# Evaluation Listing CCMC 12888-L
# ES-16

| | |
|---|---|
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| **Evaluation Issued:** | 1998-12-01 |
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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.” The test results in conformance with CSA-S347 are as follows:

**Table 1.1. Results of Testing the Ultimate Tensile Strength of the Plate(1)**

| Plate Thickness (mm) | | | | | Ultimate Tensile Strength (MPa) | | Correction Factor |
|---|---|---|---|---|---|---|---|
| Requirements | | | | Test ($t_{test}$) | | | |
| Nominal Uncoated | Minimum Coated | Minimum Uncoated | Maximum for Tests | Average Uncoated | Requirement | Average Test Result | |
| 1.520 | 1.473 | 1.397 | 1.596 | 1.346 | 360 | 444.8 | 0.840 |

**Note to Table 1.1:**

(1) ASTM A 653/A 653M-13, "Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process," SS, Grade 255

**Table 1.2 Results of Testing the Lateral Resistance of Teeth**

| Direction of Load | Limit States Design | |
|---|---|---|
| | Ultimate Lateral Resistance, $n_u$ | Lateral Slip Resistance, $n_s$ |
| **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** | 1.62 | 2.24 |
| **Load parallel to grain, plate length perpendicular to load** | 1.92 | 2.76 |
| **Load perpendicular to grain, plate length parallel to load** | 1.38 | 1.20 |
| **Load perpendicular to grain, plate length perpendicular to load** | 1.80 | 2.26 |

**Table 1.3 Results of Testing the Tensile Strength of the Plate**

| Direction of Load | Limit States Design |
|---|---|
| | Tensile Resistance, $t_p$ |
| **Units** | N/mm/Plate |
| **Plate length parallel to load** | 337 |
| **Plate length perpendicular to load** | 184 |

**Table 1.4 Results of Testing the Shear Strength of the Plate**

| Angle (Degree) | Limit States Design | Failure Mode | |
|---|---|---|---|
| | Shear Resistance, $v_p$ (N/mm/Plate) | Shear failure in T or C | Slots in Plate Axis |
| **0** | 136 | N/A | ⊥ |
| **30** | 113 | C | ⊥ |
| **30** | 195 | T | // |
| **60** | 90 | C | ⊥ |
| **60** | 248 | T | // |
| **90** | 165 | N/A | // |
| **120** | 147 | C | // |
| **120** | 131 | T | ⊥ |
| **150** | 136 | C | // |
| **150** | 154 | T | ⊥ |

**Notes to Table 1.4:**

⊥: Slots perpendicular to plate, long dimension

//: Slots parallel to plate, long dimension

C: Compression

T: Tension

## 2. Description

A hot-dipped galvanized G90, Grade SS255 steel truss connector plate with a thickness of 1.50 mm that is stamped parallel with 0.0065 teeth/mm$^2$. The teeth are 11.1 mm long and 5.1 mm wide. They are spaced 25.3 mm on centre (o.c.) along the width and 37.5 mm o.c. along the length of the plate. The slots in adjacent rows are staggered.

## 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 that is 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.