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CCMC 12118-R

**CCMC**

*EVALUATION  
REPORT*

DIVISION 06174

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Re-Evaluation  
in process

## ***Open Joist 2000<sup>®</sup> / Solive ajourée 2000<sup>™</sup>***

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### ***1. Purpose of Evaluation***

The proponent sought confirmation from the Canadian Construction Materials Centre (CCMC) that "Open Joist 2000<sup>®</sup>/Solive ajourée 2000<sup>™</sup>" can serve as a floor joist for houses, mobile homes and small buildings, in compliance with the intent of the National Building Code of Canada (NBC) 1995.

### ***2. Opinion***

Subject to the limitations and conditions stated in this report, test results and assessments provided by the proponent show that "Open Joist 2000<sup>®</sup> / Solive ajourée 2000<sup>™</sup>" complies with CCMC's Technical Guide for Open-Web Wood Floor Trusses," Masterformat number 06190, dated 93-03-05, and provides a level of performance equivalent to that required in:

- NBC 1995, Section 9.23. and Part 4, when designed in accordance with:
- CAN/CSA-O86-M84, "Engineering Design in Wood (Working Stress Design)."

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Adhesive used in the joists complies with:

- CSA Standard O112.7-M1977, “Resorcinol and Phenol-Resorcinol Resin Adhesives for Wood (Room and Intermediate Temperature Curing).”

Canada Mortgage and Housing Corporation permits the use of this product in construction financed or insured under the National Housing Act.

### 3. Description

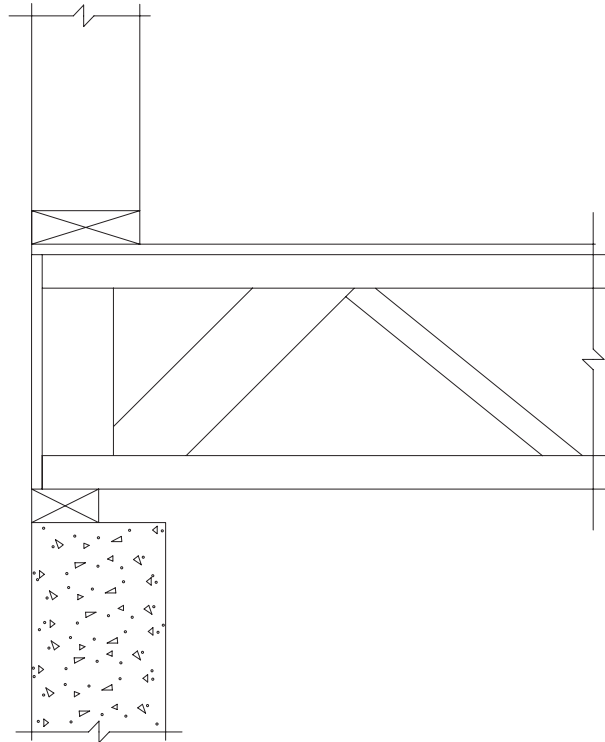
“Open Joist 2000®/Solive ajourée 2000™” consists of a top and bottom chord connected by a series of diagonal members that are finger-jointed into each chord. Three depths of joist have been evaluated, namely: 238, 330 and 406 mm. All joists are composed of the following components:

- the top and bottom chords are either 38 x 64 mm or 38 x 89 mm of SPF No. 1/No. 2, SPF 2100f1.8E, or SPF 2400 f2.0E;
- all diagonals are made of 38 x 38 mm, 38 x 64 mm or 38 mm x 89 mm SPF No. 1/No. 2;
- chords may have fingerjoints but no closer than 600 mm spacing;
- the vertical endpost is either solid or glue-laminated.

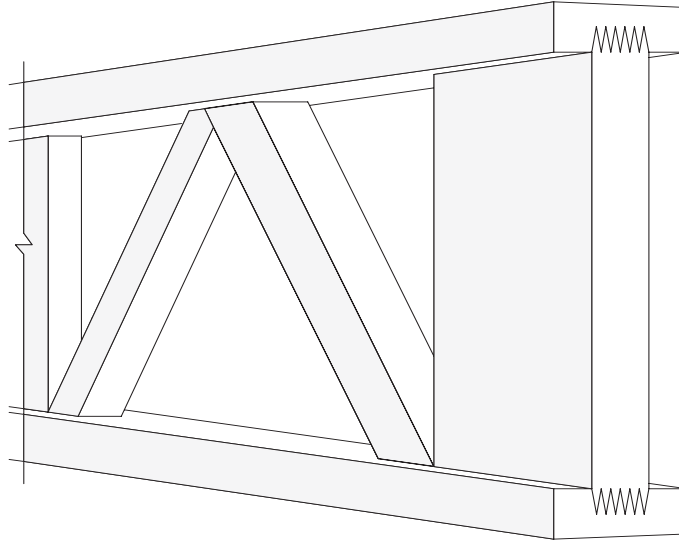
All finger joints, including those between the diagonals and the chords, are glued together with “R-14 Phenol-Resorcinol Resin” adhesive. Intertek Testing Services NA Ltd. (WHI Mark), accredited by the Standards Council of Canada, conducts frequent audits of the manufacturing plant and the quality assurance program.

Figure 1 shows a typical detail for the installation of the joist. Figure 2 shows the typical joist end finger joint, which is specific to this product.

These figures are for illustrative purposes only; please refer to the manufacturer’s installation guide for more detailed information on the proper installation of the product.



**Figure 1. Open Joist 2000®/Solive ajourée 2000™**



**Figure 2. Open Joist 2000®/Solive ajourée 2000™ Typical End Finger-Joint**

#### **4. Usage and Limitations**

“Open Joist 2000®/Solive ajourée 2000™” is subject to the following conditions:

- The joists must be installed in strict accordance with the manufacturer’s current installation instructions, especially the requirement for the proper orientation of the joist. Each joist is marked with an arrow that indicates which side is up.
- The installation shall be in accordance with installation details contained in the publication “Open Joist 2000” dated 02/96, published by Open Joist 2000 Inc. The installed joist span shall be the “lesser of” the span shown in the tables contained in: i) the above-mentioned publication for L/360 or ii) the vibration-controlled span charts\* entitled, “Controlled Vibration Maximum Span Tables,” dated 01/98. The latter span chart is the vibration-controlled span, which includes the installation of specific strongbacks and subfloor thickness, while the former are the span charts controlled by the deflection criterion or strength under uniform load. To conform to the NBC 1995 for the residential loads anticipated in Part 9, neither span must be exceeded.
- For structural applications outside the scope of the above-referenced manufacturer’s publication, the drawings or related documents shall bear the authorized seal of a professional engineer skilled in wood design and licensed to practice under the appropriate provincial or territorial legislation.
- “Open Joist 2000®/Solive ajourée 2000™” products must be used under dry service conditions, as is the case for all wood-based joist products.
- Care must be exercised in handling to prevent bending and damage during shipping, storage, and installation. Damaged or defective joists can be used if they are repaired according to the requirements of a professional engineer skilled in wood design.
- The joists must be stored and protected at all times from moisture and weather so as to prevent excessive weathering or deterioration of the wood components, as is the case for all wood-based joist products.

*\*Note: In cases where concrete topping is applied or bridging/blocking is used and joists are installed at the maximum spans, the current vibration criteria may not address all occupant performance expectations. The manufacturer should therefore be consulted for span adjustments, if necessary, in these types of installations.*

- These products must be identified with the phrase “CCMC # 12118-R” along the vertical web member within the arrow indicating the right side up. This evaluation shall not apply to any product that does not possess both markings.
- “Open Joist 2000®/Solive ajourée 2000™” used as floor joists in mobile homes must have a depth of 238 mm with top and bottom chords 38 x 89 mm SPF No. 2, a clear span not exceeding 5.0 m and cantilevers on each side not exceeding 490 mm maximum. They must be installed reversed<sup>1</sup> at 488 mm centre to centre. The live loads are limited to: 1.9 kPa

for the floor, 3.1 kPa for snow and 0.5 kPa for rain. The dead load is limited to 0.48 kPa.

<sup>1</sup> Note: In this case only, the joist must be installed with the first diagonal descending towards the mid-span of the joist.

## 5. Performance

Tests on 374 joists of the three depths were undertaken under the supervision of a registered professional engineer, to determine the capacities of the open joist system and validate the design methodology.

The test results are outlined in Table 1.

**Table 1. Load Test**

Test Procedure	Performance Criterion	Result
A live load of 1.9 kN/m <sup>2</sup> plus a dead load of 1.0 kN/m <sup>2</sup> are applied to the pair and maintained for one hour.	Deflection due to live load only not to exceed L/360	Passed
Live load plus dead load is maintained for 24 hours.	Increase in deflection not to exceed 25% of initial deflection	Passed
Live load is removed.	Difference between deflection measured prior to application of live load and after its removal not to exceed L/1440	Passed
A load equivalent to twice the live and dead load is maintained for 24 hours.	Joist shall not collapse	Passed

Before leaving the factory, each joist is proof-tested, to verify the design working load, for a period of 3 to 5 seconds.

The manufacturer has submitted copies of manufacturing and quality control procedures indicating the company’s intention to manufacture a product consistent with that tested.

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*Note: Readers are asked to refer to limitations imposed by NRC on the interpretation and use of this report. These limitations are included in the introduction to CCMC’s Registry of Product Evaluations, of which this report is part.*

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