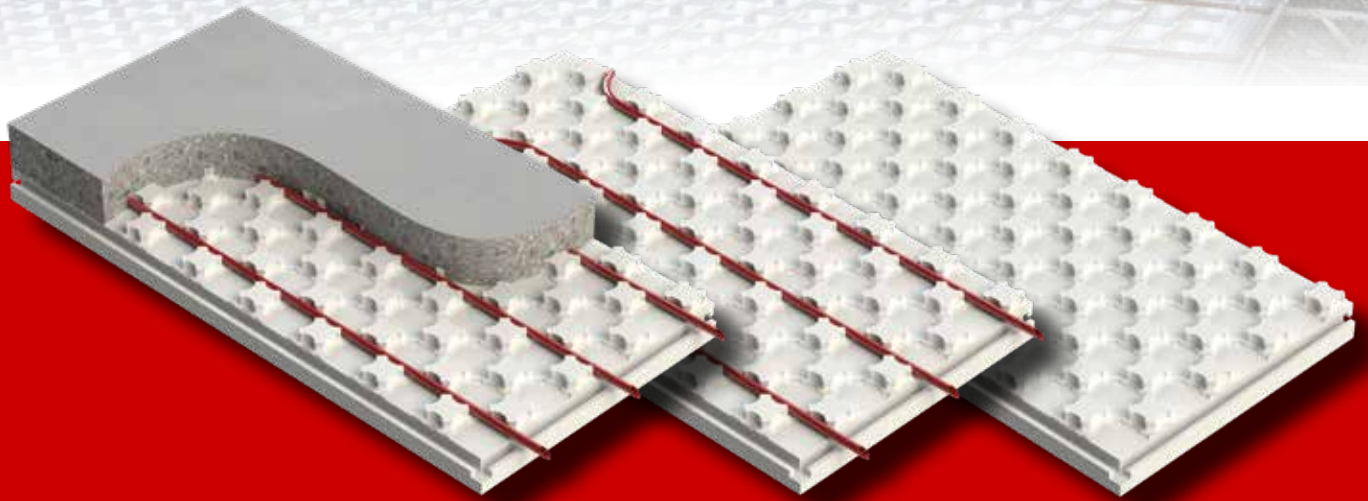
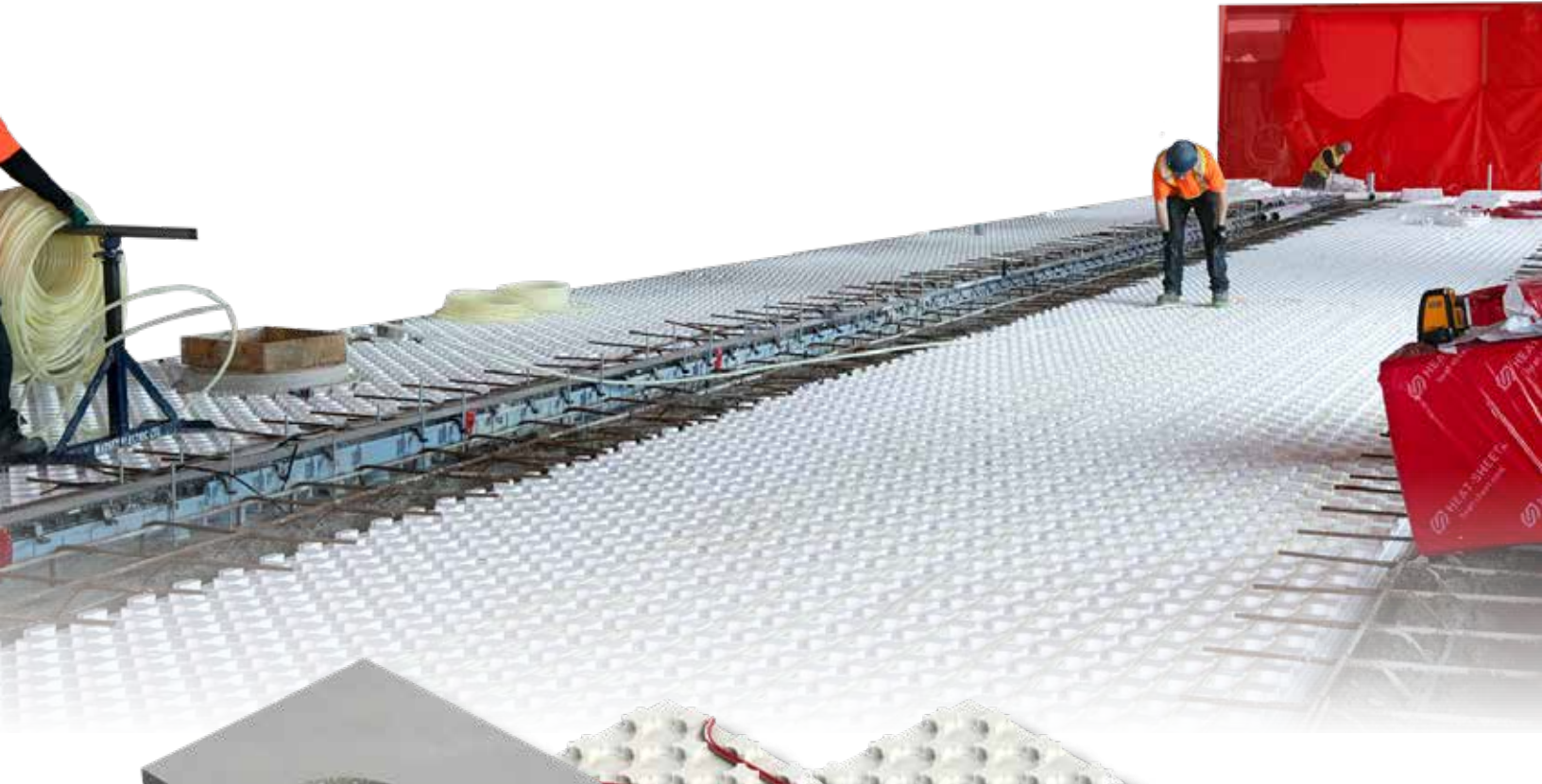




Installation Guide

The Advanced Radiant
Floor Panel

HEAT-SHEET®



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For more information, or to contact a Heat-Sheet representative, visit our website at www.Heat-Sheet.com and click "Contact Us".

This manual will be updated regularly. Current updates will be available at www.Heat-Sheet.com.

1.0 - INTRODUCTION

Heat-Sheet is a radiant floor heating system made of rigid foam insulation panels. For use in residential and commercial buildings, Heat-Sheet is designed to be incorporated into concrete floor systems.

Heat-Sheet is available as Heat-Sheet or our larger Heat-Sheet Heavy panels.

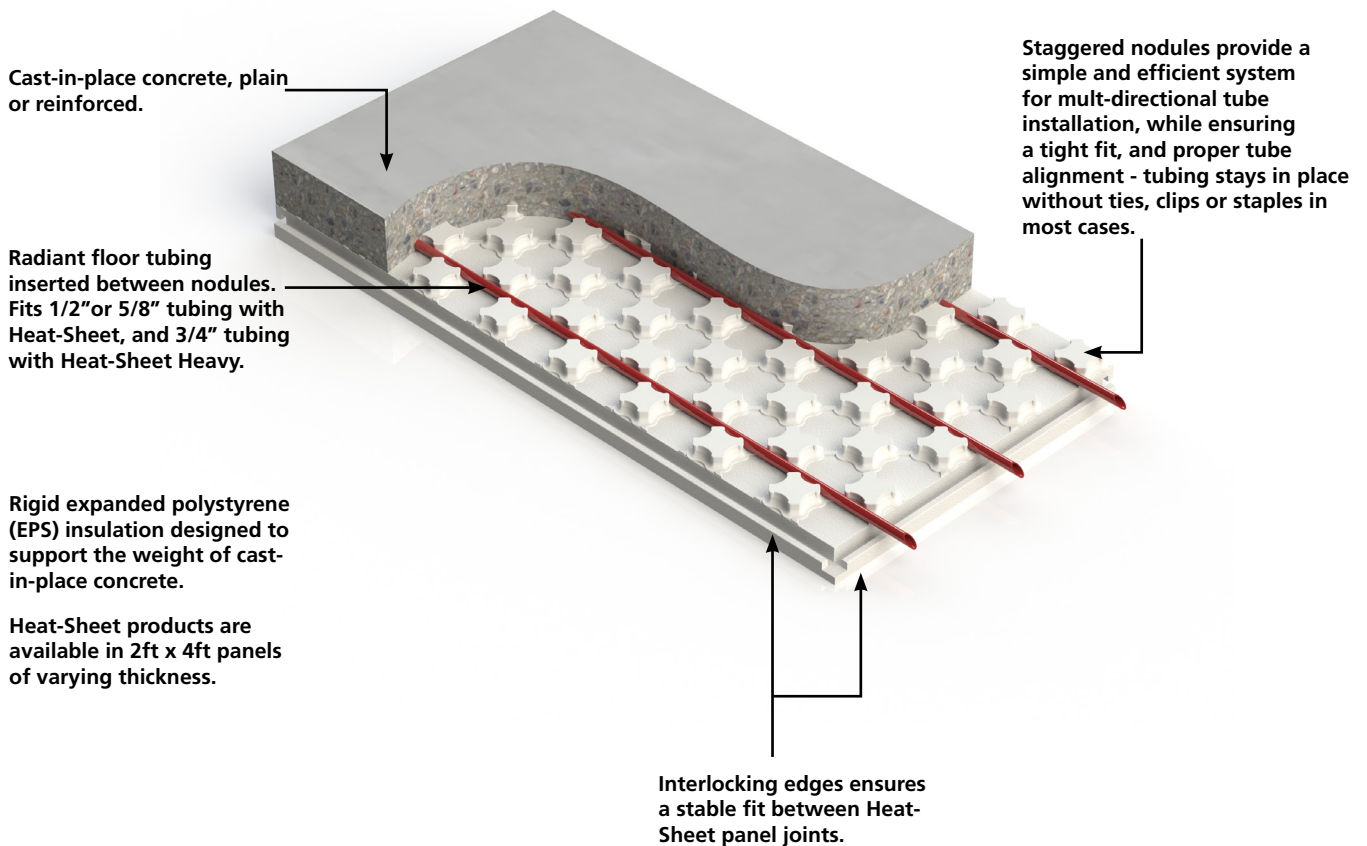
2.0 - PRODUCT DESCRIPTION

Heat-Sheet panels are made with high density expanded polystyrene (EPS) designed to support the weight of cast-in-place concrete, and foot traffic during construction. Type 2 or 3 expanded Polystyrene (EPS), per CAN/ULC S701. And Type II or IX EPS, per ASTM C578.

The nodules create a tube channel that accommodates multi-directional placement for 1/2" or 5/8" inside diameter (I.D.) tubing with Heat-Sheet. Heat-Sheet Heavy can also accommodate 3/4" I.D. tubing.

The tube channels provide 3" on-center points with Heat-Sheet and 4" on-center with Heat-Sheet Heavy.

Heat-Sheet is manufactured in 2ft x 4ft panels in a variety of thicknesses. See Product Chart below.



HEAT-SHEET® RADIANT FLOOR PANELS

3.0 - HANDLING, STORAGE & INSTALLATION

Precautionary measures taken with packaging, storage, and transportation of Heat-Sheet products can help minimize the potential for damage to the products.

3.1 - JOBSITE STORAGE AND HANDLING

Heat-Sheet panels are highly durable, however, exercise care in handling and unloading Heat-Sheet onto the construction site to minimize damage to the panels. Keep Heat-Sheet in the original factory packaging until ready for installation.

4.0 - APPLICATION

Heat-Sheet can be used under concrete slabs where radiant floor heating is required such as slab-on-grade, sandwich slab construction, and snow melt systems. In addition, Heat-Sheet can be used in retrofit and overlay applications.

NOTE: R4 and R6 Heat-Sheet panels were designed to be applied only over flat surfaces such as concrete slabs and wood subfloors - not recommended for use over rough surfaces such as crushed stone substrates.

5.0 - ESTIMATING

To estimate the quantity of Heat-Sheet required for a job site:

1. Measure the floor area where Heat-Sheet will be installed.
2. Divide the area in Step 1 by 8 to determine the number of Heat-Sheet panels required. (Each Heat-Sheet panel measures 8 ft².)
3. Determine the number of bundles required. Divide the number of Heat-Sheet panels, determined in Step 1, by the appropriate

'Panels/bundle' column in the Product Chart table, and round up to the nearest whole number. Heat-Sheet panels are shipped in bundles. The number of Heat-Sheet panels in a bundle will vary depending on the thickness of Heat-Sheet panels used.

4. Determine the concrete volume by the screed volume rates shown in the Product Chart. For each additional inch of slab above the nodules add 0.083, per the Product Chart.

Add this value to the screed volume "To top of Heat-sheet nodules" shown in the Product Chart. This total will be the total volume of concrete per square feet. Therefore, to get the total concrete volume multiply by the area determined in Step 1.

Example:

- Floor area = 850 ft², thickness of slab above nodules = 2"
- Number of Heat-Sheet panels required = $850 / 8 = 106.25$ Heat-Sheet panels
- Heat-Sheet panel thickness to use = 2 7/8" (HS-R10)

From Product Chart, panels per bundle = 8
Number of Heat-Sheet bundles = $106.25 / 8 = 13.3$ bundles
Therefore, 14 bundles required.

- From Product Chart, volume of concrete to top of nodules = 0.043 ft³/ft²

From Product Chart, 1" of slab above nodules = 0.083 ft³/ft². Therefore, 2" of slab above

$$\text{nodules} = 0.083 \times 2 = 0.166 \text{ ft}^3/\text{ft}^2$$

$$\begin{aligned} \text{The volume of concrete per square feet} &= \\ 0.166 + 0.043 &= 0.209 \text{ ft}^3/\text{ft}^2 \end{aligned}$$

$$\begin{aligned} \text{To get the total volume multiply by floor} & \\ \text{area: Concrete volume} &= 0.209 \text{ ft}^3/\text{ft}^2 \times 850 \text{ ft}^2 \\ &= 178 \text{ ft}^3 \end{aligned}$$

6.0 - INSTALLATION

Heat-Sheet was designed to be installed quickly and easily, reducing on labor costs.

Installing Heat-Sheet involves laying the Heat-Sheet panels and tubing before concrete placement.

6.1 - LAYING HEAT-SHEET PANELS

1. Ensure the ground is reasonably level before beginning the installation.
2. Place a vapor barrier, if required, before laying Heat-Sheet panels.

NOTE: To secure the thinner R4 and R6 Heat-Sheet panels, apply foam friendly adhesive, such as PL300 Foamboard Adhesive, between the Heat-Sheet panels and the subfloor.

3. Remove the interlock from the two sides of the starting panel to avoid an air gap.

NOTE: It's easiest to remove the interlock you can see when looking at the back of the panel. Starting in a corner, place the cut edges tight against the wall.

4. Cut the interlock along the 4ft length only on the next panel to be placed. Place trimmed panels so they interlock along the 2ft dimension.
5. Continue placing panels until you come to a wall. You will likely need to cut the final panel in this row to fit.
6. Use the left over segments to start the next rows, and be sure to maintain the 3" spacing pattern. The idea is to have a staggered (running bond) layout rather than rows and columns. This helps keep the panels bound together, and reduces weights.

6.2 - LAYING THE TUBING

1. Install the tubing by "stepping" into the panels.

NOTE: Heat-Sheet panels are designed with a 3" grid for easy tube spacing. Please consult a HVAC designer to determine the required separation points.

Ensure the tubing is fully seated when turning a corner before you begin your next run. You may need to use a plastic staple on the turns to keep the pipe in place.

6.3 - PREP FOR CONCRETE PLACEMENT

1. Place wire mesh and rebar directly on top of the panels if required.
2. Remove debris on top of the panels prior to placing concrete.



HEAT-SHEET® RADIANT FLOOR PANELS

7.0 - PRODUCT CHART - HEAT-SHEET

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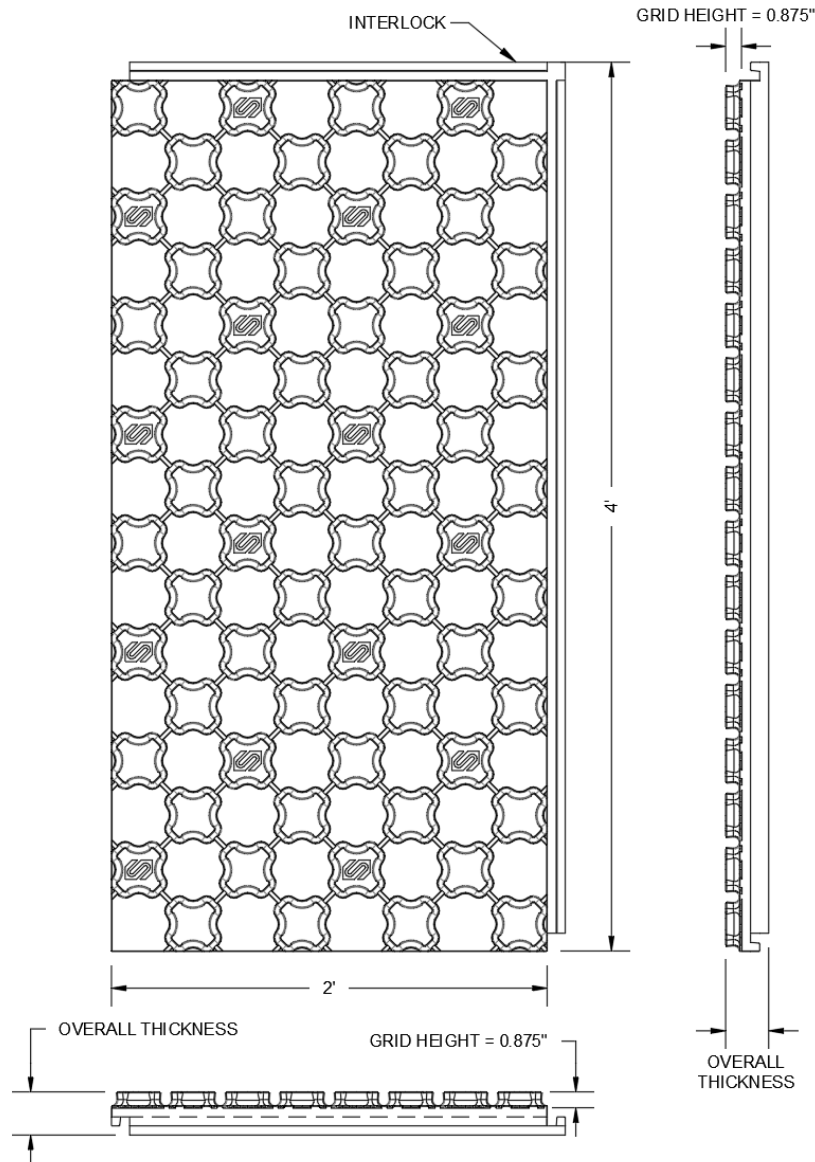


Table 1: Product Chart

Screed volume rates:

To top of Heat-Sheet nodules = 0.043 ft³/ft²

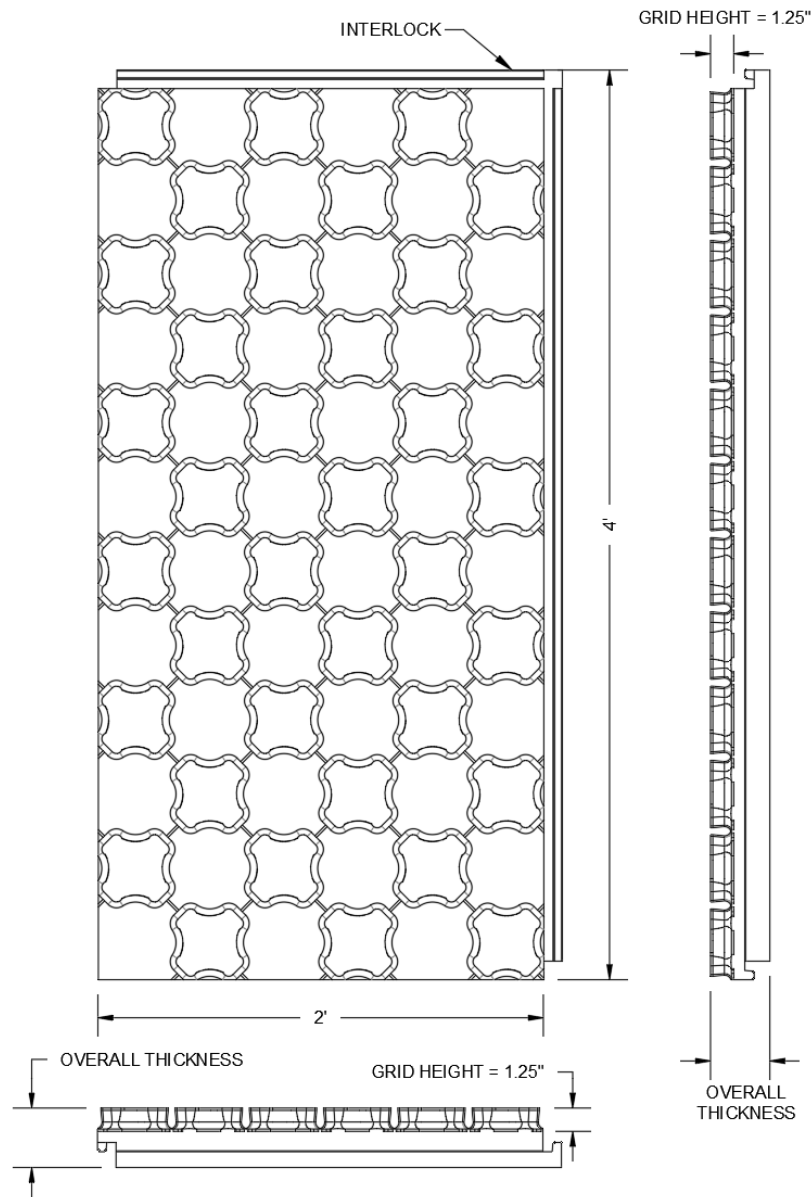
For each additional inch of slab = 0.083 ft³/ft²

PRODUCT	NOMINAL PANEL THICKNESS ¹	OVERALL THICKNESS ²	AVERAGE R-VALUE ³	PANELS/BUNDLE ⁷	SQFT/BUNDLE ⁷
HS-R4 ⁴	0.5"	1 3/8"	4	16	128
HS-R6 ⁴	1.0"	1 7/8"	6	14	112
HS-R8	1.5"	2 3/8"	8	8	64
HS-R10 ^{5,6}	2.0"	2 7/8"	10	8	64
HS-R12 ^{5,6}	2.5"	3 3/8"	12	6	48
HS-R14 ^{5,6}	3.0"	3 7/8"	14	6	48
HS-R16.1 ^{5,6,8}	3.0"	3 7/8"	16.1	6	48
HS-R20 ^{5,6}	4 3/8"	5 1/4"	20	6	48

1. Refers to thickness of the panel minus the nodules (grid height per image shown).
2. Refers to thickness of nodule plus nominal panel thickness.
3. In accordance with ASTM C578, and CAN/ULC S701, at 75°F (24°C). R-value is determined based on weighted average R-value of nodule and panel profile.
4. These panels do not interlock, and are designed to be applied only over flat surfaces such as concrete slabs and wood subfloors.
5. Additional vapor barrier may not be required when using Type 3 EPS, per CAN/ULC S701, and the National Building Code of Canada.
6. Additional vapor retarder may not be required when using Type IX or XIV EPS, per ASTM C578, and the International Residential Code. Confirm with your local building official prior to use.
7. Panels per bundle may vary. Contact your local Heat-Sheet representative to confirm.
8. Made with Graphite Polystyrene (GPS) to provide an incremental R-2.1.
9. Custom orders may be available upon request. Confirm availability of all Heat-Sheet products with your local supplier.

HEAT-SHEET® RADIANT FLOOR PANELS

7.1 - PRODUCT CHART - HEAT-SHEET HEAVY



INSTALLATION GUIDE

Table 1: Product Chart

Screed volume rates:

To top of Heat-Sheet nodules = 0.069 ft³/ft²

For each additional inch of slab = 0.083 ft³/ft²

PRODUCT	NOMINAL PANEL THICKNESS ¹	NOMINAL OVERALL THICKNESS ²	AVERAGE R-VALUE ³	PANELS/BUNDLE ⁵	SQFT/BUNDLE
HSH-R8	1 1/2"	2 3/4"	8	10	80
HSH-R10 ⁴	2"	3 1/4"	10	8	64
HSH-R12 ⁴	2 3/8"	3 5/8"	12	6	48
HSH-R14 ⁴	2 7/8"	4 1/8"	14	6	48
HSH-R16.1 ^{4,6}	2 7/8"	4 1/8"	16	6	48

1. Refers to thickness of the panel minus the nodules (grid height per image).
2. Refers to thickness of nodule plus nominal panel thickness.
3. In accordance with ASTM C578, and CAN/ULC S701, at 75°F (24°C). R-value is determined based on weighted average R-value of nodule and panel profile.
4. Meets water vapor barrier/retarder in accordance with the National Building Code of Canada, and the International Residential Code. Confirm with local bylaws.
5. Panels per bundle may vary. Contact your local Heat-Sheet representative to confirm.
6. Made with Graphite Polystyrene (GPS) to provide an incremental R-2.1.
7. Confirm availability of products with your local Heat-Sheet supplier.



Connect with a Local Manufacturer

888.838.5038

330 Cain Drive
Haysville, KS 67060-2004

888.706.7709

840 Division St.
Cobourg, ON K9A 5V2

877.789.7622

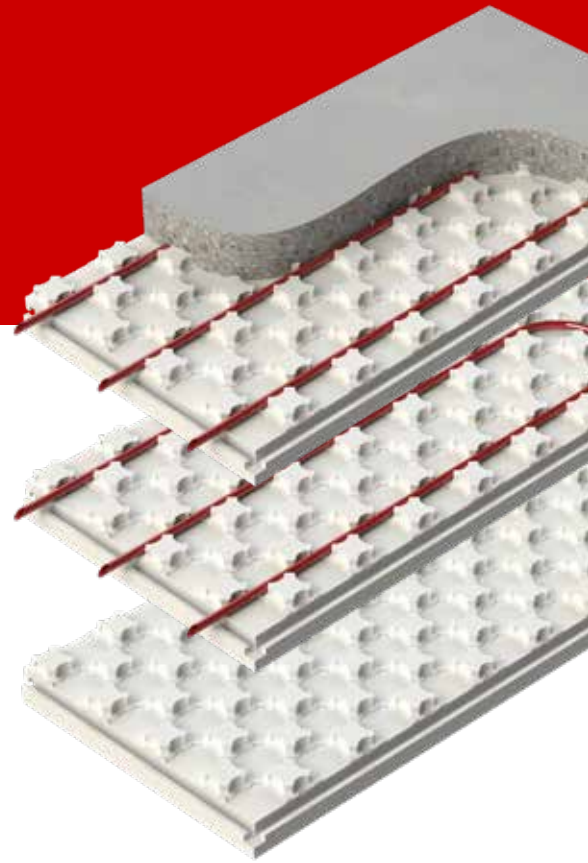
35 Headingley Rd.
Headingley, MB R4H 0A8

888.453.5961

11581-272 St.
Acheson, AB T7X 6E9

888.453.5961

6333 Unsworth Rd.
Chilliwack, BC V2R 5M3



info@LogixBrands.com
www.Heat-Sheet.com

A Product By
LOGIX
BRANDS