



Project

**Environmental Noise Assessment of a Proposed Residential Development
25 Charles Street, Newport NP20 1JT**

Client

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Author

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Summary

Sound Acoustics Ltd has been asked to assess the impact of existing noise sources on the proposed residential development at 25 Charles Street, Newport NP20 1JT. The proposal is to develop 2 flats over 2 floors above a café on the ground floor. The layout would see sleeping and living areas on the front façade overlooking Charles Street. There are a numerous commercial premises and residential apartments nearby.

Existing ambient noise levels have been surveyed at the site between Monday 15th and Tuesday 16th September 2025. The dominant noise source at the front is traffic noise. There are no notable noise sources at the rear. The assessment of the survey data shows levels facing Charles Street of $L_{Aeq,16hr}$ 57.6 dB in the daytime and $L_{Aeq,8hr}$ 50.6 dB and L_{Amax} 70.0 dB at night-time.

The assessment has found that the suggested BS8233/WHO criteria can be met on the front façade with the existing façade and closed existing glazing with open trickle ventilation. It should be possible to ventilate each apartment to a higher level by opening windows in unoccupied rooms or for brief periods in occupied rooms (longer if the occupants are not disturbed).

The results of internal sound insulation testing have been used to tailor recommendations for compliance with Part E of the Building Regulations. Standard criteria have been used as the café is not particularly noisy and is closed at night.

Provided the advice in this report is adopted into the design, we are confident that the development of the site into residential units can meet current guidance and criteria.

Keiron Durrant

Principal Consultant

Introduction

The client intends to convert the upper floors of 25 Charles Street, Newport NP20 1JT into 2 flats above a café on the ground floor (see Figure 1 for floor plans).

The layout would see sleeping and living areas on the front façade overlooking Charles Street and a kitchen and bedrooms at the rear.

There are a numerous commercial and residential premises nearby on Charles Street.

The client has instructed us to carry out this assessment to assess the impact of the local noise upon the proposed dwellings and to offer advice to help ensure a suitable level of internal noise from external noise sources as well as complying with Part E of the Building Regulations for internal sound separation.

The client has forwarded us an extract from correspondence with the Local Authority requesting a noise impact assessment as follows:

1. The development would have an adverse impact upon interests of acknowledged importance, namely, upon residential amenity. There is no information provided on noise levels that would be experienced by future residents within the flats and lack of natural ventilation. No information has been provided in the form of a noise impact assessment to mitigate these concerns. The proposal is contrary to Policy GP2 and H8 of the Newport's Local Development Plan 2011-2026 (Adopted January 2015) and Flat Conversions SPG (2021).

This report provides details of our survey, assessment methodology and assessment outcome as well as recommendations to satisfy current guidance and criteria.

Assessment Criteria

BS8233:2014 & WHO Guidance

BS8233:2014 is the British Standard which gives guidance on sound insulation and noise reduction for buildings.

We consider that the guidance criteria in BS8233:2014 are applicable to this site and these are as follows:

Living Room $L_{Aeq,16hrs}$ 35 dB (day)

Bedroom $L_{Aeq,16hrs}$ 35 dB (day), $L_{Aeq,8hrs}$ 30 dB (night), L_{Amax} 45 dB (night)(10 - 15 occasions*).

These are the typical criteria applied by most Local Authorities and based on a combination of the current British Standard and World Health Organisation (WHO) criteria.

*In Guidelines for Community Noise, the WHO state that “for good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45 dB L_{Amax} more than 10 – 15 times per night (Vallet & Vernet 1991)”.

Requirement E1 of the Building Regulations

The wording of Requirement E1 is as follows:

Dwelling-houses, flats and rooms for residential purposes shall be designed and constructed in such a way that they provide reasonable resistance to sound from other parts of the same building and adjoining buildings.

Approved Document E (ADE) states that:

In the Secretary of State's view the normal way of satisfying Requirement E1 will be to build separating walls, separating floors, and stairs that have a separating function, together with the associated flanking construction, in such a way that they achieve the sound insulation values for

dwelling-houses and flats set out in Table 1a, and the values for rooms for residential purposes set out in Table 1b.

Tables 1a and 1b of ADE are summarised below and the criteria for this development are shown in red:

		Sound Insulation Airborne Minimum $D_{nT,w} + C_{tr}$	Sound Insulation Impact Maximum $L'_{nT,w}$
<i>Dwelling-houses and Flats</i>			
Purpose Built	Walls	45	-
	Floors/Stairs	45	62
Material Change of Use	Walls	43	-
	Floors/Stairs	43	64
<i>Rooms for Residential Purposes</i>			
Purpose Built	Walls	43	-
	Floors/Stairs	45	62
Material Change of Use	Walls	43	-
	Floors/Stairs	43	64

N.B. It is implied in ADE that a higher level of sound insulation may be required where the adjacent use is not residential but no criteria are given. It is our opinion that the standard ADE criteria would be suitable for a dwelling above a small café that closes late afternoon.

External Noise Survey

Noise levels were surveyed between Monday 15th and Tuesday 16th September 2025 using a Norsonics Type 118 meter. The Type 118 meter is fully calibrated to traceable standards every two years by Campbell Associates (last carried out in August 2024). Calibration certificates are available on request. Field calibration was performed before and after the surveys and there was no drift in calibration noise levels.

The weather throughout the survey was mild (12 to 16 °C) with no precipitation and a light wind (forecast westerly at generally below 10 mph).

A survey position was chosen approximately 1m south of the ground floor facade to represent the noise level at the glazing on the 1st and 2nd floors facing Charles Street. The microphone was at a height of 1.5m. The measurement position is shown on Figure 1.

The data has been corrected for façade reflection by subtracting 3 dB and is as follows (including approximate vehicle count):

Time	L _{Amax}	L _{A10}	L _{Aeq}	Vehicle Count
23:00	76.4	52.9	50.7	32
06:00	69.8	55.4	52.4	60
14:00	79.6	60.7	58.0	172
15:00	76.4	60.9	57.3	176
16:00	88.6	60.1	58.5	182

The L_{Amax} is the maximum noise level in the measurement period.

The L_{A10} is the level exceeded for 10% of the time and is often regarded as the traffic noise level.

The L_{Aeq} or the equivalent continuous level, can be regarded as an average.

The data above is considered to be representative of the typical noise level at the site. There were no obvious roadworks, closures or diversions in place at the time and traffic seemed typical for this type of road with a mix of vans, cars and motorbikes.

The maximum levels were generally due to vans and motorbikes. Passing cars were generally in the range L_{Amax} 60 to 70 dB. The loudest level (at approximately 16:00hrs) was due to an emergency siren. In Guidelines for Community Noise, the WHO state that *“for good sleep, it is*

believed that indoor sound pressure levels should not exceed approximately 45 dB L_{Amax} more than 10 – 15 times per night (Vallet & Vernet 1991)”.

It is considered that a level of L_{Amax} 70 dB would be an appropriate level to use in the assessment.

The L_{A10} data will be used in the assessment to predict overall daytime and night-time L_{Aeq} levels using a recognised formula and common practice.

The L_{Aeq} data is useful to see the typical average levels and to allow comparison against the levels derived from the L_{A10} data in the next section.

External Noise Assessment & Recommendations

Using the guidance in BS8233, TAN11/PPG 24 (withdrawn but still useful) and the shortened measurement procedure in The Calculation of Road Traffic Noise (HMSO, 1988) it is possible to predict daytime road traffic $L_{Aeq,16hour}$ from $L_{A10,3hour}$ (measured during any three consecutive hours between 1000 and 1700hrs) by subtracting 3 dB.

The $L_{A10,3hour}$ (arithmetic average of the three measured hourly values) and resulting $L_{Aeq,16hour}$ values are as follows:

$$L_{A10,3hour} = 60.6 \text{ dB, therefore } L_{Aeq,16hour} = 57.6 \text{ dB}$$

Where traffic noise is the main noise source the night-time $L_{Aeq,8hour}$ level is normally between 5 and 10 dB lower than the daytime level. A robust approach would therefore result in a night-time level of $L_{Aeq,8hour}$ 52.6 dB. As the hourly levels at 23:00 and 06:00hrs were less than this robust level it is clear that a slightly lower level is likely. An assumption of a 7 dB difference would result in a night-time level of $L_{Aeq,8hour}$ 50.6 dB which seems more reasonable based on the survey data.

These levels indicate a low to medium risk of adverse impact based on the Noise Risk Assessment guidance in ProPG Planning & Noise (England only but given to illustrate the magnitude of the noise impact). The levels are in TAN 11 Noise Exposure Category B. It is therefore necessary to have a good acoustic design to mitigate the potential for adverse impact.

The data from the noise survey can now be used to calculate internal noise levels and façade attenuation requirements.

The data requires no distance correction as the measurements were taken 1m in front of the facades.

The daytime $L_{Aeq,16hr}$ 57.6 dB is applicable to the glazing of living rooms and 1 bedroom facing Charles Street.

The night-time $L_{Aeq,8hr}$ 50.6 dB and L_{Amax} 70.0 dB is applicable to the same bedroom facing Charles Street at night. A comparison of level and criterion indicates the level that will determine the façade requirements for this bedroom and minimise the number of calculations:

$$L_{Aeq,16hrs} \ 57.6 \text{ dB} - 35 \text{ dB} = 22.6 \text{ dB}$$

$$L_{Aeq,8hrs} \ 50.6 \text{ dB} - 30 \text{ dB} = 20.6 \text{ dB}$$

$$L_{Amax} \ 70.0 \text{ dB} - 45 \text{ dB} = 25.0 \text{ dB}$$

It is therefore clear that calculating the bedroom for the maximum level will provide the necessary façade requirements for all criteria.

It is assumed that an open window in a façade provides around 12 to 15 dB attenuation (including the wall construction; as assumed by the WHO and BS8233:2014). It is therefore clear that the criteria will not be met with open windows on the Charles Street façade for living rooms or the bedroom. However, it is almost always the case that closed standard double glazed windows and open trickle ventilation in a brick façade will provide around 25 to 30 dB attenuation so the existing glazing is likely to be appropriate. A detailed calculation for the bedroom is shown towards the end of the report and is summarised below.

Calculation 1 is for the bedroom of the 2nd floor flat. This shows that the assumed night-time level of L_{Amax} 70.0 dB can be reduced to meet the L_{Amax} 45 dB criterion with standard double glazing with 4,000mm² of standard trickle ventilation. The values for the glazing have been taken from data for a very low spec double glazed system (4/12/4mm) equivalent to a rating of R_w 31 dB. The values for the solid external walls have been taken from BS8233:2014 and are likely to be an underestimation of the walls. The calculation demonstrates that the existing construction will provide approximately 25 dB attenuation between outside and inside. This is considered to be a worst-case scenario for a small room. Larger rooms will have better overall sound insulation (closer to 30 dB). Even so, 25 dB would be sufficient to meet all other criteria for the bedroom and the living rooms. Therefore the existing glazing and normal provision of trickle ventilation will be acceptable for the whole of the development.

It should be possible to ventilate each apartment to a higher level by opening windows in unoccupied rooms or for brief periods in occupied rooms (longer if the occupants are not disturbed). All windows on the rear façade can be open and the criteria will be met in those rooms. It should also be possible to have mechanical ventilation ducted to the front rooms via the rear

façade although these will need to be quiet running models that meet the relevant daytime and night-time noise criterion.

If rapid ventilation is required on the front facade, whilst also meeting the criteria, it will be necessary to install a through-the-wall type vent such as Titon Sonair or equivalent in each habitable room. The Sonair has a higher (i.e. better) rating than we have used in our calculations and would therefore give additional benefits. These rely on a combination of a small free area and attenuating design to reduce noise to very low levels whilst providing a variable flow rate from background trickle ventilation in the off position to rapid purge ventilation on high setting, with varying amounts in between to suit the wishes of the occupier. Due to the attenuating design the motor and fan noise are also reduced to meet the criterion on most settings. Windows can still be opened without having to use the vent e.g. when the room isn't occupied or when the external noise levels aren't disturbing to the occupant.

Internal Sound Insulation Survey

Indicative sound insulation tests were carried out on Tuesday 16th September 2025 using the following equipment:

Equipment Description	Type Number	Manufacturer	Serial Number	Date of last calibration	Calibration Certification Number
Sound Level Meter	118	Norsonic	31605	21/08/24	48564
Preamplifier	1206	Norsonic	30654	21/08/24	48564
Microphone	1225	Norsonic	38639	21/08/24	48563
Calibrator	1251	Norsonic	31164	21/08/24	48562
Loudspeaker	250	Norsonic	31423	N/A	N/A
Amplifier	280	Norsonic	2803617	N/A	N/A

This is the equipment we use for pre-completion testing and we are organisation No. 164 in the Association of Noise Consultants Registration Scheme for Part E sound testing.

The existing floors are standard floorboards on joists with lath & plaster ceilings. The results of sound insulation testing between the ground floor café and the 1st floor are as follows (need $D_{nT,w} + C_{tr}$ 43 dB or more):

Cafe, ground floor to front room, 1st floor = 41 dB

Cafe, ground floor to middle room, 1st floor = 36 dB

The floors are therefore short of the criterion by 2 to 7 dB. Similar results can be expected for the separating floor between 1st and 2nd floors. The test graphs are available on request.

It is assumed that works will be carried out on the floor of the 1st floor rather than the ceiling of the café. For the separating floor between 1st and 2nd floors the works could be carried out above or below the floor (or both).

The recommended options for upgrading the floors are as follows:

- Built-up floating floor around 70mm
- Suspended plasterboard ceiling
- Smaller proprietary floating floor and resilient bar or suspended ceiling

All 3 options will improve airborne and impact sound insulation and are capable of compliance with Part E requirements. The systems in more detail are as follows:

Floating Floor

Place 150mm lightweight mineral wool ($\geq 10\text{kg/m}^3$) in between the joists. Install a floating floor comprising of 22mm t&g chipboard spot bonded on to 19mm plasterboard plank on 25mm Rockfloor on 22mm t&g chipboard or a thin layer of ply or hardboard screwed or tacked to the existing floorboards to seal the gaps. It is assumed that the lath & plaster is at least 20 kg/m^2 otherwise upgrade the existing ceiling to the correct weight. Where this cannot be done from below do the following before the above:

Remove the existing floorboards and lay 50mm mineral wool ($\geq 10\text{kg/m}^3$) on to the existing ceiling. Fix two layers of 12.5mm SoundBloc horizontally between the joists at a height of 50 to 60mm from the existing ceiling. This can be done by fixing strips of plasterboard or mdf or timber battens etc to the sides of the joists to form a ledge. Seal all joints on the top layer between the plasterboard and the joists and between adjacent sheets of plasterboard.

It is appreciated that the above system will raise the floor by around 70mm and is likely to effect floor levels between different spaces and mean door frames need to be raised. There may be proprietary systems that are capable of meeting the requirements. However, each system will perform differently in different developments and you will need to seek assurance from manufacturer's that their system will work on your project.

Suspended Ceiling

Upgrade the existing ceiling to 20 kg/m^2 if not already (lath & plaster is likely to be around this weight). Install a further 20 kg/m^2 ceiling (e.g. two layers of 12.5mm SoundBloc plasterboard) on independent ceiling joists with 100mm mineral wool ($\geq 10\text{kg/m}^3$) in between the joists. The new joists should be fixed to the walls only using joist hangers built into the masonry or they can be fixed to a timber wall plate. There should be a clear gap of at least 25mm between the top of the new joists and the ceiling above. The depth of the joists should be sized appropriately to the room dimensions. The gap between the underside of the first ceiling and the upper surface of the suspended second ceiling should be at least 125mm. If the ceiling conflicts with windows it is acceptable to reduce the timber size and cavity size to form a pelmet recess in the immediate area around the window but this frame should still be independent of the ceiling above. The ceiling

could be suspended on a metal frame instead of timber but this would need to be installed using acoustic hangers fixed through the ceiling to the existing joists.

Hybrid system

Place 150mm lightweight mineral wool ($\geq 10\text{kg/m}^3$) in between the joists. Install a 26 to 28mm proprietary floating floor on to the existing floor following manufacturer's instructions (flanking strip around edge, no screws or nails etc). Fix 25 to 50mm battens/timbers securely through the ceiling into the floor joists using screws of the appropriate length (the battens should follow the line of the joists). Fix resilient bars (e.g. British Gypsum RB1) counter to the timbers ensuring that manufacturer's fixing instructions are followed and ensure that all bars are facing in the same direction to prevent the bars "locking". Place (not pack) 25 to 50mm mineral wool roll between the timbers resting on the resilient bars. Install a 20 kg/m^2 ceiling (e.g. two layers of 12.5mm SoundBloc plasterboard) ensuring screws do not touch the timbers or bridge the ceiling to the structure in any way other than via the resilient part of the bar or the ceiling perimeter (where contact with the structure is unavoidable).

Additional Floor/Ceiling Advice

Ensure plasterboard is installed with staggered joints to prevent edges lining up which will be weak acoustically (you would do this for strength anyway). Use surface fixed lights only or Part E compliant recessed lights and seal all cable penetrations with flexible mastic. The floating floor must not be screwed through to the existing floor and it is to be expected that there will be some movement in the floor as a result. The floating boards must also not touch the walls or any other structure and this can be achieved by placing a flanking strip all around the room perimeter prior to laying the boards. Sanitary-ware and kitchen units should be built off timber plinths rather than the floating floor and the plinth is then treated as a room perimeter.

It is extremely important to follow manufacturer's instructions when using resilient bars as this is a product that is often installed incorrectly (bars installed the wrong way or screws that are too long can cause acoustic bridging).

Café Noise

A spot check was taken of the typical activities in the café and a level of $L_{\text{Aeq},30\text{mins}}$ 60.4 dB was noted. The above systems are designed to meet a 43 dB sound reduction requirement and so it is

clear that the internal daytime criterion of $L_{Aeq,16hrs}$ 35.0 dB would be comfortably met with these systems and there is no need to have a higher criterion. To support this it is also worth considering that the café closes late afternoon and there will be no activity on the ground floor at night.

Separating Walls (between Flats and Communal Areas)

Any masonry walls with plaster or plasterboard finish around 220mm thick or more are likely to be compliant as this is a Part E recommended wall.

Any thinner masonry walls would require an independent acoustic lining on one side. This should comprise of a stud frame (around 50mm but stud size not critical) positioned at least 10mm from the wall (ensure the gap is kept clear to avoid bridging) with 50mm lightweight mineral wall between the studs and finished with 20 kg/m² plasterboard (e.g. two layers of 12.5mm SoundBloc plasterboard).

It is assumed that any new areas of separating wall will be lightweight rather than masonry. These could be constructed from one of the following options:

1. 100mm timber stud with 100mm lightweight mineral wool in between and finished with 20 kg/m² plasterboard (e.g. two layers of 12.5mm SoundBloc plasterboard) on resilient bars each side.
2. 70mm metal C stud with 50mm lightweight mineral wool in between and finished with 20 kg/m² plasterboard (e.g. two layers of 12.5mm SoundBloc plasterboard) on resilient bars each side.

Additional Wall Advice

Avoid placing electric sockets in the separating walls if possible. If this is unavoidable you should form a box (same material as separating wall or equivalent) sealed with mastic around the back of each socket or use proprietary acoustic socket boxes. If sockets are on both sides there must be a stagger of at least 600mm.

It is extremely important to follow manufacturer's instructions when using resilient bars as this is a product that is often installed incorrectly (bars installed the wrong way or screws that are too long can cause acoustic bridging).

Flanking Noise

Walls and Floors

There didn't appear to be significant flanking noise in the external walls during the tests so there is no recommendation for lining the these walls for acoustic reasons. If you are required to line these walls for thermal reasons then this would reduce flanking noise further but you must build separating walls, floors and ceilings before installing the thermal lining to prevent the lining becoming a flanking route between flats and other spaces (flats, café or communal areas).

Soil Pipes

Any soil/waste pipe passing through a separating construction into another internal space should be wrapped in lightweight mineral wool and be encased in two layers of standard plasterboard on both sides of the separating construction.

Entrance Doors to Flats

For Part E compliance doors to flats should be rated at R_w 29 dB or higher or have a mass of 25kg/m^2 and be fitted with acoustic seals (including the threshold where practicable) to reduce the noise of people in the communal areas. Acoustic seals are readily available as retrofit items (try Norseal and Lorient). The latter produce seal packs for doors which comply with Part E and Part B at the same time (see Lorient Approved Doc E packs). It will be far cheaper to fit acoustic seals to the correct weight door than to install proprietary acoustic doorsets.

Internal Constructions (Requirement E2)

Part E requires new internal walls (i.e. those newly built within a dwelling) to be rated at R_w 40 dB (or higher) if they belong to a bedroom or a room containing a toilet (except where there is a door in that specific section of wall between the two areas it separates or if the wall separates an en-suite from the associated bedroom). Such a wall can be formed from either 75mm timber or 50mm metal stud with 20kg/m^2 plasterboard each side (e.g. two layers of 12.5mm SoundBloc plasterboard) which can be reduced to 10kg/m^2 plasterboard each side if there is 25mm lightweight mineral wool in the cavity ($>10\text{kg/m}^3$). All other internal walls can be formed from standard plasterboard with no insulation required.

Reverberation in Communal Areas (Requirement E3)

Part E requires that communal areas giving access to flats should be treated with acoustically absorbent materials to reduce the build-up of sound. This is particularly relevant where the entrance door from a communal area leads directly into a habitable room (this doesn't appear to be the case at this site). Where this is not the case it is still a requirement but logically there is an argument that it is an onerous one. If it is necessary you should allow for an acoustically absorbent ceiling throughout the communal areas that give direct access. The ceiling should provide an average absorption coefficient of 0.6 (or Class C absorption). This could be achieved with the appropriate suspended ceiling tiles (e.g. Armstrong Dune Max or Ultima) or a perforated plasterboard ceiling such as Gyptone Quattro 41 on 50mm battens fixed underneath the plasterboard ceiling or soffit.

Carpet would also help reduce the build-up of sound and significantly reduce footfall noise but is not sufficient on its own to comply with Requirement E3. It could be used to good effect as a compromise measure if Requirement E3 were not required or could not be met.

Assessment Conclusion/Discussion

Sound Acoustics Ltd has assessed the impact of existing noise sources at the proposed flats at 25 Charles Street, Newport NP20 1JT.

The day and night-time noise levels from external noise would be regarded as low to medium risk in an initial site noise risk assessment according to ProPG Planning & Noise (England only but given to illustrate the magnitude of the noise impact). The levels are in TAN 11 Noise Exposure Category B.

The assessment has found that the suggested BS8233/WHO criteria can be met on the front facades with the existing façade and closed existing glazing with open trickle ventilation. It should be possible to ventilate each apartment to a higher level by opening windows in unoccupied rooms or for brief periods in occupied rooms (longer if the occupants are not disturbed). Additional suggestions have been offered for enhanced ventilation levels whilst also meeting the noise criteria.

The results of internal sound insulation testing have been used to tailor recommendations for compliance with Part E of the Building Regulations.

In conclusion, provided the above advice and recommendations in this report are adopted into the design, we are confident that the development of the site into residential units can meet current guidance and criteria as well as satisfying the concerns of the Local Authority.

Figure 1 – Survey Position & Plans

● = measurement position



Calculation 1 – Bedroom, 2nd Floor Flat

Project	25 Charles Street		Consultant		Date					
Client	Claire Peters		KMD		18th September 2025					
Contract			Source location		Corr dB					
Measurement Location	Source		free field		0					
Enter Facade Correction	0 dB		facade		3					
Element	4/12/4 Double Glazing		Comments							
Area 1 - Glazing	0.8 m ²	4/12/4 Double Glazing	2nd Floor Bedroom							
Area 2 - Non Glazed	4.6 m ²	typical façade	Glazing rated at Rw 31 dB							
Area 3 - Non Glazed	0.004 m ²	standard vent	Standard vent at 4000mm ²							
Area 4 - Non Glazed	0 m ²	No data	If rapid required use mech' through wall type vent							
Angle of incidence	35 degrees	0 degrees is normal to element	such as Sonair by Titon high Dnew of 48 dB +							
			and provides background of 2500mm ² when off							
Receiving Room	Description									
Height of room	2.6 m									
Width of room	2.1 m									
Length of room	3.1 m									
Volume of room	16.926 m ³									
Frequency Hz	63	125	250	500	1000	2000	4000	8000		
Reverberation time (sec)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		
Absorption (sabines)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5		
Frequency Hz	Index	63	125	250	500	1000	2000	4000	8000	dB(A)
External dB	Lmax	73.8	70.4	66.0	65.7	67.6	60.2	53.4	47.0	70
External Freefield										
External Freefield	Lmax dB	74	70	66	66	68	60	53	47	70
Additional Correction		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Comment here why
10log(cos(angle))		-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	
Enter SRI Ref. No.	Area									
9	0.8	20	24	20	25	35	38	35	37	4/12/4 Double Glazing
typical façade	4.6	35	40	44	45	51	56	58	60	
standard vent	0.004	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	No data
Combined SRI		26	28	26	29	31	31	31	31	
10logS(tot)	S = 5.404	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	
10log(4T/0.16V)		-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	
Internal Lmax dB		53	47	45	42	42	34	27	21	45