Evaluation Listing CCMC 13058-L
ENRGY 3®, Tapered ENRGY 3®, ISO-3™, Tapered ISO-3™, ValuTherm™, Tapered ValuTherm™, R-Panel™

MasterFormat:	07 21 13.07
Evaluation issued:	2002-03-25
Re-evaluated:	2015-05-05
Revised:	2016-12-22

1. Evaluation

The products conform to CAN/ULC-S704-11. The classification, design long-term thermal resistance (LTTR) and water vapour permeance (WVP) values for the products are provided in Table 1.1.

Table 1.1 Classification, Design LTTR and WVP Specifications for the Products

Products	Classification	Design LTTR (m^2·°C/W)			25.4 mm WVP ((ng/(Pa·s·m^2))
		Thickness			
		25 mm	50 mm	75 mm	
ENRGY 3®, Tapered ENRGY 3®, ISO-3™, Tapered ISO-3™, ValuTherm™, Tapered ValuTherm™, R-Panel™	Type 2, Class 3	0.96	1.91	2.89	75

2. Description

The products are rigid board, polyisocyanurate thermal insulation that are faced with glass fibre reinforced paper on both sides. The products are manufactured in 1.2 m × 1.2 m and 1.2 m × 2.4 m panels that range from 12.7 mm to 101.6 mm thick.

3. Standard and Regulatory Information

See the Annex appended to this Listing, which summarizes the product standard.

These products were evaluated to the product standard referenced in the Annex current as of 2016-12-12. 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

Johns Manville
717 − 17th Street
Denver, CO 80202-3330
USA

Telephone: 1-303-978-2000
Fax: 1-303-978-2108

Plant

Cornwall, ON

Disclaimer

This Listing is issued by the Canadian Construction Materials Centre, a program of NRC Construction at the National Research Council of Canada. The Listing must be read in the context of the entire CCMC Registry of Product Evaluations.

Readers must confirm that the Listing is current and has not been withdrawn or superseded by a later issue. Please refer to http://www.nrc-cnrc.gc.ca/eng/solutions/advisory/ccmc_index.html, or contact the Canadian Construction Materials Centre, NRC Construction, National Research Council of Canada, 1200 Montreal Road, Ottawa, Ontario, K1A 0R6. Telephone: 613-993-6189. Fax: 613-952-0268.

NRC has evaluated the material, product, system or service described herein only for those characteristics stated herein. The information and opinions in this Listing are directed to those who have the appropriate degree of experience to use and apply its contents. This Listing is provided without representation, warranty, or guarantee of any kind, expressed, or implied, and the National Research Council of Canada (NRC) provides no endorsement for any evaluated material, product, system or service described herein. NRC accepts no responsibility whatsoever arising in any way from any and all use and reliance on the information contained in this Listing. NRC is not undertaking to render professional or other services on behalf of any person or entity nor to perform any duty owed by any person or entity to another person or entity.

Date modified:
2017-01-04

Thermal Insulation, Polyurethane and Polyisocyanurate, Boards Faced [Annex]

MASTERFORMAT: 07 21 13.07
Issued: 2015-07-15

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°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 to these standards are classified as Type 1, 2 or 3 on the basis of their physical properties, and 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 to CAN/ULC-S704-03 and CAN/ULC-S704-11

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

Notes 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.
2 The design LTTR value for products made with gas impermeable facers must be calculated by averaging the conditioned thermal resistance value with the LTTR value.

Labelling

The product must be marked with the following information:

As per 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 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.”**

As per 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 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-S704-03 is not referenced in the NBC 2010.

CAN/ULC-S704-11 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.