

External insulation without glue



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Why we choose an exterior insulation system



MAIN FEATURES

1. The insulating layer is **continuous**
2. The portion of "cold" wall is absent
3. The entire wall is "hot"
4. The structure is totally placed on the **exterior** side of the wall
5. The intervention is **outside** of the façade

ADVANTAGES

1. No thermal bridges, **surface condensation** and molds
2. Limit the risk of **interstitial condensation**
3. Ideal for **residential buildings**
4. No reduction of the **usable area** of the rooms
5. Possibility to intervene on the **aesthetics** of the façade



Limits of application of standard external insulation technology



MAIN FEATURES

1. The insulation panel is **adherent** to the substrate and the layer of reinforced smoothing
2. The insulating panel and the reinforced smoothing are subject to **microdeformations** due to thermal stress



LIMITS

1. It is advisable to avoid excessively **heavy** coatings
2. The colored coating must necessarily have a thickness and be synthetic, and also it must have a light colour



Advantages of the proposed system



MAIN FEATURES

1. ~~The insulation panel is **adherent** to the substrate and the layer of reinforced smoothing~~
1. The panel is desolidarised both from the substrate and the overlying coating
2. ~~The insulating panel and the reinforced smoothing are subject to **microdeformations** due to thermal stress~~
2. The reinforced plaster is less subject to thermal expansion



LIMITS

1. It is advisable to avoid excessively heavy coatings
1. It is possible to use stone, brick, grès coatings
2. The colored coating must necessarily have a thickness and be synthetic
2. It's possible to use mineral (lime or silicates) paints or finishings. Colour choice is no more limited to light ones



APPLICATION STAGES



Insulation fastener

1. Apply the **base panel** (made of extruded foam polystyrene - XPS) up to at least 15 cm above the finished walking floor area, using proper insulation fasteners.
2. Apply the **desired insulation panels** using insulation fasteners.



APPLICATION STAGES



Spacer crown in polyamide

3. Position the **spacer crowns** on the installed panels, according to the scheduled geometric arrangement of the anchor bolts; ensure the entire length of the shank penetrates the insulation panel.



APPLICATION STAGES



4. **Drill a hole in the substrate** at the center of the spacer crown
(for non-compact substrates it is advisable to use the drill in "rotation" mode and not in "percussion" mode; in the case of wooden substrates, there is no need to drill a hole: proceed to point 5).



APPLICATION STAGES



5. **Position mesh** starting from the bottom upwards, taking care to overlap the sheets by at least 10 cm both horizontally and vertically and **insert the proper insulation fasteners** in the previously drilled hole.



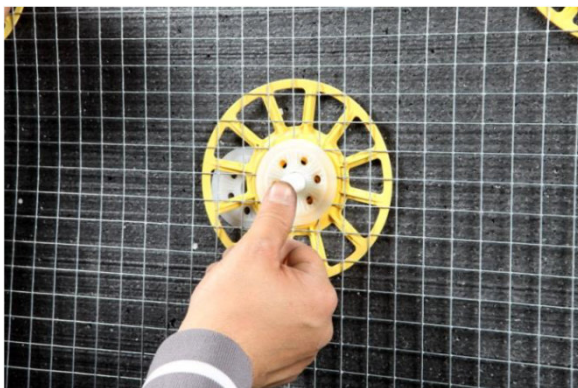
APPLICATION STAGES



6. **Tighten the screws** making sure that the mesh abuts against the spacer crown and it's firmly blocked between the spacer crown and the head of the insulation fastener; check that the mesh is not loose and that it is properly secured.



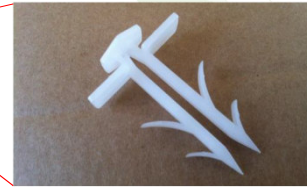
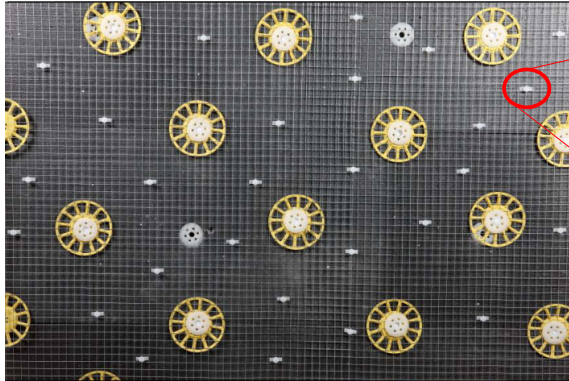
APPLICATION STAGES



7. Insert the **cap** on the insulation fastener head.



APPLICATION STAGES



Spacer in polyethylene

8. Apply no less than **15 spacers per square meter**, making sure that the base abuts onto the insulation panel. Make sure the mesh is properly distanced from the insulation panels (at least 5 mm) and there are no areas where the mesh is next to the panels.



APPLICATION STAGES



9. Create the strips and subsequent **plastering** (chosen according to the desired finish). Make sure the layer of plaster does not come into direct contact with the ground (position a strip about 5 cm high on the ground, to be removed during the plastic stage of the plaster; later on, fill the cavity with osmotic mortar). Screed and if necessary rasp; **the final thickness of the plaster must be 2 cm.**



APPLICATION STAGES



10a. Apply the finishing layer (levelling/smoothing): in the case of **modern** and **tradition** cycles, both can be subsequently finished with colored finishes.



APPLICATION STAGES

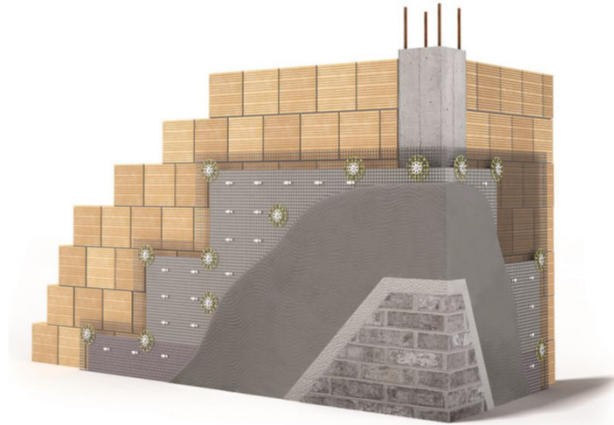


10b. In the case of stone cycles, directly apply the selected glue and grout the joints with suitable sealants mixed with latex.



weber.therm robusto universal

External thermal insulation system combining the performance of a cladding system with the robustness and solidity of a traditional masonry



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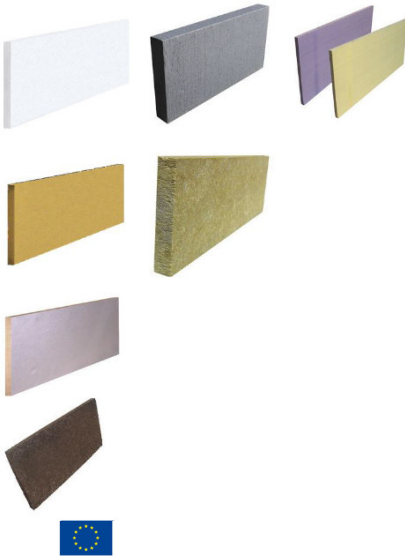
1. **ACOUSTIC INSULATION:** the larger thickness of the external mass improves the performance of sound insulation (mass-spring-mass system)
2. **BREATHABILITY:** possibility of creating completely mineral cycles
3. **INTEGRATION OF EXISTING COATINGS:** achievable even on pre-existing coatings, without removing them
4. **"DRY-LAID" PANEL:** ability to work at any temperature
5. **LOWER TIME OF INSTALLATION:** in case of heavy coatings it's not necessary to make a dual tessellation cycle, mesh and/or smoothing
6. **BETTER FIRE REACTION:** The Euroclass of panels is matched to that of mineral plasters.



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Composition of the system:

Insulating panels



Synthetic panels: EPS, graphite EPS, XPS

Mineral panels: glasswool and rockwool

High thermal performance panels: phenolic resin

Natural panels: cork



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Case study:

Retrofit in Milan

Buildings S. Bernardo 48-50



- 2 buildings, 4 floors each
- Substrate walls made of prefabricated concrete panels
- Existing external insulation on SB50 (4 cm thickness)



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Building S. Bernardo 48-50



- Renovation project carried out by Milan Technical Office (Arch. Manzoni and Arch. Bardeschi) with scientific support of PoliMi
- Intention to put the new insulation without removing the existing one, reducing times and costs of installation
- Total thickness of insulation: 24 cm
- Insulation fasteners lenght: up to 31,5 cm
- Field tests on the technology
 - Pull-out strenght greater than 1000 N



Pull-out test on field



Pull-out test on field



Thank you!

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