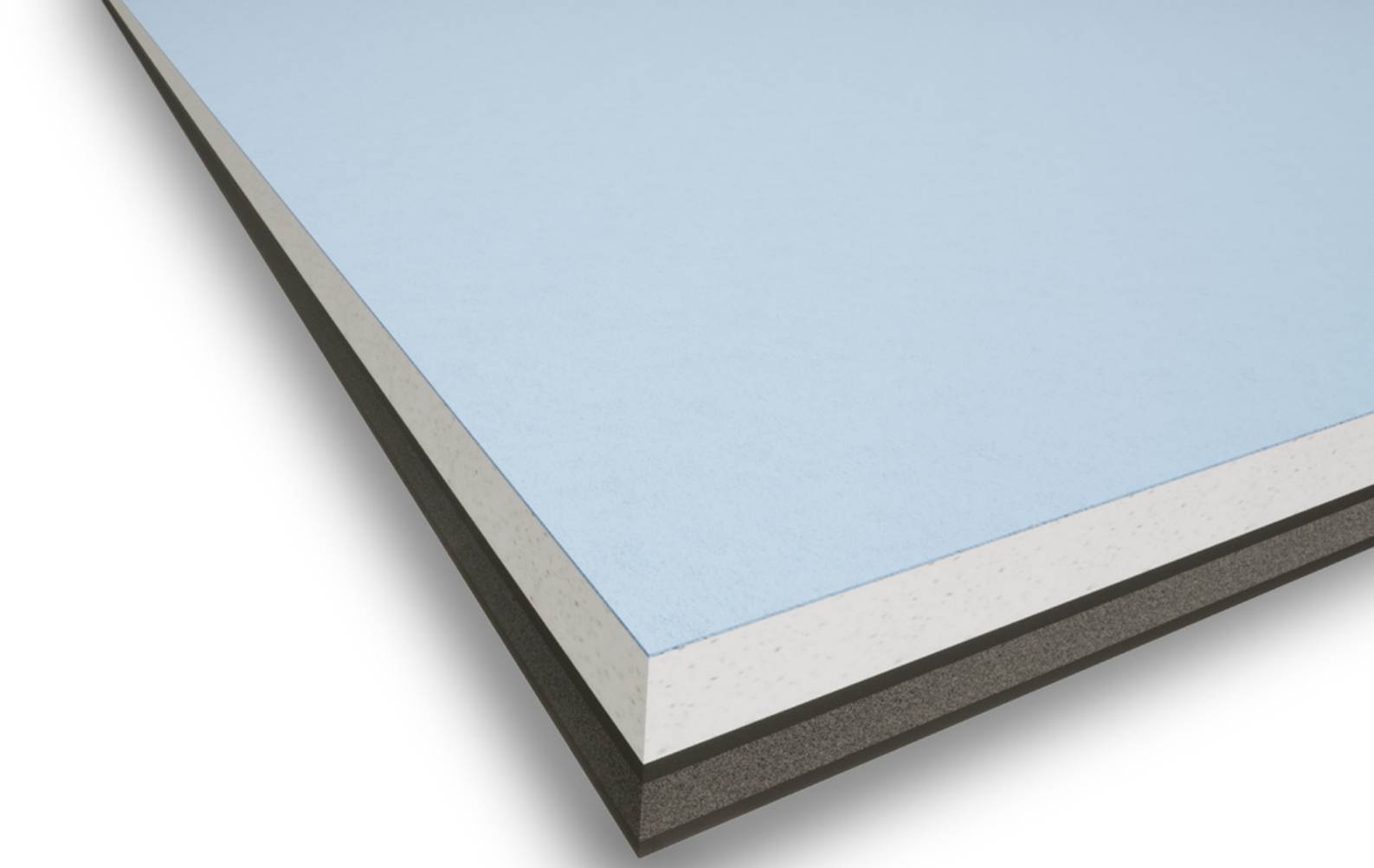


PRO SOUND™

SoundBoard 4

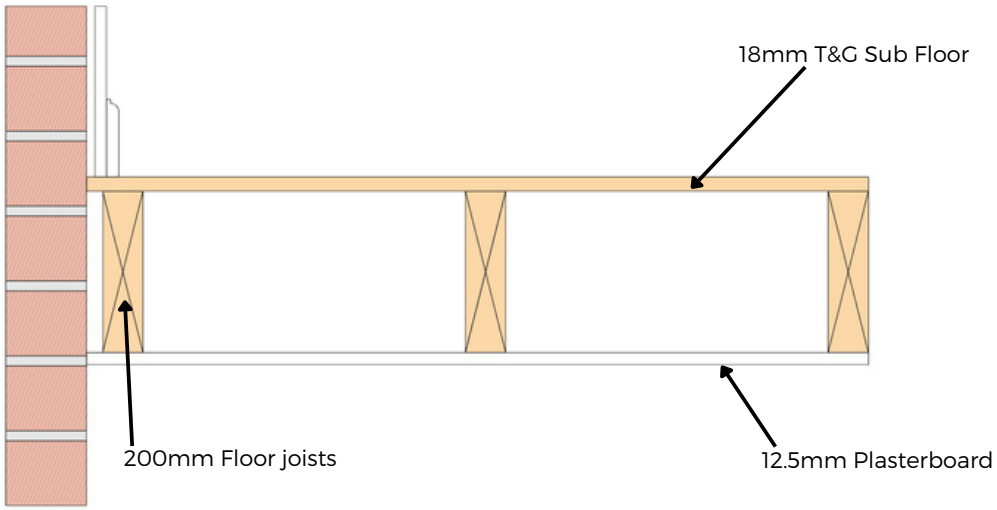
Ceiling Performance Data

the soundproofing store

www.soundproofingstore.co.uk
sales@soundproofingstore.co.uk
01423 206208

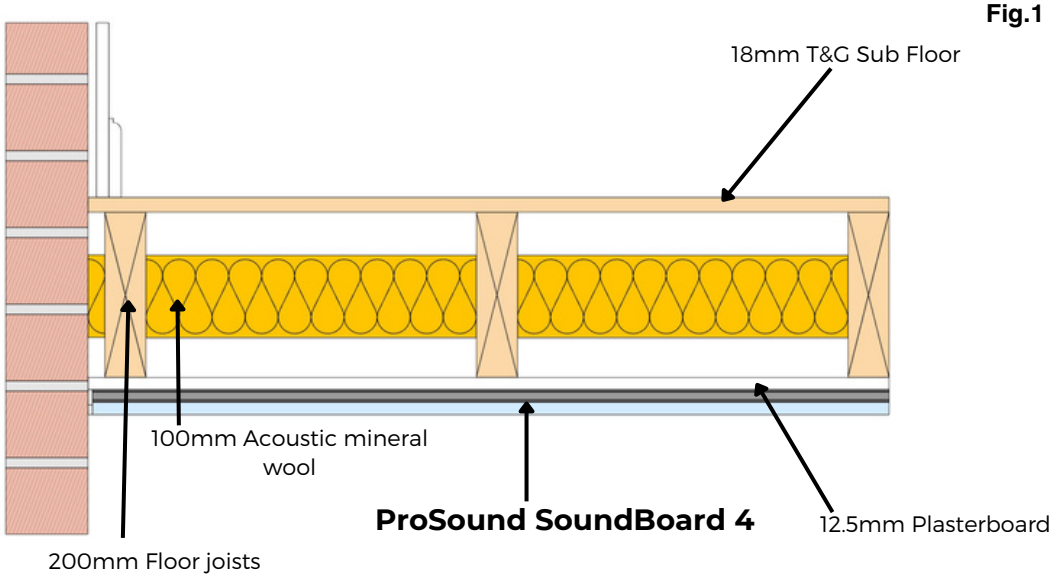
Timber Joisted Ceiling: Build-up

Untreated Ceiling



Treated Ceiling

Fig.1

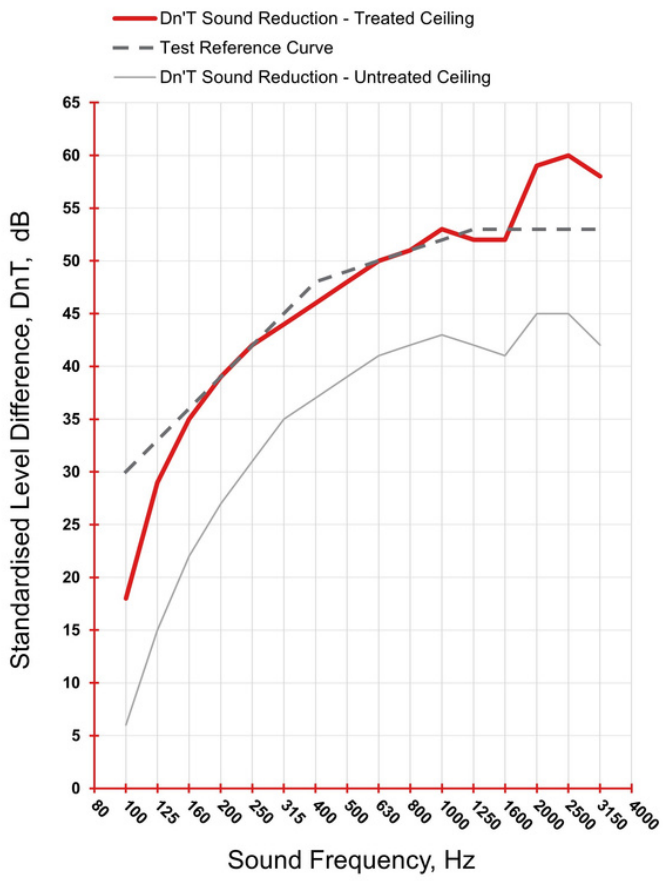


Structure Layers	Weight Per Sqm
18mm T+G P5 Chipboard Floor	12Kg m^2
200mm Timber Floor Joists Filled with 100mm 60Kg m^3 Mineral Wool	6Kg m^2
12.5mm Standard Plasterboard	8.3Kg m^2
30mm SoundBoard 4	29Kg m^2

Timber Joisted Ceiling: Airborne Test Data

Standardised airborne sound level difference according to BS EN ISO 140-4
Field measurement of airborne sound insulation between rooms
Source room volume - 59m^3
Receiving room volume - 49m^3

Frequency - Hz	DnT Value 1/3 Octave -dB Untreated Ceiling	DnT Value 1/3 Octave -dB Treated Ceiling
63	#	#
80	#	#
100	6	18
125	15	29
160	22	35
200	27	39
250	31	42
315	35	44
400	37	46
500	39	48
630	41	50
800	42	51
1000	43	53
1250	42	52
1600	41	52
2000	45	59
2500	45	60
3150	42	58
4000	#	#



# Indicates limitations of measurements
* Resonate Frequency - 40Hz

Reference: Fig. 1

Airborne Sound Test Results

Untreated Ceiling	Treated Ceiling	Ceiling Improvement
DnT,w = 38dB	DnT,w = 49dB	DnT,w = 11dB
DnT,w + Ctr = 25dB	DnT,w + Ctr = 37dB	DnT,w + Ctr = 12dB

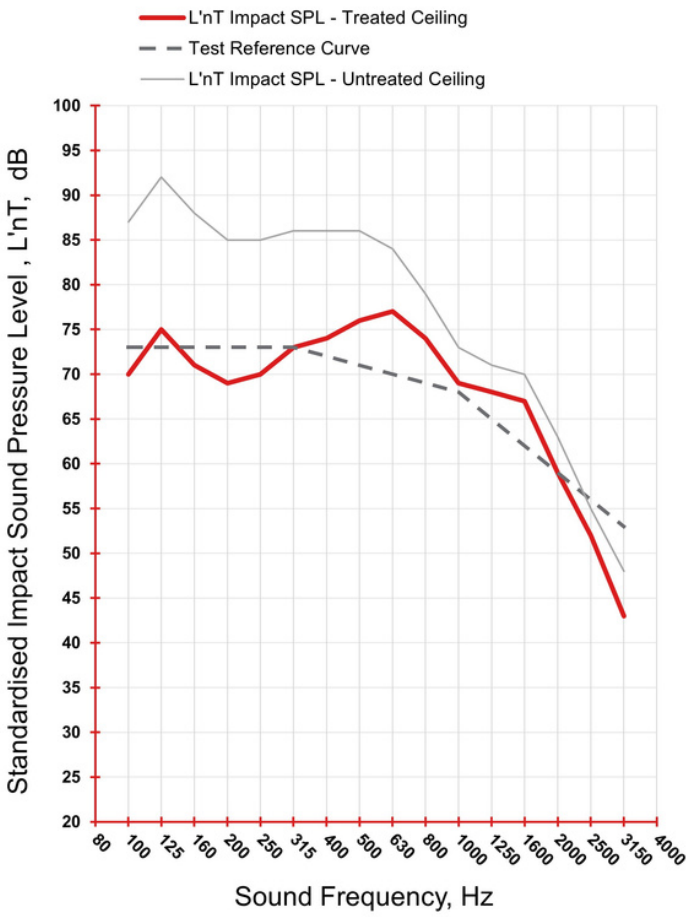
Rating according to ISO 717-1

With airborne noise a higher value equals a better performance

Timber Joisted Ceiling: Impact Test Data

Standardised airborne sound level difference according to BS EN ISO 140-4
Field measurement of airborne sound insulation between rooms
Source room volume - 59m^3
Receiving room volume - 49m^3

Frequency - Hz	L'nT Value 1/3 Octave -dB Untreated Ceiling	L'nT Value 1/3 Octave -dB Treated Ceiling
63	#	#
80	#	#
100	87	70
125	92	75
160	88	71
200	85	69
250	85	70
315	86	73
400	86	74
500	86	76
630	84	77
800	79	74
1000	73	69
1250	71	68
1600	70	67
2000	63	59
2500	55	52
3150	48	43
4000	#	#



# Indicates limitations of measurements
* Resonate Frequency - 40Hz

Reference: Fig. 1

Impact Sound Test Results

Untreated Ceiling	Treated Ceiling	Ceiling Improvement
L'nT,w = 82dB	L'nT,w = 74dB	L'nT,w = 8dB

Rating according to ISO 717-2

With impact noise a lower value equals a better performance

Part E Regulations For England & Wales

Element of Construction	Airborne Sound DnT,w + Ctr Minimum Value	Impact Sound L'nT,w Maximum Value
Floors		
Separating floors between purpose built dwelling-houses and flats (i.e. New Build) & purpose built rooms for residential use.	(Higher than) 45dB	(Lower than) 62dB
Separating floors between dwelling-houses flats and residential rooms formed by a material change of use (i.e. conversions)	(Higher than) 43dB	(Lower than) 64dB

Part E Regulations For Scotland

Element of Construction	Airborne Sound DnT,w Minimum Value	Impact Sound L'nT,w Maximum Value
Floors		
Separating floors between dwelling-houses flats and rooms for residential purposes. New build and conversions	(Higher than) 56dB	(Lower than) 53dB
Separating floors between dwelling-houses flats and rooms for residential purposes. Conversion of traditional buildings	(Higher than) 53dB	(Lower than) 58dB

Technical Terms

DnT,w - Weighted Standardised Field Level Difference

The difference, in decibels, between the level of noise either side of a structure tested in the field / on site.

This measurement type is used in Scottish Part E Building Regulations.

DnT,w + Ctr - Weighted Standardised Field Level Difference Adjusted For Control

The difference, in decibels, between the level of noise either side of a structure tested in the field / on site. But it is adjusted to include how well it stops low frequency noise.

This measurement type is used in England and Wales Part E Building Regulations.

L'nT,w - Weighted Standardised Field Impact Sound Pressure Level

The amount of impact noise transmitted through a floor structure, in field conditions, so includes flanking transmission.

This measurement type is used in all Part E Building Regulations.

Sound Tests

Sound tests are carried out by and independent testing company.

For airborne testing high volume "white" noise is generated from a single loudspeaker in the source room, positioned in order to obtain a diffuse sound field.

A spatial average of the resulting one-third octave band noise levels between 100 Hz and 3150 Hz is obtained by using a moving microphone technique over a minimum period of 15 seconds at one position.

The same measurement procedure is followed in the receiver room.
The entire procedure is then repeated, with the loudspeaker located in a different position.
The results of the tests are rated in accordance with BS EN ISO 717-1: 1997

For impact testing a tapping machine is placed on the floor which has a set of 5 steel hammers to produce impact noise on the separating floor. Level measurements are acquired in the receiving room at 2 microphone positions, at one third octave band intervals from 100 to 3150 Hertz using an average time of at least 6 seconds for each of 4 tapping machine positions, creating 8 individual measurement readings.
The procedure is repeated in different positions.
The results of the tests are rated in accordance with BS EN ISO 717-2: 1997