

Appendix 3 Modelling Results

Modelling Software:

CADNA/A Version 2025

Modelled Scenarios:

Day and night-time average noise levels across the site

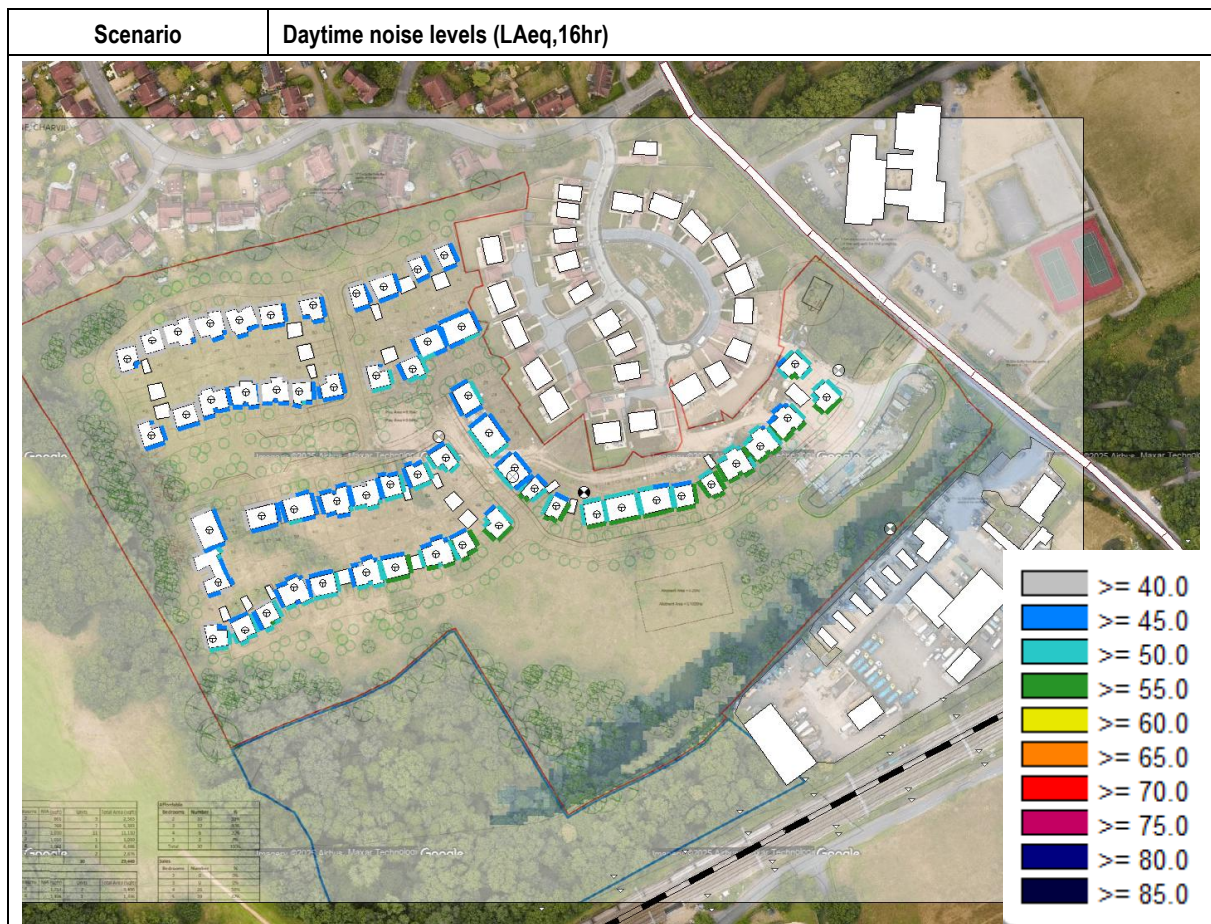
Data inputs:

- Noise survey results
- Topographical data for the site
- Development layout

Calculation Algorithms Used:

- Calculation of Road Traffic Noise 1988 – Department of Transport
- ISO 9613-1:1993 Acoustics-Attenuation of sound during propagation outdoors – Part 1: Calculation of the absorption of sound by the atmosphere
- ISO 9613-2:2024 Acoustics-Attenuation of sound during propagation outdoors – Part 2: Engineering method for the prediction of sound pressure levels outdoors

Modelling Printout:



Appendix 4 Façade Calculations

PROJECT:

ROOM:

VARIANT:

NOTES:

Room Dimensions [m] W L H

Room Volume = m³

Partition Area = m²

Ventilation ref area = m²

Free Field SPL K = dB

SELECT Free Field or Façade SPL for model input >>>

NOTES:

EXTERNAL SPECTRUM (A weighted)

EXTERNAL SPECTRUM (A weighted)								
dBA	63	125	250	500	1000	2000	4000	
Direct input - Free Field SPL (A weighted octave bands) dB ----->	-							No data
Road traffic spectrum (according to BS 8233:1999 section 6)	58.0							
	39.8	43.9	47.4	50.8	54.0	51.2	46.0	Reference spectrum

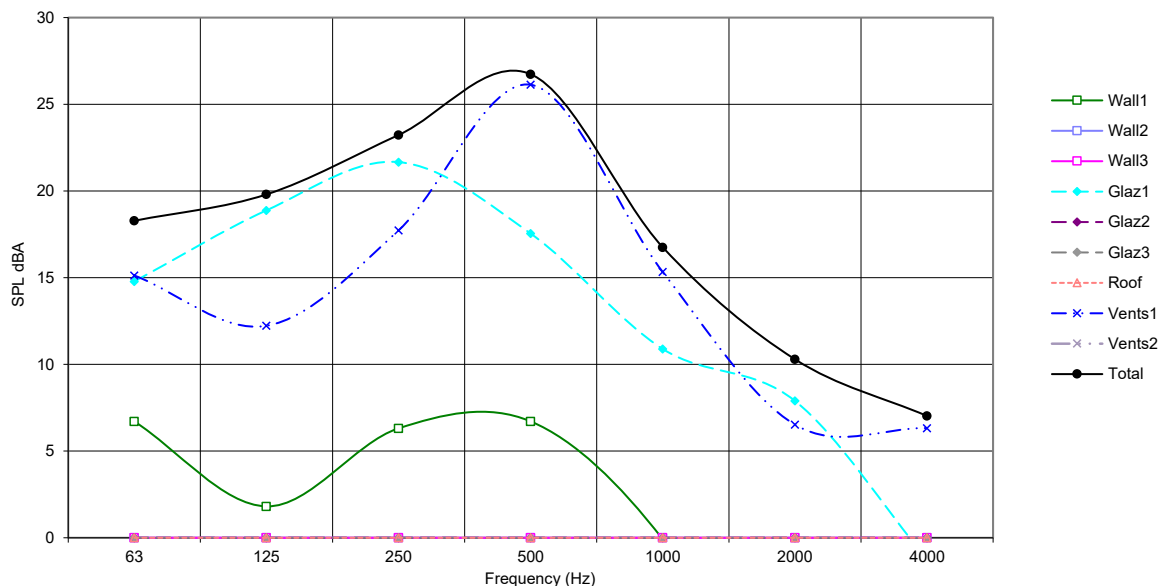
REVERBERATION TIME

DIRECT INPUT ----->								No data
EQUAL RT for all bands ----->	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Default - RT set to 0.5s

Façade Element		Area [m2]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr			
Wall 1	Typical - 102mm brick/50mm cavity /100mm block	5.7	36	45	44	47	57	67	77	2%	54	0	-4			
	ATTENUATION															
Wall 2	WALLS		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Wall 3	WALLS		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Glazing 1	30 dB Rw + Ctr - Acoustically Upgraded Double Glazing	1.5	22	22	23	30	40	40	44	36%	30 (inc Ctr)	-	-			
	ATTENUATION															
Glazing 2	GLAZING		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Glazing 3	GLAZING		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Roof	ROOF / FLOOR		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Resultant composite Façade SRI			28	29	30	37	47	47	51							
Resultant SPL inside room excluding ventilators dB			25.4	15	19	22	18	11	8	-1	38%					

Ventilator Type		Num	D _{n,e} dB to BS EN 20140-10:1992									Dnew	C	Ctr
Ventilation	Greenwood 5000EAW.AC2 (Vent + 2 Acoustic Modules - External & Internal)	2	33	40	38	33	47	53	48	61%	42	-2	-4	
	ATTENUATION													
Ventilation	VENTS		0	0	0	0	0	0	0	0%				
	ATTENUATION													
Resultant SPL inside room through ventilators dB		27.5	15	12	18	26	15	7	6	62%				
Total SPL inside room		29.6	18	20	23	27	17	10	7					

Element contribution to total internal noise level



PROJECT:

ROOM:

VARIANT:

NOTES:

Room Dimensions [m] W L H

Room Volume = m³

Partition Area = m²

Ventilation ref area = m²

Free Field SPL K = dB

SELECT Free Field or Façade SPL for model input >>>

NOTES:

EXTERNAL SPECTRUM (A weighted)

EXTERNAL SPECTRUM (A weighted)		dBA	63	125	250	500	1000	2000	4000	
Direct input - Free Field SPL (A weighted octave bands) dB ----->		-								No data
Road traffic spectrum (according to BS 8233:1999 section 6)		50.0								
			31.8	35.9	39.4	42.8	46.0	43.2	38.0	Reference spectrum

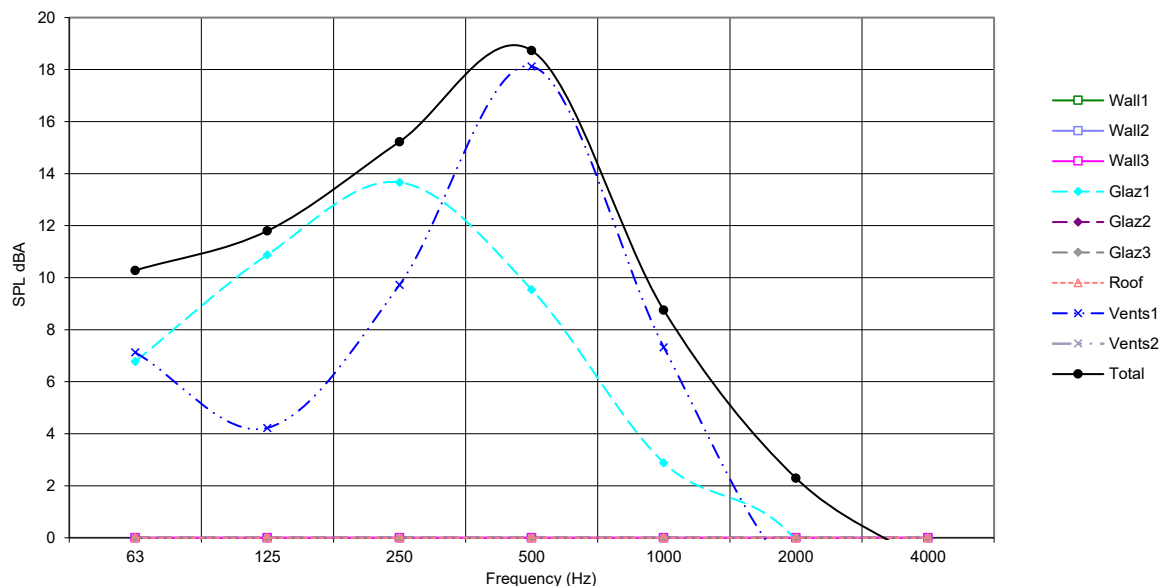
REVERBERATION TIME

DIRECT INPUT ----->								No data
EQUAL RT for all bands ----->	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Default - RT set to 0.5s

Façade Element		Area [m2]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr			
Wall 1	Typical - 102mm brick/50mm cavity/100mm block	5.7	36	45	44	47	57	67	77	1%	54	0	-4			
	ATTENUATION															
Wall 2	WALLS		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Wall 3	WALLS		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Glazing 1	30 dB Rw + Ctr - Acoustically Upgraded Double Glazing	1.5	22	22	23	30	40	40	44	36%	30 (inc Ctr)	-	-			
	ATTENUATION															
Glazing 2	GLAZING		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Glazing 3	GLAZING		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Roof	ROOF / FLOOR		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Resultant composite Façade SRI			28	29	30	37	47	47	51							
Resultant SPL inside room excluding ventilators dB			17.4	7	11	14	10	3	0	-9	38%					

Ventilator Type		Num	D _{n,e} dB to BS EN 20140-10:1992									Dnew	C	Ctr
Ventilation	Greenwood 5000EAW.AC2 (Vent + 2 Acoustic Modules - External & Internal)	2	33	40	38	33	47	53	48	60%	42	-2	-4	
	ATTENUATION													
Ventilation	VENTS	0	0	0	0	0	0	0	0	0%				
	ATTENUATION													
Resultant SPL inside room through ventilators dB		19.5	7	4	10	18	7	-1	-2	62%				
Total SPL inside room		21.6	10	12	15	19	9	2	-1					

Element contribution to total internal noise level



PROJECT:

ROOM:

VARIANT:

NOTES:

Room Dimensions [m] W L H

Room Volume = m³

Partition Area = m²

Ventilation ref area = m²

Free Field SPL K = dB

SELECT Free Field or Façade SPL for model input >>>

NOTES: _____

EXTERNAL SPECTRUM (A weighted)

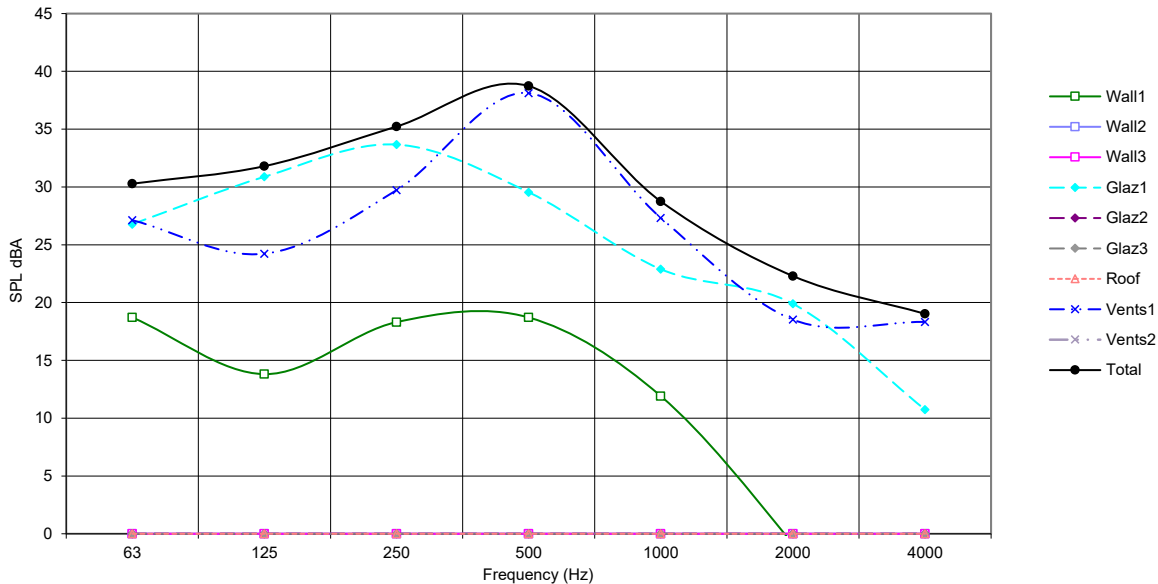
EXTERNAL SPECTRUM (A weighted)								
dBA	63	125	250	500	1000	2000	4000	
Direct input - Free Field SPL (A weighted octave bands) dB ----->	-							No data
Road traffic spectrum (according to BS 8233:1999 section 6)	70.0							
	51.8	55.9	59.4	62.8	66.0	63.2	58.0	Reference spectrum

REVERBERATION TIME

DIRECT INPUT ----->								No data
EQUAL RT for all bands ----->	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Default - RT set to 0.5s

Façade Element		Area [m2]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr	
Wall 1	Typical - 102mm brick/50mm cavity/100mm block	5.7	36	45	44	47	57	67	77	2%	54	0	-4	
	ATTENUATION													
Wall 2	WALLS		0	0	0	0	0	0	0	0%				
	ATTENUATION													
Wall 3	WALLS		0	0	0	0	0	0	0	0%	30 (inc Ctr)	-	-	
	ATTENUATION													
Glazing 1	30 dB Rw + Ctr - Acoustically Upgraded Double Glazing	1.5	22	22	23	30	40	40	44	36%				
	ATTENUATION													
Glazing 2	GLAZING		0	0	0	0	0	0	0	0%				
	ATTENUATION													
Glazing 3	GLAZING		0	0	0	0	0	0	0	0%				
	ATTENUATION													
Roof	ROOF / FLOOR		0	0	0	0	0	0	0	0%				
	ATTENUATION													
Resultant composite Façade SRI			28	29	30	37	47	47	51					
Resultant SPL inside room excluding ventilators dB			37.4	27	31	34	30	23	20	11	38%			

Ventilator Type		Num	D _{n,e} dB to BS EN 20140-10:1992								Dnew	C	Ctr	
Ventilation	Greenwood 5000EAW.AC2 (Vent + 2 Acoustic Modules - External & Internal)	2	33	40	38	33	47	53	48	62%	42	-2	-4	
	ATTENUATION													
Ventilation	VENTS		0	0	0	0	0	0	0	0%				
	ATTENUATION													
Resultant SPL inside room through ventilators dB			39.5	27	24	30	38	27	19	18	62%			
Total SPL inside room			41.6	30	32	35	39	29	22	19				

Element contribution to total internal noise level

PROJECT:

ROOM:

VARIANT:

NOTES:

Room Dimensions [m] W L H

Room Volume = m³

Partition Area = m²

Ventilation ref area = m²

Free Field SPL K = dB

SELECT Free Field or Façade SPL for model input >>>

EXTERNAL SPECTRUM (A weighted)

Direct input - Free Field SPL (A weighted octave bands) dB ----->	-							No data
Road traffic spectrum (according to BS 8233:1999 section 6)	58.0							
		39.8	43.9	47.4	50.8	54.0	51.2	46.0
								Reference spectrum

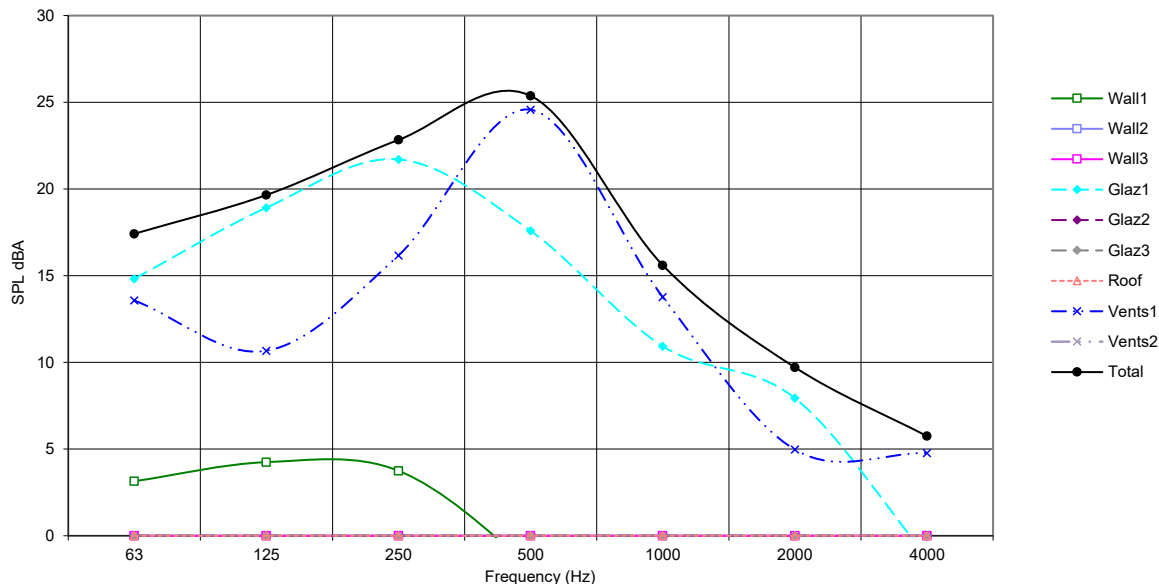
REVERBERATION TIME

DIRECT INPUT ----->								No data
EQUAL RT for all bands ----->	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Default - RT set to 0.5s

Façade Element		Area [m2]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr
Wall 1	Typical - 102mm brick/50mm cavity/100mm block	▼ 8.6	38	41	45	54	65	76	84	1%	58	-2	-6
	ATTENUATION												
Wall 2	WALLS	▼	38	41	45	54	65	76	84	1%	58	-2	-6
	ATTENUATION												
Wall 3	WALLS	▼	0	0	0	0	0	0	0	0%	30 (inc Ctr)	-	-
	ATTENUATION												
Glazing 1	30 dB Rw + Ctr - Acoustically Upgraded Double Glazing	▼ 3.3	22	22	23	30	40	40	44	45%	30 (inc Ctr)	-	-
	ATTENUATION												
Glazing 2	GLAZING	▼	0	0	0	0	0	0	0	0%			
	ATTENUATION												
Glazing 3	GLAZING	▼	0	0	0	0	0	0	0	0%			
	ATTENUATION												
Roof	ROOF / FLOOR	▼	0	0	0	0	0	0	0	0%			
	ATTENUATION												
Resultant composite Façade SRI			27	28	28	36	46	46	50				
Resultant SPL inside room excluding ventilators dB			25.3	15	19	22	18	11	8	-1	47%		

Ventilator Type		Num	D _{n,e} dB to BS EN 20140-10:1992									Dnew	C	Ctr
Ventilation	Greenwood 5000EAW.AC2 (Vent + 2 Acoustic Modules - External & Internal)	3	33	40	38	33	47	53	48	53%	42	-2	-4	
	ATTENUATION													
Ventilation	VENTS		0	0	0	0	0	0	0	0%				
	ATTENUATION													
Resultant SPL inside room through ventilators dB			25.9	14	11	16	25	14	5	5	53%			
Total SPL inside room			28.7	17	20	23	25	16	10	6				

Element contribution to total internal noise level



NOTES:

PROJECT:

ROOM:

VARIANT:

NOTES:

Room Dimensions [m] W L H

Room Volume = m³

Partition Area = m²

Ventilation ref area = m²

Free Field SPL K = dB

SELECT Free Field or Façade SPL for model input >>>

NOTES:

EXTERNAL SPECTRUM (A weighted)

EXTERNAL SPECTRUM (A weighted)								
dBA	63	125	250	500	1000	2000	4000	
Direct input - Free Field SPL (A weighted octave bands) dB ----->	-							No data
Road traffic spectrum (according to BS 8233:1999 section 6)	58.0							
	39.8	43.9	47.4	50.8	54.0	51.2	46.0	Reference spectrum

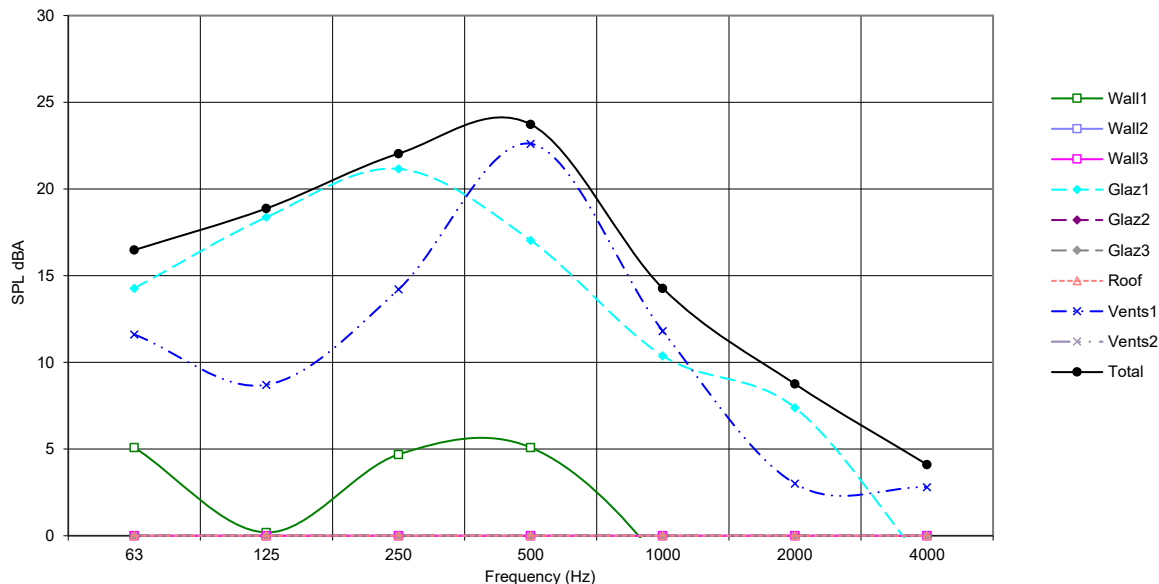
REVERBERATION TIME

DIRECT INPUT ----->								No data
EQUAL RT for all bands ----->	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Default - RT set to 0.5s

Façade Element		Area [m2]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr			
Wall 1	Typical - 102mm brick/50mm cavity /100mm block	8.9	36	45	44	47	57	67	77	2%	54	0	-4			
	ATTENUATION															
Wall 2	WALLS		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Wall 3	WALLS		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Glazing 1	30 dB Rw + Ctr - Acoustically Upgraded Double Glazing	3.0	22	22	23	30	40	40	44	52%	30 (inc Ctr)	-	-			
	ATTENUATION															
Glazing 2	GLAZING		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Glazing 3	GLAZING		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Roof	ROOF / FLOOR		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Resultant composite Façade SRI			28	28	29	36	46	46	50							
Resultant SPL inside room excluding ventilators dB			24.8	15	18	21	17	11	7	-2	55%					

Ventilator Type		Num	D _{n,a} dB to BS EN 20140-10:1992									Dnew	C	Ctr
Ventilation	Greenwood 5000EAW.AC2 (Vent + 2 Acoustic Modules - External & Internal)	2	33	40	38	33	47	53	48	45%	42	-2	-4	
	ATTENUATION													
Ventilation	VENTS	0	0	0	0	0	0	0	0	0%				
	ATTENUATION													
Resultant SPL inside room through ventilators dB		24.0	12	9	14	23	12	3	3	45%				
Total SPL inside room		27.4	16	19	22	24	14	9	4					

Element contribution to total internal noise level



PROJECT:

ROOM:

VARIANT:

NOTES:

Room Dimensions [m] W L H

Room Volume = m³

Partition Area = m²

Ventilation ref area = m²

Free Field SPL K = dB

SELECT Free Field or Façade SPL for model input >>>

NOTES:

EXTERNAL SPECTRUM (A weighted)

EXTERNAL SPECTRUM (A weighted)								
dBA	63	125	250	500	1000	2000	4000	
Direct input - Free Field SPL (A weighted octave bands) dB ----->	-							No data
Road traffic spectrum (according to BS 8233:1999 section 6)	50.0							
	31.8	35.9	39.4	42.8	46.0	43.2	38.0	Reference spectrum

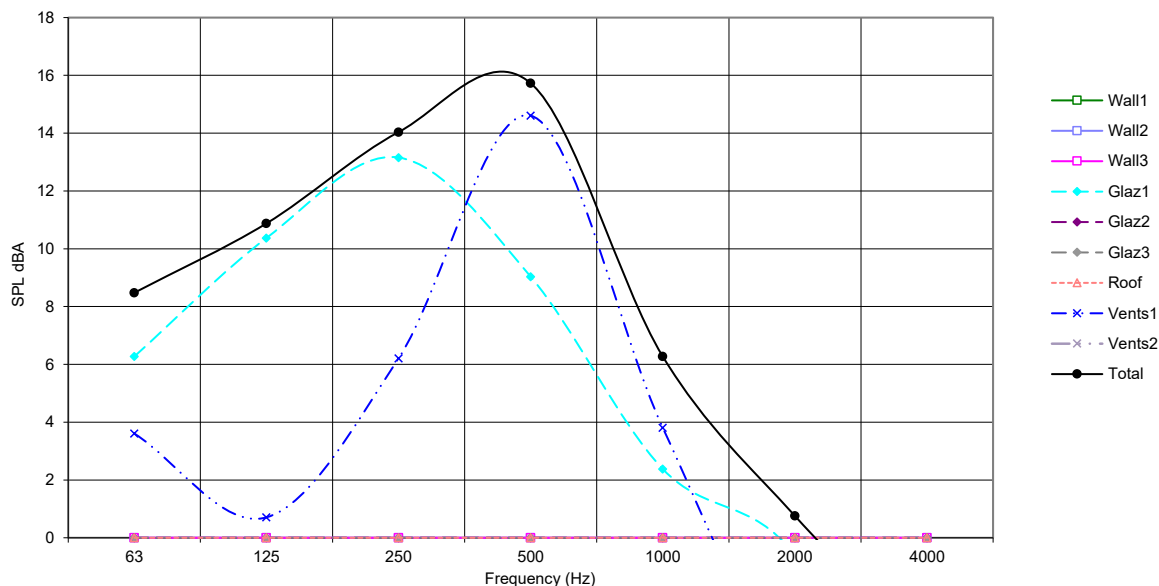
REVERBERATION TIME

DIRECT INPUT ----->								No data
EQUAL RT for all bands ----->	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Default - RT set to 0.5s

Façade Element		Area [m2]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr			
Wall 1	Typical - 102mm brick/50mm cavity /100mm block	8.9	36	45	44	47	57	67	77	1%	54	0	-4			
	ATTENUATION															
Wall 2	WALLS		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Wall 3	WALLS		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Glazing 1	30 dB Rw + Ctr - Acoustically Upgraded Double Glazing	3.0	22	22	23	30	40	40	44	51%	30 (inc Ctr)	-	-			
	ATTENUATION															
Glazing 2	GLAZING		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Glazing 3	GLAZING		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Roof	ROOF / FLOOR		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Resultant composite Façade SRI			28	28	29	36	46	46	50							
Resultant SPL inside room excluding ventilators dB			16.8	7	10	13	9	3	-1	-10	55%					

Ventilator Type		Num	D _{n,e} dB to BS EN 20140-10:1992									Dnew	C	Ctr
Ventilation	Greenwood 5000EAW.AC2 (Vent + 2 Acoustic Modules - External & Internal)	2	33	40	38	33	47	53	48	43%	42	-2	-4	
	ATTENUATION													
Ventilation	VENTS	0	0	0	0	0	0	0	0	0%				
	ATTENUATION													
Resultant SPL inside room through ventilators dB		16.0	4	1	6	15	4	-5	-5	45%				
Total SPL inside room		19.4	8	11	14	16	6	1	-4					

Element contribution to total internal noise level



PROJECT:

ROOM:

VARIANT:

NOTES:

Room Dimensions [m] W L H

Room Volume = m³

Partition Area = m²

Ventilation ref area = m²

Free Field SPL K = dB

SELECT Free Field or Façade SPL for model input >>>

NOTES:

EXTERNAL SPECTRUM (A weighted)

EXTERNAL SPECTRUM (A weighted)								
dBA	63	125	250	500	1000	2000	4000	
Direct input - Free Field SPL (A weighted octave bands) dB ----->	-							No data
Road traffic spectrum (according to BS 8233:1999 section 6)	70.0							
	51.8	55.9	59.4	62.8	66.0	63.2	58.0	Reference spectrum

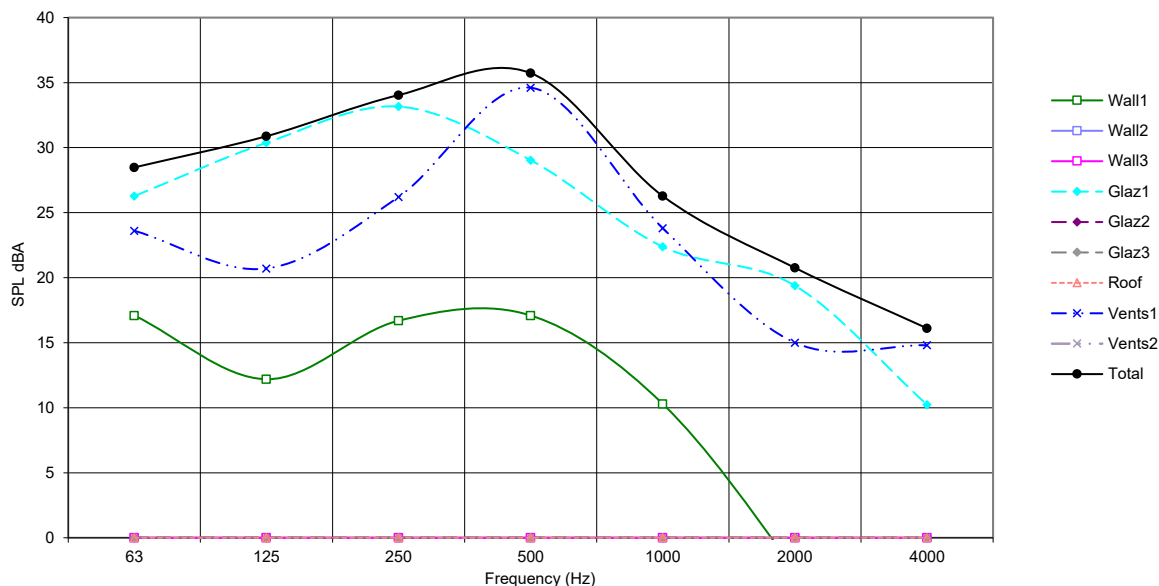
REVERBERATION TIME

DIRECT INPUT ----->								No data
EQUAL RT for all bands ----->	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Default - RT set to 0.5s

Façade Element			Area [m2]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr	
Wall 1	Typical - 102mm brick/50mm cavity/100mm block	▼	8.9	36	45	44	47	57	67	77	2%	54	0	-4	
	ATTENUATION														
Wall 2	WALLS	▼		0	0	0	0	0	0	0	0%				
	ATTENUATION														
Wall 3	WALLS	▼		0	0	0	0	0	0	0	0%	30 (inc Ctr)	-	-	
	ATTENUATION														
Glazing 1	30 dB Rw + Ctr - Acoustically Upgraded Double Glazing	▼	3.0	22	22	23	30	40	40	44	53%				
	ATTENUATION														
Glazing 2	GLAZING	▼		0	0	0	0	0	0	0	0%				
	ATTENUATION														
Glazing 3	GLAZING	▼		0	0	0	0	0	0	0	0%				
	ATTENUATION														
Roof	ROOF / FLOOR	▼		0	0	0	0	0	0	0	0%				
	ATTENUATION														
Resultant composite Façade SRI					28	28	29	36	46	46	50				
Resultant SPL inside room excluding ventilators dB					36.8	27	30	33	29	23	19	10	55%		

Ventilator Type		Num	D _{n,e} dB to BS EN 20140-10:1992									Dnew	C	Ctr
Ventilation	Greenwood 5000EAW.AC2 (Vent + 2 Acoustic Modules - External & Internal)	2	33	40	38	33	47	53	48	45%	42	-2	-4	
	ATTENUATION													
Ventilation	VENTS		0	0	0	0	0	0	0	0%				
	ATTENUATION													
Resultant SPL inside room through ventilators dB		36.0	24	21	26	35	24	15	15	45%				
Total SPL inside room		39.4	28	31	34	36	26	21	16					

Element contribution to total internal noise level



PROJECT:
ROOM: Living Room
VARIANT: Worst-Case Average Noise Level (LAeq)
NOTES: Typical assumptions used for ext. wall & glazing dimensions, and no. ventilators.

Room Dimensions [m] $\begin{matrix} W \\ 4.9 \end{matrix}$ X $\begin{matrix} L \\ 5.0 \end{matrix}$ X $\begin{matrix} H \\ 2.4 \end{matrix}$
Room Volume = 58.6 m³
Partition Area = 15.1 m²
Ventilation ref area = 10.0 m²
Free Field SPL K = 3 dB

SELECT Free Field or Façade SPL for model input >>> ☐

EXTERNAL SPECTRUM (A weighted)

Direct input - Free Field SPL (A weighted octave bands) dB ----->	-							No data
Road traffic spectrum (according to BS 8233:1999 section 6)	58.0							
		39.8	43.9	47.4	50.8	54.0	51.2	46.0
								Reference spectrum

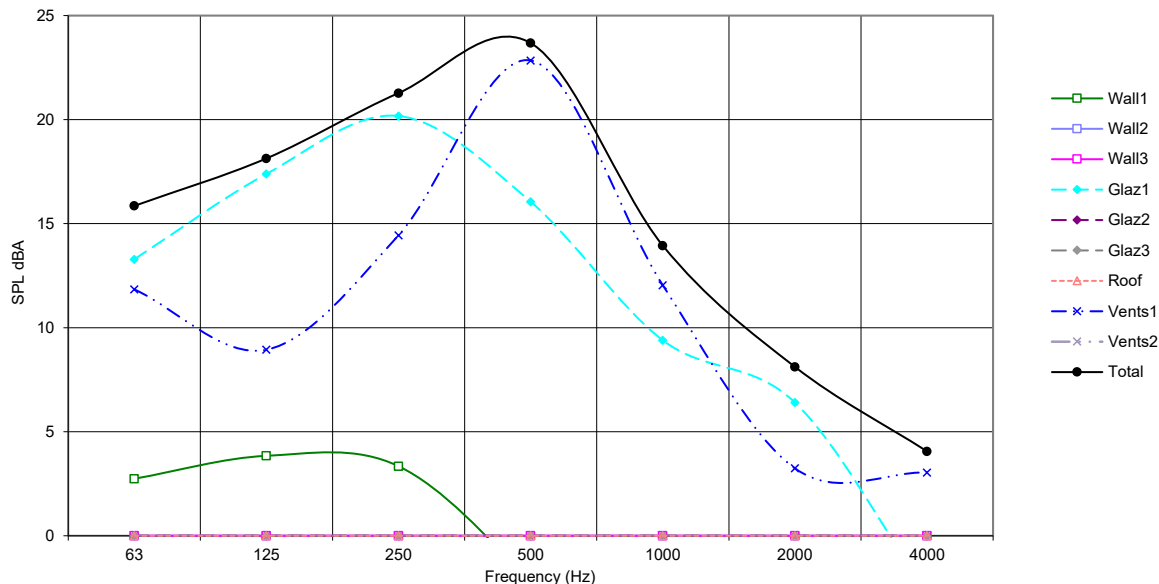
REVERBERATION TIME

DIRECT INPUT ----->								No data
EQUAL RT for all bands ----->	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Default - RT set to 0.5s

Façade Element	Area [m ²]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr
Wall 1 Typical - 102mm brick/50mm cavity/100mm block ATTENUATION	11.7	38	41	45	54	65	76	84	1%	58	-2	-6
Wall 2 WALLS ATTENUATION		38	41	45	54	65	76	84	1%	58	-2	-6
Wall 3 WALLS ATTENUATION		0	0	0	0	0	0	0	0%			
Glazing 1 30 dB Rw + Ctr - Acoustically Upgraded Double Glazing ATTENUATION	3.4	22	22	23	30	40	40	44	46%	30 (inc Ctr)	-	-
Glazing 2 GLAZING ATTENUATION		0	0	0	0	0	0	0	0%			
Glazing 3 GLAZING ATTENUATION		0	0	0	0	0	0	0	0%			
Roof ROOF / FLOOR ATTENUATION		0	0	0	0	0	0	0	0%			
Resultant composite Façade SRI		28	28	29	37	47	47	51				
Resultant SPL inside room excluding ventilators dB		23.8	14	18	20	16	9	6	-3	48%		

Ventilator Type	Num	D _{na} dB to BS EN 20140-10:1992								Dnew	C	Ctr
Ventilation Greenwood 5000EAW.AC2 (Vent + 2 Acoustic Modules - External & Internal) ATTENUATION	3	33	40	38	33	47	53	48	52%	42	-2	-4
Ventilation VENTS ATTENUATION		0	0	0	0	0	0	0	0%			
Resultant SPL inside room through ventilators dB		24.2	12	9	14	23	12	3	3	52%		
Total SPL inside room		27.0	16	18	21	24	14	8	4			

Element contribution to total internal noise level



PROJECT:

ROOM:

VARIANT:

NOTES:

Room Dimensions [m] W L H

Room Volume = m³

Partition Area = m²

Ventilation ref area = m²

Free Field SPL K = dB

SELECT Free Field or Façade SPL for model input >>>

NOTES:

EXTERNAL SPECTRUM (A weighted)

EXTERNAL SPECTRUM (A weighted)								
dBA	63	125	250	500	1000	2000	4000	
Direct input - Free Field SPL (A weighted octave bands) dB ----->	-							No data
Road traffic spectrum (according to BS 8233:1999 section 6)	57.0							
	38.8	42.9	46.4	49.8	53.0	50.2	45.0	Reference spectrum

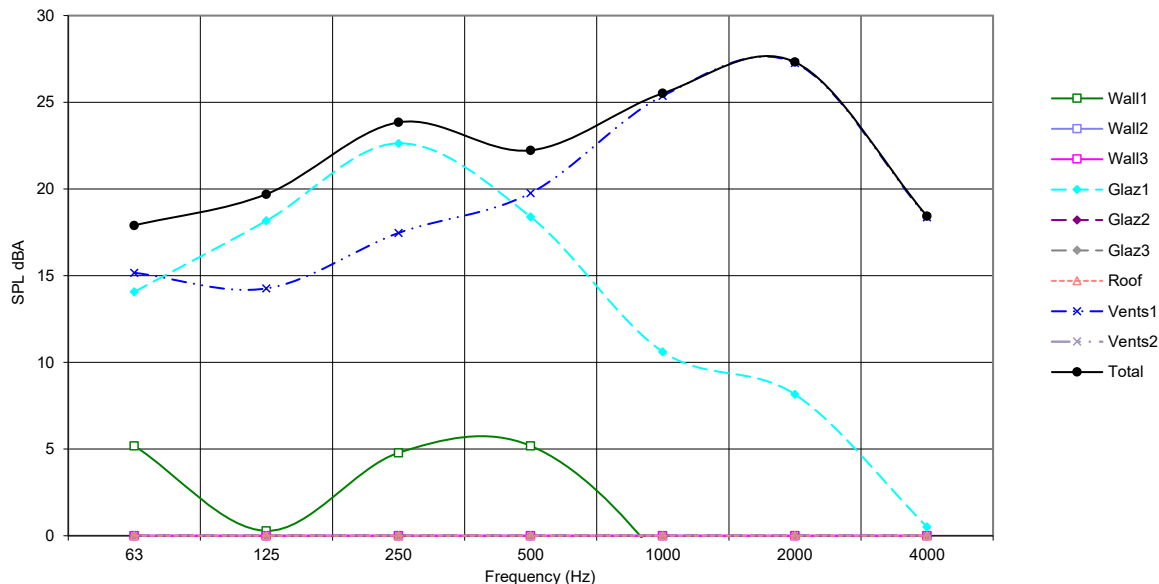
REVERBERATION TIME

DIRECT INPUT ----->								No data
EQUAL RT for all bands ----->	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Default - RT set to 0.5s

Façade Element		Area [m2]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr			
Wall 1	Typical - 102mm brick/50mm cavity/100mm block	8.0	36	45	44	47	57	67	77	1%	54	0	-4			
	ATTENUATION															
Wall 2	WALLS		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Wall 3	WALLS		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Glazing 1	27 dB Rw + Ctr - Standard Thermal Double Glazing	1.5	20	20	19	27	38	37	40	24%	27 (inc Ctr)	-	-			
	ATTENUATION															
Glazing 2	GLAZING		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Glazing 3	GLAZING		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Roof	ROOF / FLOOR		0	0	0	0	0	0	0	0%						
	ATTENUATION															
Resultant composite Façade SRI			27	28	27	34	45	45	48							
Resultant SPL inside room excluding ventilators dB			25.7	15	18	23	19	11	8	1	24%					

Ventilator Type		Num	D _{n,e} dB to BS EN 20140-10:1992									Dnew	C	Ctr
Ventilation	Hit and miss trickle (4000mm²) e.g. Titon Trimvent XS13	2	30	35	35	36	34	29	33	75%	32	0	-1	
	ATTENUATION													
Ventilation	VENTS	0	0	0	0	0	0	0	0	0%				
	ATTENUATION													
Resultant SPL inside room through ventilators dB		30.6	15	14	17	20	25	27	18	76%				
Total SPL inside room		31.8	18	20	24	22	26	27	18					

Element contribution to total internal noise level



PROJECT:

ROOM:

VARIANT:

NOTES:

Room Dimensions [m] W L H

Room Volume = m³

Partition Area = m²

Ventilation ref area = m²

Free Field SPL K = dB

SELECT Free Field or Façade SPL for model input >>>

NOTES:

EXTERNAL SPECTRUM (A weighted)

EXTERNAL SPECTRUM (A weighted)		dBA	63	125	250	500	1000	2000	4000	
Direct input - Free Field SPL (A weighted octave bands) dB ----->		-								No data
Road traffic spectrum (according to BS 8233:1999 section 6)		52.0								
			33.8	37.9	41.4	44.8	48.0	45.2	40.0	Reference spectrum

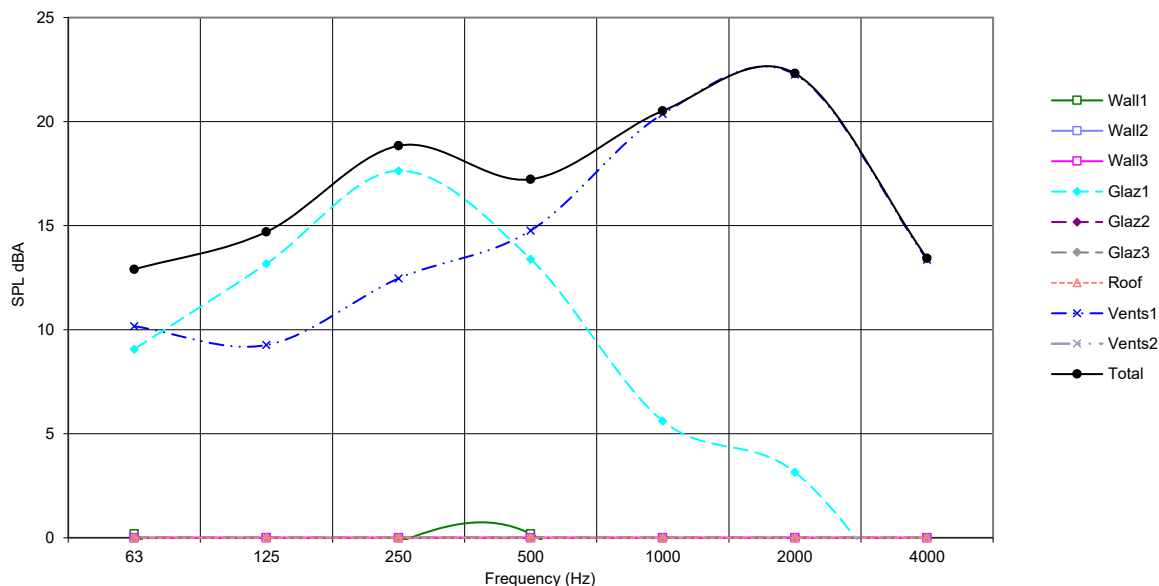
REVERBERATION TIME

DIRECT INPUT ----->								No data
EQUAL RT for all bands ----->	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Default - RT set to 0.5s

Façade Element			Area [m2]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr
Wall 1	Typical - 102mm brick/50mm cavity /100mm block	▼	8.0	36	45	44	47	57	67	77	0%	54	0	-4
	ATTENUATION	▼												
Wall 2	WALLS	▼		0	0	0	0	0	0	0	0%			
	ATTENUATION	▼												
Wall 3	WALLS	▼		0	0	0	0	0	0	0	0%			
	ATTENUATION	▼												
Glazing 1	27 dB Rw + Ctr - Standard Thermal Double Glazing	▼	1.5	20	20	19	27	38	37	40	24%	27 (inc Ctr)	-	-
	ATTENUATION	▼												
Glazing 2	GLAZING	▼		0	0	0	0	0	0	0	0%			
	ATTENUATION	▼												
Glazing 3	GLAZING	▼		0	0	0	0	0	0	0	0%			
	ATTENUATION	▼												
Roof	ROOF / FLOOR	▼		0	0	0	0	0	0	0	0%			
	ATTENUATION	▼												
Resultant composite Façade SRI				27	28	27	34	45	45	48				
Resultant SPL inside room excluding ventilators dB				20.7	10	13	18	14	6	3	-4	24%		

Ventilator Type		Num	D _{n,e} dB to BS EN 20140-10:1992									Dnew	C	Ctr
Ventilation	Hit and miss trickle (4000mm²) e.g. Titon Trimvent XS13	2	30	35	35	36	34	29	33	75%	32	0	-1	
	ATTENUATION													
Ventilation	VENTS		0	0	0	0	0	0	0	0%				
	ATTENUATION													
Resultant SPL inside room through ventilators dB			25.6	10	9	12	15	20	22	13	76%			
Total SPL inside room			26.8	13	15	19	17	21	22	13				

Element contribution to total internal noise level



PROJECT:
ROOM: Bedroom
VARIANT: Worst-Case Maximum Noise Level (LAMax)
NOTES: Typical assumptions used for ext. wall & glazing dimensions, and no. ventilators.

Room Dimensions [m] $\begin{matrix} W \\ 3.0 \end{matrix}$ X $\begin{matrix} L \\ 4.0 \end{matrix}$ X $\begin{matrix} H \\ 2.4 \end{matrix}$
Room Volume = 28.8 m³
Partition Area = 9.5 m²
Ventilation ref area = 10.0 m²
Free Field SPL K = 3 dB

SELECT Free Field or Façade SPL for model input >>> ☐

NOTES: _____

EXTERNAL SPECTRUM (A weighted)

EXTERNAL SPECTRUM (A weighted)		dBA	63	125	250	500	1000	2000	4000	
Direct input - Free Field SPL (A weighted octave bands) dB ----->		-								No data
Road traffic spectrum (according to BS 8233:1999 section 6)		67.0								
			48.8	52.9	56.4	59.8	63.0	60.2	55.0	Reference spectrum

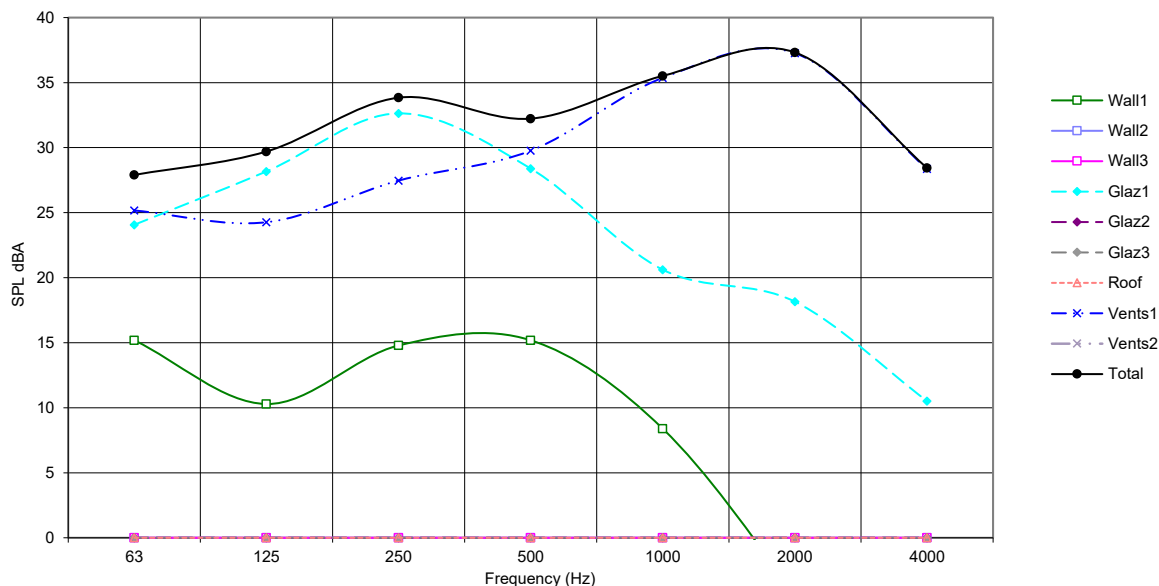
REVERBERATION TIME

DIRECT INPUT ----->								No data
EQUAL RT for all bands ----->	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Default - RT set to 0.5s

Façade Element	Area [m ²]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr
Wall 1 Typical - 102mm brick/50mm cavity/100mm block	8.0	36	45	44	47	57	67	77	1%	54	0	-4
ATTENUATION												
Wall 2 WALLS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Wall 3 WALLS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 1 27 dB Rw + Ctr - Standard Thermal Double Glazing	1.5	20	20	19	27	38	37	40	24%	27 (inc Ctr)	-	-
ATTENUATION												
Glazing 2 GLAZING		0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 3 GLAZING		0	0	0	0	0	0	0	0%			
ATTENUATION												
Roof ROOF / FLOOR		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant composite Façade SRI		27	28	27	34	45	45	48				
Resultant SPL inside room excluding ventilators dB		35.7	25	28	33	29	21	18	11	24%		

Ventilator Type	Num	D _{n,e} dB to BS EN 20140-10:1992								D _{nw}	C	Ctr
Ventilation Hit and miss trickle (4000mm ²) e.g. Titon Trimvent XS13	2	30	35	35	36	34	29	33	76%	32	0	-1
ATTENUATION												
Ventilation VENTS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant SPL inside room through ventilators dB		40.6	25	24	27	30	35	37	28	76%		
Total SPL inside room		41.8	28	30	34	32	36	37	28			

Element contribution to total internal noise level



PROJECT:

ROOM:

VARIANT:

NOTES:

Room Dimensions [m] W L H

Room Volume = m³

Partition Area = m²

Ventilation ref area = m²

Free Field SPL K = dB

SELECT Free Field or Façade SPL for model input >>>

EXTERNAL SPECTRUM (A weighted)

Direct input - Free Field SPL (A weighted octave bands) dB ----->	-							No data
Road traffic spectrum (according to BS 8233:1999 section 6)	57.0							
		38.8	42.9	46.4	49.8	53.0	50.2	45.0
								Reference spectrum

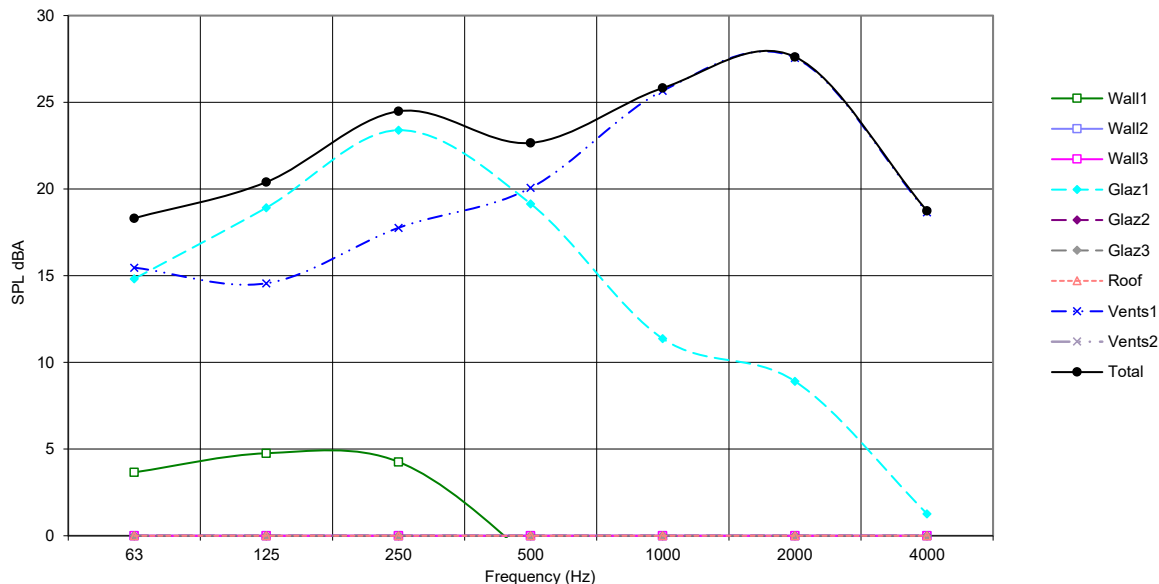
REVERBERATION TIME

DIRECT INPUT ----->								No data
EQUAL RT for all bands ----->	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Default - RT set to 0.5s

Façade Element		Area [m2]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr	
Wall 1	Typical - 102mm brick/50mm cavity/100mm block	▼ 12.5	38	41	45	54	65	76	84	1%	58	-2	-6	
	ATTENUATION													
Wall 2	WALLS	▼	38	41	45	54	65	76	84	1%	58	-2	-6	
	ATTENUATION													
Wall 3	WALLS	▼	0	0	0	0	0	0	0	0%	27 (inc Ctr)	-	-	
	ATTENUATION													
Glazing 1	27 dB Rw + Ctr - Standard Thermal Double Glazing	▼ 2.5	20	20	19	27	38	37	40	26%	27 (inc Ctr)	-	-	
	ATTENUATION													
Glazing 2	GLAZING	▼	0	0	0	0	0	0	0	0%				
	ATTENUATION													
Glazing 3	GLAZING	▼	0	0	0	0	0	0	0	0%				
	ATTENUATION													
Roof	ROOF / FLOOR	▼	0	0	0	0	0	0	0	0%				
	ATTENUATION													
Resultant composite Façade SRI			27	27	27	34	45	45	47					
Resultant SPL inside room excluding ventilators dB			26.4	15	19	23	19	11	9	1	26%			

Ventilator Type		Num	D _{n,e} dB to BS EN 20140-10:1992									Dnew	C	Ctr
Ventilation	Hit and miss trickle (4000mm²) e.g. Titon Trimvent XS13	3	30	35	35	36	34	29	33	74%	32	0	-1	
	ATTENUATION													
Ventilation	VENTS	0	0	0	0	0	0	0	0	0%				
	ATTENUATION													
Resultant SPL inside room through ventilators dB		30.9	15	15	18	20	26	28	19	74%				
Total SPL inside room		32.2	18	20	24	23	26	28	19					

Element contribution to total internal noise level



NOTES:

Appendix 5 Acoustic Facade Specification

Reference	Colour	Glazing Specification	Ventilator Specification
FC01		30 dB Rw+Ctr	38 dB Dnew+Ctr
FC02		27 dB Rw+Ctr	31 dB Dnew+Ctr

NOTES:

Values must include the Ctr correction. Manufacturers or suppliers should provide laboratory test data demonstrating that the proposed systems are capable of achieving the values given. Windows should be tested as complete systems (rather than just the glazing in isolation) and trickle ventilators should be in the open position.

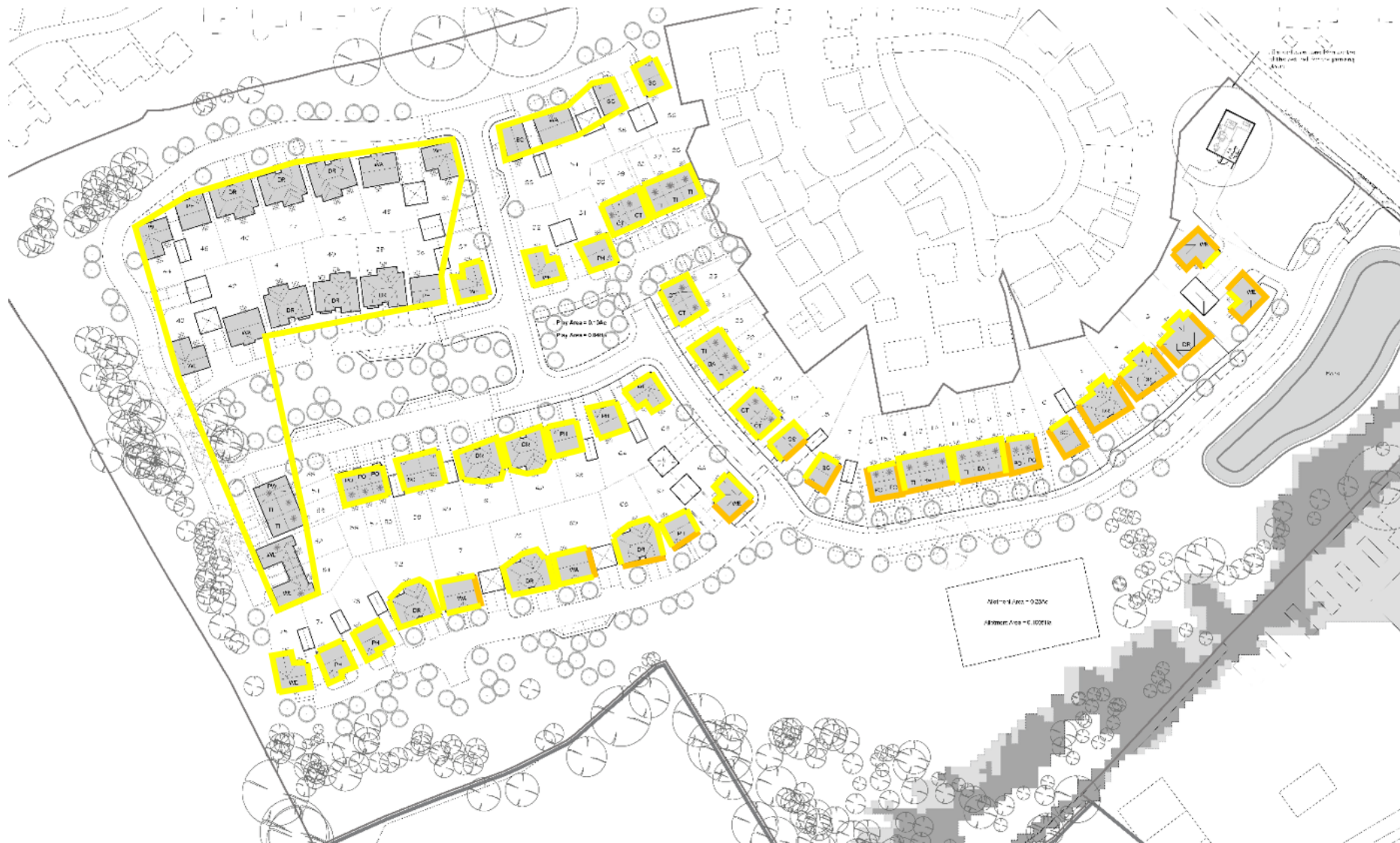
All floors:



Appendix 6 Part O Acoustic Requirements for Bedrooms at Night

Ref.	Colour	Outside-to-inside noise reduction requirement	Part O Requirement for Bedrooms
ADO01		4 dB	Energy assessment (e.g. TM59) to show that bedrooms will not overheat at night with windows fully open (e.g. 13% of floor area, which is typically around 1.3m ²) and ventilators fully open.
ADO02		9 dB	Energy assessment (e.g. TM59) to show that bedrooms will not overheat at night with windows open (e.g. 4% of floor area, which is typically around 0.4m ²) and ventilators fully open.
ADO03		13 dB	Energy assessment (e.g. TM59) to show that bedrooms will not overheat at night with windows partially open (e.g. ~2% of floor area, which is typically around 0.2m ²) and ventilators fully open.
ADO04		>13 dB	Energy assessment (e.g. TM59) to show that bedrooms on these facades will not overheat at night with windows fully closed and ventilators fully open.

Note 1 ADO requirements only apply to bedrooms during night-time hours (23:00-07:00)
Note 2 The window open area is specified above as an actual open area, not 'equivalent open area' and the values may therefore need to be converted as part of the overheating assessment.





Architectural & Environmental Consultants
Acoustics | Vibration | Air Quality

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