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SUMMER COMFORT AND OVERHEATING: INSULATING ROOFS AND SUBFLOORS TO KEEP THE HEAT OUT

Insulation is not just for winter. As heatwaves become more intense, summer comfort is turning into a design requirement: limiting overheating in the rooms below the roof calls for materials that can delay and dampen the heat wave.

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For years, the thermal insulation of buildings was designed almost exclusively with winter in mind: reducing heat loss, cutting heating consumption and improving comfort in the cold season. Today this approach is no longer enough. Rising temperatures and more frequent heatwaves have made summer comfort a design issue in its own right, with a direct impact on people's well-being and on cooling consumption.

In this context, Edilteco's EPS-based thermal insulating lightweight layers contribute to summer comfort and reduce the need for cooling systems.

Winter comfort and summer comfort are not the same thing

In winter the aim is to limit the heat flow leaving the building: what matters most is the thermal conductivity of the materials. In summer the problem is different: heat tends to enter, especially through the surfaces most exposed to solar radiation, such as roofs, and what matters is not only how much heat passes through, but also with what delay and with what attenuation.

This is where **time lag** comes into play – the time the heat wave takes to pass through the structure – together with **decrement (attenuation)**, that is, the reduction in the amplitude of the temperature swing between outside and inside. A well-designed roof shifts the heat peak to the evening hours and reduces its intensity, keeping indoor spaces more stable during the day.

The roof, the most critical point in summer

Roofs and attics are the surfaces that receive the most solar radiation in the middle of the day. It is no coincidence that top-floor rooms are the most exposed to summer overheating.

Treating these elements with thermal insulating layers and lightweight fills makes it possible to limit heat gain and noticeably improve perceived comfort, combining lightness and performance.

Machine application of Isolteco thermal insulating plaster

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Edilteco solutions for summer comfort

Edilteco technology based on additive-treated EPS beads is used in several parts of the building envelope that are relevant to summer comfort. On roofs, **Politerm® Blu** and **Isolcap®** lightweight fills and thermal insulating subfloors make it possible to create light, insulating layers that remain stable over time, which can be used both to form falls and as a thermal insulating layer.

On walls, **Isolteco®** thermal insulating plaster helps to improve the thermal behavior of the building envelope. In all cases, the non-absorbent nature of the beads ensures that insulating performance is maintained over time, even in the presence of moisture.

Less reliance on cooling systems, more well-being

A building envelope that limits overheating reduces the demand for cooling and therefore summer electricity consumption, which is becoming increasingly important in the energy balance of buildings. Summer comfort thus becomes not only a matter of well-being, but also of efficiency and sustainability.

Designing with summer in mind, as well as winter, means providing people with more comfortable spaces all year round. This is the goal Edilteco has always pursued through the concept of **indoor comfort**, which combines winter and summer thermal comfort, acoustic comfort and visual comfort.