UKAS TESTING
0578

Laboratory measurement of airborne sound insulation of small building elements
Element-normalized level difference according to BS EN 20140-10:1992
BRE horizontal transmission suite (B9 051-053)
Client: Rytons Building Products Ltd
Test date: 23/07/2007 **Test number:** L107-151 **Test element:** Ventilator

Filler wall area: 9.8 m²
Description:
TAL4HMCWL ventilator assembly;
x1 MFAB, TAL4000 AirLiner, HM43F Internal (OPEN), ABC3 Cowl

Source room volume: 130 m³ **Air temperature:** 19 °C
Receive room volume: 115 m³ **Air relative humidity:** 71 %

Frequency (Hz)	Reverberation time (s)	Background level (dB)	Source level (dB)	Receive level (dB)	$D_{n,e}$ (dB)	
50	2.64	24.1	91.1	59.3	34.7	o
63	1.76	17.4	99.4	68.6	31.9	o
80	1.98	14.4	98.7	63.5	36.8	o
100	1.69	11.6	99.0	58.1	41.8	o
125	1.98	7.4	101.4	58.8	44.3	o
160	1.74	17.4	100.7	57.5	43.5	x
200	2.00	32.9	100.9	55.4	45.9	
250	1.80	12.0	99.1	56.2	42.8	
315	1.64	11.6	99.2	63.4	35.3	
400	1.66	21.1	98.8	61.4	37.0	
500	1.64	8.9	98.1	58.6	38.9	
630	1.58	10.5	97.6	60.6	36.3	
800	1.50	9.4	96.5	61.1	34.6	
1,000	1.50	17.1	95.4	56.6	37.9	
1,250	1.49	12.6	97.1	55.8	40.4	
1,600	1.49	5.5	97.8	57.3	39.5	
2,000	1.52	6.1	96.4	55.5	40.0	
2,500	1.51	6.9	96.7	54.4	41.5	
3,150	1.50	8.5	96.8	52.2	43.7	
4,000	1.40	10.1	97.6	48.1	48.3	
5,000	1.26	8.4	94.5	43.2	49.7	

x Adjusted for flanking transmission

o Correction = 1.3 dB

Rating according to BS EN ISO 717-1:1997

$D_{n,e,w}(C;C_{tr})$ = 39 (0;-1) dB

$C_{50\text{-}3150}$	= 0 dB	$C_{50\text{-}5000}$	= 1 dB	$C_{100\text{-}5000}$	= 1 dB
$C_{tr,50\text{-}3150}$	= -1 dB	$C_{tr,50\text{-}5000}$	= -1 dB	$C_{tr,100\text{-}5000}$	= -1 dB

Evaluation based on laboratory measurement results obtained by an engineering method

Based on the data provided in BS EN 20140-2:1993 it is estimated that the measurement uncertainty should not exceed ±1 dB for the single-number quantity ($D_{n,e,w}$) and should not exceed the values in Table A1 of BS EN 20140-2:1993 for the data in the individual third octaves ($D_{n,e,w}$)

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Source room volume: 130 m³
Receive room volume: 115 m³
Air temperature: 19 °C
Air relative humidity: 71 %

Frequency (Hz)	$D_{n,e}$ One-third octave (dB)	
50	34.7	o
63	31.9	o
80	36.8	o
100	41.8	o
125	44.3	o
160	43.5	x
200	45.9	
250	42.8	
315	35.3	
400	37.0	
500	38.9	
630	36.3	
800	34.6	
1,000	37.9	
1,250	40.4	
1,600	39.5	
2,000	40.0	
2,500	41.5	
3,150	43.7	
4,000	48.3	
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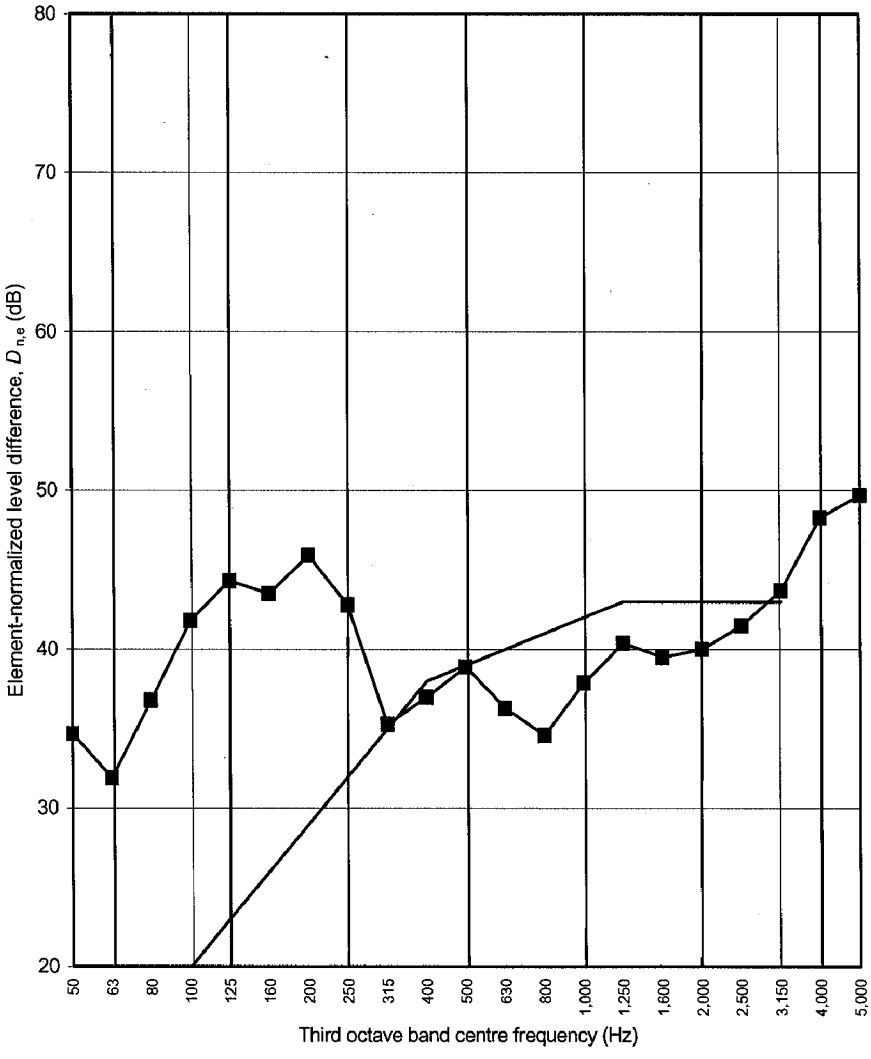

x Adjusted for flanking transmission

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Rating according to BS EN ISO 717-1:1997

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$C_{50\text{-}3150}$	= 0 dB	$C_{50\text{-}5000}$	= 1 dB	$C_{100\text{-}5000}$	= 1 dB
$C_{tr,50\text{-}3150}$	= -1 dB	$C_{tr,50\text{-}5000}$	= -1 dB	$C_{tr,100\text{-}5000}$	= -1 dB

Evaluation based on laboratory measurement results obtained by an engineering method

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Element-normalized level difference according to BS EN 20140-10:1992
BRE horizontal transmission suite (B9 051-053)
Client: Rytons Building Products Ltd
Test date: 23/07/2007 **Test number:** L107-152 **Test element:** Ventilator

Filler wall area: 9.8 m²
Description:
TAL4HMCWL ventilator assembly;
x1 MFAB, TAL4000 AirLiner, HM43F Internal (CLOSED), ABC3 Cowl

Source room volume: 130 m³ **Air temperature:** 19 °C
Receive room volume: 115 m³ **Air relative humidity:** 71 %

Frequency (Hz)	Reverberation time (s)	Background level (dB)	Source level (dB)	Receive level (dB)	$D_{n,e}$ (dB)	
50	2.64	22.6	91.8	59.5	35.2	o
63	1.76	15.9	100.1	69.3	32.0	o
80	1.98	14.0	99.5	64.7	36.5	o
100	1.69	12.0	99.9	58.9	41.9	o
125	1.98	8.0	102.7	59.9	44.4	o
160	1.74	18.9	102.1	58.7	43.8	x
200	2.00	34.5	102.4	56.0	47.4	x
250	1.80	13.3	100.1	56.8	43.2	
315	1.64	12.1	100.0	63.8	35.7	
400	1.66	20.8	99.6	61.9	37.3	
500	1.64	9.1	99.0	59.4	39.1	
630	1.58	9.9	98.5	60.6	37.2	
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2,500	1.51	6.9	97.9	53.3	43.8	
3,150	1.50	9.2	98.0	50.2	47.0	
4,000	1.40	10.5	98.8	45.7	52.0	
5,000	1.26	8.0	95.9	40.4	53.8	

x Adjusted for flanking transmission

o Correction = 1.3 dB

Rating according to BS EN ISO 717-1:1997

$D_{n,e,w}(C;C_{tr})$ = 40 (0;-1) dB

$C_{50\text{-}3150}$	= 0 dB	$C_{50\text{-}5000}$	= 1 dB	$C_{100\text{-}5000}$	= 1 dB
$C_{tr,50\text{-}3150}$	= -1 dB	$C_{tr,50\text{-}5000}$	= -1 dB	$C_{tr,100\text{-}5000}$	= -1 dB

Evaluation based on laboratory measurement results obtained by an engineering method

Based on the data provided in BS EN 20140-2:1993 it is estimated that the measurement uncertainty should not exceed ±1 dB for the single-number quantity ($D_{n,e,w}$) and should not exceed the values in Table A1 of BS EN 20140-2:1993 for the data in the individual third octaves ($D_{n,e,w}$)

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Receive room volume: 115 m³
Air temperature: 19 °C
Air relative humidity: 71 %

Frequency (Hz)	$D_{n,e}$ One-third octave (dB)	
50	35.2	o
63	32.0	o
80	36.5	o
100	41.9	o
125	44.4	o
160	43.8	x
200	47.4	x
250	43.2	
315	35.7	
400	37.3	
500	39.1	
630	37.2	
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4,000	52.0	
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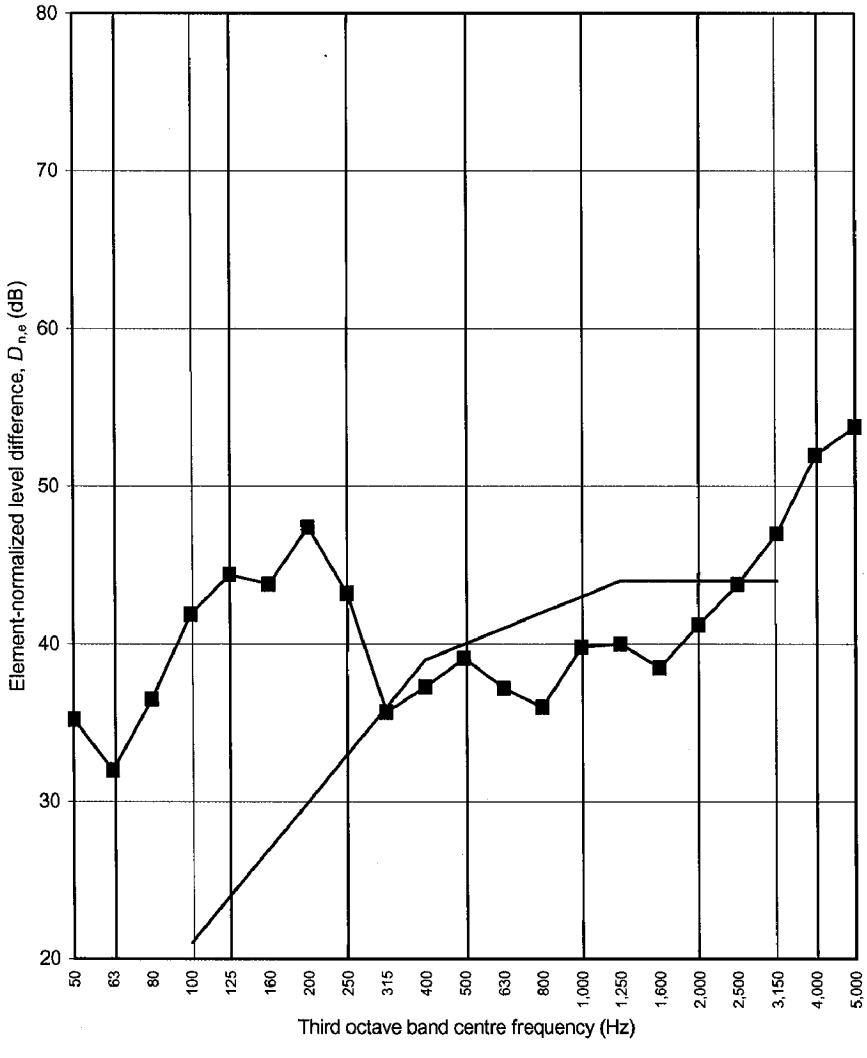

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$C_{tr,50\text{-}3150}$	= -1 dB	$C_{tr,50\text{-}5000}$	= -1 dB	$C_{tr,100\text{-}5000}$	= -1 dB

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Based on the data provided in BS EN 20140-2:1993 it is estimated that the measurement uncertainty should not exceed ±1 dB for the single-number quantity ($D_{n,e,w}$) and should not exceed the values in Table A1 of BS EN 20140-2:1993 for the data in the individual third octaves ($D_{n,e,w}$)

bre

Laboratory airborne sound insulation testing of Rytons Building Products Ltd ventilator systems

Prepared for: Karen Jolley

Rytons Building Products Ltd

20 August 2007

Test report number 238655

0578

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