

Expanded Polystyrene Information

Protective Packaging and Cushioning Solutions
EIFS Special Shapes and Wall Insulation
Below Grade Geo-technical Applications
Concrete Void Filler Applications
Foundation Insulation
Industrial Pattern "Lost Foam" Applications
Flotation Foam
Foam Cores for SIPS and Sunroom Panels



Expanded Polystyrene is a "closed cell" cellular plastic insulation product

Harbor Foam EPS Roof Insulation is a cost effective and energy efficient Insulation for use in all aspects of construction from the roof deck to the foundation floor.

Harbor Foam EPS can be supplied in a wide range of densities to satisfy any physical or structural requirements necessary. Custom cut sizes along with unparalleled CNC capabilities are sure to satisfy any and all special and/or unique conditions.

Harbor Foam EPS meets or exceeds the requirements of ASTM C578, "Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation."

R-value

The R-value of **Harbor Foam EPS** remains constant and does not suffer from R-value loss. The closed cell structure of **Harbor Foam EPS** contains air and not blowing agents which deplete over time. Some foam plastic insulation materials use blowing agents that have a high resistance to heat flow. Over time these blowing agents diffuse out of the insulation board causing loss of the abnormally high R-Value at the time of manufacture. EPS foam does not use these types of blowing agents, therefore, its insulation performance remains stable over its entire life.

Strength and Thermal Performance:

Cost effective thermal design is among the highest priorities in construction. **Harbor Foam EPS** insulation products are available in a wide range of density types necessary to provide both thermal resistance (R-value), structural integrity, and cost effectiveness.



State of the art CNC capabilities

Harbor Foam Standard Physical Properties ASTM C-578

Properties	Units	ASTM Test	Type XI	Type I	Type VIII	Type II	Type IX	Type XIV	NA
ASTM Density	pcf (min.)	C303 or D1622	0.70	0.90	1.15	1.35	1.80	2.40	2.85
Common Designation	pcf (nom.)		0.70	1.00	1.25	1.50	2.00	2.40	3.00
Thermal Resistance	R-Value at 75°	C177 or C518	3.10	3.60	3.80	4.00	4.20	4.20	4.20
	R-Value at 40°	C177 or C518	3.30	4.00	4.20	4.40	4.60	4.60	4.60
	R-Value at 25°	C177 or C518	3.45	4.20	4.40	4.60	4.80	4.80	4.80
Compressive 10% Deformation	psi	D1621	5.00	10.00	13.00	15.00	25.00	40.00	50.00
Flexural Strength	psi	C203	10.00	25.00	30.00	35.00	50.00	60.00	75.00

Exposure to Water and Water Vapor:

The mechanical properties of **Harbor Foam EPS** are unaffected by moisture. A study by the Energy Materials Testing Laboratory (EMTL) has shown that EPS insulation installed in well-constructed roofs does not absorb appreciable moisture, even under conditions characteristic of prolonged cold, damp winters. The small amount of moisture absorbed (an average of 0.2% by weight) has little or no effect on the compressive or flexural strength, and the EPS insulation retains between 95% and 97% of its thermal efficiency. Though it has low water vapor transmission, EPS is not a vapor barrier. Rather it “breathes”, and therefore needs no costly venting as do some other relatively impermeable insulation materials which could otherwise trap moisture within walls and roof assemblies.

Temperature Exposure/Flame Retardants:

Harbor Foam EPS is able to withstand the rigors of temperature cycling, assuring long-term performance. Although flame retardants used in the manufacture of EPS provide an important margin of safety, all EPS products must be considered combustible and should not be exposed to flame or other ignition sources. The maximum recommended long-term exposure temperature for **Harbor Foam EPS** is 165°F (75C). In roof construction requiring hot asphalt, temperatures should not exceed 250° F at the time of direct contact with EPS insulation.

The heat of combustion of expanded polystyrene is 17,400 BTU per pound. Combustion products are carbon monoxide, carbon dioxide, water and soot (carbon).

Insect Infestation:

Since Harbor Foam EPS has no food value, it will not attract ants, termites or rodents. However, it is not a barrier to them. Ants, termites and rodents will chew through foamed polystyrene to reach food or to establish a comfortable nesting area. Standard measures used to protect the structure will also protect the EPS insulation.

Fungi and Bacteria:

Expanded polystyrene has been tested for fungus and bacteria attack in accordance with FHA test procedures and no evidence of either has been observed.

Solvent Attack:

Expanded Polystyrene insulation is subject to solvent attack by petroleum-based solvents which are found in many construction materials. Please be aware of the chemical make-up of all products used in conjunction with EPS Insulation.

Environmentally Friendly:

Neither **Harbor Foam Insulation**, nor its manufacturing process emits CFC's or HCHC's into the atmosphere. EPS insulation is being recycled throughout the country and **Harbor Foam** readily accepts post-consumer polystyrene for recycle.

The use of **Harbor Foam EPS** can be used to satisfy insulation requirements as part of energy efficiency guidelines set for compliance with Energy Star and LEED building requirements.