PRODUCT NAME
Heat-Sheet® Heavy - radiant floor heating expanded polystyrene (EPS) panels

MANUFACTURER
- Beaver Plastics Ltd.
  7-26318-TWP RD 531A
  Acheson, Alberta, Canada, T7X 5A3
  1-888-453-5961
- AMC Foam Technologies Inc.
  35 Headingley St.
  Headingley, Manitoba, Canada, R4H 0A8
  1-877-789-7622
- Form Solutions
  P.O. Box 358
  Port Hope, ON, Canada, L1A 3W3
  1-888-706-7709
- Form Systems Inc.
  330 Cain Drive
  Haysville, KS, USA, 67060-2004
  1-888-838-5038

PRODUCT DESCRIPTION
Made with high density expanded polystyrene (EPS) designed to support the weight of cast-in-place concrete, and foot traffic during construction.

The staggered nodules provide a simple and efficient system for tube installation, while ensuring a tight fit, and proper tube alignment.

The nodules create a tube channel that accommodates multi-directional placement of 1/2", 5/8", or 3/4" I.D. tubing, with 4" on-center points.

Manufactured in 2ft x 4ft panels with interlocking edges to ensure a stable fit between panel joints. Panels are available in a variety of thicknesses. See Table 1, Product Chart.

BASIC USE
Used under concrete slabs where radiant floor heating is required such as slab-on-grade, sandwich slab construction, and snow melt systems. In addition, can be used in retrofit and overlay applications. Refer to the Heat-Sheet Installation Guide for details.

STANDARDS
- CAN/ULC S102.2 - Surface Burning Characteristics of Flooring, Floor Covering and Miscellaneous Materials and Assemblies.

CODE EVALUATION APPROVALS
- CCMC 14007-L
- QAI Certification Listing No.B1031-2

PHYSICAL PROPERTIES
Made with Type 3 expanded polystyrene (EPS), per CAN/ULC S701, and Type IX EPS, per ASTM C578, with minimum compression strengths of 25 psi (higher compression strengths are available).

Available EPS densities can range above 1.8pcf to produce higher compressive strengths.

Meets vapor barrier/retarder requirements in accordance with the National Building Code of Canada, and the International Residential Code. Confirm with local bylaws.

Conforms to the physical properties shown in Tables 2 and 3.

RESISTS compressive creep and shrinkage. Predicted maximum creep strains of 2.0% (less than 50 yrs) provided compressive stress does not exceed 35% of compressive resistance* listed in Table 1.

ENVIRONMENTAL DATA
Produced without the use of chlorofluorocarbon (CFCs), hydrochlorofluorocarbon (HCFCs) or formaldehyde. As a result, will not produce harmful emissions to the environment.

FIRE INFORMATION
Made of combustible materials and may need to be protected from high heat sources. In addition, a thermal barrier may be required when used in the interior of a building. Refer to your local building codes for appropriate protection and thermal barrier requirements.

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

For detailed installation instructions refer to the Heat-Sheet Heavy Installation Guide.

Laying Heat-Sheet Heavy Panels
1. Ensure the ground is reasonably level.
2. A vapor barrier may be required by your local building code. When installing a vapor barrier, ensure it is in place before you begin laying Heat-Sheet Heavy panels.
3. Remove the interlock from the two sides of the starting panel to avoid an air gap.
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 4” spacing pattern of the nodules.

Laying The Tubing
1. Install the tubing by “stepping” into the panels.

NOTE: Heat-Sheet Heavy panels are designed with a 4” grid for easy tube spacing. Consult a HVAC designer to determine the required separation points.

2. Ensure the tubing is fully seated when turning a corner before you begin your next run.
3. Place wire mesh and rebar directly on top of the panels if required.
4. Remove debris on top of the panels prior to placing concrete.

* “Prediction of Creep Strain of the Expanded Polystyrene (EPS) in Long-term Compression,” ISSN 1392–1320
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

<table>
<thead>
<tr>
<th>Product</th>
<th>Nominal Panel Thickness ¹</th>
<th>Nominal Overall Thickness ²</th>
<th>Average R-value ³</th>
<th>Panels/Bundle ⁴</th>
<th>Sqft/Bundle</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSH-R8</td>
<td>1 1/2”</td>
<td>2 3/4”</td>
<td>8</td>
<td>10</td>
<td>80</td>
</tr>
<tr>
<td>HSH-R10</td>
<td>2”</td>
<td>3 1/4”</td>
<td>10</td>
<td>8</td>
<td>64</td>
</tr>
<tr>
<td>HSH-R12 ²</td>
<td>2 3/8”</td>
<td>3 5/8”</td>
<td>12</td>
<td>6</td>
<td>48</td>
</tr>
<tr>
<td>HSH-R14 ²</td>
<td>2 7/8”</td>
<td>4 1/8”</td>
<td>14</td>
<td>6</td>
<td>48</td>
</tr>
<tr>
<td>HSH-R16.1 ²</td>
<td>2 7/8”</td>
<td>4 1/8”</td>
<td>16</td>
<td>6</td>
<td>48</td>
</tr>
</tbody>
</table>

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.
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.

Table 2: Material Properties

<table>
<thead>
<tr>
<th>ASTM C578 ¹</th>
<th>Type IX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal Resistance Min. @ 75°F</td>
<td>See Table 1</td>
</tr>
<tr>
<td>Compressive Resistance Min., psi</td>
<td>25 ²</td>
</tr>
<tr>
<td>Flexural Resistance Min., psi</td>
<td>50</td>
</tr>
<tr>
<td>Water Vapor Permeance Max., perms</td>
<td>0.78 ³</td>
</tr>
<tr>
<td>Water Absorption Max., %</td>
<td>2</td>
</tr>
<tr>
<td>Dimensional Stability Max., %</td>
<td>2</td>
</tr>
<tr>
<td>Oxygen Index Min., %</td>
<td>24</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAN/ULC S701 ¹</th>
<th>Type 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal Resistance Min. @ 24°C</td>
<td>See Table 1</td>
</tr>
<tr>
<td>Compressive Resistance Min., kPa</td>
<td>170 ²</td>
</tr>
<tr>
<td>Flexural Resistance Min., kPa</td>
<td>300</td>
</tr>
<tr>
<td>Water Vapor Permeance Max., ng/Pa-s-m²</td>
<td>44 ¹</td>
</tr>
<tr>
<td>Water Absorption Max., %</td>
<td>2</td>
</tr>
<tr>
<td>Dimensional Stability Max., %</td>
<td>1.5</td>
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<tr>
<td>Oxygen Index Min., %</td>
<td>24</td>
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</tbody>
</table>

1. Unless noted otherwise, properties are based on a uniform 1” thickness.
2. Compressive strengths greater than 25 psi (170 kPa) are available upon request. Confirm availability with your local Heat-Sheet supplier.
3. Tested at 2” thickness by QAI, per ASMT E96.

Table 3: Surface Burning Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Flame Spread Index Max.</th>
<th>Smoke Developed Index Max.</th>
<th>Thickness Max.</th>
<th>Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTM E84</td>
<td>25</td>
<td>450</td>
<td>6 in.</td>
<td>2 pcdf</td>
</tr>
<tr>
<td>CAN/ULC S102.2</td>
<td>210</td>
<td>415</td>
<td>102 mm</td>
<td>32 kg/m³</td>
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