



Evaluation Listing CCMC 13460-L H-Shield, H-Shield F, H-Shield CG, Xci Foil, Xci CG

Evaluation Issued:	2011-10-20
Re-evaluated	2015-03-03
Re-evaluation due:	2017-10-20

Preface: Masterformat 07 21 13.07, Thermal Insulation, Polyurethane and Polyisocyanurate, Boards Faced

Preface Issued:	2012-05-18
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Scope

These Evaluation Listings apply to closed-cell polyurethane and polyisocyanurate foam thermal insulation in the form of flat rigid boards covered on both sides with a facing material. The rigid boards are intended for use as thermal insulation in building construction. The continuous use temperature is within the range of -60°C to $+93^{\circ}\text{C}$.

These rigid boards are not intended to be used as structural panels.

The standards referenced below provide a basis for evaluating products made with various facing materials, which has an impact on some physical characteristics. These standards cover only products in which the facing material has been bonded to the foam core in the original foam manufacturing process.

These standards do not apply to products made using fibreboard, perlite board, gypsum board, oriented strandboard (OSB), or any other rigid board, on one or both sides.

The proponent has demonstrated that the product meets the requirements of at least one of the following standards:

- CAN/ULC-S704-03, "Thermal Insulation, Polyurethane and Polyisocyanurate, Boards, Faced"
- CAN/ULC-S704-11, "Thermal Insulation, Polyurethane and Polyisocyanurate, Boards, Faced"

Products manufactured in accordance with one of these standards are classified as Type 1, 2 or 3 on the basis of their physical properties, and as Class 1, 2 or 3 on the basis of water vapour permeability. Typically, Type 1 products are used in wall applications, whereas Type 2 and 3 products are used in roofing applications.

Standard

Table 1. Technical Requirements for Closed-cell Polyurethane and Polyisocyanurate Foam Thermal Insulation Tested for Conformance with CAN/ULC-S704-03 or CAN/ULC-S704-11

Physical Property		Unit	Requirement			
			Type 1	Type 2	Type 3	
Compressive strength		kPa	≥ 110	≥ 140	≥ 170	
Tensile strength, perpendicular to the plane of the facer		kPa	≥ 24	≥ 35	≥ 35	
Flexural strength		kPa	≥ 170	≥ 275	≥ 275	
Thermal resistance	after conditioning, per 25-mm-thickness	m ² ·°C/W	≥ 0.97			
	long-term thermal resistance (LTTR) for 50-mm-thick product ¹		≥ 1.90 (CAN/ULC-S704-03)			
			≥ 1.80 (CAN/ULC-S704-11)			
Water vapour permeance for 25.4-mm-thick product	Class 1	ng/(Pa·s·m ²)	≤ 15			
	Class 2		≥ 15 to ≤ 60			
	Class 3		≥ 60			
Dimensional stability	at -29°C, ambient RH	% linear change	Length	Max. ± 2.0	Width	Max. ± 2.0
	at 80°C, ambient RH			Max. ± 2.0		Max. ± 2.0
	at 70°C, 97% RH			Max. ± 2.0		Max. ± 2.0
Water absorption		% by volume	≤ 3.5			
Dimensional tolerances	width	mm	+4, -2			
	length		+6, -4			
	thickness, ≤ 55 mm thick		+4, -1.5			
	thickness, ≥ 55 mm thick		+5, -2.5			
	flatness	mm/m	≤ 4			
	squareness, ≤ 1 200 mm in length		≤ 5			
	squareness, ≥ 1 200 mm in length		≤ 9			

Note to Table 1:

- ¹ The LTTR of the material must be reported for the purpose of energy calculations. The LTTR value must also be reported for the 25-mm- and 75-mm-thick products.

Labelling

The product must be marked with the following information:

- for conformance with CAN/ULC-S704-03:
 - type and class;
 - ULC standard number;
 - manufacturer's name or trademark, address and telephone number;
 - lot number;
 - a brief generic description of the facing material used;
 - the thermal resistance; and
 - the product must also be marked with a warning: **“Caution: This product is combustible and shall only be used as specified by the local building code with respect to flame-spread classification and to the use of a suitable thermal barrier.”**
- for conformance with CAN/ULC-S704-11:
 - product name;
 - ULC standard number;
 - type and class;
 - manufacturer's name or trademark, address and telephone number;
 - country of manufacture;

- lot number;
- a brief generic description of the facing material used;
- LTTR value;
- quantity in surface unit;
- nominal dimension of board; and
- the product must also be marked with a warning: **“Caution: This product is combustible and shall only be used as specified by the local building code with respect to flame-spread classification and to the use of a suitable thermal barrier when required.”**

National Building Code of Canada (NBC)

NBC References

CAN/ULC-S704-11 is not referenced in the NBC 2010.

CAN/ULC-S704-03 is referenced in Tables 5.10.1.1. and 9.23.17.2.A. and Sentence 9.25.2.2.(1) of Division B of the NBC 2010.

Evaluation Listing CCMC 13627-L: H-Shield, H-Shield F, H-Shield CG, Xci Foil, Xci CG

Evaluation Issued:	2011-10-20
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1. Evaluation

H-Shield, H-Shield CG, and Xci CG conform to CAN/ULC-S704-11, Type 1, Class 2.

H-Shield F and Xci Foil conform to CAN/ULC-S704-11, Type 2, Class 1.

2. Description

H-Shield is a rigid board, polyisocyanurate thermal insulation that is covered with a fibre-reinforced facer on both sides.

H-Shield CG and Xci CG are rigid boards, polyisocyanurate thermal insulation that are covered with coated glass facers on both sides.

H-Shield F and Xci Foil are rigid boards, polyisocyanurate thermal insulation that are covered with foil facers on both sides.

The products are manufactured in 1 220-mm × 1 220-mm and 1 220-mm × 2 440-mm panels that range from 25 mm to 102 mm thick.

3. Standard and Regulatory Information

See the [Preface](#) and the standard for explanation.

Listing Holder

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Plant(s)

H-Shield:
Franklin Park, IL, U.S.A.
Lake City, FL, U.S.A.
Montgomery, NY, U.S.A.
Puyallup, WA, U.S.A.
Terrell, TX, U.S.A.
Tooele, UT, U.S.A.
Smithfield, PA, U.S.A.

H-Shield CG, H-Shield F, Xci CG, and Xci Foil:
Tooele, UT, U.S.A.

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