Insulated lime plaster with cork

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Walls

What is the solution?

The solution is capillary active internal wall insulation made of clay, diatomaceous earth, natural hydraulic lime NHL 3.5 and cork. The insulation is supplied in bags, and can be installed to the internal side of the wall as a wet plaster (suitable for the insulation of small areas) or with a spray equipment. For this solution, a finer wet plaster is the interior finish.

Cross section of the wall build-up, available pictures of the solution:

Spray application of insulated lime plaster © Ecological Building Systems

Insulated wall (lime plaster and cork) © Ecological Building Systems

Why does the solution work in terms of compatibility with conservation, moisture safety and energy improvement?

The aim of the solution is to improve the thermal resistance of a wall. It allows to retain the external appearance of the wall and preserving the external façade, as it is applied to the internal wall. In some historic buildings, there is a reduced extent of rainwater protection, allowing rainwater penetration and moisture accumulation within the wall. In this solution, the risk of moisture accumulation is reduced because the insulation is vapour open and capillary active, allowing the drying of excess moisture.

Description of the context:

The solution can be installed in historic buildings that do not have interior surfaces of heritage significance, and in buildings in conservation areas. The original internal surface of the wall should not have decorative elements or elements of historical significance. The solution can be also used for surfaces that are uneven or not flat, or for small sections of wall areas where boards would not fit (for example window reveals).

Pros and cons of the solution:

The pros are the energy improvements (λ = 0,045 W/mK) with low moisture risks and good compatibility. The reversibility of the solution is medium; no mechanical fixings are required, but any decorative original internal surface of the wall is lost as it is fully bonded to the plaster. The full bonding minimizes the risk of mould growth at interfaces and allows water redistribution from the existing wall. The solution does not require the levelling of the original wall. The cons are the long installation process (more than one coats are necessary) and drying process (the wet plaster requires time to dry out – especially for high thicknesses). Drying of construction moisture must be allowed before the building is occupied, as this process could lead to temporarily high indoor moisture and develop mould growth on furniture.

Type of data available (level of information, simulation):

Insulated lime plaster with cork - product: https://www.diasen.com/sp/en/p/diathonite-evolution.3sp