Thermafleece vs. PIR Board: Insulation Comparison

Making a like-for-like comparison between PIR boards and Thermafleece is challenging because they are completely different products. Choosing the right one depends entirely on what you want your insulation to achieve.

The Big Picture: All Insulation Pays for Itself

When comparing upfront costs, remember that **all insulation pays for itself over time** through energy savings. While the initial investment varies, the lifetime net cost between different insulation types is actually quite similar.

Key Differences at a Glance

1. Thermal Performance and Space

- **PIR Boards:** Have a lower thermal conductivity, meaning you need about **40% less thickness** than Thermafleece to achieve the same U-value. If your sole objective is a low U-value in the tightest space possible, PIR is the popular choice.
- **Thermafleece:** Requires a thicker layer, but the real-world gap is smaller than it seems. In terms of actual energy savings, PIR only delivers about **15% more savings** than Thermafleece at the same thickness. Having thicker layers of insulation has many other benefits including improved acoustics, and heat buffering and regulation (thermal mass).

2. Breathability & Moisture Control

- **Thermafleece:** Truly breathable. It safely buffers and allows moisture to move, reducing the risk of harmful condensation building up. This is particularly important for older buildings designed to "breathe."
- **PIR Boards:** Almost completely impervious to water. Without very careful design, this can cause moisture accumulation in structures where breathability is required.

3. Environmental Impact

- **Thermafleece:** Has a significantly lower carbon footprint. It requires less energy to manufacture, and the wool itself naturally traps and stores carbon for decades as it grows.
- **PIR Boards:** Have a much higher carbon footprint due to energy-intensive chemical manufacturing.

4. Air Quality & Health

- **Thermafleece:** Laboratory tests show extremely low emissions of Volatile Organic Compounds (VOC's). What's more, the proteins in wool actively **absorb and destroy formaldehyd**e. Wool also regulates humidity, significantly reducing mould growth and related health risks.
- **PIR Boards**: Do not absorb harmful gases or buffer humidity. Check with the manufacturer about VOC levels.

5. Sound Insulation

- **Thermafleece:** Excellent at absorbing sound. Just 50mm of Thermafleece can significantly reduce noise reverberation within building voids.
- **PIR Boards:** Poor acoustic performance; they can reflect rather than absorb sound.