



Evaluation Listing CCMC 12182-L Alpine HS20 Truss Plate

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1. Evaluation

The product conforms to CSA S347-14 and to CSA O86-14.

2. Description

The product is a galvanized, high-strength low-alloy (HSLA) I410 or II410 steel truss connector plate with a 0.925-mm nominal plate thickness and stamped with 0.0108 teeth/mm² that are 8.5 mm long.

Table 2.1 Ultimate Tensile Strength of Uncoated Steel Plate

Specified Grade (MPa)	Nominal Plate Thickness (mm)	Tested Plate Thickness t_{test} (mm)	Minimum Specified Ultimate Tensile Strength $f_{u\ min}$ (MPa)	Ultimate Tensile Strength $f_{u\ test}$ (MPa)	Correction Factor $CF = C_u C_{ts}$
483	0.925	0.914	483	562	0.827

Table 2.2 Lateral Resistance of Teeth

Direction of Load	Limit States Design		
	Average ultimate lateral resistance R_u	Coefficient of variation of ultimate lateral resistance CV	Average lateral resistance at 0.8 wood-to-wood slip R_s
Units	MPa/Plate	–	MPa/Plate
Type of Press	Hydraulic	–	Hydraulic
Species of Wood	S-P-F	–	S-P-F
Load parallel to grain, plate length parallel to load	1.67	0.0604	1.69
Load parallel to grain, plate length perpendicular to load	1.19	0.0710	1.20
Load perpendicular to grain, plate length parallel to load	1.22	0.0850	0.95
Load perpendicular to grain, plate length perpendicular to load	1.35	0.0568	1.27

Table 2.3 Tensile Strength of Plate

Limit States Design	
Direction of Load	Tensile Resistance, t_{uL}
Units	N/mm/Plate
Plate length parallel to load	292
Plate length perpendicular to load	120

Table 2.4 Shear Strength of Plate

Angle (degree)	Limit States Design	Failure Mode	
	Shear Resistance, v_{uL} (N/mm/Plate)	Shear Failure in T or C	Slots in Plate Axis Two-Joint Plate
0	125	N/A	⊥
30	143	T	//
30	107	C	⊥
60	219	T	//
60	71	C	⊥
90	112	N/A	//
120	87	T	⊥
120	117	C	//
150	109	T	⊥
150	92	C	//

⊥ : Slots perpendicular to plate, long dimension

//: Slots parallel to plate, long dimension

C: Compression

T: Tension

N/A: not applicable

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.

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Metal Truss Connector Plates [Annex]

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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 2010.

CSA S347-14 is not directly referenced in the NBC 2010, however it is referenced in CSA O86-14, Clauses 16.4.2 and 16.4.3.