ABT FOAM® Advanced Building Technologies Inc. Strength. Design. Innovation.

EPS Insulation Low Slope Roofing

Product Data Sheet
EPS Insulation for Low Slope Roofing

EXPANDED POLYSTYRENE (EPS) ROOFING INSULATION

For more than 40 years, expanded polystyrene (EPS) foam insulation has been used in a wide variety of roofing applications and systems. EPS is versatile and ideal for new construction as well as retrofit. EPS is approved by almost all major roofing systems manufactures for low slope roofing using flat insulation, tapered systems, crickets & saddles and flute fill.

Tapered EPS is a cost effective solution for adding insulation and positive slope to any flat or low slope roof decks. Tapering is ideal for adding positive drainage and is key to maximize the performance and longevity of the roofing system. Tapered EPS will provide positive slope while retaining the structural and economic advantages of a flat roof deck. ABT Foam provides custom tapered solutions for almost any project and almost any slope (1/16", 1/8", 1/4", 3/8", 1/2" taper per foot).

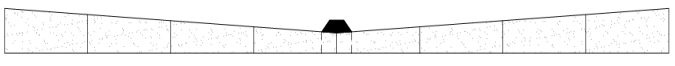
Flute Fill EPS foam panels are custom made to order to fit the shape of any of any metal roofing flute profile, width and depth. EPS flute fill is a cost effective method of adding insulation while leveling the metal deck and includes ridged support for the roofing system underlayment for installing the new roofing system.

EPS FOAM INSULATION

Expanded polystyrene (EPS) is a closed cell, light weight, resilient foamed plastic insulation. EPS is able to withstand the abuse of temperature cycling and assuring long term performance. EPS has been an innovative building material since the 1950's and is recognized as a mainstream insulation and building material. EPS is an ideal choice for green building designs, offering environmental advantages that can maximize energy efficiency.

EPS foam insulation is manufactured in accordance with ASTM C578. EPS is manufactured in a wide range of densities from the lower cost effective 1.0# (0.90 pcf density) and up to the high performance 2.0# (1.8 pcf density) meeting the demands of the roofing industry.

TAPERED EPS SYSTEMS



Simulated Tapered EPS System

TAPERED ROOFING SYSTEMS

- Tapered EPS is ideal for new construction or retrofit
- Versatile in design and customized to fit most all buildings
- Positive drainage for extending the life of the roof
- Made to order with custom slopes and design
- Complete roofing tapered systems
- Saddles and crickets for sloping roof designs
- Ideal for built-up and single-ply roofing systems

EPS ENVIRONMENTAL IMPACT

EPS insulation is an inert, organic material produced from petroleum and natural gas by-products. EPS insulation does not contain CFC's, HCFC's, adhesives or formaldehyde. EPS foam insulation provides no nutritive value to plants, animals, or microorganisms. It will not rot and is highly resistant to mildew and mold resistant (Tested in accordance with ASTM C1338 "Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings.

LONG TERM INSULATION VALUE

R-value means the resistance to heat flow. The higher the R-value the greater the resistance to heat flow. The thermal performance of EPS insulation, as with any insulation product, depends upon the correct installation using good building practice. When properly installed, the R-value of EPS insulation remains constant for the life of the application. This is because the closed cell structure of EPS only contains air. As a result, the R-value of EPS insulation provided for each product type may be used as a design value without any adjustment for age.

TEMPERATURE CYCLING

EPS is able to withstand the riggers of temperature cycling assuring long term performance. In a series of tests, conducted by the Dynatech Research Development Co., Cambridge, MA, core specimens removed from existing freezer walls, some as old as 16 years , demonstrates EPS withstands freeze-thaw cycling without loss of structural integrity or other physical properties.

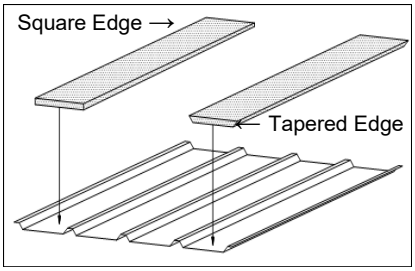
BUILDING AND FIRE CODES

Install in accordance with Local, state or federal building and fire code requirements for EPS insulation.

STORAGE

Must be stored flat on the original shipping runners or pallet. The material must be elevated above floor, roof or ground level. If stored outdoors, must be covered with UV and waterproof covering. Do not store close to open flame.

FLUTE FILL PANELS



FLUTE FILL PANELS

- Made to order
- Square edge
- Beveled edges
- Any thickness
- Adds insulation
- Rigid underlayment
- Levels roof deck
- Fast and easy to install

TYPICAL PHYSICAL PROPERTIES OF EPS INSULATION

Specification Reference: ASTM C578					1.0# Density	1.25# Density	1.5# Density	2.0# Density
Property		**Units**	**ASTM Test**	**Type XI**	**Type I**	**Type VIII**	**Type II**	**Type IX**
Density, Min.		(pcf)	D 303 or D 1622	0.75	0.9	1.15	1.35	1.8
Density Range				0.70	0.90-1.14	1.15-1.34	1.35-1.79	1.80-2.20
Thermal Conduct.	at 25 F	BTU/(hr.)	C177 or C518		0.23	0.22	0.21	0.20
K Factor	at 40 F	(sq. Ft.)(F/in.)			0.24	0.235	0.22	0.21
	at 75 F				0.26	0.255	0.24	0.23
Thermal Resistance	at 25 F				4.35	4.54	4.76	5.00
R-Value*	at 40 F			3.30 - 3.43	4.0 - 4.17	4.20 - 4.25	4.40 - 4.55	4.60 - 4.76
	at 75 F			3.10 - 3.22	3.6 - 3.85	3.9 - 3.92	4.0 - 4.17	4.20 - 4.35
Strength Properties								
Compressive 10% Deformation		psi	D 1621	5.0	10. - 14	13 - 18	15 - 21	25 - 33
Flexural		psi	C 203	10.0	25 - 30	30 - 38	40 - 50	50 - 75
Tensile		psi	D 1623		16 - 20	17 - 21	18 - 22	23 - 27
Shear		psi	D 723		18 - 22	23 - 25	26 - 32	33 - 37
Shear Modulus		psi			280 - 320	370 - 410	460 - 500	600 - 640
Modulus of Elasticity		psi			180 - 220	250 - 310	320 - 360	460 - 500
Moisture Resistance								
WVT		perm. In.	E 96	5.0	2.0 - 5.0	1.5 - 3.5	1.0 - 3.5	0.6 - 2.0
Absorption (vol.)		%	C 272	4.0	less than 4.0	less than 3.0	less than 3.0	less than 2.0
Capillarity					none	none	none	none
Coefficient of Thermal Expansion		in./(in.)(F)	D 696		0.000035	0.000035	0.000035	0.000035
Maximum Service Temperature		Deg. F						
Long-term Exposure				167	167	167	167	167
Intermittent Exposure				180	180	180	180	180
Oxygen Index		%		24.0	24.0	24.0	24.0	24.0
Flame Spread				less than 25	less than 25	less than 25	less than 25	less than 25
Smoke Developed				less than 450	less than 450	less than 450	less than 450	less than 450

Physical Properties chart is reprinted with the permission by The Society of the Plastics Industry, Inc.

Caution: Expanded Polystyrene (EPS) contains a flame retardant. However, it should be considered flammable and should not be exposed to any source of combustion. EPS insulation should be covered with a thermal barrier or otherwise installed in accordance with applicable building code requirements.

Solvent Attack: EPS is subject to attack by petroleum based solvents. Care should be taken to prevent contact between EPS and these solvents or their vapors.

Ultraviolet Degradation: Prolonged exposure to sunlight will cause slight discoloration and surface dusting of EPS insulation. The insulating properties will not be significantly affected under normal usage. EPS stored outside should be protected with a light-colored opaque tarpaulin.

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ABT Foam
1405 Industrial Drive ● Statesville, NC 28625
Phone 704-873-9081 ● Toll Free 866-634-6057 ● Fax 704-873-908
www.abtfoam.com

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