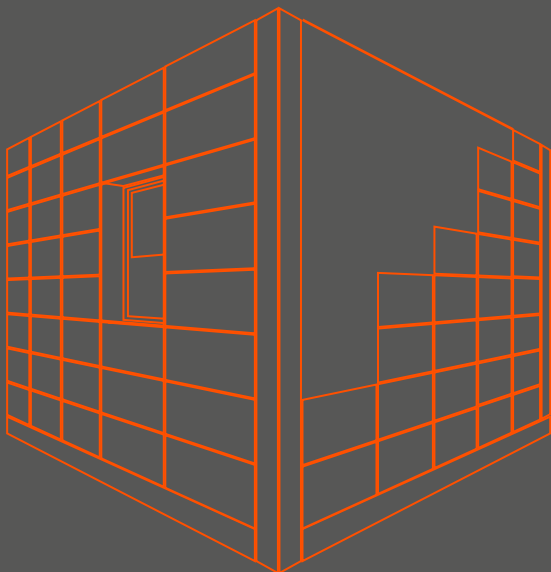


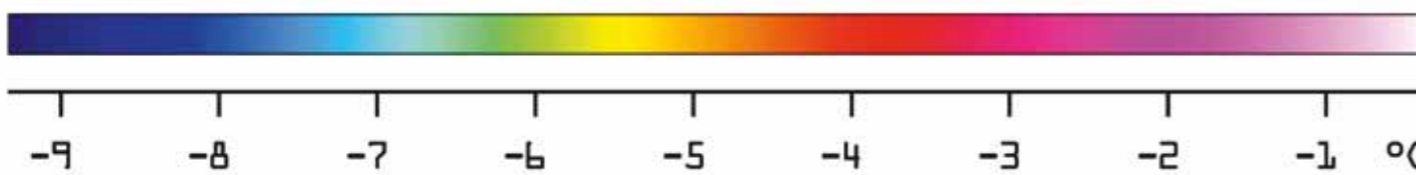
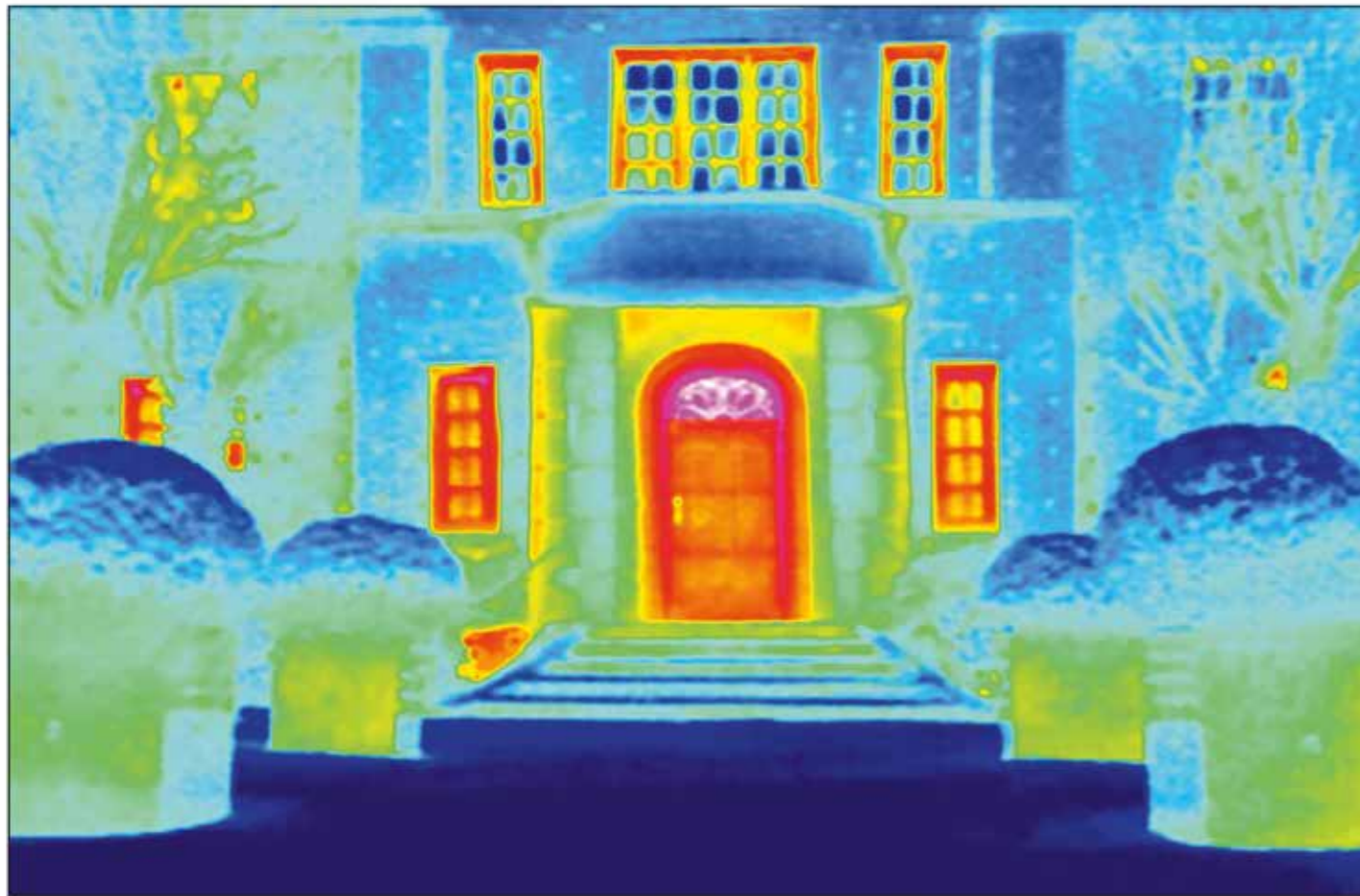


ZERO.3[®]
by CERAMICA
PANARIA



EXTERNAL WALL THERMAL INSULATION

TECHNICAL MANUAL



Insulating with ZERO.3

An external thermal insulation system is a layer that insulates the outside cladding of a building to improve thermal efficiency. The superior technical characteristics and aesthetic qualities of ZERO.3 tiles make them a perfect solution for elegant external thermal insulation systems.

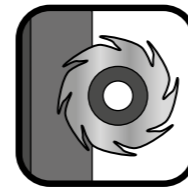
The thermal insulation systems keep the temperature of perimeter walls at milder values, thus generating an active thermal mass that improves the thermal inertia of the building. Not only does thermal insulation reduce heat dispersion, it also optimizes the performance of the wall throughout the seasons.

In the summer, by increasing external insulation, the flow of heat that would require intensive use of air conditioning is greatly reduced.

In the winter, the walls that are insulated from the outside cold create thermal exchange almost exclusively with the internal heated space of the building.

ZERO.3 tiles, with their technical characteristics and unique beauty, are an ideal solution for thermal insulation systems.

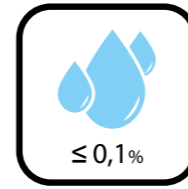
THE STRENGTHS OF THE ZERO.3 EXTERNAL THERMAL INSULATION SYSTEMS



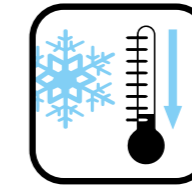
Superior mechanical strength



Resistant to thermal shock



Minimum water absorption



High frost resistance



Fireproof



Colours are resistant to sunlight and aging



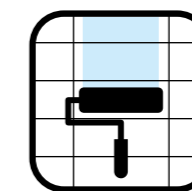
Resistant to stains and smog



Resistant to atmospheric agents



Light and easy to install



Easy to restore original appearance in case of vandalism or graffiti

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Residential complex
Location: Italy



Private Villa
Location: Italy



Commercial complex
Location: Italy



Residence Santa Caterina
Location: Italy



Headquarters OB snc Impianti
Location: Italy



Auditorium
Location: Florence - Italy



Private Residence
Location: Italy



INNOVATION IN EXTERNAL CLADDING WITH CERAMIC MATERIALS

A private residence that opted for an external thermal insulation system to solve the problem of insulating the building and chose ZERO.3 for the exterior ceramic covering. The architect explains the reasons behind this choice.

1. What are the reasons that led you to choose an external thermal insulation system as the best solution for this project?

The renovation project was a detached family home built at the end of the 60's in a residential area in the province of Modena. At the time, houses were built without taking into consideration the restrictions and parameters that are vital to insulate buildings properly, and that are considered essential nowadays in order to achieve optimum comfort (and to cut running costs) of any home.

External thermal insulation is the method that optimizes best interior spaces.

The current regulations in Emilia Romagna let you increase the thickness of the walls of a house with no need to comply with other building restrictions (distances from boundary lines and the total surface area).

2. What benefits does ZERO.3 offer for the application of an external thermal insulation system?

I would emphasize two above all. From the point of view of appearance, the look of ZERO.3 suggests durability and elegance. The variety of the colours and different shades available in the collection can completely change the aspect of the outer shell of a building.

From a technical point of view, I was convinced by the material's light weight and large sizes.

Having the option of large sizes lets you choose the best position for the tiles on the wall so that all the facades look extraordinarily harmonious, like a second skin enveloping the entire building. In the past, you could only get this look by using natural stone slabs that were very heavy, difficult to handle and not practical.



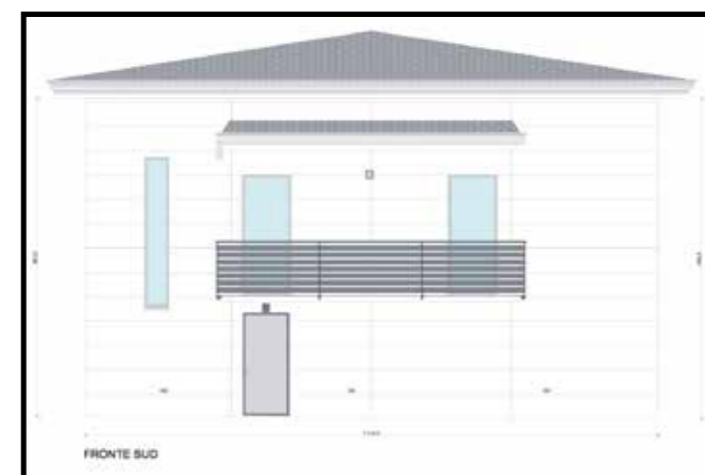
3. How did you hear about the ZERO.3 external thermal insulation systems?

We heard about ZERO.3 at trade fairs because we try to keep ahead of what's new in architecture and so I wanted to use it as soon as the occasion arose.



4. How does the external thermal insulation solution fit into the logic of new construction techniques for sustainable homes?

An external thermal insulation system guarantees a superior performance from the point of view of energy savings: proper insulation reduces the cost of heating / cooling a building and this also leads to considerable savings in terms of the CO² released into the environment. What's more, all construction materials must guarantee complete recyclability and be part of a virtuous cycle, both in the production phase and at the time of their disposal.



CeraVent® ZERO.3 SYSTEM

SYSTEM TYPE

Thermal insulation system with micro ventilation

TYPE OF CLADDING TILES:

ZERO.3 3PLUS and ZERO.3 5PLUS ceramic tiles in laminated porcelain stoneware.
ZERO.3 3mm in situations where holes and/or cuts are not necessary and with sizes up to 100 x 100 cm.

OPERATIONS CARRIED OUT ON THE TILE:

None

CLADDING TILE SIZES:

100x50 cm - 100x100 cm - 150x50 cm



2.1 - Types of thermal insulations CeraVent® ZERO.3 System



1. EPS PANEL

Rigid insulation panel in sintered expanded polystyrene foam for external insulation on buildings. Its excellent performance, dimensional stability and ease of installation make it one of the most popular insulation materials.

2. XPS PANEL

Rigid insulation panel in extruded polystyrene foam for external thermal insulation.

3. PUR PANEL

Polyurethane panel, suitable as insulation for the exterior walls of buildings. Its high thermal performance makes it a particularly ideal material for excellent insulation with low thickness.

4. MINERAL WOOL PANEL

Rigid, fireproof panel in high-quality mineral wool, specifically for insulation of buildings. Its structure offers high vapour permeability, low water absorption, high mechanical strength, easy installation and excellent performance in terms of thermal and noise insulation. This drastically reduces energy consumption in summer and winter, and improves comfort indoors.

5. CORK PANEL

Panel that insulates against heat and noise, made of non-toxic natural cork granules that is totally eco-friendly, odourless, rot-proof and offers great thermal and acoustic properties.

6. FIBREBOARD PANEL

High quality fibreboard panel, specifically made for the insulation of buildings. Its technical features and high density make it an ideal product for increasing the thermal offset between walls. This improves comfort in the building both in summer and in winter.

CeraVent® ZERO.3 SYSTEM

SYSTEM DESCRIPTION:

Resistance to impact, improved hygrothermal characteristics and elegant looks are typical of facades clad with CeraVent®. Thanks to micro-ventilation and decoupling CeraVent® it is possible to reduce the common long-term risks due to direct adhesion to the building, caused by humidity and frost.

CeraVent® decouples the cladding from the substrate and creates a layer of air that allows the circulation of about 7 lt/m² of air.

The system can be used on newly fitted layers of insulation or on old and damaged substrates.

The CeraVent® system creates an independent covering supported safely by a system of wall plugs; this helps to neutralise the effects of any cracks and tension in the substrate.

Thanks to the CeraVent® system's micro-ventilation, any stagnation caused by seepage is eliminated by the vapour-tight covering; any moisture is conveyed through the channels behind the supporting matting and then flows outside.

This avoids efflorescence and detachments due to frost caused by stagnating moisture.

This solution was created in partnership with Fortlan-DIBI, a leading company in thermal and acoustic insulation for the building industry.

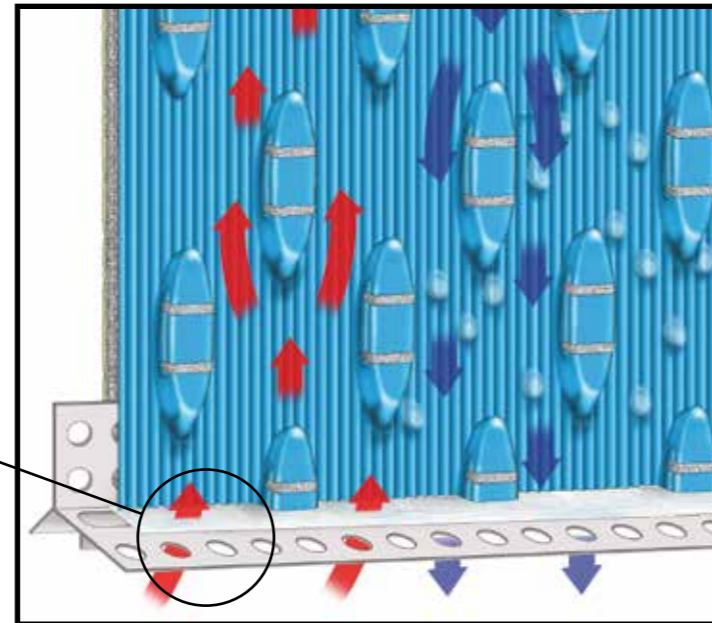
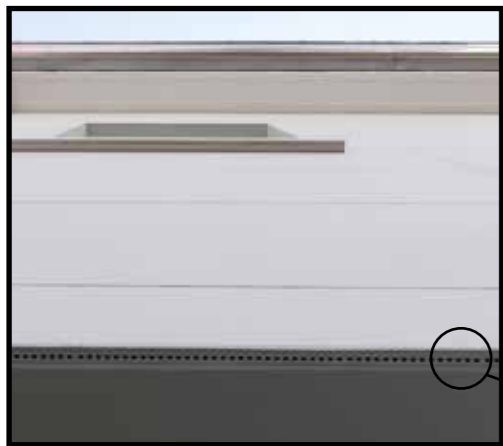
DIMENSIONS:

- The system is approximately 16 mm thick in addition to the thickness of any levelling plaster, the insulating panel and the covering slab.
- The standard thickness of covering tiles for this type of system is 3.5 mm.

RESTRICTIONS:

Use tiles in a medium pale colour, i.e. with a reflection index in excess of 20%. Applications for maximum heights of 20 m are currently allowed.

Please contact Panariagroup's Research Centre for more details.



The special, patented CeraVent® matting CeraVent® favours drainage, ventilation and decoupling.



Planarity check



Installation of isolating panels with a notched trowel in a vertical direction



Spread the adhesive using a notched trowel vertically



Lay CeraVent matting from top to bottom, alternated



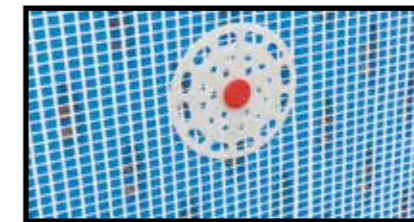
Apply Watec ST - joint netting



Place anchors: at least 5 per m²



Place anchors: at least 5 per m²



Detail of anchor



Position the profile and embed the mesh



Smooth and fill the mesh with a notched trowel in a vertical direction



Adhesive



Apply CeraVent reinforcing net



Final smoothing



Double buttering (back of ZERO.3)



Double buttering (on wall)



Bonding of ZERO.3



Joint

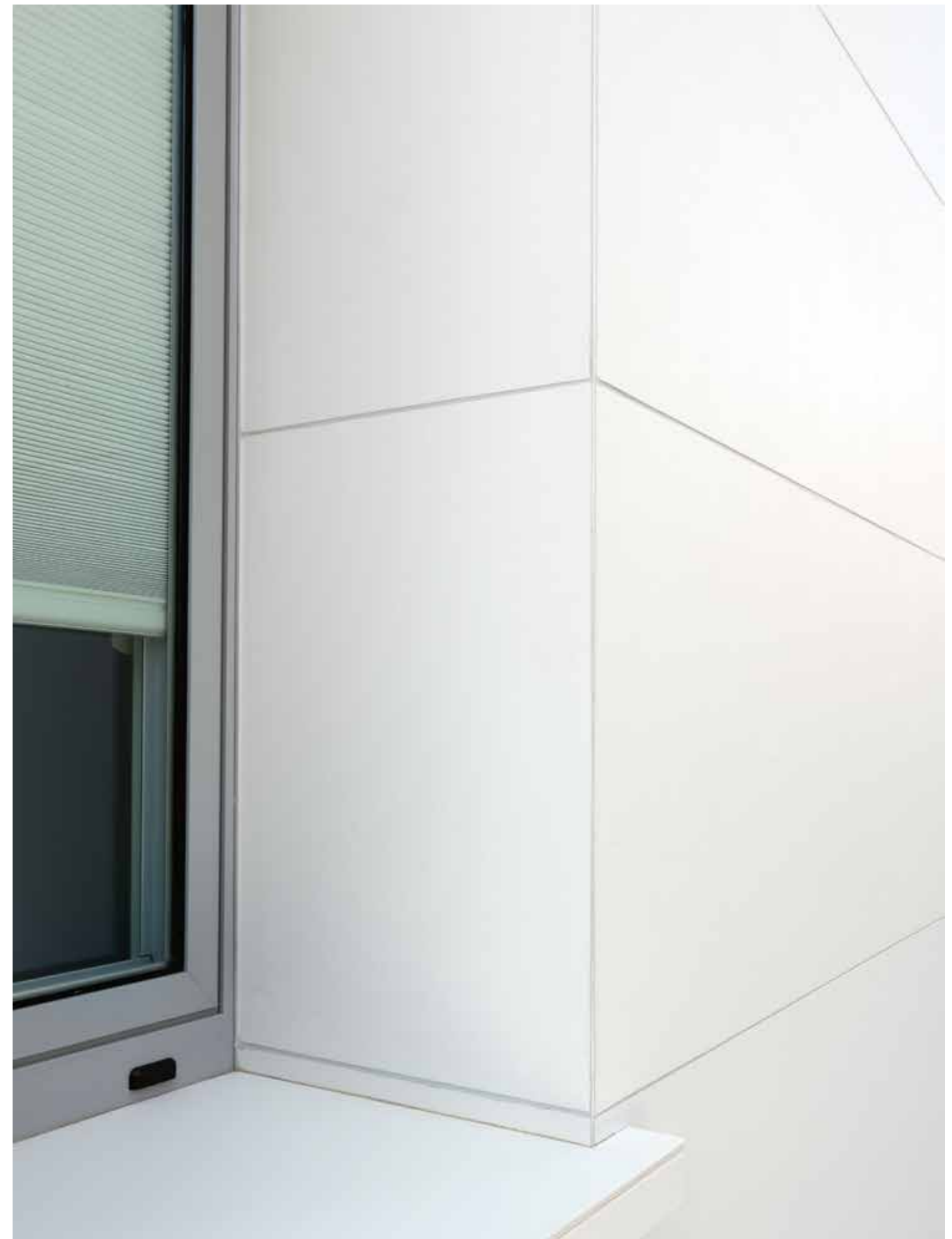
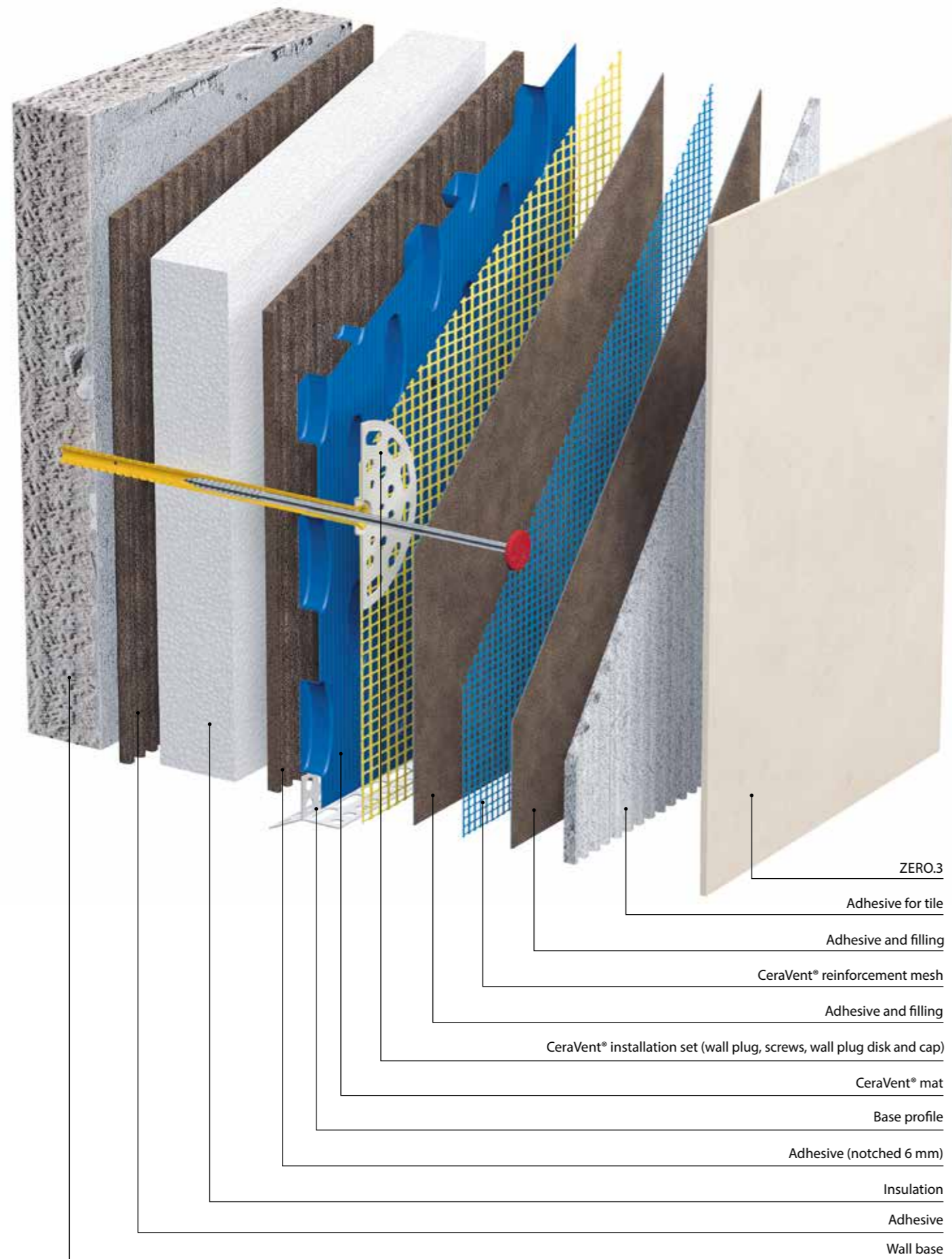


Cleaning

For further information, consult the CeraVent®ZERO.3 System technical data sheet on our website www.panaria.it

CeraVent® ZERO.3 SYSTEM

SYSTEM COMPONENTS



Mapetherm® ZERO.3 SYSTEM**SYSTEM TYPE**

Thermal insulation system

TYPE OF CLADDING TILES:

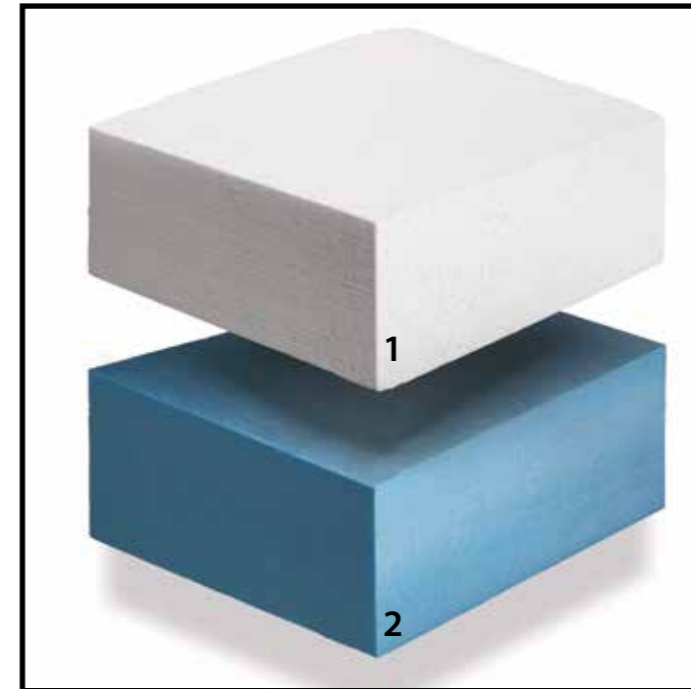
ZERO.3 3PLUS and ZERO.3 5PLUS ceramic tiles in laminated porcelain stoneware.
ZERO.3 3mm in situations where holes and/or cuts are not necessary and with sizes up to 100 x 100 cm.

OPERATIONS CARRIED OUT ON THE TILE:

None

CLADDING TILE SIZES:

100x50 cm - 100x100 cm - 150x50 cm

3.1 - Types of thermal insulations Mapetherm ZERO.3 System**1. EPS PANEL**

Rigid insulation panel in sintered expanded polystyrene foam for external insulation on buildings. Its excellent performance, dimensional stability and ease of installation make it one of the most popular insulation materials.

2. XPS PANEL

Rigid insulation panel in extruded polystyrene foam for external thermal insulation..



Mapetherm® ZERO.3 SYSTEM

SYSTEM DESCRIPTION:

Mapetherm is a system for the installation of ZERO.3 on external thermal insulation systems, and is the result of the experience of Mapei in the market of materials for installation of ceramic tiles, insulation and structural reinforcement of buildings using composite materials.

DIMENSIONS:

- The system is approximately 15 mm thick in addition to the thickness of any levelling plaster, the insulating panel and the covering slab.
- The standard thickness of covering tiles for this type of system is 3.5 mm.

RESTRICTIONS:

Use tiles in a medium pale colour, i.e. with a reflection index in excess of 20%. Applications for maximum heights of 20 m are currently allowed. Please contact Panariagroup's Research Centre for more details.



Planarity check



Position MAPETHERM BA profiles



Installation of insulation panels with double buttering (on wall)



Installation of insulation panels with double buttering (back of tile)



Installation of insulation panels with double buttering



Application of first layer of PLANITOP HDM MAXI



Application of the MAPEGRID G120 mesh



Fit the wall plugs with MAPETERM TILE FIX15



Second layer of PLANITOP HDM MAXI



Control the flatness of the structural plaster



Double buttering (back of ZERO.3)



Double buttering (on wall)



Bonding of ZERO.3



Joint



Cleaning

For further information, consult the **CeraVent®** ZERO.3 System technical data sheet on our website www.panaria.it

Mapetherm ZERO.3 SYSTEM

SYSTEM COMPONENTS



