



## Evaluation Listing CCMC 12802-L Alpine Wave Plate

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### 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	Uncoated Nominal Plate Thickness (mm)	Mean Ultimate Tensile Strength (MPa)	Correction Factor
SS Grade 275	0.879	421 MPa for Unstamped Metal	0.861
SS Grade 275	0.879	447 MPa for Unstamped Metal for Shear Tests	0.917

**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	2.00	1.96	2.44	2.32
Load parallel to grain, plate length perpendicular to load	1.86	2.09	2.15	2.43
Load perpendicular to grain, plate length parallel to load	1.29	1.14	1.29	1.14
Load perpendicular to grain, plate length perpendicular to load	1.36	1.49	1.36	1.49

**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, $K_{pu}$	0.79	0.87
Slip modification factor, $K_{ps}$	0.86	0.96

**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	165
Load perpendicular to plate length	N/mm/plate	151

**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	117	⊥
30T	139	
30C	76	⊥
60T	175	
60C	70	⊥
90	126	
120T	101	⊥
120C	63	
150T	161	⊥
150C	74	
165 T	148	⊥
165 C	80	

**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 a 20-gauge steel sheet that meets the minimum specified ultimate tensile strength (380 MPa) and minimum yield strength (275 MPa) requirements of ASTM A653/A653M, “Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process” SS Grade 275 steel, and galvanized with Z275 (G90) zinc coating. The product has an uncoated nominal thickness of 0.879 mm and is stamped with 0.0124 teeth per square mm. The teeth are 9.5 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**

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## Plant(s)

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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 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.