

BUILDING PRODUCTS LISTING PROGRAM

<u>Class:</u>	<u>Insulated Concrete Forms (ICF)</u>
Customer:	Superform Products, Ltd.
Location:	Box 2696, 1065 Willow Road, Pincher Creek, AB T0K 1W0
Listing No.	B1051-1
Effective Date:	July 25, 2012
Last Revised:	April 28, 2014
Expires:	N/A
Product:	Superform Insulated Concrete Forms (ICF)
Standard(s):	ASTM E2634 "Standard Specification for Flat Wall Insulating Concrete Form (ICF) Systems". CAN/ULC S717.1 "Standard for Flat Wall Insulating Concrete Form (ICF) Systems". CAN/ULC S701 "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". UBC 26-3 "Room Fire Test Standard For Interior of Foam Plastic Systems". CAN/ULC-S101 "Standard Methods of Fire Endurance Tests of Building Construction and Materials". ASTM E119-12a / ANSI / UL 263 "Standard Test Methods for Fire Tests of Building Construction and Materials".
Label:	Product is marked with labels supplied by Superform Products, Ltd. The label includes the manufacturer's name, trademark, or other recognized symbol of identification, the product model designation, month and year of manufacture or equivalent, QAI logo with the 'US' and "C" identifier, and CAN/ULC S701 Type 2, ASTM C578 Type II, ASTM E84 FSI and SDI Rating, and CAN/ULC S102.2 FSI and SDI Rating. Labels are applied to palletized finished products to ensure visibility on the jobsite.
Ratings:	The following outlines Superform ICF test results determined in accordance with the noted standards. Superform ICF Lateral Shear Fastener Resistance Ratings

FASTENER	ALLOWABLE WITHDRAWAL		ALLOWABLE LATERAL SHEAR	
	lbs	kg	lbs	kg
#6 1-1/4 inch Length Coarse Thread Drywall Screw	52	24	115	52
#10 1 1/4 inch Length Coarse Thread Wood Screw	48	22	125	57
#14 1 1/4 inch Length Coarse Thread Wood Screw	57	26	135	61
16 Gauge 1/2 inch Crown 1 1/2 inch Length Staple	8.5	4	12	5.5

Superform ICF Type 2 Specifications per CAN/ULC S701

PROPERTY	SUPERFORM SPECIFICATION
Thermal Resistance $m^2 \cdot ^\circ C/W$ at 25 mm Thickness	Minimum 0.70
Water Vapour Permeance $Ng/Pa \cdot s \cdot m^2$ at 25 mm Thickness	Maximum 200
Dimensional Stability % Linear Change	Maximum 1.5
Flexural Strength kPa	Minimum 240
Water Absorption % Volume	Maximum 4.0
Compressive Strength kPa at 10% Deformation	Minimum 110
Limiting Oxygen Index %	Minimum 24

Superform ICF Type II Specifications per ASTM C578

PROPERTY	SUPERFORM SPECIFICATION
Compressive Resistance psi at Yield or 10% Deformation	Minimum 15.0
Thermal Resistance $F \cdot ft^2 \cdot h/Btu$ at 1.00 Inch Thickness	Minimum 4.0
Flexural Strength psi	Minimum 35.0
Water Vapor Permeance Perms at 1.00 Inch Thickness	Maximum 3.5
Water Absorption % Volume	Maximum 3.0
Dimensional Stability % Change Dimensions	Maximum 2.0
Oxygen Index % Volume	Minimum 24.0
Density lbs/ft^3	Minimum 1.35

Superform ICF Surface Burning Characteristics per CAN/ULC S102.2

SUPERFORM COMPONENT	DENSITY	MAXIMUM THICKNESS	FLAME SPREAD INDEX (FSI)	SMOKE DEVELOPED INDEX (SDI)
Expanded Polystyrene (EPS Panel)	22 – 29 kg/m ³	100 mm Maximum	≤ 210	≥ 500

Superform ICF Surface Burning Characteristics per ASTM E84¹

SUPERFORM COMPONENT	DENSITY	MAXIMUM THICKNESS	FLAME SPREAD INDEX (FSI)	SMOKE DEVELOPED INDEX (SDI)
Expanded Polystyrene (EPS Panel)	1.35 – 1.80 lbs/ft ³	4.0 Inches Maximum	≤ 75	≤ 450

¹Ceiling 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.

Superform UBC 26-3 Configuration

Meets requirements with ½ inch thickness gypsum fastened with 1 ¼ inch length standard drywall screws at 12 inch on center spacing in the field, and 6 inch on center spacing around the perimeter. Fasteners must be anchored into Superform ICF web ties.

QAI Design Listing B1051-1 Superform Insulated Concrete Form (ICF) – CAN/ULC S101 / ASTM E119 4 Hour Load Bearing Fire-Resistance-Rated Wall Assembly¹

(See pdf Attachment)

No.	COMPONENT	DESCRIPTION
1	Interior Sheathing (Not Shown)	Any approved thermal barrier for the protection of foam plastic insulation, per the applicable building code can be used.
2	Expanded Polystyrene (EPS) Insulation	Superform ICF component 70 mm (2 ¾) inch thickness Type 2 (CAN/ULC S701) / Type II (ASTM C578) QAI certified expanded polystyrene thermal insulation. Superform ICF EPS panels have interlocking teeth to allow stacking onsite to create the forming wall.
3	Web Ties	Superform polypropylene web tie component, spaced at 153 mm (6 inches) on center spacing through Superform ICF. Web ties can be stacked or staggered vertically during installation (staggered web tie system shown).
4	Concrete Core	Minimum 165 mm (6.5 inches) thickness concrete core or greater, of minimum 21 MPa (3,000 psi) compressive strength. Steel reinforcing, while not shown, is approved for use. Rebar addition is to be designed and approved by a registered design professional, or authority having jurisdiction in accordance with the applicable code requirements.
5	Exterior Cladding (Not Shown)	Exterior claddings are approved for use with the Superform 4 hour load bearing fire-rated-resistant wall assembly without negatively impacting the fire rating. These exterior claddings include: brick veneer, stucco,

		fire rated exterior insulating finish systems where no additional EPS is added, cultured stone, aluminum and steel products. All exterior claddings are to be installed with the applicable building code, and the manufacturer's approved installation instructions.
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Note 1: The allowable load for Superform ICF 4 Hour Load Bearing Fire-Resistance-Rated Construction is to be determined by a registered design professional, or authority having jurisdiction in accordance with the applicable codes.

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.

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Questions regarding this listing may be directed to info@qai.org. Please include the listing number in the request.

FORM History

History Date	Version	Change Description	Reviewed By	Approved By
04/17/2014	3.0	Added disclaimer to form.	J. Johnson	K. Adamson