



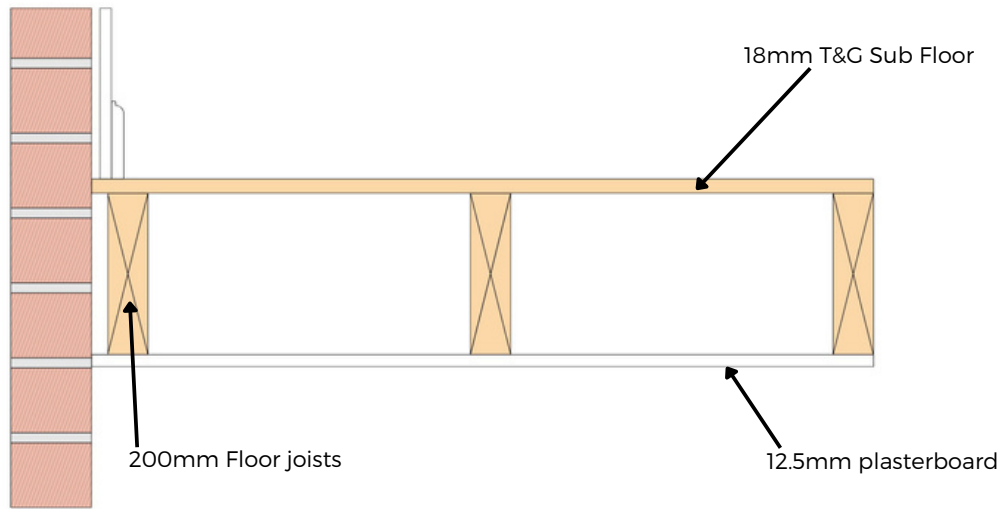
PRO)))SOUND™

ReductoClip System

Ceiling Performance Data

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

Untreated Ceiling



Treated Ceiling

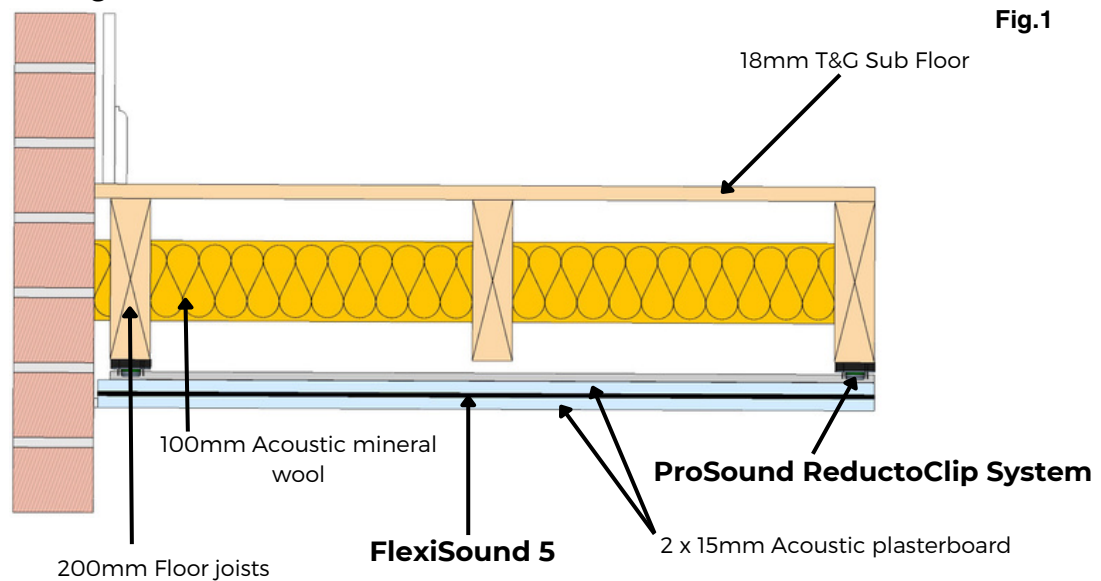


Fig.1

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
25mm ReductoClip & Furring Bar	N/A
15mm Acoustic Plasterboard	12.8Kg m ²
5mm FlexiSound 5	10Kg m ²
15mm Acoustic Plasterboard	12.8Kg m ²

Timber Joisted Ceiling: Airborne Test Data

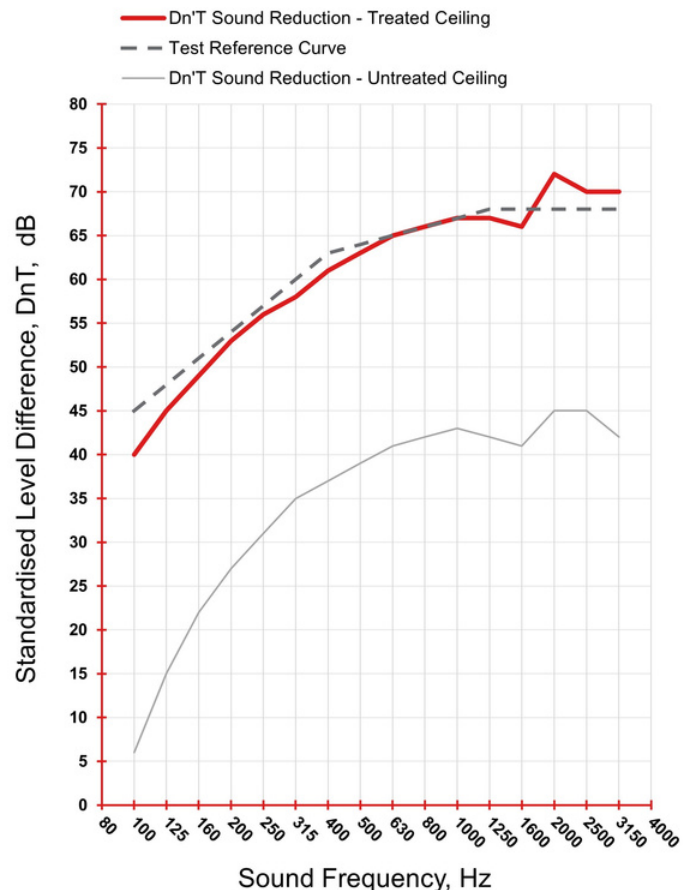
Standardised airborne sound level difference according to BS EN ISO 140-4

Field measurement of airborne sound insulation between rooms

Source room volume - 59m³

Receiving room volume - 49m³

Frequency - Hz	DnT Value 1/3 Octave -dB Untreated Ceiling	DnT Value 1/3 Octave -dB Treated Ceiling
63	#	#
80	#	#
100	6	40
125	15	45
160	22	49
200	27	53
250	31	56
315	35	58
400	37	61
500	39	63
630	41	65
800	42	66
1000	43	67
1250	42	67
1600	41	66
2000	45	72
2500	45	70
3150	42	70
4000	#	#



Indicates limitations of measurements

* Resonate Frequency - 38Hz

Reference: Fig. 1

Airborne Sound Test Results

Untreated Ceiling	Treated Ceiling	Ceiling Improvement
DnT,w = 38dB	DnT,w = 64dB	DnT,w = 26dB
DnT,w + Ctr = 25dB	DnT,w + Ctr = 57dB	DnT,w + Ctr = 32dB

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

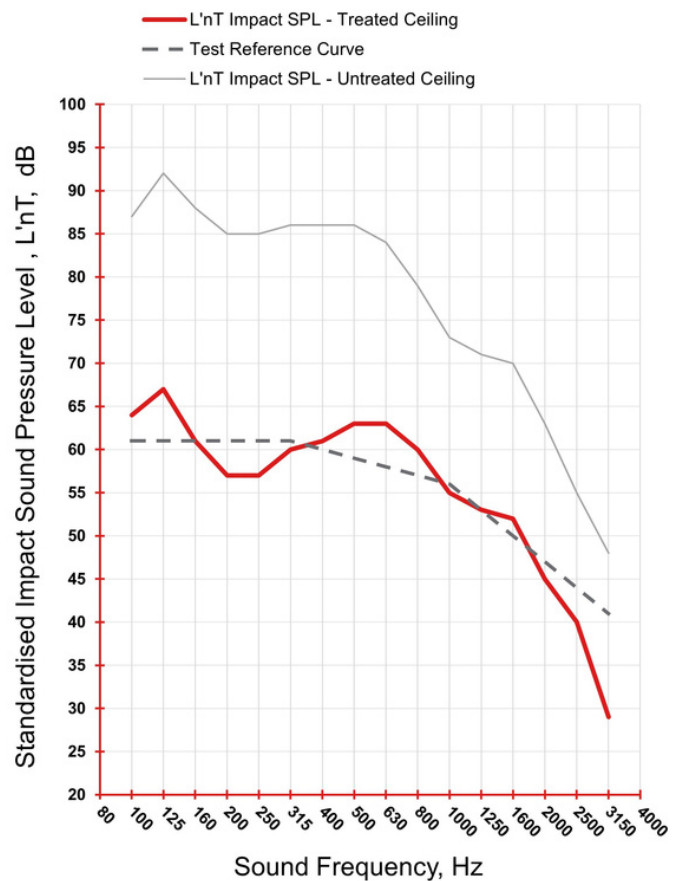
Source room volume - 59m³

Receiving room volume - 49m³

Frequency - Hz	L'nT Value 1/3 Octave -dB Untreated Ceiling	L'nT Value 1/3 Octave -dB Treated Ceiling
63	#	#
80	#	#
100	87	64
125	92	67
160	88	61
200	85	57
250	85	57
315	86	60
400	86	61
500	86	63
630	84	63
800	79	60
1000	73	55
1250	71	53
1600	70	52
2000	63	45
2500	55	40
3150	48	29
4000	#	#

Indicates limitations of measurements

* Resonate Frequency - 38Hz



Reference: Fig. 1

Impact Sound Test Results

Untreated Ceiling	Treated Ceiling	Ceiling Improvement
L'nT,w = 82dB	L'nT,w = 59dB	L'nT,w = 23dB

Rating according to ISO 717-2

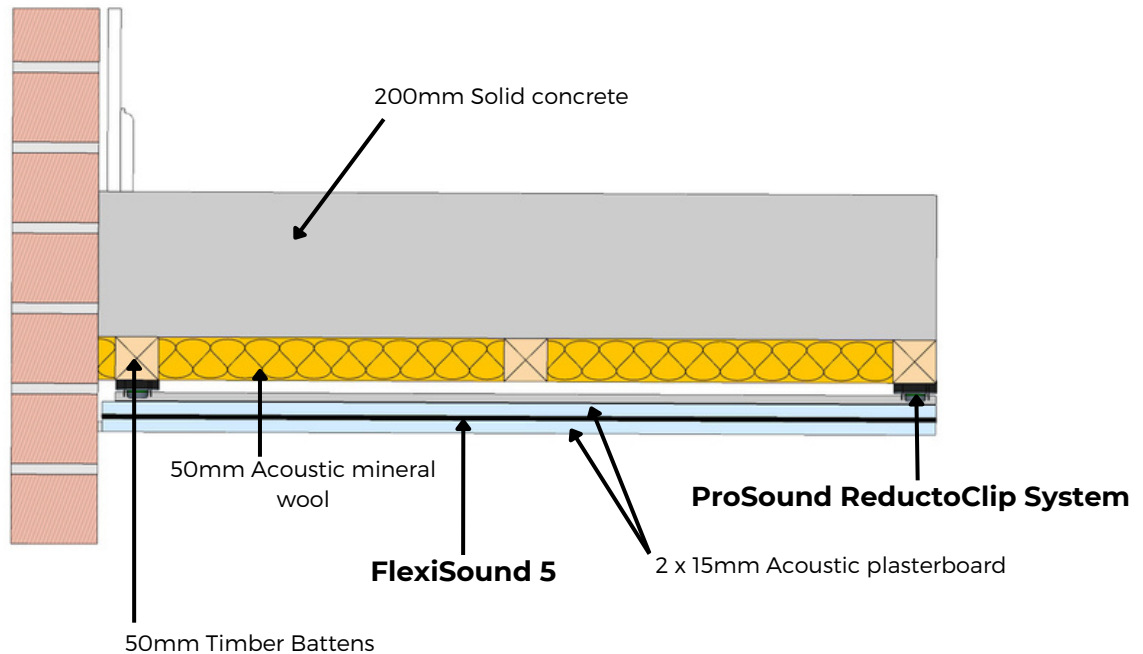
With impact noise a lower value equals a better performance

Concrete Ceiling: Build-up (Recommended for Part E)

Original Untreated Ceiling: 200mm Solid Concrete with no floor coverings.

Treated Ceiling

Fig.1



Structure Layers	Weight Per Sqm
200mm Solid Concrete	490Kg m ²
50mm Timber Screwed To Concrete	N/A
50mm 60Kg m ³ Mineral Wool	3Kg m ²
25mm ReductoClip & Furring Bar	N/A
15mm Acoustic Plasterboard	12.8Kg m ²
5mm FlexiSound 5	10Kg m ²
15mm Acoustic Plasterboard	12.8Kg m ²

Concrete Ceiling: Airborne Test Data

Standardised airborne sound level difference according to BS EN ISO 140-4

Field measurement of airborne sound insulation between rooms

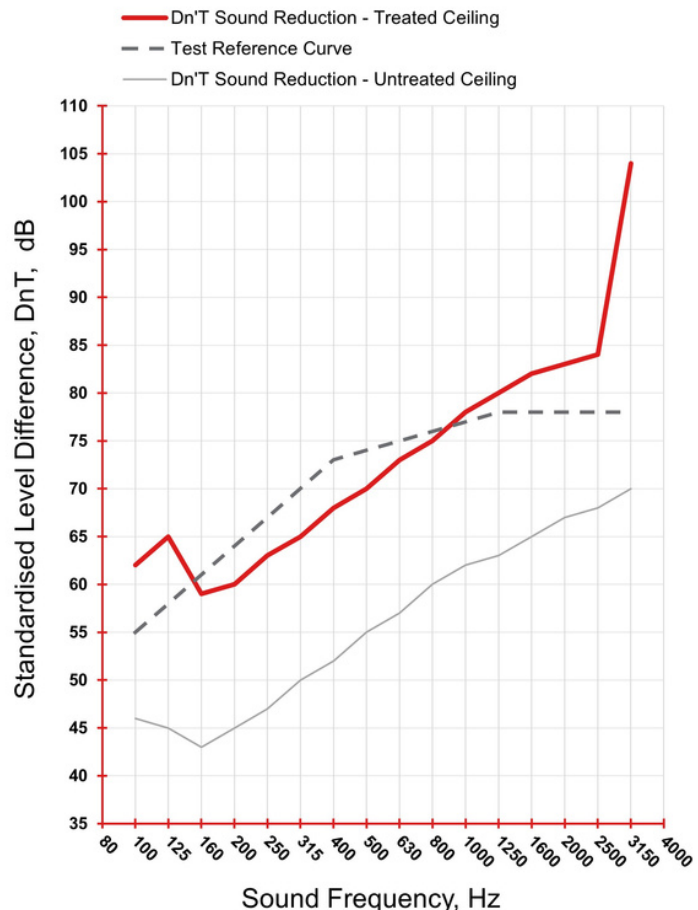
Source room volume - 62m³

Receiving room volume - 51m³

Frequency - Hz	DnT Value 1/3 Octave -dB Untreated Ceiling	DnT Value 1/3 Octave -dB Treated Ceiling
63	#	#
80	#	#
100	46	62
125	45	65
160	43	59
200	45	60
250	47	63
315	50	65
400	52	68
500	55	70
630	57	73
800	60	75
1000	62	78
1250	63	80
1600	65	82
2000	67	83
2500	68	84
3150	70	104
4000	#	#

Indicates limitations of measurements

* Resonate Frequency - 32Hz



Reference: Fig. 1

Airborne Sound Test Results

Untreated Ceiling	Treated Ceiling	Ceiling Improvement
DnT,w = 59dB	DnT,w = 74dB	DnT,w = 15dB
DnT,w + Ctr = 54dB	DnT,w + Ctr = 70dB	DnT,w + Ctr = 16dB

Rating according to ISO 717-1

With airborne noise a higher value equals a better performance

Concrete Ceiling: Impact Test Data

Standardised airborne sound level difference according to BS EN ISO 140-4

Field measurement of airborne sound insulation between rooms

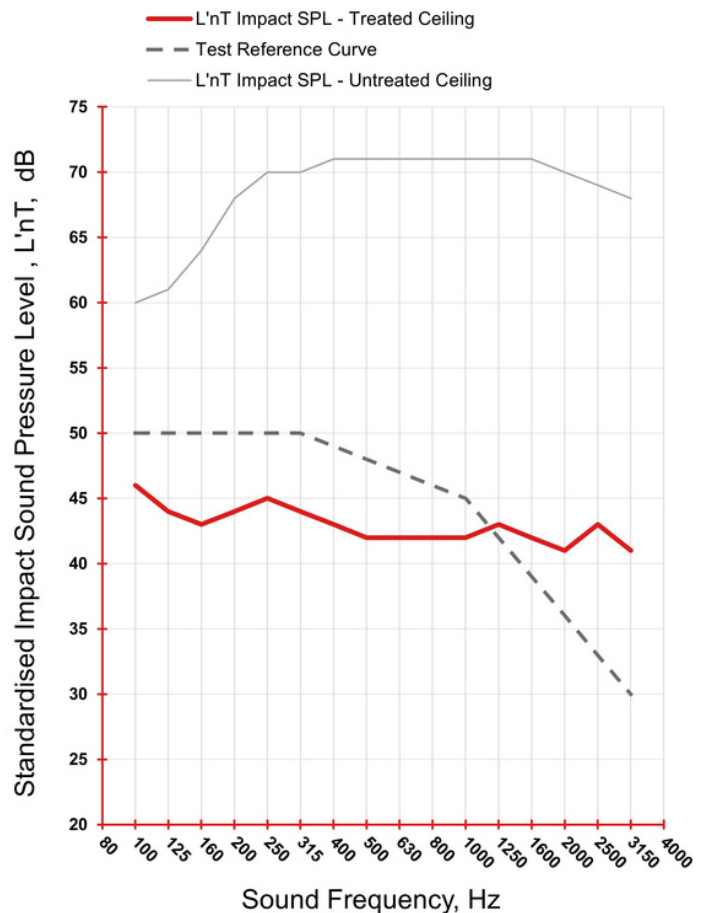
Source room volume - 62m³

Receiving room volume - 51m³

Frequency - Hz	L'nT Value 1/3 Octave -dB Untreated Ceiling	L'nT Value 1/3 Octave -dB Treated Ceiling
63	#	#
80	#	#
100	60	46
125	61	44
160	64	43
200	68	44
250	70	45
315	70	44
400	71	43
500	71	42
630	71	42
800	71	42
1000	71	42
1250	71	43
1600	71	42
2000	70	41
2500	69	43
3150	68	41
4000	#	#

Indicates limitations of measurements

* Resonate Frequency - 32Hz



Reference: Fig. 1

Impact Sound Test Results

Untreated Ceiling	Treated Ceiling	Ceiling Improvement
L'nT,w = 76dB	L'nT,w = 48dB	L'nT,w = 28dB

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