

BS8233 Calculation of Noise Break-in

The expected precision of this calculation is ±2 dB

SiteStoney Lane

PeriodDay

RoomLiving Rooms

Term	Term Description	Value
S	Façade area (incl. window) (m ²)	60
S _w	Area of the windows (m ²)	20
S _{ext}	Area of the external wall (m ²)	40
x	Room Dimension x (m)	30
y	Room Dimension y (m)	30
z	Room Dimension z (m)	23

RTReceiving Room RT

A

L_{eq}Outside Room

D_{se}Insulation of the Acoustic VentsGreenwood 2500EA

R_{wf}SRI of the window4:12-4 mm

R_{we}SRI of the external wallBS8233 Example - Brick and block external wall

F

= 10 log (b + c + d)

G

= 10 x log (S*RT/0.161*V)

L_{eq}Inside Room (A + F + G + 3dB façade correction)

A-weighting

L_{req}Inside Room



Octave Band Centre Frequency				
125	250	500	1000	2000
05	04	04	04	04

56	53	51	55	46
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37	36	35	36	34
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24	20	25	35	38
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40	44	45	51	56
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-28	-24	-28	-33	-31
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0	-1	-2	-2	-2
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31	30	24	23	16
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-16	-9	-3	0	1
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15	21	21	23	17
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$$B = \frac{A_b}{S} 10^{-\frac{D_{b,c}}{10}}$$
$$C = \frac{S_{ext}}{S} 10^{-\frac{R_{ef} w}{10}}$$
$$D = \frac{S_{ext}}{S} 10^{-\frac{R_{ef} w}{10}}$$

BS 8233 RESULT	
L _{req}	30

BS8233 Calculation of Noise Breakin

The expected precision of this calculation is ±2 dB

SiteStoney Lane

PeriodNight

RoomBedroom

Term	Term Description	Value
S	Façade area (incl. window) (m²)	60
S _w	Area of the windows (m²)	15
S _{ext}	Area of the external wall (m²)	45
x	Room Dimension x (m)	30
y	Room Dimension y (m)	30
z	Room Dimension z (m)	23

RTReceiving Room RT

A

A

L_{out}

L_{eq}

Outside Room

Outside Room

D_{o,v}

Insulation of the Acoustic Vents

Greenwood 2500EA

R_w

SRI of the window

4:12:4 mm

R_{ext}

SRI of the external wall

BS8233 Example - Brick and block external wall

F

= 10 log (b + c + d)

G

= 10 x log (5*RT/0.161*V)

L_{in,ra}

Inside Room (A + F + 3dB façade correction)

L_{in,q}

Inside Room (A + F + G + 3dB façade correction)

A-weighting

L_{Ain,ra}

Inside Room

L_{Ain,q}

Inside Room



Octave Band Centre Frequency				
125	250	500	1000	2000
05	04	04	04	04

66	63	61	67	61
47	46	43	47	39

37	36	35	36	34
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24	20	25	35	38
----	----	----	----	----

40	44	45	51	56
----	----	----	----	----

$$B = \frac{A_s}{S} 10^{\frac{-D_{s,p}}{10}}$$
$$C = \frac{S_{ext}}{S} 10^{\frac{-R_{e,w}}{10}}$$
$$D = \frac{S_w}{S_{ext}} 10^{\frac{-R_{e,w}}{10}}$$

-29	-25	-29	-33	-32
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0	-1	-2	-2	-2
---	----	----	----	----

41	40	35	37	33
21	22	15	15	9

-16	-9	-3	0	1
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25	31	32	37	34
5	13	12	15	10

BS 8233 RESULT	
L _{Ain,ra}	40
L _{Ain,q}	19

BS8233 Calculation of Noise Break-in

The expected precision of this calculation is ±2 dB

SiteRailway

PeriodDay

RoomLiving Room

Term	Term Description	Value
S	Façade area (incl. window) (m ²)	60
S _w	Area of the windows (m ²)	20
S _{ext}	Area of the external wall (m ²)	40
x	Room Dimension x (m)	30
y	Room Dimension y (m)	30
z	Room Dimension z (m)	23

RTReceiving Room RT

A

L_{oq}Outside Room

D_{se}Insulation of the Acoustic VentsGreenwood 2500EA

R_{wf}SRI of the window4:12-4 mm

R_{we}SRI of the external wallBS8233 Example - Brick and block external wall

F

= 10 log (b + c + d)

G

= 10 x log (S*RT/0.161*v)

L_{oq}Inside Room (A + F + G + 3dB façade correction)

A-weighting

L_{oq}Inside Room



Octave Band Centre Frequency				
125	250	500	1000	2000
05	04	04	04	04

49	46	45	46	43
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37	36	35	36	34
----	----	----	----	----

24	20	25	35	38
----	----	----	----	----

40	44	45	51	56
----	----	----	----	----

-28	-24	-28	-33	-31
-----	-----	-----	-----	-----

0	-1	-2	-2	-2
---	----	----	----	----

24	23	18	14	13
----	----	----	----	----

-16	-9	-3	0	1
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8	14	15	14	14
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$$B = \frac{A_0}{S} 10^{\frac{-D_{ref}}{10}}$$
$$C = \frac{S_{ext}}{S} 10^{\frac{-R_{ef} w}{10}}$$
$$D = \frac{S_{ext}}{S} 10^{\frac{-R_{ef} w}{10}}$$

BS 8233 RESULT	
L _{oq}	24

BS8233 Calculation of Noise Breakin

The expected precision of this calculation is ±2 dB

SiteRailway Line

PeriodNight

RoomBedroom

Term	Term Description	Value
S	Façade area (incl. window) (m²)	60
S _w	Area of the windows (m²)	15
S _{ext}	Area of the external wall (m²)	45
x	Room Dimension x (m)	30
y	Room Dimension y (m)	30
z	Room Dimension z (m)	23

RTReceiving Room RT

A

A

l_{out}

Outside Room

l_{eq}

Outside Room

D_{o,v}

Insulation of the Acoustic Vents

Aereco EHA with acoustic canopy and sleeve (EAR206 + AEAB51)

R_w

SRI of the window

4:12-6.4 mm Stadip Silence

R_{re}

SRI of the external wall

BS8233 Example - Brick and block external wall

F

= 10 log (b + c + d)

G

= 10 x log (5*RT/0.161*V)

l_{in,ra}

Inside Room (A + F + 3dB façade correction)

l_{eq}

Inside Room (A + F + G + 3dB façade correction)

A-weighting

L_{Ain,ra}

Inside Room

l_{Aeq}

Inside Room



Octave Band Centre Frequency					
125	250	500	1000	2000	
05	04	04	04	04	04

80	76	73	62	61
52	47	48	49	47

41	42	38	45	47
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24	22	29	40	44
----	----	----	----	----

40	44	45	51	56
----	----	----	----	----

$$B = \frac{A_s}{S} 10^{-\frac{D_{o,v}}{10}}$$
$$C = \frac{S_{ext}}{S} 10^{-\frac{R_{e,w}}{10}}$$
$$D = \frac{S_w}{S_{ext}} 10^{-\frac{R_{e,w}}{10}}$$

-29	-28	-32	-41	-44
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0	-1	-2	-2	-2
---	----	----	----	----

51	48	41	21	17
26	21	17	9	4

-16	-9	-3	0	1
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35	39	38	21	18
10	12	14	9	5

BS 8233 RESULT	
L _{Ain,ra}	43
l _{Aeq}	18