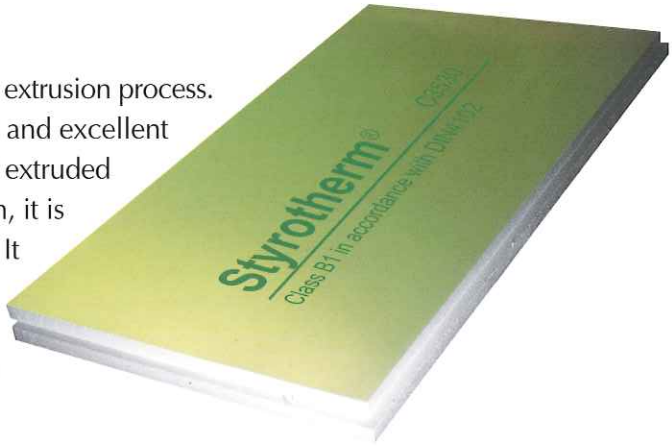
Styrotherm®

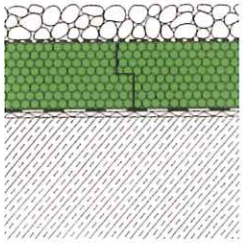
extruded
polystyrene
foam
board

A worldwide proven cellular plastic products
for efficient energy saving
in building construction & civil engineering

Styrotherm® is a rigid polystyrene foam board manufactured by extrusion process. It provides low thermal conductivity, high compressive strength and excellent resistance to water absorption. Due to the superior properties of extruded polystyrene, with its closed cell structure and smooth dense skin, it is widely recommended in building and civil engineering works. It can be installed on the waterproofing membrane of roof, wall and the flooring. It has the smallest insulation thickness comparing with the other insulant, i.e., fiberous board because of its high thermal resistance per unit of thickness.



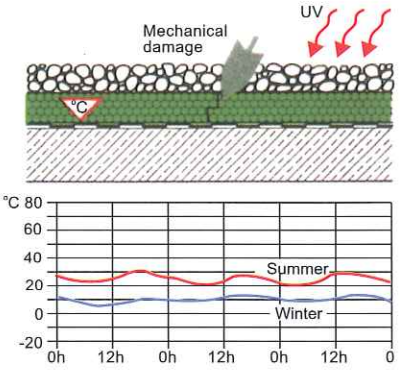
Protected Membrane Roof



Protected membrane roof with Styrotherm®

The protected membrane concept was conceived to protect the waterproofing membrane from the above mentioned stresses. In roofs using the Protected Membrane concept, the Extruded Polystyrene Foam is installed above the membrane (rather than below as in the conventional roof). Thus the membrane does not suffer thermal shocks, UV degradation, weathering etc. and maintains an optimum & constant temperature.

In any roof the most critical & important component is the waterproofing membrane. Only, if properly installed & adequately protected will it prevent water & moisture penetration caused by rainfall & condensation. Thus in areas of extreme climatic conditions, the membrane in conventional roofs are subject to continuous stresses such as thermal cycling & high UV radiation. Besides, naturally occurring stresses the membrane is subject to mechanical stress-live loads, traffic on the construction / installation site resulting in possible damage even before use. The life expectancy of the membrane drastically reduces due to such stresses and may affect its efficiency. The protected membrane method is simple yet highly effective.



Perimeter Insulation

Effective foundation, slab and crawl space insulation materials are vital to a home's overall energy package. They protect the physical integrity of a home's construction while making living areas more comfortable and energy efficient.

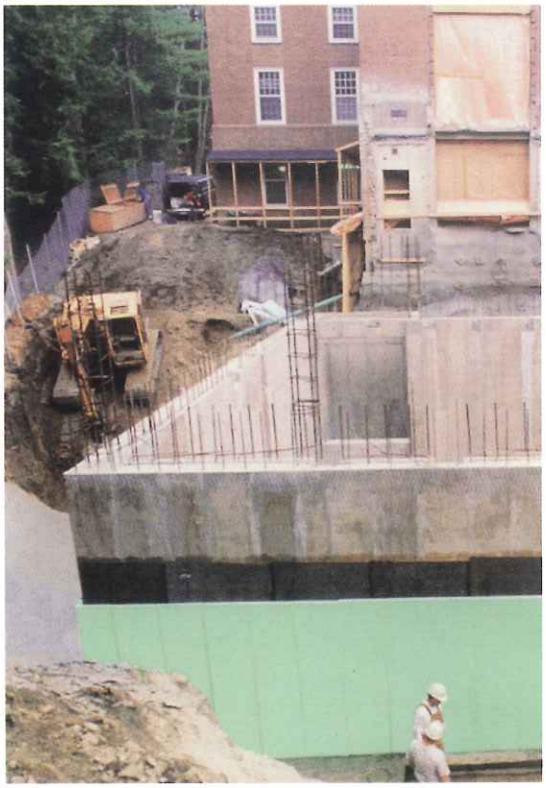
Below grade, the physical performance of insulation is especially demanding. Freeze/thaw cycles, moisture, soil chemicals and backfill operations can hamper the effectiveness of some insulation materials.

Styrotherm® Insulation for below-grade applications provides energy-saving protection and thermal performance under these rough conditions.

The closed-cell structure of extruded polystyrene foam is the key to Styrotherm® Insulation's excellent performance properties. The result is long-lasting thermal efficiency and rugged job-site toughness.

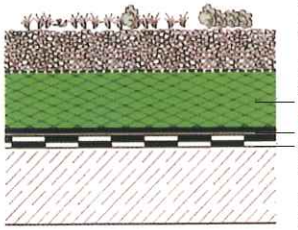
Lightweight and easy to handle, Styrotherm® Insulation more than makes the grade.

- **HIGH COMPRESSIVE STRENGTH**
  Withstands load pressure and backfilling shocks.
- **RESISTANCE TO MOISTURE ABSORPTION**
  Maintains R-value and integrity despite harsh below-grade environment.
- **LONG-TERM PERFORMANCE**
  Resists damaging effects of moisture and soil chemicals over time.



Terrace Garden

Extensively planted PM roof



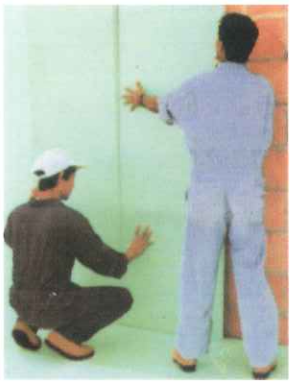
Green PM roofs can have extensive or intensive planting, depending on the type of use and the structural characteristics of the roof.

The substrate layer should always be as thin as possible, but only as thick as necessary to provide the plants with sufficient nutrients and to give the roots adequate anchoring. The composition of the substrate depends on the vegetation and location. It is recommended that the gardener be consulted.

Cavity Wall

Cavity wall insulation is of prime advantage where an external brick of any type and finish is required, and also for any type of air-conditioned buildings.

Interior Wall Insulation



Internal thermal Insulation is of great advantage to save heat loss or reduce solar heat at west side. It can be installed easily with adhesive or mechanical fastener. Further protection can be made with gypsum plasterboard or normal plaster.

Resistance of Styrotherm® to Chemicals

Substance		Substance	
Water, seawater, brine	+	Coal-tar products	-
Normal building materials, e.g. lime, portland cement, gypsum, anhydrite	+	Milk	+
		vegetable oils	o
Alkalis, e.g. caustic soda, caustic potash, ammonia, limewater, concentrated foul water	+	White oil, petrolatum,fuel oil	o
		Silicone oil	+
Solutions of soaps or wetting agents	+	Alcohols, e.g. methanol, methylated spirit	+
Hydrochloric acid up to 35%, sulphuric acid up to 95% diluted nitric acid up to 50%	+	Organic solvents, e.g. acetone, ethers, ethyl acetate, cellulose thinners, benzene, xylene, paint thinners, trichloroethylene, carbon tetrachloride, turpentine	-
Diluted mineral acids, weak acids such as lactic, carbonic, and humic acids (in peaty water)	+	Saturated aliphatic hydro-carbons, e.g. cyclohexane, white spirit, petroleum ether	-
Salts (efflorescence), mineral fertilizers	+	Gasoline (normal & high-octane)	-
Bitumen	+	Manure	+
Water-based cold bitumen & bitumen adhesives	+	Humus & other soil constituents	+
Solvent-based cold bitumen & bitumen adhesives	-		

+ = Resistant (the insulant is not affected, even after prolonged contact)

O = Limited resistance (after prolonged contact, the insulant may shrink or suffer surface damage)

- = Non-resistant (the insulant shrinks or is dissolved after comparatively brief contact)

Storage

Styrotherm® is unaffected by rain, snow or frost and may be exposed to the weather for several weeks without protection. However, it is affected by ultraviolet radiation, which can cause brown discoloration and superficial to direct sunlight for more than a few weeks must be avoided. Either by stacking them under a covering. Naked flames must also be kept away.

Cutting

Styrotherm® can be cut and shaped simply by tools and machinery suitable for wood.

Installation

Styrotherm® can be bonded to the wall with adhesive and mechanical fixing accessory (consult your distributor for detail information). It can be laid in staggered formation and with tightly butted joints. Care for wind uplifting to be consider after laying the Sytrotherm® board.

STYROTHERM C2820

Specifications	Properties	Test to
Edge Profile	Square	----
Cellular Structure	Over 90% of its volume is closed cell	----
Skin	Water-repellent smooth skin on both sides	----
Colour	Pigmented Green No. 14C31	BS 4800
Work Size per Sheet (mm)	1250 x 600	----
Thickness (mm)	50mm / 100mm	----
Density (kg/m^3)	28	BS 3837 Pt. 2
Thermal Conductivity (w/mk)	0.028	ISO 8302 / BS 3837 Pt. 2
Compression Strength at: 1% deflection (kPa)	108	BS 3837 Pt. 2
5% deflection (kPa)	235	
10% deflection (kPa)	280	
Water Absorption (% by volume)	<1	BS 3837 Pt. 2
Water Vapour Permeability (Perm-inch)	0.5	BS 3837 Pt. 2
Dimensional Change (%)	<1	BS 3837 Pt. 2
Thermal Expansion Coefficient (Longitudinal) (mm/mm/°C)	70.10^{-6}	ASTM E84
Fire Classification	B1	ASTM E84
Flammability	No Flaming, no Charring	BS 4735 : 1974
Service Temperature (°C)	75 max.	----

Environmental	Results	Test to
Zero Ozone Depletion	CFC/HCFC not detected	EPA 5021A
TVOC	Pass	California Standard Section 01350

Serviceability	Results	Refer to
Corrosion Resistance	Excellent	MSDS
Odour Emission	Not Detected	MSDS
Fungi Resistance	Resistant	MSDS

Applications
Void Former

STYROTHERM C3530

Specifications	Properties	Test to
Edge Profile	Square, Rebate	----
Cellular Structure	Over 90% of its volume is closed cell	----
Skin	Water-repellent smooth skin on both sides	----
Colour	Pigmented Green No. 14C31	BS 4800
Work Size per Sheet (mm)	1250 x 600	----
Thickness (mm)	25mm / 40mm / 50mm	----
Density (kg/m^3)	35	BS 3837 Pt. 2
Thermal Conductivity (w/mk)	0.028	ISO 8302 / BS 3837 Pt. 2
Compression Strength at 10% deflection (kPa)	300	BS 3837 Pt. 2
Water Absorption (% by volume)	<1	BS 3837 Pt. 2
Water Vapour Permeability (Perm-inch)	0.5	BS 3837 Pt. 2
Dimensional Change (%)	<1	BS 3837 Pt. 2
Thermal Expansion Coefficient (Longitudinal) (mm/mm/°C)	70.10^{-6}	ASTM E84
Fire Classification	B1	ASTM E84
Flammability	No Flaming, no Charring	BS 4735 : 1974
Service Temperature (°C)	75 max.	----

Environmental	Results	Test to
Zero Ozone Depletion	CFC/HCFC not detected	EPA 5021A
TVOC	Pass	California Standard Section 01350

Serviceability	Results	Refer to
Corrosion Resistance	Excellent	MSDS
Odour Emission	Not Detected	MSDS
Fungi Resistance	Resistant	MSDS

Applications
Roof / Wall / Floor Insulation

STYROTHERM C5050

Specifications	Properties	Test to
Edge Profile	Square	----
Cellular Structure	Over 90% of its volume is closed cell	----
Skin	Water-repellent smooth skin on both sides	----
Colour	Pigmented Green No. 14C31	BS 4800
Work Size per Sheet (mm)	1250 x 600	----
Thickness (mm)	50mm	----
Density (kg/m^3)	50	BS 3837 Pt. 2
Thermal Conductivity (w/mk)	0.028	ISO 8302 / BS 3837 Pt. 2
Compression Strength at 10% deflection (kPa)	500	BS 3837 Pt. 2
Water Absorption (% by volume)	<1	BS 3837 Pt. 2
Water Vapour Permeability (Perm-inch)	0.5	BS 3837 Pt. 2
Dimensional Change (%)	<1	BS 3837 Pt. 2
Thermal Expansion Coefficient (Longitudinal) (mm/mm/°C)	70.10^{-6}	ASTM E84
Fire Classification	B1	ASTM E84
Flammability	No Flaming, no Charring	BS 4735 : 1974
Service Temperature (°C)	75 max.	----

Environmental	Results	Test to
Zero Ozone Depletion	CFC/HCFC not detected	EPA 5021A
TVOC	Pass	California Standard Section 01350

Serviceability	Results	Refer to
Corrosion Resistance	Excellent	MSDS
Odour Emission	Not Detected	MSDS
Fungi Resistance	Resistant	MSDS

Applications
Roof / Wall / Floor Insulation, Heavy Duty Insulation

STYROTHERM C7050

Specifications	Properties	Test to
Edge Profile	Square	----
Cellular Structure	Over 90% of its volume is closed cell	----
Skin	Water-repellent smooth skin on both sides	----
Colour	Pigmented Green No. 14C31	BS 4800
Work Size per Sheet (mm)	1250 x 600	----
Thickness (mm)	50mm	----
Density (kg/m^3)	44.3	GB/T 6343-2009
Thermal Conductivity (w/mk)	<0.028	GB/T 10294-2008
Compression Strength at: 10% deflection (kPa)	759	GB/T 8813-2020 ISO / IEC 17025 : 2005
Water Absorption (% by volume)	<1	GB/T 8810-2005 ASTM C240
Water Vapour Permeability (Perm-inch)	0.5	GB/T 21332-2008
Dimensional Change (%)	<1	GB/T 8811-2008
Thermal Expansion Coefficient (Longitudinal) (mm/mm/°C)	70.10^{-6}	ASTM E84
Fire Classification	B1	ASTM E84
Flammability	No Flaming, no Charring	GB/T 8626-2007
Service Temperature (°C)	75 max.	----

Environmental	Results	Test to
Zero Ozone Depletion	CFC/HCFC not detected	EPA 5021A
TVOC	Pass	California Standard Section 01350

Serviceability	Results	Refer to
Corrosion Resistance	Excellent	MSDS
Odour Emission	Not Detected	MSDS
Fungi Resistance	Resistant	MSDS

Applications
Extra Heavy-Duty Insulation