

Insulation and Thermal Performance

Insulation plays a major role in how comfortable, efficient, and compliant a building will be. Whether it is being used in floors, walls, roofs, or between structural elements, the right insulation choice can help reduce heat loss, improve energy efficiency, lower running costs, and support better long-term building performance.

Thermal performance is not just about adding as much insulation as possible. It is about selecting the right product for the right application and making sure it works properly within the full build-up. Thickness, lambda value, compressive strength, moisture resistance, installation method, and compatibility with surrounding materials all matter. A thinner high-performance board may work well where space is limited, while a thicker lower-cost solution may offer better overall value where depth is available.

Different insulation materials have different strengths. PIR boards are often used where strong thermal performance is needed in relatively thin sections. EPS can offer a cost-effective solution across many floor and wall applications. XPS may be preferred in areas where compressive strength and moisture resistance are important. Mineral wool is commonly used where acoustic performance and fire behaviour also matter. The right choice depends on what the build-up needs to achieve. Thermal performance should also be considered as part of the whole building, not just one isolated area. Cold bridging, poor detailing, gaps in installation, or mismatched materials can undermine even good-quality insulation. The design and installation need to work together. There is not much point specifying a strong insulation product if the edges, junctions, and penetrations are treated like an afterthought.

When comparing insulation options, practical questions matter.

How much space is available?

Does the insulation need to take load?

Is it going beneath screed, behind plasterboard, within a cavity, or over a roof deck?

Is moisture a concern?

Are acoustic or fire requirements also in play?

How easy is the product to install correctly?

The best insulation specification is the one that achieves the performance target without creating problems elsewhere in the build-up.

Good thermal design is not about guesswork. It is about balance, detail, and choosing products that actually suit the project.

