



THERMAFLEECE™



# Acoustic Specification Report

Second Nature UK Ltd

BUILDING ON WHAT COMES NATURALLY

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## **Acoustic Specification**

Thermafleece has been tested for its acoustic properties, which means that it can now be specified as part of your noise control scheme.

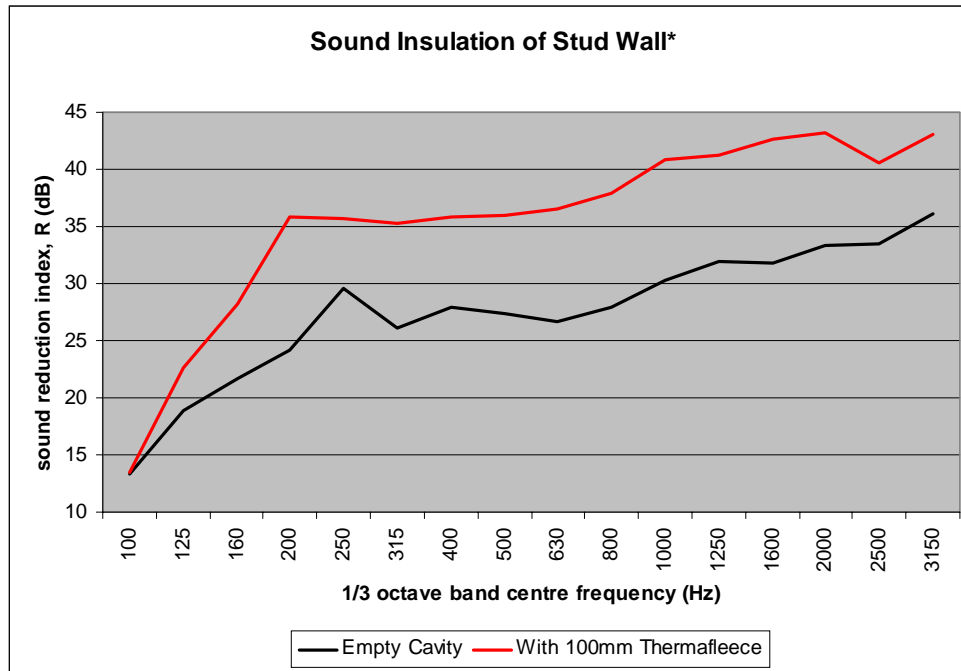
The control of noise in buildings has two main concerns:

- a) reducing the amount of sound travelling from one room to the next (sound insulation)
- b) achieving the appropriate “acoustic atmosphere” within a room. If the room is too reverberant (“echoey”) it can be uncomfortable, or it may not be possible to understand the words of a public speaker. This can be remedied by increasing the acoustic absorption in the room.

### **Sound Insulation**

As well as providing thermal insulation when used in the construction of a partition wall, Thermafleece adds a significant amount of sound insulation. The graph shows the difference in sound insulation values between a stud wall with an empty 100mm cavity, and the same construction, but with a 100mm quilt of Thermafleece in the cavity. Sound insulation has been improved by around 10dB through much of the frequency range. A 10dB reduction is akin to halving the level of sound that a person would experience.

The Building Regulations (Approved Document E) have just been revised, placing greater emphasis on the correct specification of sound insulation. The regulations now apply to a much broader range of buildings including hospitals, hotels and others.



\* Construction:



- 100mm x 50mm timber studs at 600mm centres.
- 1 x 15mm Lafarge plasterboard (10kg/m<sup>2</sup>) screwed to each side
- Air in cavity



- 100mm x 50mm timber studs at 600mm centres.
- 1 x 15mm Lafarge plasterboard (10kg/m<sup>2</sup>) screwed to each side
- 100mm Thermafleece in cavity

Measurement of airborne sound insulation was made in accordance with BS EN ISO 140: Part 3 (1995). Measurements made by BRE (UKAS accredited for the measurement of sound insulation in the field and the laboratory), November/December 2002.

Empty Cavity	
Frequency (Hz)	R (dB)
100	13.3
125	18.9
160	21.6
200	24.1
250	29.6
315	26.1
400	27.9
500	27.4
630	26.7
800	27.9
1000	30.3
1250	31.9
1600	31.8
2000	33.3
2500	33.5
3150	36.1

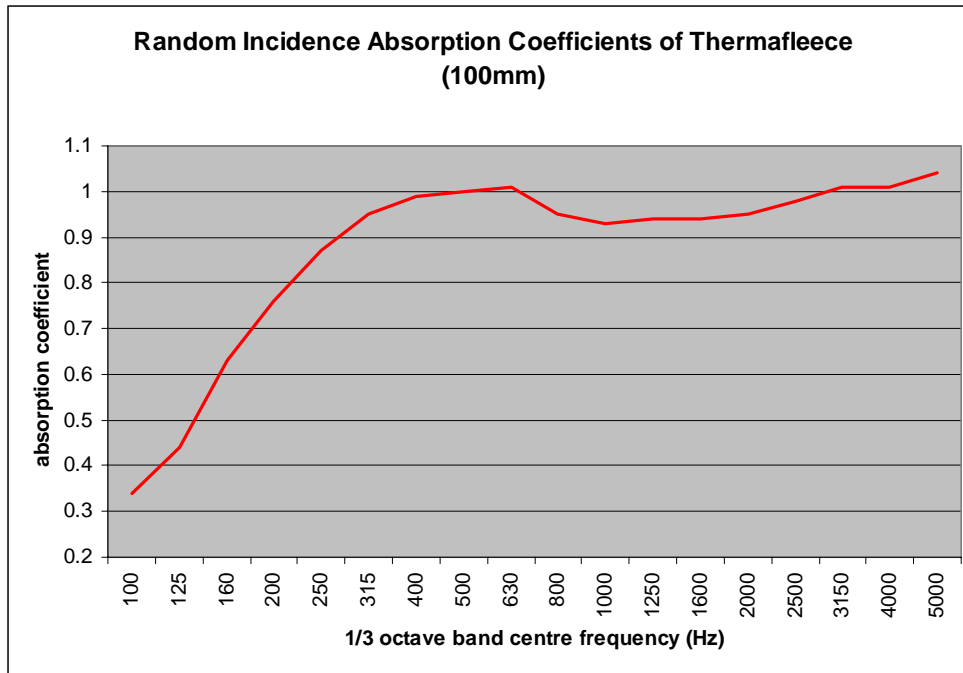
With 100mm Thermafleece	
Frequency (Hz)	R (dB)
100	13.5
125	22.6
160	28.2
200	35.8
250	35.7
315	35.3
400	35.9
500	36.0
630	36.5
800	37.9
1000	40.8
1250	41.3
1600	42.6
2000	43.2
2500	40.6
3150	43.0

### **Acoustic Absorption**

Thermafleece can absorb sound to control the reverberation time of rooms. The product has been tested according to ISO 354:1985 / BS EN 20354:1993, Measurement of absorption in a reverberation room.

Thermafleece shows excellent acoustic absorption properties, particularly over the frequency range of human speech. This is important in controlling the acoustics of domestic properties, as well as auditoriums, recording studios, cinemas and other public spaces.

An acoustic absorber requires exposure to the air of the room to work. The harmless natural materials used in Thermafleece provides the obvious solution to the concern of migration of fibres into the living space.



The absorption coefficient values are reproduced in the table below to allow engineers to make reverberation time calculations.

Absorption coefficient	
Frequency (Hz)	Thermafleece (100mm)
100	0.34
125	0.44
160	0.63
200	0.76
250	0.87
315	0.95
400	0.99
500	1.00
630	1.01
800	0.95
1000	0.93
1250	0.94
1600	0.94
2000	0.95
2500	0.98
3150	1.01
4000	1.01
5000	1.04

Measurement of acoustic absorption made in accordance with ISO 354:1985 / BS EN 20354:1993. Measurements made by The University of Salford (UKAS accredited), July 2003.

### Acoustic Backup & Service

We have an acoustic specialist who will provide help & advise on meeting the required Building Regulations; including site visits and understanding of building acoustic applications.