# *Insulation as Nature Intended*

THERMAFLEECE®

SHEEPSWOOL THERMAL AND ACOUSTIC INSULATION

Thermafleece utilises hollow wool fibres, blended to an optimum density producing first-class thermal and acoustic performance in buildings whilst minimising impact on the environment. Manufactured in the UK using British sheep's wool, Thermafleece meets the highest quality and performance standards, which is supported with a BBA certification.

## Why Insulate with Thermafleece?

Insulating a property will significantly reduce the amount of energy lost from the building envelope, reducing energy consumption and carbon dioxide released to the atmosphere. Wool is a sustainable and functionally complex fibre with unparalleled insulating properties, designed by nature to insulate sheep in the harshest of environments. This makes wool the ideal natural fibre to use in thermal insulation.

## First-class performance

Not only does Thermafleece provide excellent thermal insulation in a wide variety of constructions, it can be used in many acoustic applications. Thermafleece acts in sympathy with your property absorbing many indoor air pollutants and helping control humidity levels.

## Long lasting

In order to ensure consistent thermal performance, it is important that insulation retains its shape throughout its service life. Thermafleece contains a lofting agent to maintain fibre stability and ensure the insulation maintains its structural integrity throughout its lifetime. The manufacturing process ensures that the insulation is composed of a random matrix of wool fibres that will not split or delaminate in service.

## Certified

The Thermafleece range of products is the only wool based insulation to be certified by the British Board of Agrément (BBA). Certification by the BBA ensures Thermafleece is manufactured and performs to a rigorous set of standards. The certification covers installation between joists in ventilated and unventilated lofts; under pitched roofs and between rafters for tiled or slated pitched roofs, as well as timber frame wall applications between studding with a weather resistant cladding, and a ventilated and drained cavity.

## Environmental Excellence

Using Thermafleece can reduce carbon emissions by many tonnes over the lifetime of use. Moreover, wool fibres fix carbon dioxide from the atmosphere helping reduce atmospheric greenhouse gas levels and making Thermafleece one of the most sustainable building materials currently available.

## Safe

Thermafleece is safe to handle without the need for personal protective equipment.

# Environment

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## Utilizing Waste

Thermafleece is made from the coarse wool of British hill sheep which is unsuitable for many common applications. Rather than going to waste, this wool can be transformed into a long lasting sustainable product that fixes carbon from the atmosphere for at least 60 years.

## Zero Global Warming Potential (GWP)

With a GWP below zero, Thermafleece helps reduce global warming by removing carbon dioxide from the atmosphere.

## Local Sourcing and Production

We use only wool from British hill sheep and conduct all processing and manufacturing in the UK minimising unnecessary transport and reducing the carbon miles for each order.

## Zero Ozone Depletion Potential (ODP)

Thermafleece has an ODP of zero meaning that none of the materials contained in the insulation or used in its production pose any danger to the ozone layer

## Reduced Carbon Footprint

By installing 240mm of Thermafleece in a loft, the typical household can reduce its heating costs by up to 25% and their CO2 emissions by a staggering one tonne per year.

## Long Lasting

Because Thermafleece is capable of maintaining its structure and loft throughout the life of the building, replacement costs are virtually eliminated.

## Safe Re-use and Disposal

At the end of its long service life, Thermafleece poses no threat to the environment and can be recycled for other environmentally friendly applications or disposed of safely through composting.

## Free of Organic Pesticides

Our wool is treated with the natural mineral borax and contains no harmful organic pesticides such as pyrethrins or chlorphenapyr.

## Environmental data

| Performance measure | |
|---|---|
| Energy Consumption in Manufacture | 12.8 MJ/Kg or 295 MJ/$m^3$ |
| Global Warming Potential | Zero |
| Ozone Depletion Potential | Zero |

# Installation and handling

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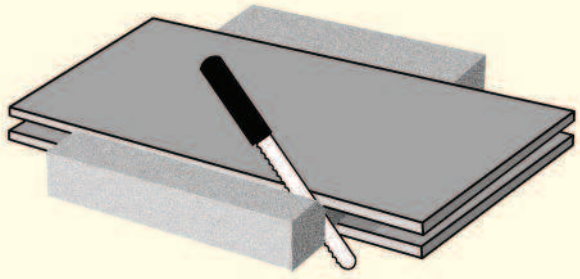
Thermafleece is harmless and can be installed without gloves or protective clothing, although we do recommend that you wear a dust mask in an enclosed space like a loft. It is not irritating to the skin, eyes or respiratory tract and causes no discomfort to site workers during installation. Any fibres which happen to reach the living space will present no hazard to health.

To retain the benefits of water vapour, absorption and release, Thermafleece may be used in conjunction with a variety of low emissivity and vapour control layers. Protect the insulation from prolonged exposure to sunlight when unpacked and avoid wetting for extended periods, store under cover and clear of the ground.

## Cutting Tips

For accurate cutting, tightly compress or clamp the insulation between two pieces of solid 15mm board. Overhang the fleece where you want to cut keeping the two board edges aligned. Saw cut the edge using a sharp, scalloped edged knife and keep the blade firm and square against both board edges throughout. Trim any fine remaining fibres with large scissors or shears. Thermafleece can also be cut using a straight edge and a Stanley knife, or simply torn apart.



## Where to buy

Our products are available through a wide network of merchants and distributors. To find your nearest supplier use our contact details below.



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energy saving recommended
Certification mark

BSI EMS 541347

BBA BRITISH BOARD OF AGREMENT
CERTIFICATE No 08/3950

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# Technical specification

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## Thermal Performance

Thermafleece is manufactured using state of the art techniques to produce a tightly bound random matrix of hollow wool fibres with a large internal surface area that ensures the finished insulation has excellent thermal insulating properties. Thermafleece has a nominal density of 23 kg/m$^3$ and a thermal conductivity of 0.038 W/mK which is better than most equivalent conventional insulation.

## Acoustic Performance

The combination of fibre structure and density gives Thermafleece excellent acoustic properties and can contribute significantly to the reduction in the passage of sound in structures in line with current UK Building Regulations and Robust Details. Tests show that the use of Thermafleece in a 100mm cavity of a timber framed wall or floor can improve the sound reduction index by approximately 6-12dB. If a sound is reduced in level by 8dB, a person would experience a halving of the original sound level. As part of the overall sound reduction measures the use of an appropriate absorbent material such as Thermafleece to fill wall voids will make a valuable contribution towards passing required acoustic tests under the regulations.

## Moisture and Temperature Control

The hygroscopic nature of wool fibres means that Thermafleece can act in sympathy with buildings to control internal moisture levels and contribute to a more stable and comfortable indoor environment. When the wool in Thermafleece encounters moisture it is capable of releasing and absorbing heat. Wool releases heat when it absorbs moisture and absorbs heat when it releases moisture which can have a stabilising influence over air temperature.

## Fire Resistance

Wool has a higher fire resistance than cellulose and cellular plastic insulation; it does not burn but melts away from an ignition source and extinguishes itself. Thermafleece is treated with a low level of fireproofing agent to improve its intrinsic fire resistance and comply with BS 5803-4 (Spread of Fire) achieving results of zero for ignitability and spread of flame.

## Technical data

| Performance standards | |
|---|---|
| Thermal Conductivity – EN 12667:2001 | 0.038 W/m.K |
| Water Absorption (@ 100% RH) | 34% w/w |
| Mould Resistance CUAP 2002-01-25 (BBA) | Pass |
| Moth/Beetle Proofing ISO 3998 | Pass |
| Ignition Point | Approx. 500°C |
| Spread of Flame – BS 5803-4 | Pass |
| Smoulder Resistance – BS 5803-4 | Pass |
| Dimensional Stability – EN1604 | Pass |
| Recoverability – EN823 | Pass |
| Thickness – EN823 | Pass |
| Short Term Water Absorption – EN12086 | Pass |
| Retention of Additives CUAP Annex F (BBA) | Pass |

| Thickness mm (tolerance +/- 5mm) | Thermal Resistance Km$^2$W |
|---|---|
| 50 | 1.28 |
| 75 | 1.92 |
| 100 | 2.56 |
| 150 (2 x 75mm or 1 x 100mm + 1 x 50mm) | 3.85 |
| 200 (2 x 100mm) | 5.13 |
| 250 (2 x 100mm + 1 x 50mm) | 6.41 |