LISTING
# 1224-1

RESOURCES, APPLICATIONS, DESIGNS, & CONTROLS, INC.
3220 E. 59th Street
Long Beach, CA 90805
Tel: (562) 272-7231
Fax: (562) 529-7513

LISTING
# 1224-1

PRODUCT: EXPANDED POLYSTYRENE BOARD

MANUFACTURER: DREW FOAM COMPANIES, INC.
1093 Highway 278 East
Monticello, AR 71655

PLANT LOCATION: 1093 Highway 278 East (1224-1)
Monticello, AR 71655

CATEGORY: FOAM PLASTIC INSULATION BOARDS

APPLICATION: Insulation for Wall & Exterior Finish Systems, Floor & Roof/Ceiling Systems

SECTION 1: INTRODUCTION
At the request of Drew Foam Companies, Inc., RADCO investigated the possibility of listing Expanded Polystyrene (EPS) Foam Insulation Board Material produced by Drew Foam Companies, Inc., and for conformance to the requirements of the model codes, and ASTM C-576-08.

SECTION 2: DESCRIPTION
The listed products are molded, closed cell, expanded polystyrene (EPS) foam insulation boards made from modified beads to achieve a Class I flame spread rating in various densities, thicknesses and thermal values and are available in a variety of sizes and configurations.

Note: The modified beads which are used are listed by one or more of the Code Bodies for a Class I flame spread rating and smoke development at the thickness and densities stated in the Code Body evaluation report or listing. RADCO only permits the use of modified expandable polystyrene beads covered by a current valid Code Body evaluation report or listing.

The boards are used as insulation in roof systems; as part of exterior wall coating systems; and for interior wall and ceiling systems. The types of foam boards listed are identified in Table I. Testing of the various types of foam boards is in accordance with applicable sections of ASTM C-576.

SECTION 3: INSTALLATION
Installation of EPS boards is to be in accordance with Manufacturer's Specifications and with the respective Model Code Requirements for protection and separation of foam products from the interior of buildings and for maximum thickness limitations, fastening and installation of exterior finish products over the foam as defined in Evaluation Service Reports.

SECTION 4: EVIDENCE SUBMITTED
A) Flame Spread: Reports of tests in compliance with ASTM Standard E84 (UL 94 Standard 6-1) for the various bead suppliers, densities, and thicknesses.
B) Thermal Values - Laboratory tests performed by RADCO in accordance with ASTM Standard C-576.
C) Densities, Flexural, Compressive, Dimensional, Dimensional Stability, Water Absorption and Water Vapor Transmission values, Oxygen Index - Laboratory tests performed by RADCO in accordance with ASTM C-576.
D) Quality Control - Quality control manuals for each listed facility have been developed and evaluated along with an in-plant certification check by RADCO made to determine capability to control and develop products in accordance with the requirements and specifications contained in the quality control manual.
E) Ongoing Audit - Ongoing audits of procedures and tests of products are maintained by RADCO through unannounced visits to the facilities. Samples of listed products are selected for testing to applicable sections of ASTM C-576. In addition RADCO conducts annual thermal testing from a random selection of these samples.

SECTION 5: MARKINGS / IDENTIFICATION
Boards are to be identified with one of the following criteria:
A) For expanded polystyrene foam used as a component of an Exterior Wall Coating System each insulation board must be identified along one edge (for approved products see Table I) and one board in each package shall be marked on both faces with the following information:
1) Exterior Coating Company name and Evaluation Report number (where applicable).
2) Flame Spread and Smoke Developed Rating (FS<25, SD<450)
3) RADCO listing number
4) RADCO name and compliance agency number (AA-650)
B) For all other applications, the acceptable markings will either be applied to each bundle of EPS boards through use of at least one label or stamped on at least one board per bundle. The marking label is to include:
1) The Moldor's Identification (logo, etc)
2) The Moldor's name and location
3) "Class I Flame Spread Rating"
4) Flame Spread Rating E<4, Less Than 25
5) Smoke Developed E<4 - Less Than 450
6) The RADCO logo and compliance agency number (AA-650)
7) RADCO identifying listing number
8) Material identification lot number
In addition the following information is to be included: "Flame Spread and Smoke Developed Ratings derived are not intended to reflect hazards under actual fire conditions".

SECTION 6 - RECOMMENDATIONS
RADCO recommends that the board produced by the Drew Foam Companies, Inc., moldor facilities be accepted for the applications described provided that:
1) Installation is in conformance with manufacturer's requirements and applicable sections of the Basic Building Code; Southern Building Code and the Uniform Building Code, as applied to foam products.
2) Boards and/or bundles are marked as identified in this listing and/or applicable Model Code Evaluation Reports.
3) The Quality Control system be maintained in the plant and all changes to the system approved by RADCO.
4) RADCO's follow up plant audit and testing program be continued at the prescribed frequencies.

SECTION 7: APPROVAL:
This listing is subject to annual re-examination and renewal.
MATERIAL SAFETY DATA SHEET
EPS BLOCK AND BOARD

SECTION I.
CHEMICAL NAME: EXPANDED POLYSTYRENE FOAM (EPS)
POLYSTYRENE (C_{8}H_{8}) WITH FLAME RETARDANT ADDITIVE

SECTION II.
HAZARDOUS INGREDIENTS
NONE WHEN RESIDUAL PENTANE BLOWING AGENT IS REDUCED TO LEVEL DESCRIBED IN SECTION IX.

SECTION III.
PHYSICAL DATA
BOILING POINT
SOLUBILITY IN WATER
SPECIFIC GRAVITY
PERCENT BY VOLUME BY VOLUME
EVAPORATION RATE
APPEARANCE AND ODOR

SECTION IV.
FIRE AND EXPLOSION HAZARD DATA
EXTINGUISHING MEDIA
WATER, FOAM, CO_{2}, DRY CHEMICAL
SPECIAL FIRE FIGHTING PROCEDURES
NONE
UNUSUAL FIRE AND EXPLOSION HAZARDS
MAY EMIT LARGE VOLUME OF DENSE BLACK SMOKE

SECTION V.
HEALTH HAZARD DATA
THRESHOLD LIMIT VALUE
EFFECTS OF OVER EXPOSURE
EMERGENCY AND FIRST AID PROCEDURES

SECTION VI.
RADIOACTIVITY DATA
STABLE
INCOMPATIBILITY
HAZARDOUS DECOMPOSITION PRODUCTS
HAZARDOUS POLYMERIZATION
CONDITIONS TO AVOID

SECTION VII.
SPILL OR LEAK PROCEDURES
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: NORMAL GOODHOUSEKEEPING SHOULD BE OBSERVED IN DISPOSING OF SCRAPP MATERIAL

WASTE DISPOSAL METHOD: ACCORDING TO LOCAL ORDINANCES

SECTION VIII.
SPECIAL PROTECTION INFORMATION
RESPIRATORY PROTECTION
VENTILATION
PROTECTIVE GLOVES
EYE PROTECTION

SECTION IX.
SPECIAL PRECAUTIONS
IMMEDIATELY AFTER MOLD EXPANDED POLYSTYRENE INTO BLOCKS, THE RESIDUAL BLOWING AGENT, PENTANE, ENTRAPPED WITHIN THE BLOCKS RANGES FROM ABOUT 2.0 TO 3.0% BY WEIGHT. THE BLOCKS ARE THEN STORED AT ROOM TEMPERATURE OR AT AN ELEVATED TEMPERATURE (E.G., 130°F) TO REDUCE THE ENTRAPPED PENTANE AND MOISTURE TO LESS THAN 1% BY WEIGHT (0.18% BY VOLUME) FOR DIMENSIONAL STABILIZATION. THE BLOCK STORAGE AREAS MUST BE, THEREFORE, ADEQUATELY VENTILATED TO AVOID BUILDUP OF PENTANE VAPORS

IF THE PRODUCT IN BLOCK FORM IS TO BE FABRICATED BY HOT-WIRE CUTTING, WORK AREAS SHOULD BE VENTILATED TO AVOID A BUILDUP OF PROCESSING FUMES.
Drew Expanded PolyStyrene Insulation & Flotation

DREW FOAM COMPANIES, INC.
144 Industrial Dr.
Monticello, Arkansas 71655
800-643-1208 — Fax 870-367-2697
www-Drew Foam.com

Buoyancy
Nominal Density 1 pcf

<table>
<thead>
<tr>
<th>Volume of Expanded PolyStyrene</th>
<th>Buoyancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>lbs</td>
<td>kg</td>
</tr>
<tr>
<td>1 Cubic Foot</td>
<td>61.4</td>
</tr>
<tr>
<td>1 Cubic Meter</td>
<td>2,170</td>
</tr>
</tbody>
</table>

Water Vapor Permeability
ASTM C-355

<table>
<thead>
<tr>
<th>Nominal Density, pcf</th>
<th>Perm-In. Fusion</th>
<th>Perm-In. Plaques</th>
<th>Perm-Cm. Blocks</th>
<th>Perm-Cm. Plaques</th>
<th>Perm-Cm. Blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>0.8-2.0</td>
<td>1.5-2.8</td>
<td>1.3-3.4</td>
<td>2.5-4.8</td>
<td>2.5-4.7</td>
</tr>
<tr>
<td>1.4</td>
<td>1.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5-4.7</td>
<td>2.5-4.7</td>
</tr>
<tr>
<td>2.2</td>
<td>0.5-1.4</td>
<td>1.3-2.4</td>
<td>0.83-2.34</td>
<td>2.17-4.01</td>
<td>2.17-4.01</td>
</tr>
<tr>
<td>2.5</td>
<td>1.0</td>
<td>2.5</td>
<td>1.67-4.01</td>
<td>2.67-5.84</td>
<td>2.67-5.84</td>
</tr>
<tr>
<td>1.0 Minimum</td>
<td>1.5-3.0</td>
<td>1.8-3.5</td>
<td>2.5-5.01</td>
<td>2.67-5.84</td>
<td>2.67-5.84</td>
</tr>
<tr>
<td>2.3 Minimum</td>
<td>1.0-2.0</td>
<td>1.0-2.8</td>
<td>1.67-3.34</td>
<td>1.67-4.68</td>
<td>1.67-4.68</td>
</tr>
</tbody>
</table>

Property | Units | ASTM Test | Density (pcf) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal Conductivity</td>
<td>at 25F</td>
<td>BTU/hr.</td>
<td>C177 or C518</td>
</tr>
<tr>
<td>K Factor</td>
<td>at 40F</td>
<td>(sq. ft.)</td>
<td>F/lin.</td>
</tr>
<tr>
<td></td>
<td>at 75F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermal Resistance</td>
<td>at 25F</td>
<td>per inch</td>
<td></td>
</tr>
<tr>
<td>Values (F)</td>
<td>at 40F</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>at 75F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strength Properties</td>
<td></td>
<td></td>
<td>D1621</td>
</tr>
<tr>
<td>Compressive 10% Deformation</td>
<td>psi</td>
<td>C203</td>
<td>25-30</td>
</tr>
<tr>
<td>Flexural</td>
<td>psi</td>
<td>C203</td>
<td>16-20</td>
</tr>
<tr>
<td>Tensile</td>
<td>psi</td>
<td>D1623</td>
<td>19-22</td>
</tr>
<tr>
<td>Shear</td>
<td>psi</td>
<td>D732</td>
<td>260-320</td>
</tr>
<tr>
<td>Shear Modulus</td>
<td>psi</td>
<td></td>
<td>180-220</td>
</tr>
<tr>
<td>Modulus of Elasticity</td>
<td>psi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moisture Resistance</td>
<td>WVT</td>
<td>perm. in</td>
<td>C355</td>
</tr>
<tr>
<td>Absorption (vol.)</td>
<td>%</td>
<td>C272</td>
<td>1.1-2.6</td>
</tr>
<tr>
<td>Capillarity</td>
<td>—</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td>Coefficient of Thermal Expansion</td>
<td>in./in. F</td>
<td>D696</td>
<td>0.000035</td>
</tr>
<tr>
<td>Maximum Service Temperature</td>
<td>°F</td>
<td></td>
<td>187</td>
</tr>
<tr>
<td>Long-term Intermittent</td>
<td>°F</td>
<td>180</td>
<td>180</td>
</tr>
</tbody>
</table>