

**WACKER**

CREATING TOMORROW'S SOLUTIONS

VINNAPAS®

CUTTING HEATING COSTS WITH EXTERNAL  
THERMAL INSULATION COMPOSITE SYSTEMS

Worldwide, buildings consume 40% of primary energy and generate 33% of CO<sub>2</sub> emissions. Good insulation could save up to 70% of heating energy here. External thermal insulation composite systems (ETICS) are among the most efficient and successful methods of insulating walls from the outside, combining numerous advantages.

#### Suitable for Old and New Buildings

Stone, render, timber, tiles and just about all other substrates can easily be fitted with ETICS, which means the systems can be used for both renovating and new construction. The use of a suitable mortar is a deciding factor.

#### Suitable for All Climates

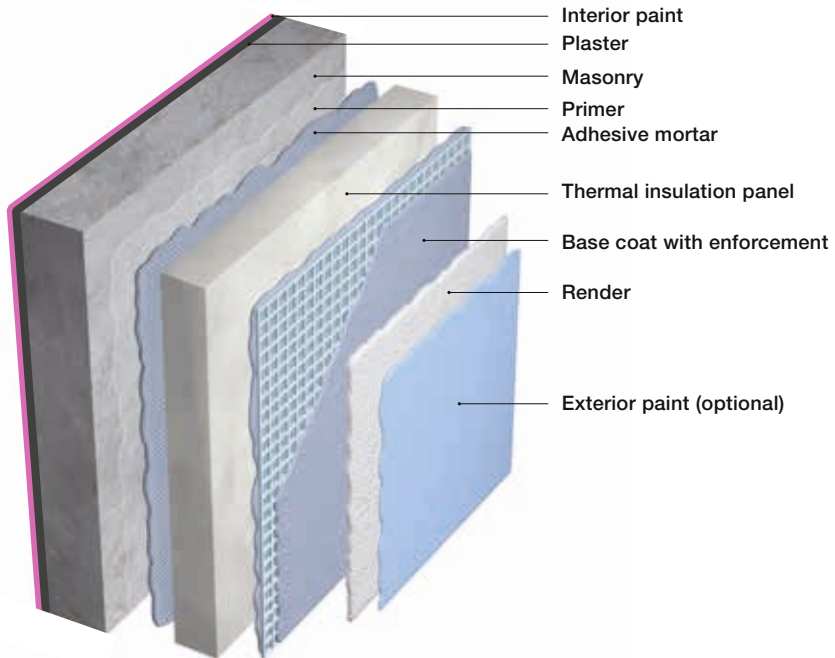
Irrespective of whether buildings need to be cooled or heated, externally insulated facades are thermal barriers. As much as 40% of the heat inside a building escapes through its exterior walls. That is heat which could be gainfully employed in a properly insulated building.

#### Improved Interior Climate

Insulated facades not only improve the energy balance, but also the interior climate. Among other things, ETICS reduce temperature differences between indoor air and wall surfaces. By doing so, they significantly improve the comfort level inside.

#### Architectural Freedom

With ETICS, architects have free rein to create their facade designs. Materials can include plasters, skim coats, paints, natural stone facades or tiling.



External thermal insulation composite systems (ETICS) are made up of a combination of materials, each playing a specific role. The composition varies according to the building, the climate and other factors. But the components depicted here are usually always involved.

For further information, visit  
[www.wacker.com/construction](http://www.wacker.com/construction)



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## THE EXTERIOR PAINT



A suitable exterior paint can be used as the topcoat. This should be water-repellent yet at the same time permit diffusion. Silicone-resin-based paints are ideal, because they combine the outstanding properties of mineral and synthetic-resin-bound paints.

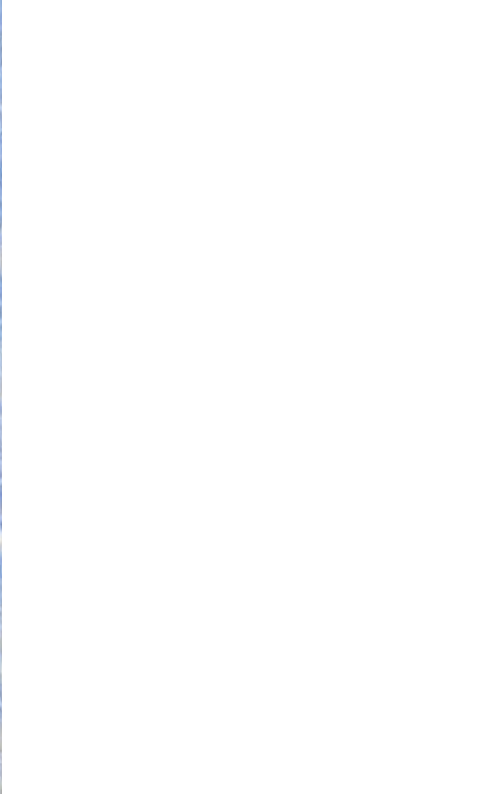
These include

- Excellent water-vapor permeability
- Extremely low water absorption, and
- Exceptional durability.

WACKER's SILRES® BS line provides raw materials for the formulation of silicone resin emulsion paints.

**Recommended products:**

SILRES® BS binders, water-repellent additives and primers



## THE RENDER

In many cases, the finishing coat of an external thermal insulation composite system is a mineral plaster. Polymer-modified renders are particularly suitable, as they combine

- Good adhesion
- Mechanical strength
- Water repellency, and
- Flexibility.

These renders protect the external thermal insulation composite system against moisture, damage and cracking. Possible alternatives include silicone resin renders, dispersion-bound synthetic resin renders and organosilicate renders.

**Recommended products:**

- VINNAPAS® polymer binders
- SILRES® BS silicone resin binders and water-repellent additives





## THE BASE COAT

The base coat gives the system its impact resistance. To this end, the insulation material is coated with a mortar containing an embedded glassfiber mesh. The functionality of this base coat largely depends on the use of a polymer binder. Without such binders, cementitious mortars would not adhere to expanded polystyrene insulation panels, for example. Furthermore, the binder provides the hardened mortar with the necessary flexibility and impact resistance, so that slight impacts or movements of the substrate can be absorbed without cracking.

**Recommended products:**  
VINNAPAS® polymer binders



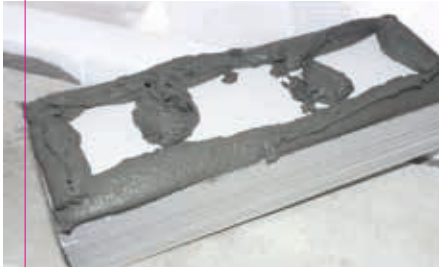


## THE THERMAL INSULATION PANEL



The most commonly used material for thermal insulation panels is expanded polystyrene. Other suitable materials include mineral wool boards, phenolic resin foam and wood fiberboard. It is important that these panels are protected against moisture. Moisture can reduce their insulating capacity and, in the worst case, infiltrate right through the ETICS and damage the system.





## THE ADHESIVE MORTAR

A cementitious, polymer-modified adhesive mortar is required to attach the ETICS to the masonry. It is the dispersible polymer powder in the adhesive mortar that ensures reliable adhesion to both the masonry and the insulation material. Here, the leading binders are WACKER's VINNAPAS® dispersible polymer powders. They are mixed into the dry-mix mortar in the factory, offer reliable processing and guarantee optimum mortar properties.

**Recommended products:**

VINNAPAS® polymer binders



## THE PRIMER

Primers based on VINNAPAS® dispersions optimally prepare the substrate for the application of the next layer. They penetrate deep into the masonry and create an impregnating barrier with uniformly low water uptake. Further benefits include:

- Improved adhesion of subsequent layers
- High compatibility with a variety of substrates
- Good consolidation of the substrate

**Recommended products:**

VINNAPAS® polymer dispersions





## THE MASONRY



With the right kind of polymers added to enhance the adhesive mortar, external thermal insulation composite systems can be applied to virtually any substrate, e.g.:

- Concrete
- Bricks
- Timber
- Plaster
- Stone

This makes them ideal for improving the energy rating of existing buildings – an enormous market around the world.



# PLASTERS AND PAINTS FOR INTERIOR WALLS



WACKER offers binders and additives for all known plaster and paint systems for interior walls. VINNAPAS® VAE dispersions are particularly noteworthy, as they are largely produced without APEO-containing raw materials and facilitate the formulation of modern paints with numerous advantages:

- Low VOC content (<5 g/l or less)
- Wide formulation range
- Excellent scrub resistance
- Low-odor
- Interesting cost/benefit ratio

Our SILRES® BS water-repellent additives are equally well-established.

**Recommended products:**

VINNAPAS® polymer dispersions

SILRES BS®





A nighttime photograph of a city skyline, likely New York City, with numerous skyscrapers illuminated against a dark blue sky. The lights from the buildings are reflected in a body of water in the foreground. The WACKER logo is overlaid on the left side of the image.

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