



Evaluation Listing CCMC 13124-L Alpine HS18 Truss Plate

MasterFormat: 06 05 23.07
Evaluation issued: 2003-06-24
Re-evaluated: 2018-03-12

1. Evaluation

The product conforms to CSA S347-14, “Method of test for evaluation of truss plates used in lumber joints,” and CSA O86-14, “Engineering Design in Wood.” CSA S347 test results are shown in the following tables.

Table 1.1 Result of Testing the Ultimate Tensile Strength of the Plate

| Grade of Steel | Measured Plate Thickness (mm) | Mean Ultimate Tensile Strength (MPa) for unstamped metal | Correction Factor |
|--|-------------------------------|---|-------------------|
| HSLAS-F (formerly known as HSLA Type B or Type II) Grade 410 | 1.184 | 512 for Tension Tests Perpendicular to Plate Length | 0.877 |
| | | 542 for Tension Tests Parallel to Plate Length on 83 mm wide Plates | 0.848 |
| | | 541 for Tension Tests Parallel to Plate Length on 67 mm wide Plates and for Shear Tests | 0.909 |

Table 1.2 Results of Testing the Lateral Resistance of the Teeth (Hydraulic Press)

| Direction of Load | Lateral Resistance (MPa/Plate) Specific Gravity (SG) = 0.42 | | Lateral Resistance (MPa/Plate) Specific Gravity (SG) = 0.47 | |
|---|---|--------------------------------|---|--------------------------------|
| | Ultimate Lateral Resistance, n_u | Lateral Slip Resistance, n_s | Ultimate Lateral Resistance, n_u | Lateral Slip Resistance, n_s |
| Load parallel to grain, plate length parallel to load | 2.03 | 1.94 | 2.28 | 2.24 |
| Load parallel to grain, plate length perpendicular to load | 1.55 | 1.75 | 1.74 | 1.95 |
| Load perpendicular to grain, plate length parallel to load | 1.20 | 0.83 | 1.20 | 0.83 |
| Load perpendicular to grain, plate length perpendicular to load | 1.44 | 1.23 | 1.44 | 1.23 |

Table 1.3 Roller Press Modification Factors

| Roller diameter | 610 mm (24 in.) | |
|---|-----------------|------|
| Specific gravities SG | 0.42 | 0.47 |
| Ultimate lateral resistance modification factor, K_{pu} | 0.84 | 0.88 |
| Slip modification factor, K_{ps} | 0.77 | 0.87 |

Table 1.4 Results of Testing the Tensile Strength of the Plate

| Direction of Load | Unit | Tensile Resistance, t_p |
|------------------------------------|------------|---------------------------|
| Load parallel to plate length | N/mm/plate | 397 |
| Load perpendicular to plate length | N/mm/plate | 175 |

Table 1.5 Results of Testing the Shear Strength of the Plate

| Angle (Degree) | Shear Resistance, v_p (N/mm/Plate) | Slots in Plate Axis |
|----------------|--------------------------------------|---------------------|
| 0, 180 | 137 | ⊥ |
| 15 T | 118 | ∥ |
| 15 C | 138 | ⊥ |
| 30T | 210 | ∥ |
| 30C | 125 | ⊥ |
| 60T | 247 | ∥ |
| 60C | 90 | ⊥ |
| 90 | 148 | ∥ |
| 120T | 109 | ⊥ |
| 120C | 144 | ∥ |
| 150T | 123 | ⊥ |
| 150C | 126 | ∥ |
| 165 T | 139 | ⊥ |
| 165 C | 89 | ∥ |

Legend for Table 1.5:

- ⊥ Slots perpendicular to the plate, long dimension
- ∥ Slots parallel to the plate, long dimension
- C Compression
- T Tension

2. Description

The product is manufactured from 18-gauge steel sheet that meets the minimum specified ultimate tensile strength (480 MPa) and minimum yield strength (410 MPa) requirements of ASTM A 653/A 653M, “Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process” Grade HSLAS-F410 (formerly known as HSLA B/II 410) steel, and galvanized with Z275 (G90) zinc coating. The product has a coated nominal thickness of 1.184 mm and is stamped with 0.0108 teeth per square mm. The teeth are 8.3 mm in length.

3. Standard and Regulatory Information

See the Annex, appended to this Listing, which summarizes the product standard.

This/these product(s) was/were evaluated to the product standard referenced in the Annex current as of 2015-02-03. Note that the Annex may have been updated since this Listing was issued to include more recent editions of the applicable product standard. Therefore, this Listing may not reflect the requirements contained in any updated version of this product standard.

Listing Holder

Alpine Systems Corporation
120 Travail Road
Markham, ON L3S 3J1

Telephone: 905-417-2766

Fax: 866-802-4919

Plant(s)

Litchfield, IL, USA

Disclaimer

This Listing is issued by the Canadian Construction Materials Centre, a program of the NRC Construction Research Centre at the National Research Council of Canada. The Listing must be read in the context of the entire CCMC Registry of Product Evaluations.

Readers must confirm that the Listing is current and has not been withdrawn or superseded by a later issue. Please refer to http://www.nrc-cnrc.gc.ca/eng/solutions/advisory/ccmc_index.html, or contact the Canadian Construction Materials Centre, NRC Construction Research Centre, National Research Council of Canada, 1200 Montreal Road, Ottawa, Ontario, K1A 0R6. Telephone 613-993-6189. Fax 613-952-0268.

NRC has evaluated the material, product, system or service described herein only for those characteristics stated herein. The information and opinions in this Listing are directed to those who have the appropriate degree of experience to use and apply its contents. This Listing is provided without representation, warranty, or guarantee of any kind, expressed, or implied, and the National Research Council of Canada (NRC) provides no endorsement for any evaluated material, product, system or service described herein. NRC accepts no responsibility whatsoever arising in any way from any and all use and reliance on the information contained in this Listing. NRC is not undertaking to render professional or other services on behalf of any person or entity nor to perform any duty owed by any person or entity to another person or entity.

Date modified:

2018-06-26



Metal Truss Connector Plates [Annex]

MASTERFORMAT: 06 05 23.07

Issued: 2015-02-03

Scope

These Evaluation Listings apply to light metal plate connectors used in structural lumber assemblies. The proponent has demonstrated that the product meets the requirements of the following standard:

- CSA O86-14, “Engineering Design in Wood”

The design values for the metal truss connector plates are based on test results obtained in accordance with CSA S347-14, “Method of Test for Evaluation of Truss Plates used in Lumber Joints.”

Standards

CSA S347 requires testing on the following properties:

- lateral resistance of teeth;
- tensile strength of plate;
- shear strength of plate;
- ultimate tensile strength of plate material;
- roller press lateral resistance; and
- moisture response for truss plate joints in structural composite lumber.

Clause 12.8.1.2 of CSA O86 does not apply to truss plates in situations where corrosive conditions exist, or in lumber that has been treated with a fire retardant and that is used in wet service conditions or in locations prone to condensation.

Truss plates must be manufactured from galvanized sheet steel and should be of G90 coating class meeting Clause 12.8 of CSA O86.

National Building Code of Canada (NBC)

NBC References

CSA O86 is referenced in Table 4.1.8.9. and Sentence 4.3.1.1.(1) of Division B of the NBC 2015.

CSA S347-14 is not directly referenced in the NBC 2015, however it is referenced in CSA O86-14, Clauses 16.4.2 and 16.4.3.