

DuPont™ Styrofoam™ Brand Square Edge ST-100 Insulation

Water-Resistant Insulation for Foundations
U.S. HFC Regulation Compliant Formulation

FEATURES/BENEFITS

Description

DuPont™ Styrofoam™ Brand Square Edge ST-100 Insulation* is an extruded polystyrene foam (XPS) insulation board that meets the needs of the commercial foundation and building floor slab market and can also be used for foundations/slabs in residential applications.

With more than 60 years of proven performance in wet environments, the closed-cell structure of Styrofoam™ Brand Square Edge ST-100 Insulation resists water pickup, enabling it to retain a high R-value** over time – a necessary property in wet, below-grade commercial foundation applications.

Styrofoam™ Brand Square Edge ST-100 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.

Sustainable Solutions

- Styrofoam™ Brand Square Edge ST-100 Insulation is reusable in many applications.
- Styrofoam™ Brand Square Edge ST-100 Insulation is designed to be compliant with U.S. state HFC regulations where sold. It uses enhanced level of sustainable blowing agents, and BluEdge™ flame retardant technology
- Styrofoam™ Brand Square Edge ST-100 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

- Width and length: 2' x 8' and 4' x 8'
- Thickness: .75", 1", 1.5", 2", 2.5", 3", 4"

See Table 1 for product and packaging data. Available lengths and edge configurations vary by thickness. Not all product sizes are available in all parts of the country. Contact your local DuPont representative for details.

Ease of Use

Styrofoam™ Brand Square Edge ST-100 Insulation boards:

- 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, 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 help 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 dampproofing 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

TABLE 1: Product and Packaging Data for Styrofoam™ Brand Square Edge ST-100 Insulation

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

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

PROPERTIES

DuPont™ Styrofoam™ Brand Square Edge ST-100 Insulation exhibits physical properties as indicated in Table 2 when tested as represented. Review all instructions and Safe Handling document on BeyondBlue.DuPont.com before use. Please contact DuPont at 1-866-583-2583 when additional guidance is required for writing specifications that include this product.

TABLE 2: Physical Properties of Styrofoam™ Brand Square Edge ST-100 Insulation

Test Method	Property	Typical Value	Units
ASTM C518	Thermal Resistance ¹ per inch		
	@ 75°F mean temp.	5.0	ft ² ·h·°F/Btu, R-value, min.
	@ 40°F mean temp.	5.4	
@ 25°F mean temp.	5.6		
ASTM D1621	Compressive Strength ²	25	psi, min.
ASTM C272	Water Absorption	0.1	% by volume, max.
ASTM E96	Water Vapor Permeance ³	1.5	perm, max.
–	Maximum Use Temperature	165	°F
ASTM D696	Coefficient of Linear Thermal Expansion	3.5 x 10 ⁻⁵	in/in·°F
ASTM C203	Flexural Strength	50	psi, min.
ASTM E84	Surface Burning Characteristics for both foam core and finished product	Class A	
	Flame Spread	25	
	Smoke Developed	<450	

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.

INSTALLATION

Use Conditions

Styrofoam™ Brand Square Edge ST-100 Insulation can be used in commercial below grade applications. Styrofoam™ Brand Square Edge ST-100 Insulation 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 ST-100 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 ST-100 Insulation to protect from solar radiation.

TESTING

Applicable Standards

DuPont™ Styrofoam™ Brand Square Edge ST-100 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 ST-100 Insulation complies with the following codes:

- International Residential Code (IRC) and International Building Code (IBC), see ESR-4755
- Underwriters Laboratories, Inc. (UL) Classified, see Classification Certificate D369
- Calif. Std. Reg. # CA T1535 Florida Building Code FL 16357

Warranty

In the United States, a 50-year thermal limited warranty is available on **Styrofoam™ products** 1.5 inches and greater. For thickness less than 1.5 inches, other warranties may apply. Warranties are available as described at building.dupont.com/warranties.

HANDLING

WARNING: For Professional Use Only. Read and follow the entire Safety, Handling, and Storage section and the Safe Handling document on BeyondBlue.DuPont.com 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.

Precautionary Statements

Styrofoam™ Brand Square Edge ST-100 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, call DuPont at 1-866-583-2583 or contact your local building inspector.

Cover exposed Styrofoam™ with a light opaque covering to protect from weather and sunlight. Do not use clear plastic covering.



**For more information visit us at
styrofoam.com
or call 1-833-338-7668**

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CAUTION: This product is combustible. Protect from high heat sources. A protective barrier or thermal barrier may be required as specified in the appropriate building code. For more information, consult the Safe Handling document on BeyondBlue.DuPont.com call DuPont at 1-866-583-2583 or contact your local building inspector. In an emergency, call 1-989-636-4400 in the U.S. or 1-519-339-3711 in Canada.

WARNING: Rigid foam insulation does not constitute a working walkable surface or qualify as a fall protection product.

Building and/or construction practices unrelated to building materials could greatly affect moisture and the potential for mold formation. No material supplier including DuPont can give assurance that mold will not develop in any specific system.

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