CARLISLE SYNTEC SYSTEMS

DuPont™ Styrofoam™ Brand Square Edge XPS Foam Insulation

Water-Resistant Insulation for Attics, Foundations, Conventional Roofs, and Crawl Spaces

Overview

DuPont Styrofoam Brand Square Edge Extruded Polystyrene (XPS) Foam Insulation* is an extruded polystyrene foam (XPS) insulation board that provides continuous insulation over steel stud or wood framing, in masonry unit cavity walls, conventional roofs, and commercial foundation and building floor slab applications. It can also be used for attics, foundations/slabs, and crawl spaces in residential applications.

With more than 60 years of proven performance in wet environments, the closed-cell structure of Styrofoam Brand Square Edge Insulation resists water pickup, enabling it to retain a high R-value** over time – a necessary property in wet, below-grade, and commercial roofing applications.

Styrofoam Brand Square Edge Insulation is classified as a Type IV product when tested in accordance with ASTM C578 and provides a long term insulating performance of R-5 per inch.

Features and Benefits

- Are easy to handle, cut using a utility knife or serrated blade, and install
- Provide a weather-resistant barrier to enhance the building's resistance to air and moisture penetration
- Can be used in a number of applications like sheathing, foundation walls, masonry cavity walls, attics, crawl spaces, and more
- Come in a wide selection of sizes and thicknesses
- Have a minimum compressive strength of 25 psi and a flexural strength of 50 psi
- Are designed to ensure energy efficiency and minimize on-site cutting and waste
- Are resistant to degradation from soil components and will retain insulating performance characteristics after prolonged exposure to moisture
- Provide a secondary barrier against groundwater leakage
- Help protect foundation damp-proofing and waterproofing, especially during backfilling
- Minimize the freeze thaw cycling of the foundation, reducing the potential for cracking
- Warm the foundation, reducing the potential for condensation
- Will not corrode, rot, or support mold growth
- Are compliant with international building codes and standards

Sustainable Solutions

- Styrofoam Brand Square Edge Insulation is reusable in many applications.
- Styrofoam Brand Square Edge Insulation uses BluEdge™ technology. It is hydrochlorofluorocarbon (HCFC) free with zero ozone depletion potential.
- Styrofoam Brand Insulation products produced in North America contain an average of 20% pre-consumer recycled content certified by UL Environment Inc.

Available Sizes

See Product and Packaging Data Table on following page. Available lengths and edge configurations vary by thickness. Not all product sizes are available in all parts of the country.

Standard Sizes

Nominal Board Thickness (in.)	Board Sizes (ft)
.75	2' x 8' and 4' x 8'
1	2' x 8' and 4' x 8'
1.5	2' x 8' and 4' x 8'
2	2' x 8' and 4' x 8'
2.5	2' x 8' and 4' x 8'
3	2' x 8' and 4' x 8'
4	2' x 8' and 4' x 8'

*Styrofoam Brand Square Edge Insulation is a former product of The Dow Chemical Company

**R means resistance to heat flow. The higher the R-value, the greater the insulating power. R-value determined by ASTM C518.

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Product and Packaging Data

Thickness (in)	Product Dimensions (in.)	Pallet Dimensions (ft.)	Board Feet per Pallet	Bundles per Unit	Pieces per Bundle	Pieces per Pallet
1	1 x 48 x 96	4 x 8 x 8	3072	8	12	96
1.5	1.5 x 48 x 96	4 x 8 x 8	3072	8	8	64
2	2 x 48 x 96	4 x 8 x 8	3072	8	6	48
2.5	2.5 x 48 x 96	4 x 8 x 8	2800	7	5	35
3	3 x 48 x 96	4 x 8 x 8	3072	8	4	32
3.5	3.5 x 48 x 96	4 x 8 x 8	2688	8	3	24
4	4 x 48 x 96	4 x 8 x 8	3072	8	3	24

Properties

DuPont Styrofoam Brand Square Edge Extruded Polystyrene (XPS) Foam Insulation exhibits physical properties as indicated in table below when tested as represented. Review all instructions and Safety Data Sheet (SDS) before use.

Typical Properties and Characteristics

Property	Test Method	Typical Value	Units
Thermal Resistance[1] per inch @ 75°F mean temp. @ 40°F mean temp. @ 25°F mean temp.	ASTM C518	 5.0 5.4 5.6	ft²•h•°F/Btu, R-value, min.
Compressive Strength[2]	ASTM D1621	25	psi, min.
Water Absorption	ASTM C272	0.1	% by volume, max.
Water Vapor Permeance	ASTM E96	1.5	perm, max.
Maximum Use Temperature	–	165	°F
Coefficient of Linear Thermal Expansion	ASTM D696	3.5×10^{-5}	in/in•°F
Flexural Strength	ASTM C203	50	–
Surface Burning Characteristics for both foam core and finished product Flame Spread Smoke Developed	ASTM E84	Class A 15 165	–

[1] R-values are consistent with criteria of ASTM C578 and the requirements of the FTC R-value rule (16 CFR Part 460).

[2] Vertical compressive strength is measured at 10 percent deformation or at yield, whichever occurs first.

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Installation

Use Conditions

Styrofoam Brand Square Edge Insulation can be used in commercial roofing and be against commercial interior walls and exterior foundation walls in above- and below-grade applications. Styrofoam Brand Square Edge can be used under the slab or over the deck or subfloor and is suitable for use in pervious, semi-pervious, and practically impervious soils.

Preparation

It is recommended that any masonry irregularities or jagged surfaces on the foundation wall or slab be removed prior to installation. Below-grade walls should be protected from moisture leakage and dampness prior to installation of Styrofoam Brand Square Edge Insulation. Code-approved drainage systems should be installed. Ensure foundation drainage meets local codes.

Application

- Use a polystyrene-compatible adhesive to hold the boards in place during backfilling.
- Apply caulk or mastic to the top of the board to prevent water infiltration behind the insulation.
- To complete the installation, parge the above-grade portions of Styrofoam Brand Square Edge Insulation to protect from solar radiation.

Testing

Applicable Standards

DuPont Styrofoam Brand Square Edge Extruded Polystyrene (XPS) Foam Insulation meets ASTM C578, Type IV – Standard Specification for Rigid Cellular Polystyrene Thermal Insulation. Applicable standards include:

- **C518** – Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
- **D1621** – Standard Test Method for Compressive Properties of Rigid Cellular Plastics
- **E96** – Standard Test Methods for Water Vapor Transmission of Materials
- **D696** – Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30°C and 30°C with a Vitreous Silica Dilatometer
- **C203** – Standard Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation
- **D2126** – Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging
- **C272** – Standard Test Method for Water Absorption of Core Materials for Structural Sandwich Construction

Notice

Styrofoam Brand Square Edge Insulation complies with the following codes:

- International Residential Code (IRC) and International Building Code (IBC), see ESR-2142
- Underwriters Laboratories, Inc. (UL) Classified, see Classification Certificate D369
- Calif. Std. Reg. # CA T064 Florida Building Code FL 3835
- Factory Mutual Approved – Subject to conditions of approval as a roof insulation when installed as described in the current edition of the FM Approval Guide

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Precautions

WARNING: For Professional Use Only. Read and follow the entire Safety, Handling, and Storage section and the Safety Data Sheets (SDSs, formerly MSDSs or Material Safety Data Sheets) carefully before use. The information below is designed to protect the user and allow for safe use and handling of DuPont products. Follow all applicable federal, state, local, and employer regulations.

- Styrofoam Brand Square Edge Insulation is combustible; protect from high heat sources.
- A protective barrier or thermal barrier may be required as specified in the local building codes.
- For more information, consult the SDS, or contact your local building inspector.

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