

ESSENFOAM



Thermal Insulation Systems for Green Buildings

www.essenin.com



Essen International

Essen International is a service oriented organization based at New Delhi. Being the leading distributor of specialized reinforcements and chemicals for fiber glass composite and polyurethane slab stock applications, understanding customer needs and delivering a workable solution is our everyday activity. Together with our various partners, we are actively involved in research and development to make systems long lasting and economical. Key idea is to penetrate the market and expand the reach of advance systems in everyday life of common man.

Our mission is to set new standards by introducing to the market new breed of materials and systems that can be used in highly demanding areas where boundaries of conventional materials can be surpassed. We drive our expertise and energy into providing materials and service on a committed long term basis. Which enable our partner to attain new heights of technical and commercial advantage, previously unknown.

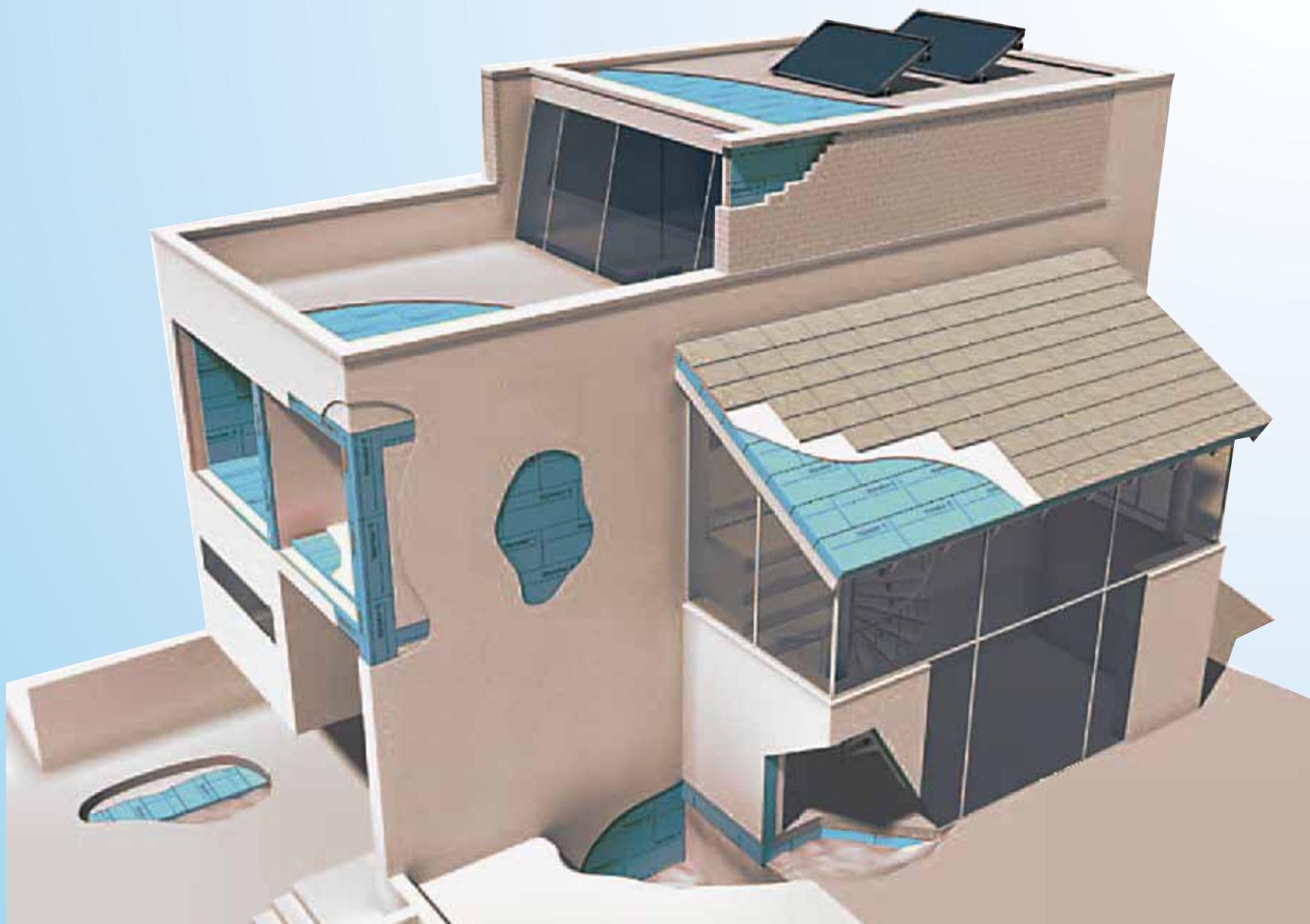
The business enterprise of insulation systems is a moral commitment towards the environment. With a team of technically proficient and highly skilled members, we are equipped to deliver complete systems of Exterior Insulation & Finishing Systems (EIFS). Turnkey solutions for commercial as well as residential projects are executed pan India basis. Along with application solutions, our effort is to share the concept and technology by providing complete EIFS training. Our Vision to make the man kind energy efficient.



Why is thermal insulation required?

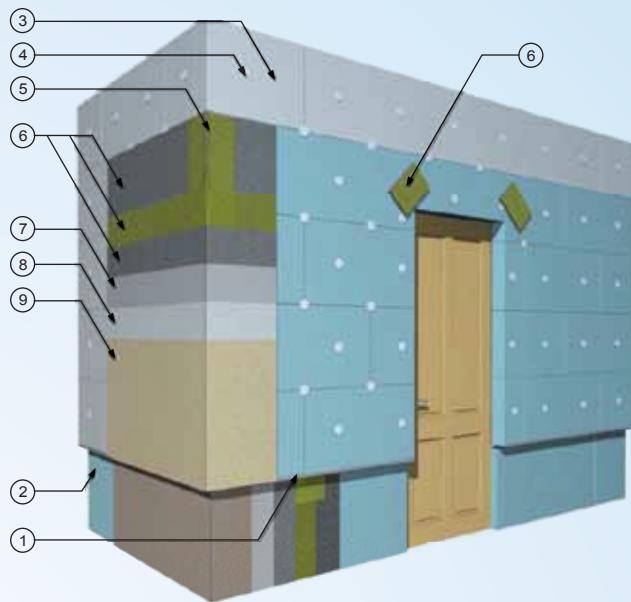
Need of the hour is to make home and commercial spaces more energy-efficient, and in effect 'greener'. It can help to improve the quality of life for the resident while saving them money on cooling and heating bills.

Traditional RCC roofs soak up the sun's heat and allow its transfer between the exterior and the interior of the house. Insulated roofs, on the other hand, prevent it from being absorbed into the roof and house during summer. Consequently, they reduce the amount of energy needed to cool the living spaces and bring the cost of cooling a home down by as much as 30 percent. Same system of XPS foam insulation boards can also be applied to walls and floors.



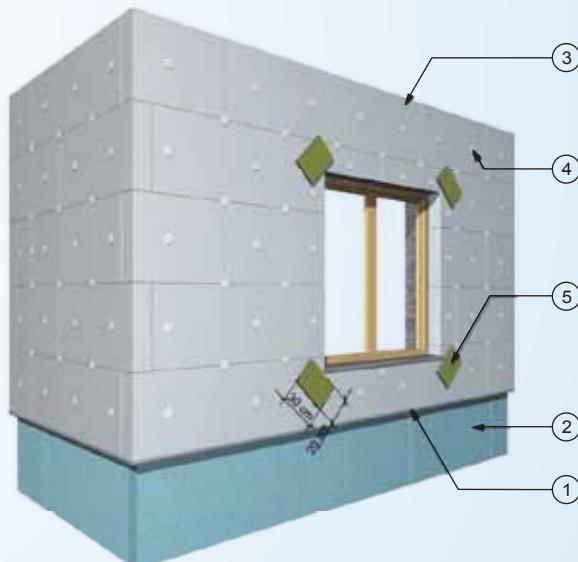
Insulating Walls with **ESSENFOAM**

Insulation of external wall corner
(with a corner profile)



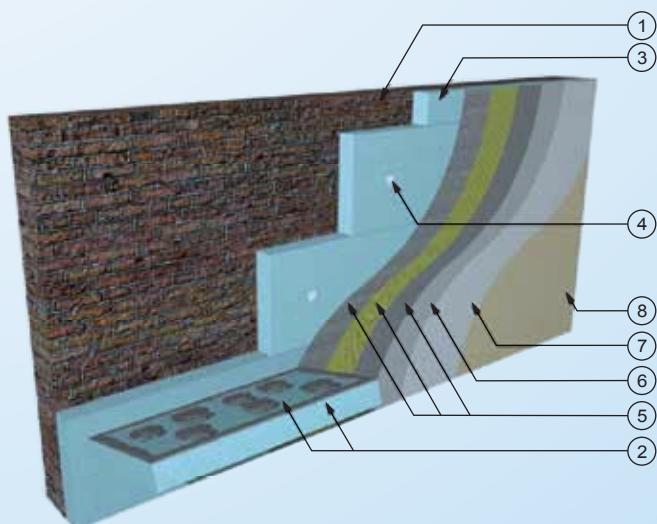
1. Starter track with weep holes
2. **ESSENFOAM** (Thermal Insulation XPS)
3. **ESSENFOAM** (Thermal Insulation XPS)
4. Anchor Fastners
5. Corner Profile with Mesh
6. Reinforced layer
7. Render Primer
8. Render Coat
9. Top paint Coat

Arrangements of anchors and additional reinforcing
at corners of windows/door reveals (with additional
patches of reinforcing mesh)



1. Starter track with weep holes
2. **ESSENFOAM** (Thermal Insulation XPS)
3. **ESSENFOAM** (Thermal Insulation XPS)
4. Anchor Fastners
5. Reinforced fibre mesh

Layers of Thermal Insulation Composite System
with extruded polystyrene boards XPS



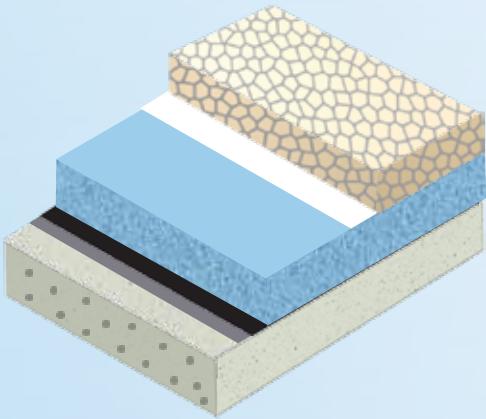
1. Bare Brick Wall
2. Insulation adhesive
3. **ESSENFOAM** (Thermal Insulation XPS)
4. Anchor
5. Polymerised Render insulation adhesive
6. Reinforced Layer of fibre Mesh
7. Mineral Acrylic Render finish coat
8. Top Paint Coat (optional)

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Flat Roof Insulation

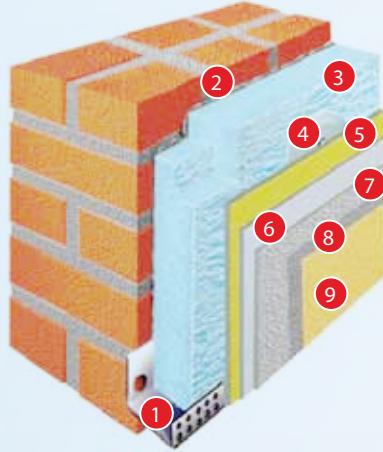
In order to obtain maximum performance and long life of insulation, it is most important to choose position of insulation correctly. In conventional systems, insulation is placed under the structural deck layer where deck is always exposed to direct heat or cold.

Most effective systems is the inverted roof concept, where water proofing layer is applied first on structural deck and thermal insulation is placed over it. This helps maintain even temperatures inside the buildings and also protect waterproofing layer from mechanical injury and UV radiations.



Wall Insulation

Insulation can be applied to interior wall, exterior wall or even as cavity system. However, most effective is the exterior wall insulation due to the fact that it is not interrupted at structural elements like columns, beams and slabs which create thermal bridges if un-insulated.



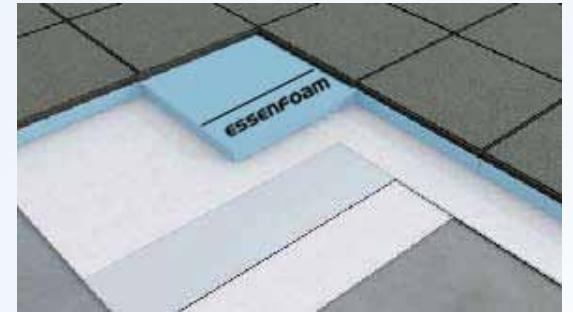
1. Metal Profile
2. Primary Fixing Adhesive
3. **ESSENFOAM** (Thermal Insulation XPS)
4. Additional Fixing
5. Reinforced Layer
6. Priming Mass
7. Render Coating
8. Priming Preparations
9. Paint Coating

Floor Insulation

It is particularly required where temperatures are extremely high or low through out the year. Soil below the building structure can transit enough heat or cold through un-insulated floors to make interiors uncomfortable.

Insulation boards are an ideal material for this application as it provides:

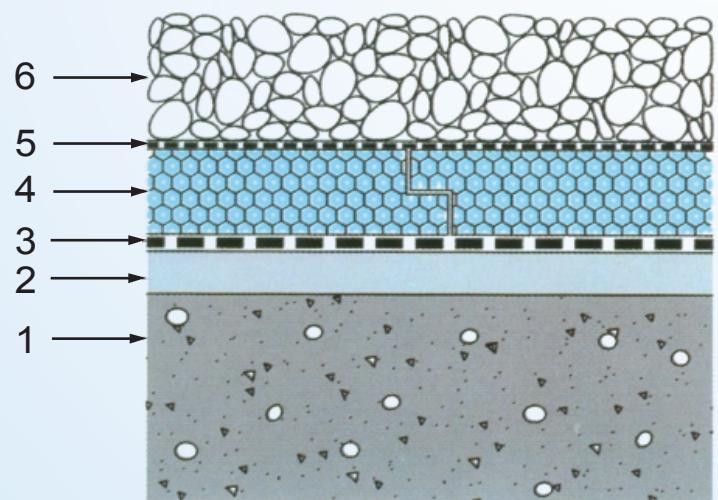
- High compressive strength
- High resistance to water and moisture penetration
- Low thermal conductivity



Insulating Flat Roofs

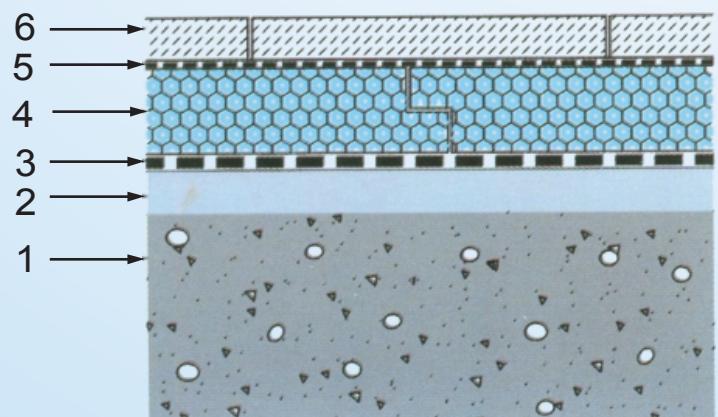
Non-accessible Roof with Gravel or Light Weight Ballast

1. Roof Deck
2. Screed to fall
3. Waterproofing Membrane
4. **ESSENFOAM**
5. Separation Layer
6. Gravel Layer 15-30 mm (5/8" 11/4")



Terrace, Vehicle Accessed Roof Deck

1. Concrete Roof Deck
2. Screed to fall
3. Waterproofing Membrane
4. **ESSENFOAM**
5. Separation Layer (Geo-Textile)
6. Reinforced in-suit concrete



Technical Applications of **ESSENFOAM**

Cold Stores and Panels

ESSENFOAM is the ideal insulation for high-load-bearing floors such as those found in cold stores, while its close tolerance, dust-free surface allows for perfect bonding to a variety of sheet materials in high quality sandwich panels used in the cold storage industry.



Load bearing floor

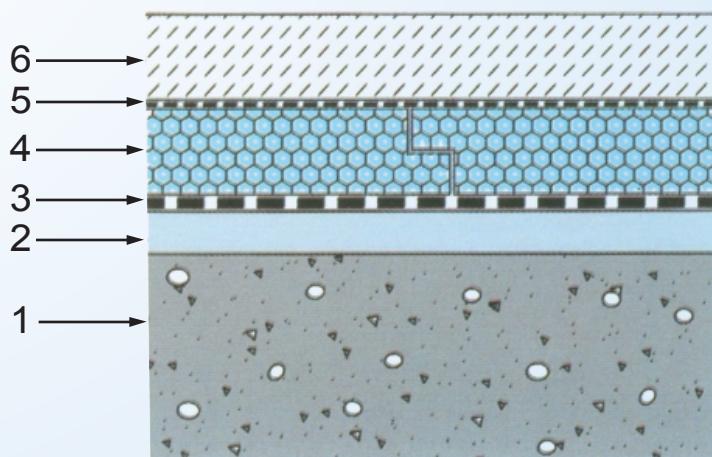


Cold Store Van



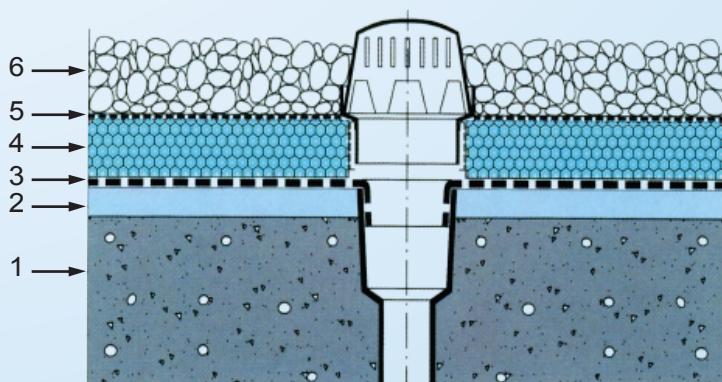
Sandwich panel & floor

Roofs with **ESSENFOAM**



Green Roof Or Roof Garden

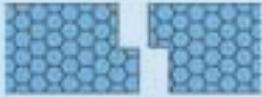
1. Roof Deck
2. Screed to fall
3. Waterproofing Membrane
4. **ESSENFOAM**
5. Separation Layer (Geo-Textile)
6. Concrete pavers loose laid



Roof Drainage

1. Concrete Roof Deck
2. Screed to fall
3. Waterproofing Membrane
4. **ESSENFOAM**
5. Separation Layer (Geo-Textile)
6. Gravel Layer 15-30 mm (5/8" 1 1/4")

Technical Properties of ESSENFOAM

Properties	Standard	Unit	ESSENFOAM IL STANDARD MAKE
Density, min.	DIN 53420	kg/m ³	32
	ASTM D 1622	lb/ft ³	2,0
Thermal conductivity at 10 °C (50°F)	DIN 52612	W/m . K	0,028
mean temperature of test	DIN 52616		
mean temperature 23,9° C (75°F)	ASTM C 177-97 or	Btu . In/ft2 . H . °F	0,2
	ASTM C 518-98		
Compressive strength at 10% de ection	DIN 53421	kPa	300
	ASTM D 1621-95	psi	43
Water absorption by submersion	DIN 53428	% by Vol.	0,2
	ASTM D 2842 (±1% by vol.precision)	% by Vol.	> ≤ 1
Water vapour diffusion resistance factor μ	DIN 52615	μ	100-200
Water vapour permeability ¹⁾	ASTM E 96-00	Perm-inch	0,4-0,6
Capillarity	--	--	none
Heat stability / compressive creep	DIN 18164	20 kPa, 80°C	WD
		Type 2,8 176°F 40 kPa, Type 5,6 158°F	WS
Linear coefficient of thermal expansion and contraction (heating soaking conditions)	DIN 52328	°C ⁻¹	70.10 ⁻⁶
		°F ⁻¹	39.10 ⁻⁶
Irreversible dimensional variation (result of laboratory test with temperature changes up to 60° C (104°F)	--	%	< 0,2
Fire classification (Germany)	DIN 4102	Building material class	B2 normal fire behaviour
Underwriters Laboratories (UL) classification according to ASTM-E-84 Standard Test Method for Surface Burning Characteristics of Building Materials under designation ASTM C 578-95 ²⁾	Flame spread	--	5
		Smoke developed for max 4 pcf density and 4" max thickness	165
Dimensions (mm)	--	--	
Width			600 mm
Length			1250 mm
Thickness			20-100 mm
Appearance	--	--	skin
Surface			shiplap
Edge profile			

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¹⁾ value is thickness related

²⁾ upon special request charging additional cost



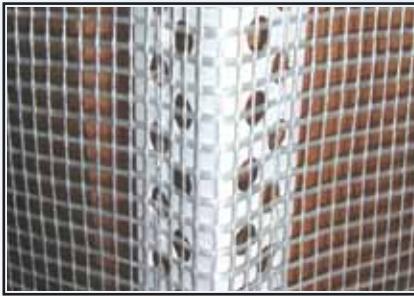
Protective Profiles

Drip Profiles

Drip profiles are fixed on horizontal edges of window and door jambs and other facade recesses. They are also applied on lower edges of balcony slabs; the mesh is sunk in the finishing layer e.g. **ESSENENDER** in **ESSENRETRO** repair system. They are also fixed on the lower edge of the thermal insulation if the skirting board cannot be used, e.g. thermal insulation panels are thicker than the largest available board size. First of all, they provide correct evacuation of water flowing down the vertical facade surfaces, eliminating this way the risk of stains and plaster damage. The profiles also protect the edge from mechanical damage.

Corner Profiles

Corner profiles are fixed on various edges exposed to mechanical damage during usage of the facade, like door and window jambs, corners, etc. The flexibility of the materials prevents mechanical impact from causing permanent damage to the corner.



90° Corner PVC profile with reinforced fiber mesh



180° Flexible corner PVC profile with reinforced fiber mesh



Mechanical Fixing : Insulation Support Fixings

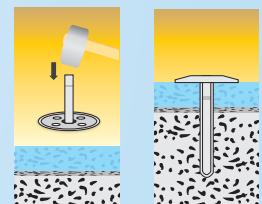
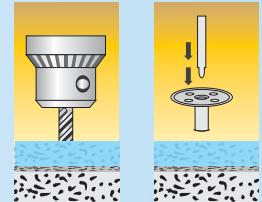
- Impact-resistant plastic insulation fixing.
- When driven in, the fixing grips the hole walls by means of its rough profile.
- Expansion nail insertion spike.

Advantages/benefits

- Small min. anchoring depth reduces the amount of drilling.
- Simple and quick hammer set installation saves time & work.
- Supporters in the disc for continuous pressure of the Insulation.

Type of installation: Push-through installation

Installation tips : A 35 mm deeper hole and anchoring depth is needed added to thickness of insulation. Please contact our technical service department for use or consult **ESSENFIX** Brochure.



Rooftop Supplies

Vertical Spigot
Vertical Threaded
45° Spigot
45° Threaded
90° Spigot
90° Threaded
Balcony Outlet
Kompact Balcony Outlet

Two Way Outlets
Gulley Outlets
Carpark Outlets
Overflow Outlets
Carolet Refurbishment Outlets
Accessories
Connections/Details/Areas



Check out **ESSENSUP** Brochure for new developments & technical services.



EIFS Tool Kit

Dry Wall Trowels
Broad Knives
Bubble Levels
Edgers
Corner Tools
Dry Wall Dolly

Basin Brussels Dusters
Mixers
Hammers
Drill Machine
Scalps
Surface Sanders



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