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CERTIFICATION TESTING INSPECTION

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BUILDING PRODUCTS LISTING PROGRAM

Class: Thermal Insulation

Customer: LOGIX BRANDS, LTD.
Location: 9242 Pinetree Place, Whistler, BC, Canada V0N 1B9
Website: http://www.buildwithhalo.com

Listing No. B1031-2
Project No. B1031-2
Effective Date: May 30, 2014
Last Revised: January 23, 2024
Expires: N/A

Product: Halo™ Expanded Polystyrene (EPS) Thermal Insulation
Heat Sheet™ Expanded Polystyrene Subfloor Insulation Products

Halo Type 1 (Type VIII), Type 2 (Type II), Type 3 (Type IX) Expanded Polystyrene Film Faced rigid thermal insulation products. Come in the following product options:

HALO SubTerra Type 1 / Type VIII EPS Insulation
HALO SubTerra Type 2 / Type II EPS Insulation
HALO SubTerra Type 3 / Type IX EPS Insulation
HALO ExTerra Type 1 / Type VIII EPS Insulation
HALO ExTerra Type 3 / Type IX EPS Insulation
HALO InTerra Type 1 / Type VIII EPS Insulation
Heat Sheet Type 2 (Type II) Radiant floor thermal insulation.
Heat Sheet Type 3 (Type IX) Radiant floor thermal insulation.

Standards:		
	CAN/ULC S701.1	*Thermal Insulation, Polystyrene, Boards and Pipe Covering.*
	CAN/ULC S102.2	*Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies*.
	ASTM C578	*Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation*.
	ASTM E84	*Standard Test Method for Surface Burning Characteristics of Building Materials*.

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Markings: Products are marked in a permanent manner with the following:

a) Company Name: Logix Brands
b) ASTM C578 / CAN/ULC S701.1 Type as appropriate.
c) CAN/ULC S102.2 / ASTM E84 Flame Spread Smoke Developed Index (FSI ≤ 25 / SDI ≤ 450).
d) RSI values (required for Canadian products per CAN/ULC S701.1).
e) Traceability code including date of manufacture.
f) QAI Mark as shown below:

Ratings: The following outlines Halo™ and Heat Sheet Expanded Polystyrene (EPS) Thermal Insulation Performance determined in accordance with the noted standards.

Halo™ Expanded Polystyrene Thermal Insulation Properties per CAN/ULC S701.1:

PROPERTY	TYPE 1	TYPE 2	TYPE 3
Thermal Resistance Minimum at 25 mm (1 inch) Thickness	See Table Below	See Table Below	See Table Below
Water Vapour Permeance Maximum at 25 mm Thickness (Ng/Pa*s*m^2)[1]	300	200	130
Dimensional Stability Maximum Linear Change (%)	1.5	1.5	1.5
Flexural Strength Minimum (kPa)	170	240	300
Water Absorption by Volume Maximum (%)	6.0	4.0	2.0
Compressive Strength Minimum at 10% Deformation (kPa)	70	110	140
Limiting Oxygen Index Minimum (%)	24	24	24

1: Value is for EPS thermal insulation only and does not include facer.

Heat Sheet Expanded Polystyrene Thermal Insulation Properties per CAN/ULC S701.1:

PROPERTY	TYPE 2	TYPE 3
Thermal Resistance Minimum at 25 mm (1 inch) Thickness	0.70	0.74
Water Vapour Permeance Maximum at 25 mm Thickness (Ng/Pa*s*m^2)[1]	200	130
Dimensional Stability Maximum Linear Change (%)	1.5	1.5
Flexural Strength Minimum (kPa)	240	300
Water Absorption By Volume Maximum (%)	4.0	2.0
Compressive Strength Minimum at 10% Deformation (kPa)	110	140
Limiting Oxygen Index Minimum (%)	24	24

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Halo™ Expanded Polystyrene Thermal Insulation Properties per ASTM C578:

PROPERTY	TYPE VIII	TYPE II	TYPE IX
Compressive Strength Minimum @ 10% Deformation (psi)	13.0	15.0	25.0
Thermal Resistance Minimum @ 1 inch Thick (F*ft2*h/Btu)	See Table Below	See Table Below	See Table Below
Water Vapor Permeance @ 1 inch Thickness Maximum (Perms)[1]	3.5	3.5	2.5
Water Absorption By Volume Maximum (%)	3.0	4.0	2.0
Dimensional Stability Linear Change Maximum (%)	2.0	2.0	2.0
Oxygen Index Minimum (%)	24.0	24.0	24.0
Density Minimum (lbs/ft^3)	1.15	1.35	1.80

1: Value is for EPS thermal insulation only and does not include facer.

Heat Sheet Expanded Polystyrene Thermal Insulation Properties per ASTM C578:

PROPERTY	TYPE II	TYPE IX
Compressive Strength Minimum @ 10% Deformation (psi)	15.0	25.0
Water Vapor Permeance @ 1 inch Thickness Maximum (Perms)	3.5	2.5
Water Absorption By Volume Maximum (%)	4.0	2.0
Dimensional Stability Linear Change Maximum (%)	2.0	2.0
Oxygen Index Minimum (%)	24.0	24.0
Density Minimum (lbs/ft^3)	1.35	1.80

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Thermal Resistance Properties for Halo in accordance with ASTM C518

Halo Type	Minimum Density kg/m^3 (lb/ft^3)	Thermal Resistance @ 1 inch (25 mm) at 75^{o}F (23^{o}C) Mean Temperature K*m^2/W (F*ft^2*h/Btu)	Thermal Resistance @ 1-1/6 inch (27mm) Thickness at 75^{o}F (23^{o}C) Mean Temperature K*m^2/W (F*ft^2*h/Btu)
Halo Interra / Exterra Type 1 (Type I)	15 (0.95)	0.83 (4.7)	0.88 (5.0)
Halo Exterra Type 1 (Type VIII)	18 (1.15)	0.83 (4.7)	0.88 (5.0)
Halo Subterra / Subterra Plus Type 2 (Type II)	22 (1.35)	0.83 (4.7)	0.88 (5.0)
Halo Subterra / Subterra Plus Type 2 (Type II)	23 (1.45)	0.83 (4.7)	0.88 (5.0)
Halo Subterra / Subterra Plus Type 3 (Type IX)	29 (1.80)	0.83 (4.7)	0.88 (5.0)

Halo™ and Heat Sheet Expanded Polystyrene Thermal Insulation Surface Burning Characteristics per CAN/ULC S102.2

LOGIX HALO and HEAT SHEET INSULATION	DENSITY	MAXIMUM THICKNESS	FLAME SPREAD INDEX (FSI)	SMOKE DEVELOPED INDEX (SDI)
Type 1, Type 2, Type 3	Maximum 32 kg/m^3	100 mm Maximum	≤ 210	≥ 500

Halo™ and Heat Sheet Expanded Polystyrene Thermal Insulation Surface Burning Characteristics per CAN/ULC S102.2

LOGIX COMPONENT	DENSITY	MAXIMUM THICKNESS	FLAME SPREAD INDEX (FSI)	SMOKE DEVELOPED INDEX (SDI)
Expanded Polystyrene (EPS Panel)	35.2 kg/m^3	100 mm Maximum	≤ 250	≥ 500

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Halo™ and Heat Sheet Expanded Polystyrene Thermal Insulation Surface Burning Characteristics per ASTM E84[2]

LOGIX HALO and HEAT SHEET INSULATION	DENSITY	MAXIMUM THICKNESS	FLAME SPREAD INDEX (FSI)	SMOKE DEVELOPED INDEX (SDI)
Type VIII, Type II, Type IX	Maximum 2.20 lbs/ft^3	4.0 Inches Maximum	≤ 25	≤ 450

2: Ceiling measurement only. This measurement is conducted through determination of flame spread index and smoke developed index with the removal of any contribution of molten materials ignited on the floor of the tunnel assembly

Note: **Final acceptance of the product in the intended application is to be determined by the authority having jurisdiction.**

Product is to be installed in accordance with the manufacturer's published installation instructions by qualified installing personnel.

The materials, products or systems listed herein have been qualified to bear the QAI Listing Mark under the conditions stated with each Listing. Only those products bearing the QAI Listing Mark are considered to be listed by QAI. No warranty is expressed or implied, and no guarantee is provided that any jurisdictional authority will accept the Listing found herein. The appropriate authorities should be contacted regarding the acceptability of any given Listing. Visit the QAI Online Listing Directory located at www.qai.org for the most up to date version of this Listing and to validate that this QAI Listing is active. Questions regarding this listing may be directed to info@qai.org. Please include the listing number in the request.

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