

Vetotherm Panel

Prefabricated decorative thermal insulating expanded coated polystyrene

Uses

- Prefabricated expanded coated polystyrene is used as decorative thermal insulating panels for residential and industrial concrete buildings.
- Saves energy consumption related to heating and cooling.

Product Description

Saveto Vetotherm Panel is a thermal insulating external wall finish system composed of prefabricated expanded polystyrene base profiles, covered with a white color synthetic thermosetting acrylic resin shell, incrustured by high-pressure mechanical laying (standard) or spraying. Vetotherm Panel is delivered to the site as a pre-coated panels ready to install. Vetotherm Panel facade system offers a complete prefabricated range of profiles for thermal insulating, decorating, and finishing facades. The system is recommended for new constructions and renovations, where facade aesthetics with high-quality thermal insulation.

Advantages

- Prefabricated and pre-coated panel ready to install on-site.
- Fast installation saves labor cost & time.
- Flexible and durable with a very high weathering fluctuating resistance. It provides better protection against rain and summer rays and high temperatures.
- Available in different required densities and thicknesses to achieve the desired thermal values.
- Low water absorption and penetration due to its special composition.
- Elastic and does not require fiber mesh installation.
- High resistance to mechanical stress due to flexibility
- Topcoat Paint is applied directly on surfaces.
- Its' white-colored coating facilitates the application of bright and vibrant colors.
- Supplied in different shapes and decorative effects that provide a new appearance for the renovated and new Facades.
- Easy to maintain by spot repairing.

Technical Data

Vetotherm Panel	Typical Values @ 25°C
Reaction to Fire (Euroclass)	C - S2, d0 (EN 13501 - 1)
Thermal Conductivity (W/m. K)	0.0351
Acrylic Coating Density	1.7 kg/l \pm 0.2
Applied Coating Thickness (mm)	2 - 10
Release of Dangerous Substances	In conformity with EN 13163 cl. 4.3.19
Water Transmission Rate	\leq 0.500 kg/m ² *h
Coating Adhesion to EPS	\geq 80kPa (TS EN 13494)
Ambient Temperature for Application and Delivery (°C)	+ 5 to 35
Service Temperature (°C) (Prefabricated Product)	- 40 to + 80

Impact of Strength:

The profiles and claddings are not strictly decorative and are designed to withstand impacts or knocks.

According to impact resistant test, the standard 3 mm coated element resists the impact of (conforming to standard):

- 2 J (by 500 gr metal ball)
- 10 J (by 1000 gr metal ball)
- For high impact resistance, additional layers of coating can be laid. Consult with Technical Department.

THERMAL INSULATION

Standards Compliance

- ASTM C578: Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation
- DIN EN 13499: Thermal insulation products for buildings - External thermal insulation composite systems (ETICS) based on expanded polystyrene Specification.
- ISO 8990: Thermal insulation - Determination of steady-state thermal transmission properties - Calibrated and guarded hot box

Design Criteria

Vetotherm panel Facade systems are not designed to bear any structural loads of the building; they must be strong enough, however, to withstand:

- Dead loads due to the self-weight of the installation.
- Wind loads.
- Movement due to settlement or thermal expansion.
- Imposed loads produced by the intended use of the building.

Other loads need to be transferred to the building structure. Information about the vertical and horizontal spans of mechanical fixings must be calculated and configured to the system elements to provide strength and stability.

Technical Data

Technical Data	ASTM C578									
	Test Method ASTM C578 Type	Unit	Type I		Type VIII		Type II		Type IV	
Molded Density	Normal Density	Kg/m ³	15 - 18		18 - 21		22 - 25		26 - 29	
Thermal Conductivity (k-value)	ASTM C177, DIN 52 612	W/(m.K)	0.0391		0.0376		0.0358		0.0358	
Compression Resistance at 10 %	ASTM D695-10, DIN 53421	kPa	69		90		104		104	
Flexural Strength	ASTM D790-10	kPa	173		208		240		240	
Flexural Modules	ASTM D638-10	kPa	-		-		-		-	
Water Vapor Permeability	ASTM E 96, DIN 53429	ng/Pa.s.m ²	287		201		201		201	
Water Absorption by Total Immersion, Max, Volume %	ASTM C272	%	4		3		3		3	
Dimensional Stability (change in Dimensions), Max, %	ASTM D2126, DIN 53424	%	2		2		2		2	
Oxygen Index, Min, Volume %	ASTM D2863	%	24		24		24		24	
Available Thickness	-	cm	8	10	8	10	8	10	8	10
R Value	-	(m ² .K)/W	2.05	2.56	2.13	2.66	2.23	2.79	2.23	2.79
System Build componenets : 200mm thick concrete block with K value of 1.130 W/(m.k), with acrylic coating - K value of (0.0351), designed at Avg thickness of 3mm, provided an R value of 0.085 W/(m2.k), with internal surface resistance of R value 0.13 W/(m2.K)										
R Value for Concrete Block	250 mm thickness	W/(m ² .K)	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
System total U Value		W/(m ² .K)	0.41	0.34	0.40	0.33	0.38	0.31	0.38	0.31
System Build componenets : 250 mm thick concrete block with K value of 1.130 W/(m.k), with acrylic coating - K value of (0.0351) designed at Avg thickness of 3mm, provided an R value of 0.085 W/(m2.k), with internal surface resistance of R value 0.13 W/(m2.K)										
R Value for Concrete Block	250 mm thickness	W/(m ² .K)	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
System total U Value		W/(m ² .K)	0.40	0.33	0.39	0.32	0.37	0.31	0.37	0.31
System build componenets : 150 mm thick concrete wall with K value of 1.7 W/(m.k), with acrylic coating - K value of (0.0351), designed at average thickness of 3mm, provided an R value of 0.085 W/(m2.k) with internal surface resistance of R value 0.13 W/(m2.K)										
R Value for Concrete Wall	150 mm thickness	W/(m ² .K)	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
System total U Value		W/(m ² .K)	0.43	0.35	0.41	0.34	0.39	0.32	0.39	0.32
System build componenets : 200 mm thick concrete wall with K value of 1.7 W/(m.k), with acrylic coating - K value of (0.0351), designed at average thickness of 3mm, provided an R value of 0.085 W/(m2.k) with internal surface resistance of R value 0.13 W/(m2.K)										
R Value for Concrete Wall	200 mm thickness	W/(m ² .K)	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
System Total U Value		W/(m ² .K)	0.41	0.35	0.41	0.34	0.39	0.32	0.39	0.32
System impact resistance using 3 mm thick acrylic coating: 2 J(500 gr metal ball), 10 J (1000 gr metal ball)										

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Usage Instructions

Substrate Preparation

The substrate should be sound, clean, free from loose material, grease, laitance, dirt curing compound, etc.

Remove all crumbles from the surface, and fill the holes to a straight flat surface. The uneven surface with a deviation of more than 1-2cm should be evened to a flat surface.

Initial Arrangement of Vetotherm Panel

Install a plinth profile with a drip edge profile to prepare the facade's initial arrangement. Choose the profile according to the thickness of the thermal insulating material. Level the profile by using the leveling methods and secure it with screw anchors.

The profiles will horizontally level the Vetotherm Panel and the Thermal Insulation System installation.

Substrate Types

- Non-faced concrete.
- Concrete faced with a coating, with stoneware, or with mosaic (Tesserae).
- Coated masonry.
- Wood facade (consult the installation model with the technical Department).
- Ceramic/Stone tile suspended facade.
- Metal/Concrete/Wood struts/columns.

Application

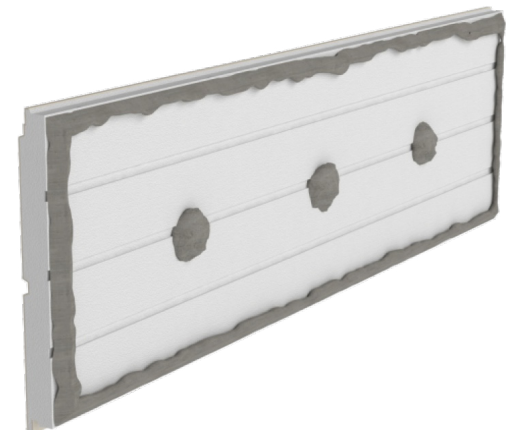
Use Saveto Vetotherm Flex as an adhesive applied to the bottom sides of the Vetotherm Panel.

Apply the adhesive in a continuous framework along the insulation panel's edge and form three or four balls in the middle of the panel. Stick the panels to the wall. Make sure that the adjacent vertical joints are interchanged like brickwork. Do not leave joints or spaces between the boards, and if you get larger gaps, fill them with insulation material or construction foam, but do not fill the gaps with adhesive.

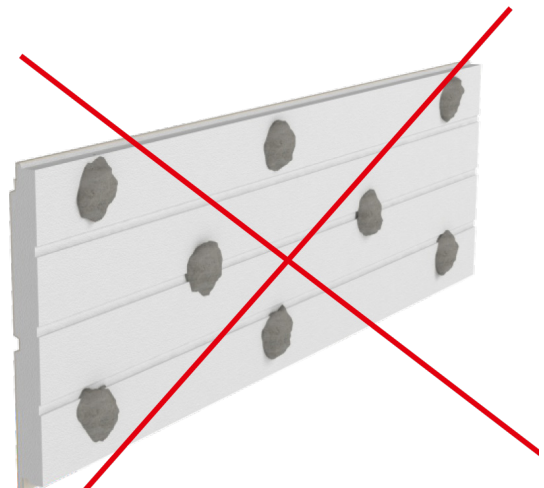
At the external edges, the panels should be interchanged. Around the corners of windows and doors, you must put the Vetotherm Panel as a whole. After the complete drying of the adhesive (min. 48 hours), cut the extended parts of the panels on site along the contour of the window or door - the so-called 'gun.'



FULL SURFACE PLACED VETOTHERM FLEX ADHESION



VETOTHERM FLEX ADHESIVE PLACED ON FULL PERIMETER AND CENTERED BEADS



VETOTHERM FLEX ADHESIVE PLACED IN RANDOM BEADS WITHOUT CLADDING PERIMETER ADHESION

Anchoring

Before anchoring the boards, Leave Vetotherm Panels undisturbed for at least 48 hours to allow the adhesive Vetotherm Flex to dry completely.

Refer to Dowel Usage & Anchoring Table to mount the dowels, which depends on the building's height, the region, and the wind's strength.

If the Vetotherm Panel thickness exceeds 8cm, you need to make a hole of 2cm depth with a cutter and then drill an opening for the screw anchor.

When mounting the dowels, fill the hole with a polystyrene cap. After completing the anchoring, cover the dowels' heads with Saveto Vetotherm Flex to flush with the boards' level.

For further information, please refer to the Saveto Vetotherm Panel Installation manual.

Important Notes

- For any building, the quantity of dowels is calculated according to elevation.
- "Area" fixing pattern is chosen according to "Anchoring Patterns."
- "Rim zone" fixing pattern is chosen according to "Additional anchoring at Shoreline."
- Shoreline: Constant depending on the chosen pattern.
- The Rim Zone fixings are calculated as table value indicated accordingly for 1m² on each of the 2 sides of the building's external corners (or internal if applicable to case) and multiplied by building height at each external corner and summed up.

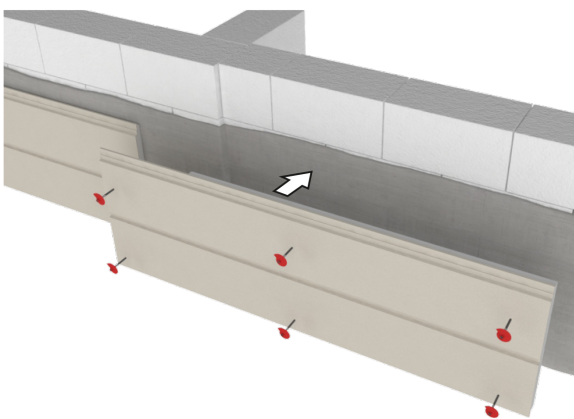
Dowels Usage & Anchoring Table

Building Elevation (Height)	Pieces per Cladding		Pieces per m ²	
	Area	Rim Zone	Area	Rim Zone
0 - 20m	2 - 4	5	1.7 - 3.4	7
20 - 50m	4 - 5	6	3.4 - 4.2	8
50 - 100m	6	7	5	9

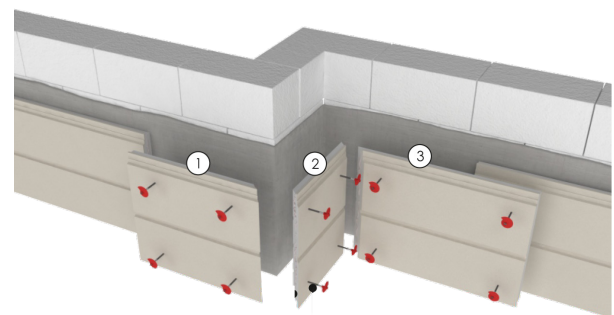
Vetotherm Panel T- Dowel

h For Tongue & Groove Cladding: Constant 4 T-dowels per panel / 4 T-dowels per 1m²

h For Overlap Lock Cladding: Constant 3 T-dowels per panel/ 4 T-dowels per 1m²



VETOTHERM PANEL SHAPE & FIXING



VETOTHERM PANEL CUTS & FIXING

THERMAL INSULATION

Sheets Sizes & Thickness

Product	Board Size	Thickness
Vetotherm Panel	50 x 200 cm	5 cm & 10 cm

Shelf Life & Storage

The original sealed boards of the Vetotherm Panel have a shelf life of 12 months, provided it is stored clear of ground in a dry and shaded place below 35°C.

Limitations

The application of the Vetotherm Panel is not advised in the following situations/areas:

- Height of buildings over 100 m.
- It is necessary to repair damaged surfaces.
- A damaged substrate or weak substrate integrity.
- Wet, subject to moisture or walls with efflorescence.
- Other External Thermal Insulation does not have valid technical information.
- Assessments or application technical rules.
- Non-conforming to the documents covered by this System.

Health & Safety

Vetotherm panel is a nontoxic material. It is free from freon gas, and it is non-flammable as it contains non-retardant material.

For further information, please refer to the material safetydata sheet.

Additional Information

Saveto manufactures a wide range of construction chemicals and specialty products for various applications.

For further information on these products and systems kindly check our website or contact your local Saveto representative.

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