External insulation without glue

Andrea Sangalli, eERG group
Politecnico di Milano
Aachen
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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

2. The insulating panel and the reinforced smoothing are subject to microdeformations due to thermal stress

3. The panel is desolidarised both from the substrate and the overlying coating

4. The reinforced plaster is less subject to thermal expansion

LIMITS

1. It is advisable to avoid excessively heavy coatings

2. The colored coating must necessarily have a thickness and be synthetic

3. It’s possible to use stone, brick, grès coatings

4. It’s possible to use mineral (lime or silicates) paints or finishings. Colour choice is no more limited to light ones
APPLICATION STAGES

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.

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.
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).

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.
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.

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

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

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.
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

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)
Building S. Bernardo 48-50

- Renovation project carried out by Milan Technical Office (Arch. Manzoni and Arch. Bardesi) 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 length: up to 31.5 cm
- Field tests on the technology
  - Pull-out strength greater than 1000 N
Pull-out test on field

Thank you!

andrea.sangalli@polimi.it
www.eu-gugle.eu
www.eerg.it