
LOFT INSULATION APPLICATION NOTES

INTRODUCTION

This application guidance is aimed at ensuring you make the best use of the Thermafleece range of insulation in loft situations. By following the guidance you will meet or exceed the requirements of the UK Building Regulations Part L, and contribute towards the requirements of the Code for Sustainable Homes for energy, CO2 emissions and material content.

The primary area of heat lost in a building is through the roof area. Insulating at ceiling level within the roof space is the most straightforward way to reduce heat loss through the roof. Applying insulation in the loft space allows insulation to be laid in a relatively unrestricted space allowing larger depths of insulation to be installed.

FACTORS TO CONSIDER

Insulation Materials
Performance Requirements
Ventilation and Condensation
Installation

INSULATION MATERIALS

The Thermafleece range of insulation utilises the unique functional properties of sheep's wool and is available as Thermafleece, a high density wool rich batt and Thermafleece PB20, a lower density compressed roll.

THERMAFLEECE

Thermafleece has been the UK's first choice of sheep's wool insulation since it was launched in 2001. Thermafleece is a high density, wool rich insulation that is the first choice when maximum thermal and acoustic performance and breathability are required or in space limited situations. Thermafleece contains 85% British sheep's wool.

THERMAFLEECE PB20

Thermafleece PB20 is a lower density, compressed roll insulation that is easy to handle and install in confined spaces such as lofts. Thermafleece PB20 contains 60% British sheep's wool.

Our insulation range is suitable for ceiling joist depths of 50mm upwards to suit the depth of void to be insulated.

PERFORMANCE REQUIREMENTS

When insulating a new building or when renovating an existing building, the required insulation performance (U Value) is covered by Building Regulation Part L 2006. In addition the Code for Sustainable Homes was introduced in May 2008 which requires a higher standard of insulation performance depending on the code level required. For further information on U Values and the Code for Sustainable Homes, please contact Second Nature's Technical department.

K VALUES

Type	Thickness	Length	Width	K Value W/mK
Thermafleece	50mm	1200mm	600 & 400mm	0.038
Thermafleece	75mm	1200mm	600 & 400mm	0.038
Thermafleece	100mm	1200mm	600 & 400mm	0.038
Thermafleece PB20	70mm	7600mm	570mm	0.039
Thermafleece PB20	100mm	5300mm	570 & 370mm	0.039

TYPICAL U VALUES

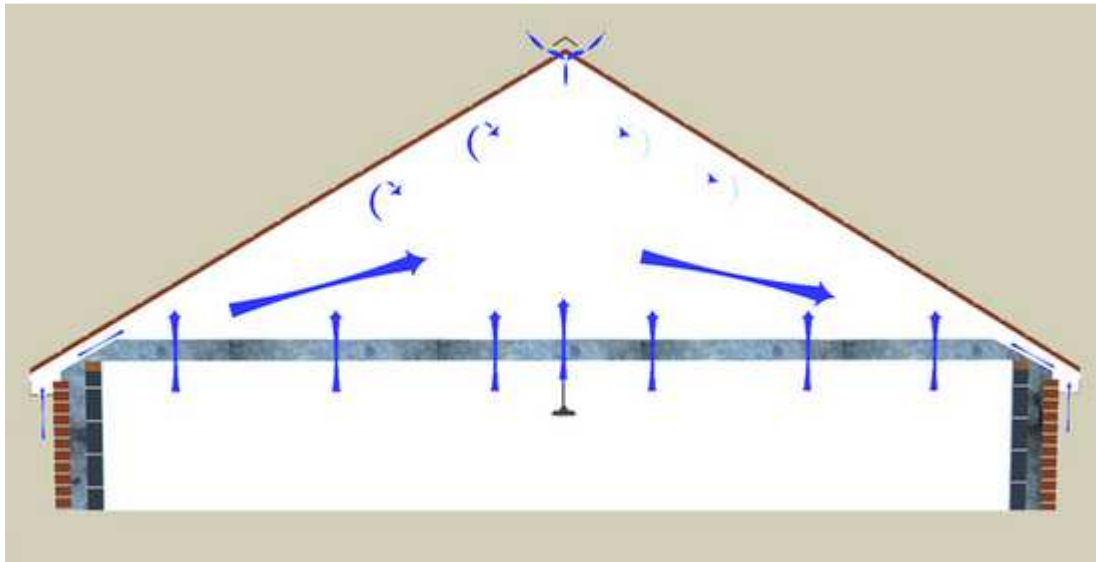
The overall insulation values being considered will determine the overall depth of Thermafleece or Thermafleece PB20 required. To achieve Building Regulation or better, in a loft application, the following thicknesses are required:

Thermafleece Product	Overall Thickness	Between Rafter	Over Rafter	U Value W/m ² K
Thermafleece	225mm	100mm	125mm	0.16
Thermafleece PB20	240mm	100mm	140mm	0.16
Thermafleece	275mm	100mm	175mm	0.13
Thermafleece PB20	270mm	100mm	170mm	0.14
Thermafleece	300mm	100mm	200mm	0.12
Thermafleece PB20	300mm	100mm	200mm	0.13
Thermafleece	350mm	100mm	250mm	0.11
Thermafleece PB20	355mm	100mm	255mm	0.11

Figures are in line with BS EN ISO 6946 based on a standard roof truss at 600mm centres including BRE 443:2006 allowance for additional timber noggins and loft hatch requirements

VENTILATION AND CONDENSATION

In certain circumstances, ventilation is required in the roof space to eliminate the effects of condensation. In an existing building where sarking felt has been used as a membrane, additional ventilation is required to ensure condensation does not collect on the sarking felt, allowing droplets of water to fall onto the insulation. Ventilation ensures air is circulated across the top of the insulation from the eaves, allowing the moisture laden air to disperse via the ridge.



In new build project situations or where the roof is being replaced with a breather membrane which has a low water vapour resistance, little or no ventilation is required due to the breathability of the membrane.

VENTILATION AND CONDENSATION STANDARDS

British Standard BS 5250 which provides guidance on the methods of controlling condensation within pitched roofs based on the type of roofing underlay used. The recommendations are based on two types of roofing underlay:

Type LR (low water vapour resistance (less than 0.25 MNs/g).

Type HR (high water vapour resistance (greater than 0.25 MNs/g).

TYPE LR MEMBRANES

Low water vapour resistance (less than 0.25 MNs/g) is intended for use as a breathable tiling membrane for pitched roofs where a cold loft space exists and the insulation is installed at ceiling joist level. Type LR membranes undergo third party testing through bodies such as the British Board of Agrément (BBA). The low water vapour resistance allows moisture laden air to pass to the outside air eliminating the requirement for thorough ventilation.

TYPE HR MEMBRANES

High water vapour resistance membranes (greater than 0.25 MNs/g) such as traditional sarking felts will not allow the passage of moisture laden air through the structure and care must be taken to ensure that adequate cross ventilation is present within the roof space. Measures include avoiding holes in the ceiling and constructional gaps, especially at the junction with dry lined external walls, sealing the access hatch and positioning the access hatch away from rooms where large amounts of moisture are generated such as kitchens or bathrooms.

For further information please contact Second Nature's Technical department for more advice.

INSTALLATION



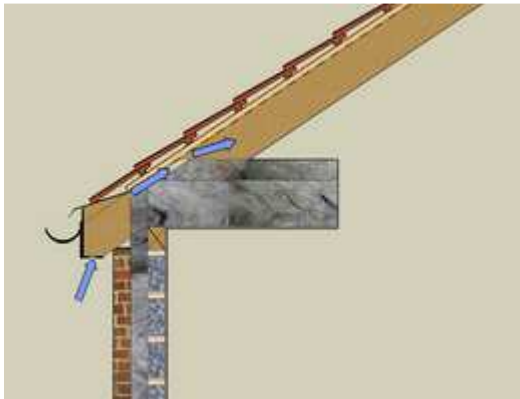
Thermafleece and Thermafleece PB20 should be applied in layers, cross-laid where possible. The first layer should be laid between the joists.



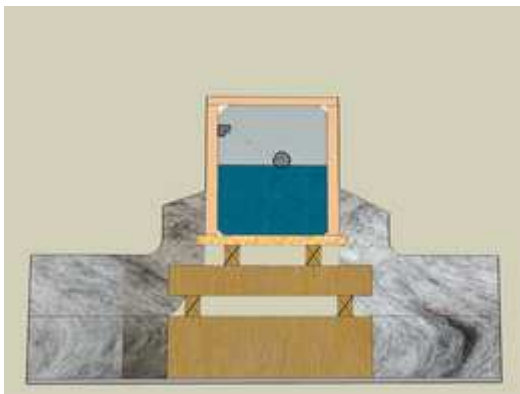
In order to reduce the thermal bridging effect of the joists and minimise air gaps cross lay the second layer of insulation over the joists. Ensure all joints between the insulation are close butted avoiding gaps between sections of insulation.



Where a low water vapour resistance membrane is being used, the insulation should be taken over the wall plate to meet the wall insulation and should be pushed tight against the breather membrane. Information relating to eaves ventilation should be obtained from the membrane manufacturer, to ensure that insulation can be fitted tightly to the eaves and that no eaves ventilators are required.



Where a high water vapour resistance membrane is used such as sarking felt, eaves ventilators are required and care must be taken to avoid blocking the ventilation air path.



Where services such as water tanks are installed in the loft space, the insulation should not be fitted between joists under the tank. Additional layers of insulation should be installed along the sides to meet the lagging around the tank.

ELECTRICAL CABLES AND RECESSED LIGHT FITTINGS

Standard electrical lighting cables can usually be placed within the insulation. This is generally done by tacking the cable to the side of the ceiling joist. Other cables and Heavy duty cables such as shower and cooker cables should be placed on top of the insulation to protect them from overheating.

Where recessed light fittings are used, the insulation around the fitting (for at least 80 – 100mm) should be removed allowing air to circulate and reduce heat build up. To prevent air leakage, seal the enclosure into the loft. Specialist recessed light fire hoods can be used with the insulation laid on top. Please seek professional advice from a qualified electrician to comply with BS 7671:2008 Building Regulation Part P.

AIRTIGHTNESS

Should airtightness performance be required, you should specify the use of a separate and sealed air leakage barrier attached to the ceiling joists, products such as a 500 gauge polyethylene sheet or intelligent membranes can be used.