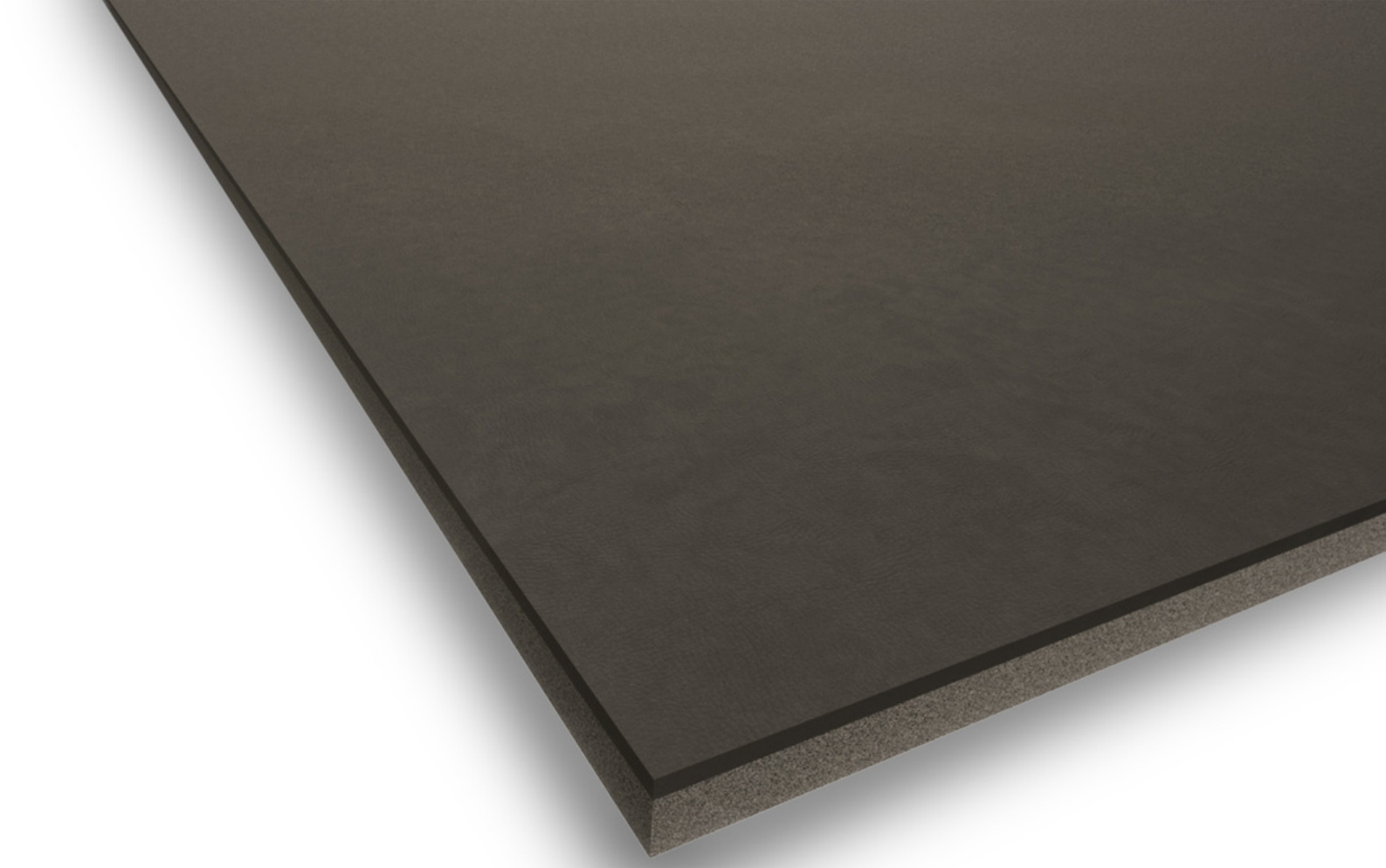


PRO SOUND™

SoundMat 2 Plus

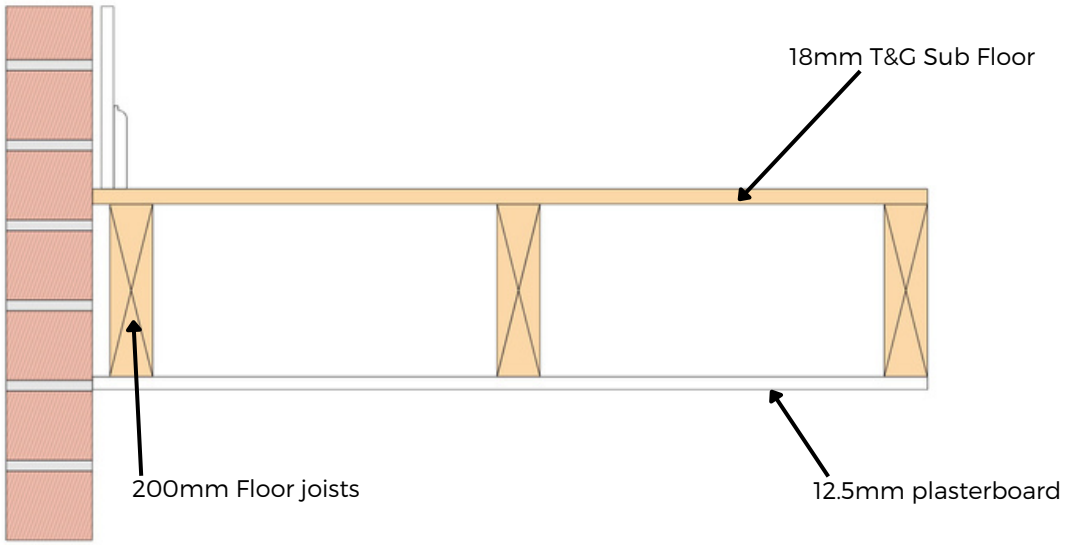
Floor Performance Data

the soundproofing store

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

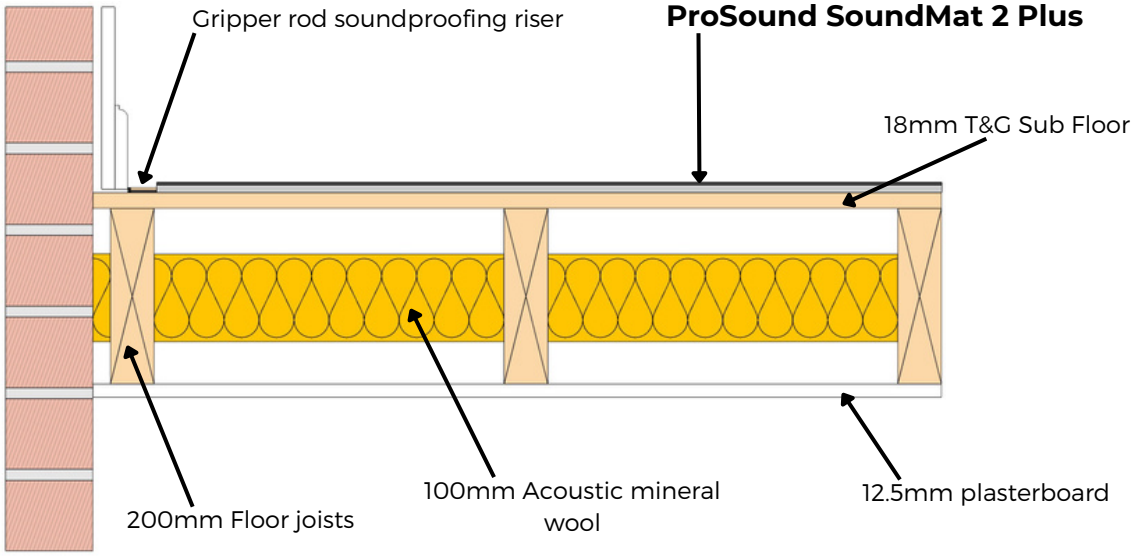
Timber Joisted Floor: Build-up

Untreated Floor



Treated Floor

Fig.1

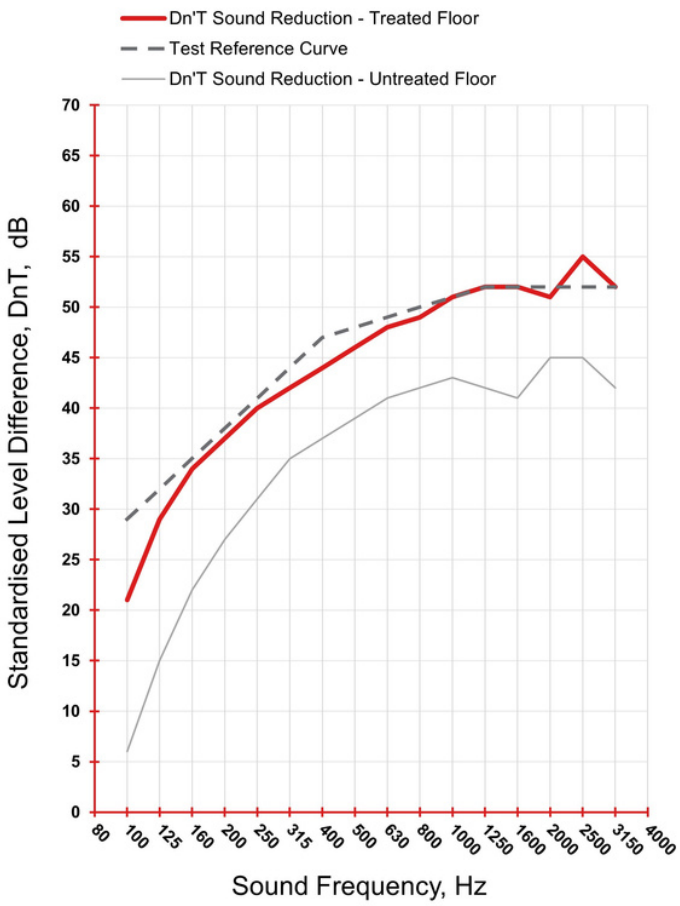


Structure Layers	Weight Per Sqm
12mm SoundMat 2 Plus	8Kg m^2
18mm T+G P5 Chipboard Floor	12Kg m^2
200mm Timber Floor Joists	N/A
100mm Acoustic Mineral Wool Fitted Between Floor Joists	6Kg m^2
12.5mm Plasterboard	9.3Kg m^2

Timber Joisted Floor: 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 - 47m^3
Receiving room volume - 42m^3

Frequency - Hz	DnT Value 1/3 Octave -dB Untreated Floor	DnT Value 1/3 Octave -dB Treated Floor
63	#	#
80	#	#
100	6	21
125	15	29
160	22	34
200	27	37
250	31	40
315	35	42
400	37	44
500	39	46
630	41	48
800	42	49
1000	43	51
1250	42	52
1600	41	52
2000	45	51
2500	45	55
3150	42	52
4000	#	#



# Indicates limitations of measurements
* Resonate Frequency - 45Hz

Reference: Fig. 1

Airborne Sound Test Results

Untreated Floor	Treated Floor	Floor Improvement
DnT,w = 38dB	DnT,w = 48dB	DnT,w = 10dB
DnT,w + Ctr = 25dB	DnT,w + Ctr = 39dB	DnT,w + Ctr = 14dB

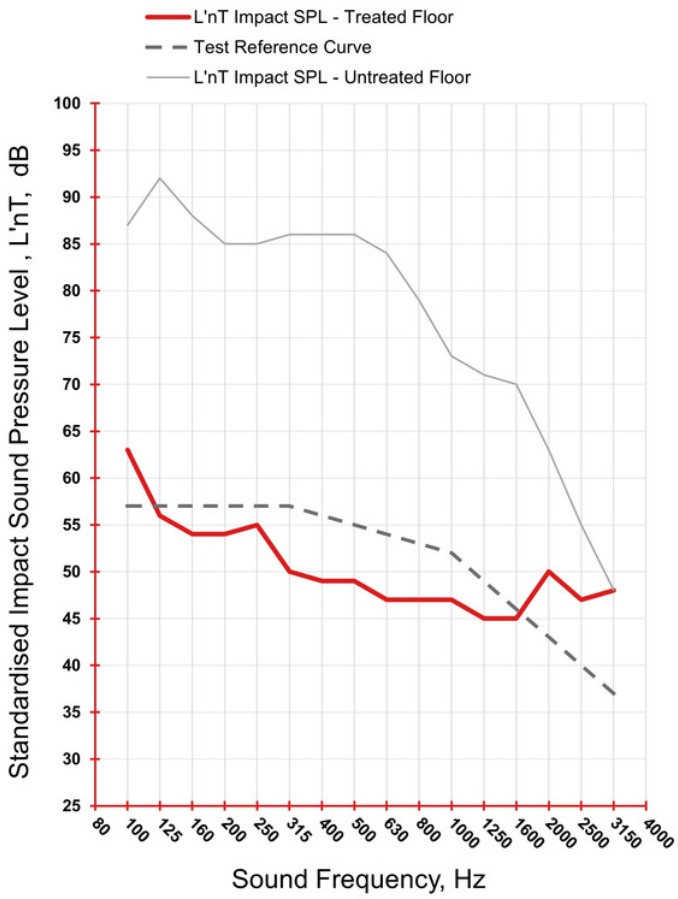
Rating according to ISO 717-1

With airborne noise a higher value equals a better performance

Timber Joisted Floor: Impact Test Data

Standardised impact sound pressure levels difference according to BS EN ISO 140-7
Field measurement of impact sound insulation of floors
Source room volume - 47m^3
Receiving room volume - 42m^3

Frequency - Hz	L'nT Value 1/3 Octave -dB Untreated Floor	L'nT Value 1/3 Octave -dB Treated Floor
63	#	#
80	#	#
100	87	63
125	92	56
160	88	54
200	85	54
250	85	55
315	86	50
400	86	49
500	86	49
630	84	47
800	79	47
1000	73	47
1250	71	45
1600	70	45
2000	63	50
2500	55	47
3150	48	48
4000	#	#



# Indicates limitations of measurements
* Resonate Frequency - 45Hz

Reference: Fig. 1

Impact Sound Test Results

Untreated Floor	Treated Floor	Floor Improvement
L'nT,w = 82dB	L'nT,w = 55dB	L'nT,w = 27dB

Rating according to ISO 717-2

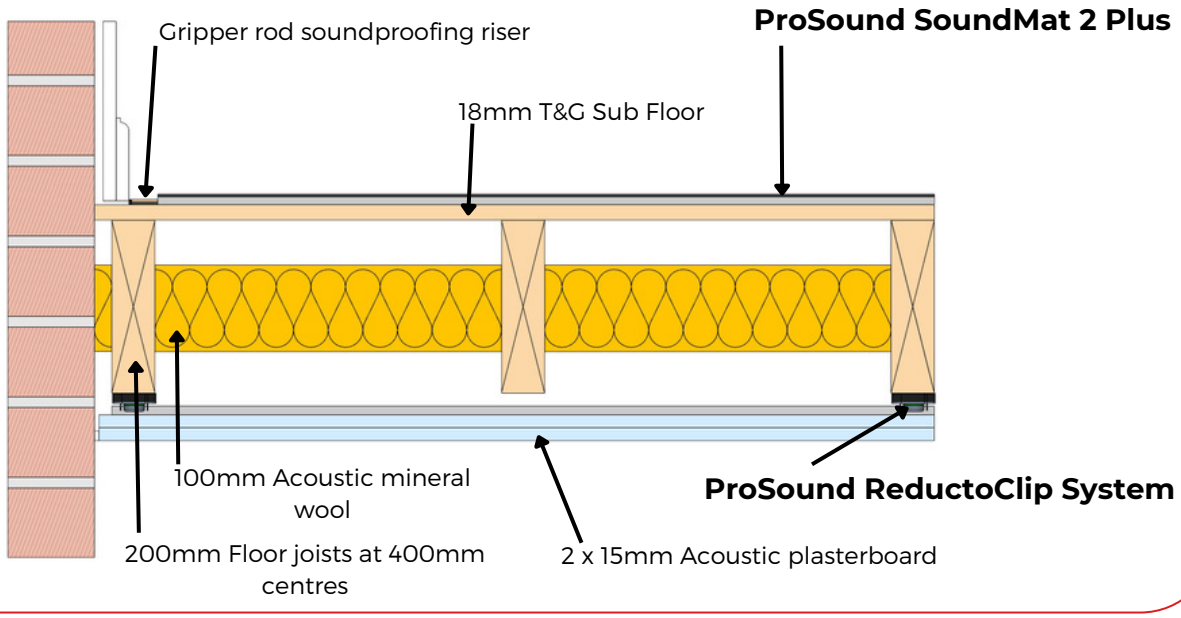
With impact noise a lower value equals a better performance

Timber Joisted Floor: Build-up (Recommended for Part E)

The below is recommended when needing to pass Part E Building Regulations.

Treated Floor

Fig.2



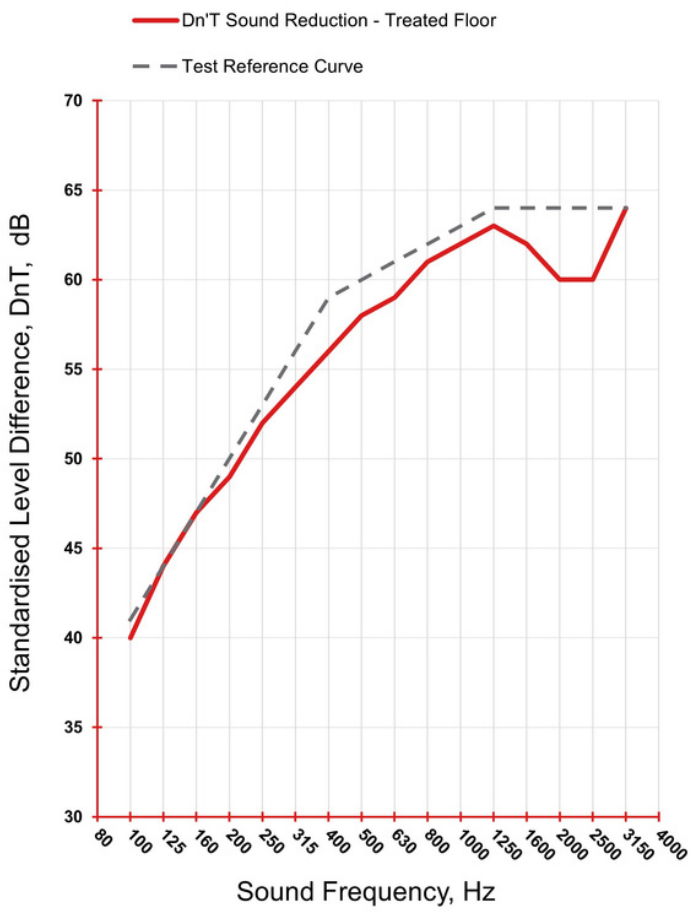
Structure Layers	Weight Per Sqm
12mm SoundMat 2 Plus	8Kg m^2
18mm T+G P5 Chipboard Floor	12Kg m^2
200mm Timber Floor Joists Filled with 100mm 60Kg m^3 Mineral Wool	6Kg m^2
25mm ReductoClip & Furring Bar	N/A
15mm Acoustic Plasterboard	12.8Kg m^2
15mm Acoustic Plasterboard	12.8Kg m^2

Timber Joisted Floor: Airborne Test Data (Recommended For Part E)

Standardised airborne sound level difference according to BS EN ISO 140-4
Field measurement of airborne sound insulation between rooms
Source room volume - 47m^3
Receiving room volume - 42m^3

Frequency - Hz	DnT Value 1/3 Octave -dB Treated Floor
63	#
80	#
100	40
125	44
160	47
200	49
250	52
315	54
400	56
500	58
630	59
800	61
1000	62
1250	63
1600	62
2000	60
2500	60
3150	64
4000	#

# Indicates limitations of measurements
* Resonate Frequency - 33Hz



Reference: Fig. 2

Airborne Sound Test Results

Treated Floor
DnT,w = 60dB
DnT,w + Ctr = 55dB

DnT,w -This measurement type is used in Scottish Part E Building Regulations.

DnT,w + Ctr - This measurement type is used in England and Wales Part E Building Regulations.

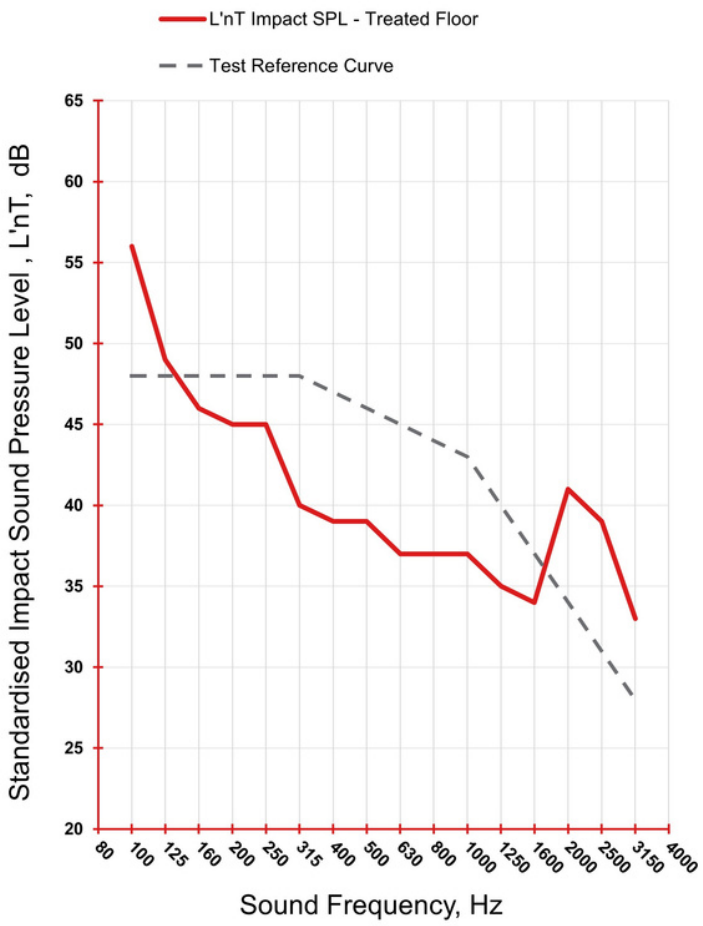
Rating according to ISO 717-1

With airborne noise a higher value equals a better performance

Timber Joisted Floor: Impact Test Data (Recommended For Part E)

Standardised impact sound pressure levels difference according to BS EN ISO 140-7
Field measurement of impact sound insulation of floors
Source room volume - 47m^3
Receiving room volume - 42m^3

Frequency - Hz	L'nT Value 1/3 Octave -dB Treated Floor
63	#
80	#
100	56
125	49
160	46
200	45
250	45
315	40
400	39
500	39
630	37
800	37
1000	37
1250	35
1600	34
2000	41
2500	39
3150	33
4000	#



# Indicates limitations of measurements
* Resonate Frequency - 33Hz

Reference: Fig. 2

Impact Sound Test Results

Treated Floor
L'nT,w = 46dB

Rating according to ISO 717-2

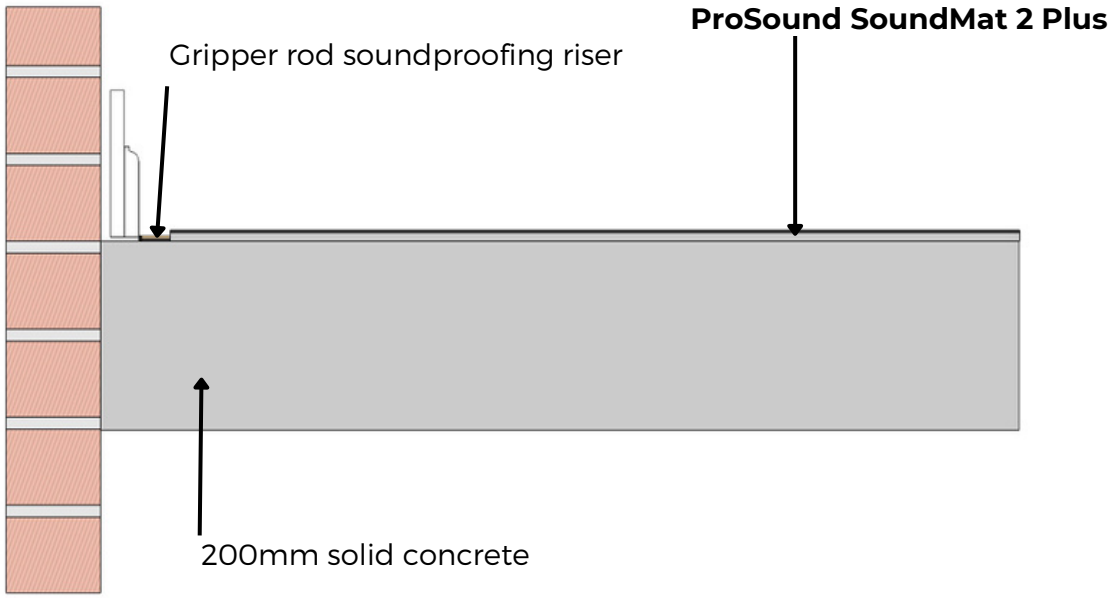
With impact noise a lower value equals a better performance

Concrete Floor: Build-up

Concrete testing is purely for impact performance.

Treated Floor

Fig.3

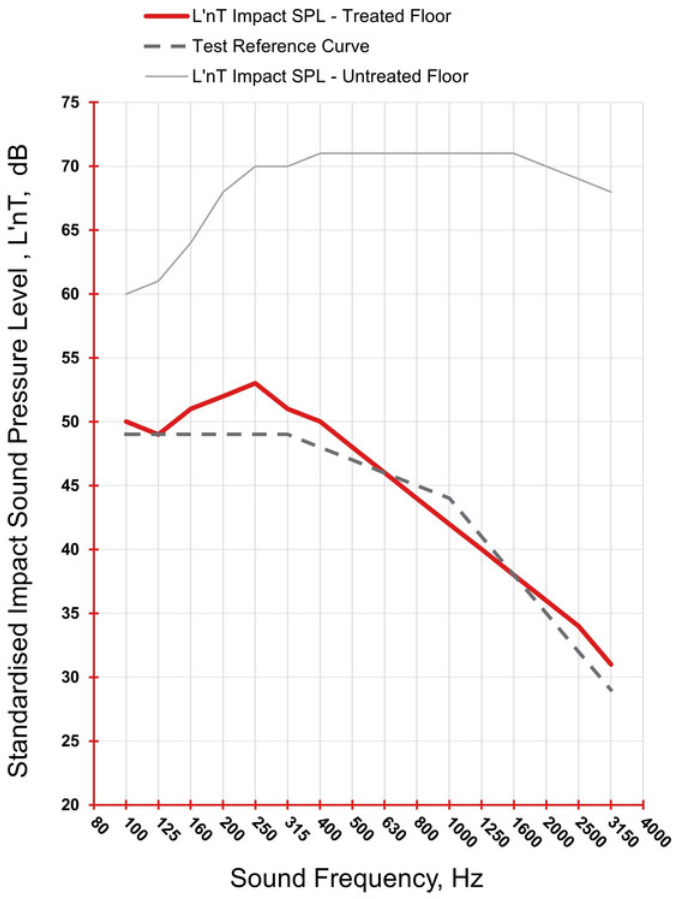


Structure Layers	Weight Per Sqm
12mm SoundMat 3 Plus	8Kg m^2
200mm Solid Concrete	490Kg m^2

Concrete Floor: Impact Test Data

Standardised impact sound pressure levels difference according to BS EN ISO 140-7
Field measurement of impact sound insulation of floors
Source room volume - 62m^3
Receiving room volume - 51m^3

Frequency - Hz	L'nT Value 1/3 Octave -dB Untreated Floor	L'nT Value 1/3 Octave -dB Treated Floor
63	#	#
80	#	#
100	60	50
125	61	49
160	64	51
200	68	52
250	70	53
315	70	51
400	71	50
500	71	48
630	71	46
800	71	44
1000	71	42
1250	71	40
1600	71	38
2000	70	36
2500	69	34
3150	68	31
4000	#	#



# Indicates limitations of measurements
* Resonate Frequency - 42Hz

Reference: Fig. 3

Impact Sound Test Results

Untreated Floor	Treated Floor	Floor Improvement
L'nT,w = 76dB	L'nT,w = 47dB	L'nT,w = 29dB

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