



Evaluation Report CCMC 12344-R

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WallBAR

1. Opinion

It is the opinion of the Canadian Construction Materials Centre (CCMC) that “WallBAR” when used as a system to install thermal insulation in accordance with the conditions and limitations stated in Section 3 of this Report, complies with the National Building Code 2005:

- Clause 1.2.1.1.(1)(a), Division A, using the following acceptable solutions from Division B:
 - Article 9.25.2.2. Insulation Materials
 - Article 9.25.2.4. Installation of Loose-Fill Insulation

This opinion is based on CCMC's evaluation of the technical evidence in Section 4.1 provided by the Report Holder.

Ruling No. 94-04-04 (12344-R) authorizing the use of this product in Ontario, subject to the terms and conditions contained in the Ruling, was made by the Minister of Municipal Affairs and Housing on 1994-09-28 (revised on 2010-07-07) pursuant to s.29 of the Building Code Act, 1992 (see Ruling for terms and conditions). This Ruling is subject to periodic revisions and updates.

2. Description

The product consists of cellulose fibre insulation that is manufactured in accordance with CAN/ULC-S703-01, “Standard for Cellulose Fibre Insulation (CFI) for Buildings,” and that incorporates approximately 0.5% by weight of powdered adhesive, which is added during the manufacturing process.

This product is evaluated for use in typical wood-frame constructions using either 38-mm x 89-mm or 38-mm x 140-mm studs at 400 mm or 600 mm on centre (o.c.). The wall is provided with a polyethylene vapour barrier on the inside and permeable or semi-permeable sheathing material such as waferboard, fibreboard, glass-fibre thermal insulating sheathing or plywood on the outside.

The insulation is injected into the stud cavities by one of two methods:

(1) Through a polypropylene/polyester woven fabric netting (WallNET[®]) that is stapled to the face of the studs and plates, which would hold the cellulose insulation in its place (see Figure 1). In this method the vapour barrier is installed afterward.

(2) Through the polyethylene vapour barrier, where vertical splines, horizontal strapping or a combination of both is applied to the vapour barrier prior to installing the cellulose insulation (see Figure 2).

The insulation is applied either dry or with a moisture content of $15 \pm 5\%$ of dry weight at a density of 45 kg/m^3 (with a range of $\pm 15\%$). When applying moisture the dry insulation is misted with water during the installation process to cause the fibre to meld at interstitial points which forms a cohesive mat.

The installation for sloped and cathedral ceilings is the same as for walls (see Figure 3), except that there is a ventilation system. The insulation is always dry-blown and cavities longer than 3 m must be blown in stages.

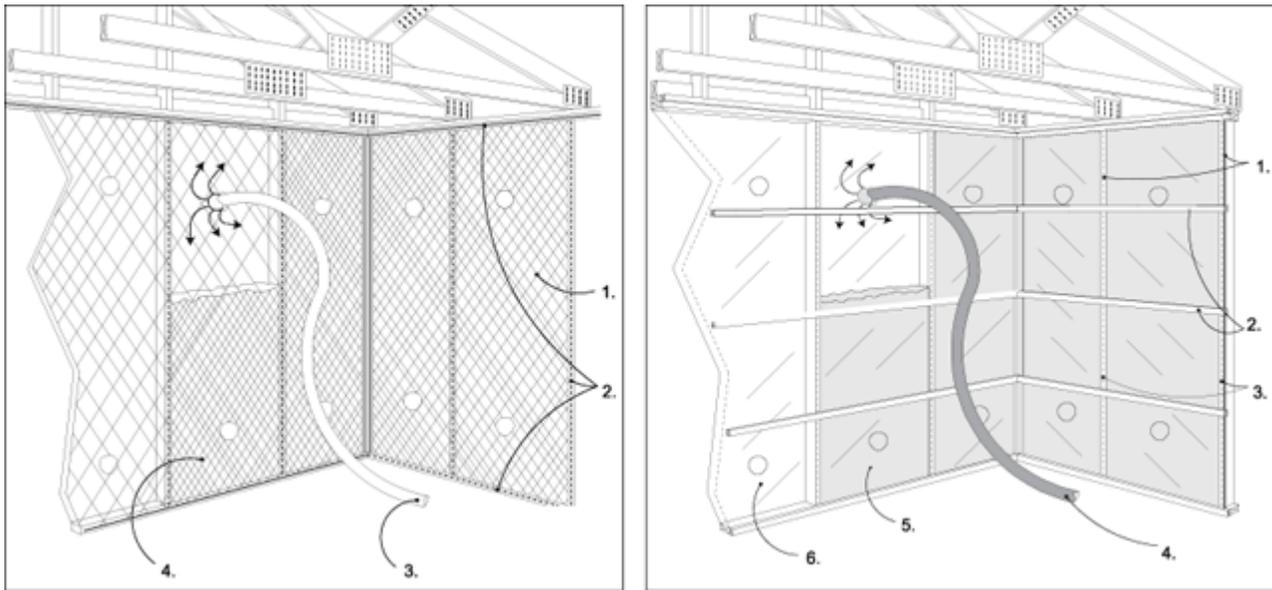


Figure 1. “WallBAR” – with netting	Figure 2. “WallBAR” – through vapour barrier
1. Polypropylene/polyester woven fabric netting	1. Splines (if applicable)
2. Staples	2. 25-mm x 50-mm strapping (if applicable)
3. Injection hose	3. Staples
4. Cellulose insulation	4. Injection hose
	5. Cellulose insulation
	6. 0.15 mm polyethylene vapour barrier

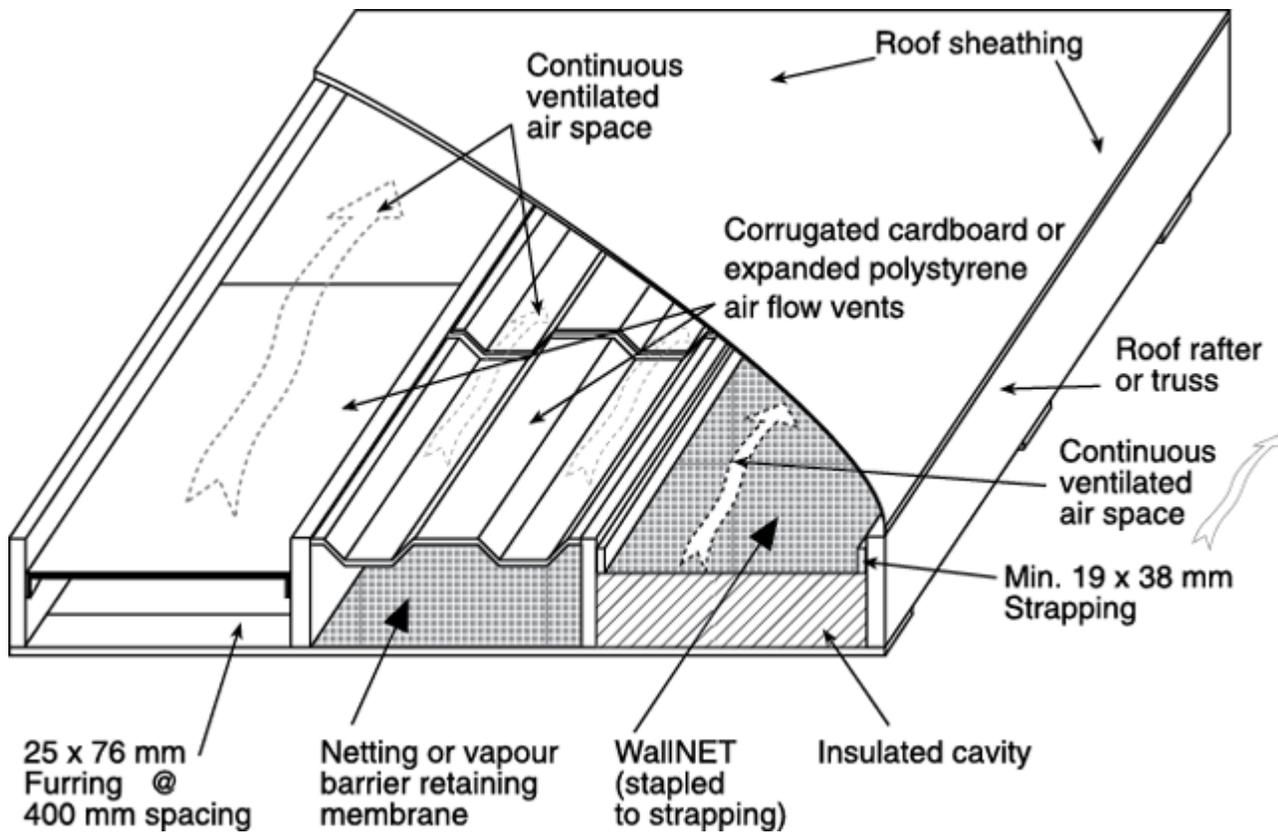


Figure 3. “WallBAR” for sloped and cathedral ceilings

3. Conditions and Limitations

CCMC's compliance opinion in Section 1 is bound by the “WallBAR” being used in accordance with the conditions and limitations set out below.

- The installation must be done by a manufacturer-certified installer in accordance with the manufacturer’s installation instructions. “WallBAR” installers must carry a certificate bearing their signature, and must be certified as competent in such work by Can-Cell Industries Inc. The manufacturer-certified installer is responsible for ensuring that the installation work performed is done in a workmanlike manner and in accordance with recommendations provided by Can-Cell Industries Inc.
- “WallBAR” insulation can be applied using any commercially available blowing equipment. The application density can vary depending on the type of blowing apparatus used. The manufacturer-certified installer should be consulted for the correct application density.
- The vapour barrier must be resealed with a patch according to Can-Cell Industries Inc.’s installation manual.
- The insulation must be kept away from heat-emitting devices such as recessed light fixtures (75 mm), chimneys and propane or natural gas sources (50 mm) or the distance required by the local authority having jurisdiction.
- The installer must ensure that the moisture content of the lumber is not greater than 19% at the time of installation in accordance with Article 9.3.2.5., Moisture Content, of Division B of the NBC 2005. The

moisture content of the wood frame must be verified and recorded by the installer with a moisture meter before installing the insulation.

- The system can only be used in cathedral ceilings that incorporate a ventilation system constructed in accordance with Subsection 9.19.1., Venting, of Division B of the NBC 2005.
- Air flow vents for sloped ceilings can be manufactured with either 175 B or C unwaxed corrugated cardboard, or expanded polystyrene with a minimum 8-mm thickness at a density of 16 kg/m^3 , or by stapling WallNET[®] netting to the face of 25-mm x 50-mm or better strapping fastened to the edge of the rafter/truss. Venting should be fastened to either roof rafters, truss chords, truss webs, strapping or sheathing using 12-mm staples. The area over the top plate of the exterior wall must be blocked to prevent insulation from spilling into the soffit area.

4. Technical Evidence

CCMC's Technical Guide for "WallBAR" sets out the nature of the technical evidence required by CCMC to enable it to evaluate a product as an acceptable or alternative solution in compliance with the NBC 2005. The Report Holder has submitted test results for CCMC's evaluation. Testing was conducted at independent laboratories recognized by CCMC. The corresponding test results for "WallBAR" are summarized below.

4.1 NBC 2005 Compliance Data for "WallBAR" on which CCMC Based its Opinion in Section 1

4.1.1 Performance Requirements

4.1.1.1 Thermal Resistance

The densities of the test specimens ranged from 41 kg/m^3 to 51 kg/m^3 and the respective thermal resistance per unit thickness ranged from $26.1 \text{ m}^2\cdot\text{K/W/m}$ to $26.3 \text{ m}^2\cdot\text{K/W/m}$. (Note: A change in the applied density of the product has a low impact on corresponding thermal resistance.) For design purposes, a figure of $26.2 \text{ m}^2\cdot\text{K/W}$ is to be used. Thus, the thermal resistance of the insulation in the following wall systems is given:

(a) with netting:

- 89 mm @ 400 mm o.c. is $2.34 \text{ m}^2\cdot\text{K/W}$;
- 140 mm @ 600 mm o.c. is $3.68 \text{ m}^2\cdot\text{K/W}$;

(b) with a 0.15 mm polyethylene vapour barrier and vertical spline:

- 89 mm @ 400 mm o.c. is $2.34 \text{ m}^2\cdot\text{K/W}$;
- 140 mm @ 400 mm o.c. or 600 mm o.c. is $3.68 \text{ m}^2\cdot\text{K/W}$;
- 140 mm @ 600 mm o.c. with strapping* (effective depth is 157.8 mm) is $4.15 \text{ m}^2\cdot\text{K/W}$;
- 140 mm @ 400 mm o.c. with spline and strapping* (effective depth is 152.4 mm) is $4.01 \text{ m}^2\cdot\text{K/W}$; and
- 90 mm @ 400 mm o.c. with spline and strapping* (effective depth is 104.3 mm) is $2.74 \text{ m}^2\cdot\text{K/W}$.

* Strapping consists of five 25-mm x 50-mm horizontal wood members.

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