

DURO-GUARD® EPS TYPES II, VIII AND IX

FLAT AND TAPERED PANELS

Description:

Duro-Guard® EPS Types II, VIII and IX are premium insulations consisting of a superior closed-cell, lightweight and resilient expanded polystyrene (EPS). They meet or exceed the requirements of ASTM C 578, *Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation*.

- Available in both flat and tapered panels in order to meet thermal insulation needs as well as provide slope for proper roof drainage.
- Provides long-term thermal insulation value.
- Does not contain CFCs or HCFCs.
- Superior moisture resistance.
- 100% recyclable.
- Available in three densities per ASTM C 578:
 - Type II, 1.50 pcf.
 - Type VIII, 1.25 pcf.
 - Type IX, 2.00 pcf.
- Refer to Table 3 for physical properties.

Recommended Uses:

- Mechanically attached Duro-Last roof systems.
- Adhered/Fully Bonded Duro-Last roof systems.
- Duro-Bond® roof systems.
- Metal retrofit roof systems.

Underwriters Laboratories Inc.:

- Refer to Duro-Last's UL Listings (TGFU.R10128) for assembly details (www.ul.com).

Factory Mutual Global:

- Refer to FM Approval's RoofNav for details on FM Approved systems (www.roofnav.com).

Flat Panels:

- Typical sizes:
 - 4 ft. x 4 ft. (1220 mm x 1220 mm).
 - 4 ft. x 8 ft. (1220 mm x 2440 mm).
 - Thickness: Up to 40 inch (1016 mm).
- Custom cut "flute filler" for metal roofs is available.

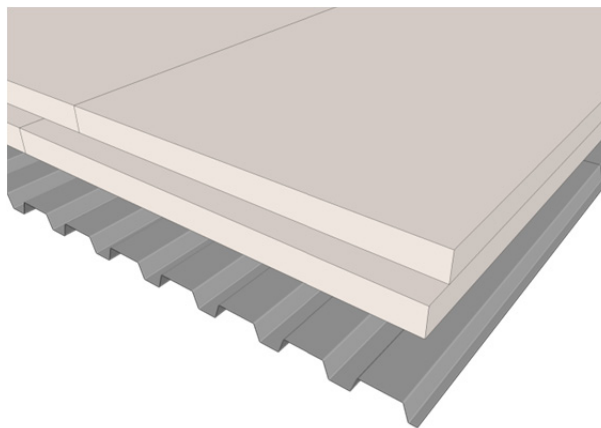


Figure 1. Duro-Guard EPS Types II, VIII and IX Flat

Tapered Panels:

- Typical sizes:
 - 4 ft. x 4 ft. (1220 mm x 1220 mm).
 - 4 ft. x 8 ft. (1220 mm x 2440 mm).
 - Thicknesses: 0 to 40 inch (0 to 1016 mm).
- Precut cricket and saddle systems are available.
- Taper designs and shop drawings are available.
- Custom sizes are available.

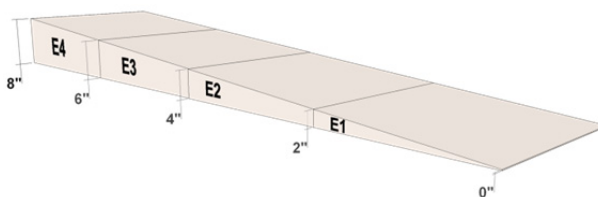


Figure 2. Duro-Guard EPS Types II, VIII and IX Taper

TABLE 1. TYPICAL TAPER PANEL DIMENSIONS			
ID	SLOPE*		Thickness
A1	1/8" per 12"	1%	EPS panels can be formed up to 40" thick. The starting thickness of the tapered panels can be custom ordered based on project requirements.
A2	1/8" per 12"	1%	
A3	1/8" per 12"	1%	
A4	1/8" per 12"	1%	
C1	1/4" per 12"	2%	
C2	1/4" per 12"	2%	
C3	1/4" per 12"	2%	
C4	1/4" per 12"	2%	
E1	1/2" per 12"	4%	
E2	1/2" per 12"	4%	
E3	1/2" per 12"	4%	
E4	1/2" per 12"	4%	

* Contact Duro-Last for additional slope options.

Installation:

- Duro-Guard EPS panels and Duro-Last membrane must never be in direct contact. Refer to the appropriate Duro-Last specification for slip sheet and cover board requirements.
- Panels must be kept dry before, during and after installation. Install only as much insulation as can be covered the same day with completed roofing.
- The use of multiple layers of insulation with joints staggered a minimum of 6 inches between layers is recommended to eliminate thermal bridging.
- Abut panel edges together and stagger joints of adjacent panels.
- Boards must be neatly fitted to roof deck and around penetrations with no gaps greater than ¼ inch.
- Refer to the appropriate Duro-Last roof system specification and detail drawings for deck preparation and attachment requirements.
- Precautions must be taken to ensure that new concrete decks have fully hydrated and do not continue to release moisture.

Panel Attachment:

- Panels may be attached to the roof deck using mechanical fasteners or insulation adhesive. It is acceptable to use these products in combination.

Mechanical Attachment

- When installing multiple layers (which may include insulation, cover boards and thermal barriers) it is acceptable to mechanically secure through all layers.
- Only use fasteners and plates supplied by, or approved by, Duro-Last, Inc.

Adhesive Attachment

- Insulation adhesive must be supplied by Duro-Last, Inc. Refer to the adhesive’s product data sheet for application guidelines. Acceptable products:
 - Duro-Grip® Insta-Stik™.
 - Duro-Grip Olybond®.
 - Duro-Grip Millenium Weather-Tite®.
 - Duro-Grip CR-20.
- Subsequent layers of insulation and approved cover boards may also be attached with insulation adhesive.
- Maximum panel dimensions are 4 ft. x 4 ft.

Storage:

- Insulation must be protected from open flame and kept dry at all times.
- Factory applied packaging is intended only for protection during transit. Slit or remove the packaging to prevent accumulation of condensation.

Thickness*		R-Value		
Inches	mm	Type II	Type VIII	Type IX
1.00	25	4.5	4.2	4.7
1.50	38	6.7	6.3	7.0
2.00	51	9.0	8.4	9.4
2.50	64	11.2	10.5	11.7
3.00	76	13.5	12.6	14.1
3.50	89	15.7	14.7	16.4
4.00	102	17.0	16.8	18.8
4.50	114	20.2	18.9	21.1
5.00	127	22.5	21.0	23.5
5.50	140	24.7	23.1	25.8
6.00	152	27.0	25.2	28.2

* Contact Duro-Last for additional thickness options.

Property	Test Method	Type II	Type VIII	Type IX
Density (nominal)	ASTM C 303	1.50 pcf	1.25 pcf	2.00 pcf
R-Value (per inch) @25°F @40°F @75°F	ASTM C 518 or C 177	4.76 4.55 4.17	4.55 4.25 3.92	5.00 4.76 4.35
Compressive Strength (10% deformation)	ASTM D 1621	15 – 21 psi	13 – 18 psi	25 – 33 psi
Flexural Strength	ASTM C 203	≥ 35 psi	≥ 30 psi	≥ 50 psi
Dimensional Stability	ASTM D 2126	≤ 2.0%		≤ 2.0%
Water Vapor Permeance	ASTM E 96	≤ 3.5 perm		≤ 2.0 perm
Water Absorption	ASTM C 272	≤ 3.0%		≤ 2.0%
Flame Spread	ASTM E 84	20		20
Smoke Developed	ASTM E 84	150 - 300		150 - 300

- Store elevated (at least 3 inches) and completely covered with a weatherproof covering such as a tarpaulin.
- Do not use panels which are wet or damaged.

Limitations:

- Duro-Last, Inc. will not be responsible or liable for any defects or problems related to building or roof design by others, to deficiencies in construction, to dangerous conditions on the job site, or to improper storage, handling or installation by others.