count in each joint member shall be equal to or exceed the original requirement.
Plates shall be tested based on CSA S347 and the test results shall be listed with a listing agency as specified in the TPIC design manual[2].

5. HANDLING AND STORAGE

5.1. Lumber and plates

Lumber and plates shall be stored in a way to protect against the elements. Lumber and plates that are damaged due to handling or exposure to the elements shall not be used.

5.2. Fabrication

Damage to trusses during fabrication shall be reviewed by a truss designer and documented as acceptable or the truss designer shall specify additional repairs.

5.3. Finished Trusses

Trusses shall be handled and stored in a way to prevent damage (eg. excessive bending, over stressing joints and lumber). They shall be protected from excessive moisture including excessive ground contact.

6. TRUSS SUBMITTAL PACKAGE

6.1. Design Drawings

The truss submittal package shall contain individual truss design drawings, including requirements for web bracing, and all other requirements in accordance with the Authority Having Jurisdiction.

7. REPAIR AND REPRESSING

7.1. Repair Specifications

When any deficiency is found during an inspection or otherwise (eg. an embeddedconnector plate does not meet plating requirements) the truss designer or other qualified plant personnel:
Shall,

(a) specify if remedial action is required,
(b) specify the remedial action if it is required and,
(c) document the deficiency, what, if any, remedial action is required and the remedial action performed if required

May,

(d) Review previous and forward truss production to determine if the deficiency is systemic.

7.2. Lumber Condition due to Plate Removal

7.2.1. Tooth Holes

When a connector plate is installed in a connection area of lumber that contains tooth holes (wood otherwise not damaged) from a previously installed plate, the connector plate teeth shall be considered 50% effective at the location where they cover the tooth holes.

7.2.2. Damaged Lumber

Connector plate teeth installed into lumber which has been damaged (eg. wood removed, or excessive splits) by the installation/removal of a previous connector plate shall be considered ineffective in the damaged areas.

7.3. Re-pressing

Connector plates may be re-pressed during manufacturing to improve plate embedment. This does not include trusses that have had fully embedded teeth and have “backed out” or withdrawn due to weathering conditions.

8. TRUSS MARKING

8.1. Plant Qualification Marking

Appropriate truss marking as per Regional Association[1] guidelines (stamps, tags,truss documentation) should be used to provide evidence of plant certification.

8.2. Special marking

Bearing locations other than truss heels, and locations of point loads shall be identified with stamps, tags or other appropriate marking on each truss, or with the drawings that accompany the truss shipment. Bottom chord bearing parallel chord truss shall be clearly marked to avoid inverted installation when symmetrical and “flippable” design is not possible.

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[1]The term "Regional Association" means a provincially registered entity that has a defined process of evaluating a plant's quality control system to this standard and is a member in good standing with the Canadian Wood Truss Association.
[2]"Truss Design Procedures and Specifications for Light Metal Plate Connected Wood Trusses". The version referenced in the version of the NBCC accepted by the regional governing jurisdiction.