141 BROADWAY LONDON W13 9BE

BS4142 NOISE ASSESSMENT

07 February 2024

Motorcycle Trade Ltd

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-	First Issue – Plant Noise Assessment	Damien Hesnan	07/02/2024

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ARAN ACOUSTICS

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1.0 INTRODUCTION

Aran Acoustics in collaboration with Airtight Building Solutions Ltd have been appointed to carry out a noise impact assessment for the proposed Motorcycle showroom and MOT/Service garage at 141 Broadway, West Ealing.

A noise survey and assessment has been requested to ensure that noise levels from the operational use does not cause undue disturbance to nearby noise sensitive locations.

The purpose of this assessment is to determine the existing noise levels at the nearest noise sensitive location and establish the maximum permissible noise levels from the plant.

Such to establish suitable plant noise levels an assessment has been carried out to BS 4142: 2014 '*Method for rating and assessing industrial and commercial sound*'. This assessment has been benchmarked against an environmental noise survey carried out on 10 January 2024.

This report therefore describes the noise survey and its results. Figure 4.1 contains a graphical representation of the noise measurements taken on site. Section 5.0 provides the maximum permissible noise levels for the proposed plant. Section 6.0 provides an assessment of plant noise levels based on the proposed location.

2.0 SITE DESCRIPTION

The site is located at 141 Broadway in West Ealing. The site contains an existing ground floor commercial unit and first floor residential flat.

Proposals include the change of use from a vacant Café to a Motorcycle Show room with service area to the rear as shown on the site plans in Appendix A. The repair garage is to be fully enclosed within the building.

The nearest noise sensitive receptors to the proposed location of the Showroom and garage is the residential flats directly above along with adjacent flats.

A subjective assessment on site determined that the predominant noise sources in the area to impact nearby noise sensitive receptors is noise from road traffic on surrounding roads.

Figure 2.1 below shows a location map and aerial photo of the site and surrounding area.

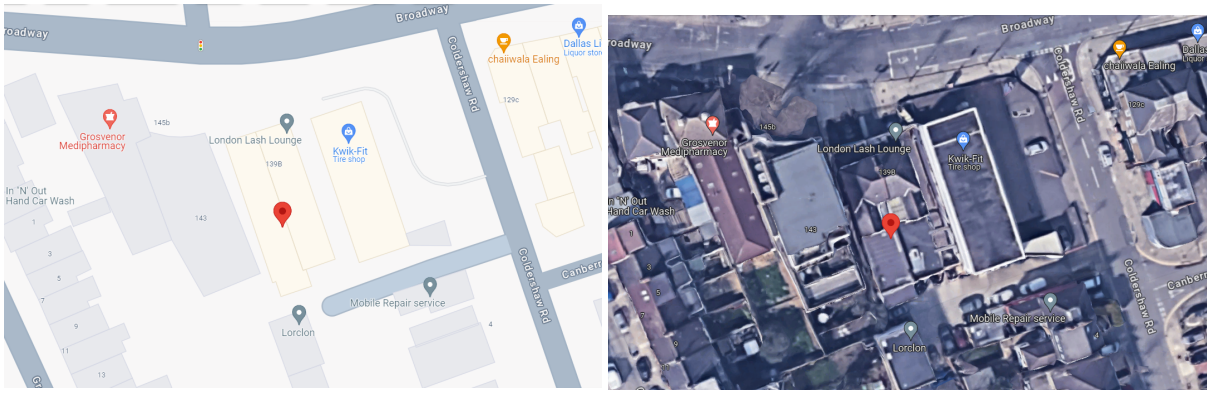


Table 2.1 – Location map and aerial photo of the site*

**Imagery courtesy of Google Maps*

3.0 ENVIRONMENTAL NOISE SURVEY

A background noise survey was carried out at the site on Wednesday 10 January 2024 between 09:00 – 18:00 hours.

A single noise monitor was placed on the flat roof to the rear of the premises and next to the window of the first floor residential flat. The microphone was extended approximately 1.5m above the flat roof level. Noise levels measured at the microphone location are considered representative of the existing environmental noise levels to impact nearby noise sensitive receptors.

A site plan showing the microphone location is provided in Appendix A. Site photos of the microphone position are provided in Appendix B.

3.1 Measurement Equipment

The following measurement equipment was used, which complies with the performance specifications for a Class 1 device in accordance with BS EN 61672-1, BS EN 61260 and BS EN 60942.

Name	Serial Number	Last Calibrated	Calibration Due
Norsonic Precision Sound Analyser Type 140	1404768	Nov 2022	Nov 2024
Norsonic Type 1209 Pre-amplifier	31313	Nov 2022	Nov 2024
Norsonic Type 1225 Microphone	157320	Nov 2022	Nov 2024
Rion Type NC-74 Acoustic Calibrator	35168026	Feb 2023	Feb 2024

Table 3.1 – Measurement equipment used on site

The meter was calibrated before and after testing - no deviations were found. The meter was set to measure consecutive 'A' weighted 15-minute samples.

3.2 Weather Conditions

The weather remained dry for the duration of the survey. Wind speed remained below 5 m/s. The temperature was approximately 10 - 16 ^{o}C.

The weather conditions were seen as suitable for environmental noise surveying in accordance with BS 7445-1:2003 '*Description and measurement of environmental noise*'.

4.0 SURVEY RESULTS

The noise levels measured during the survey period are shown in Figure 4.1 below. The full set of acoustic data measured on site is available upon request.

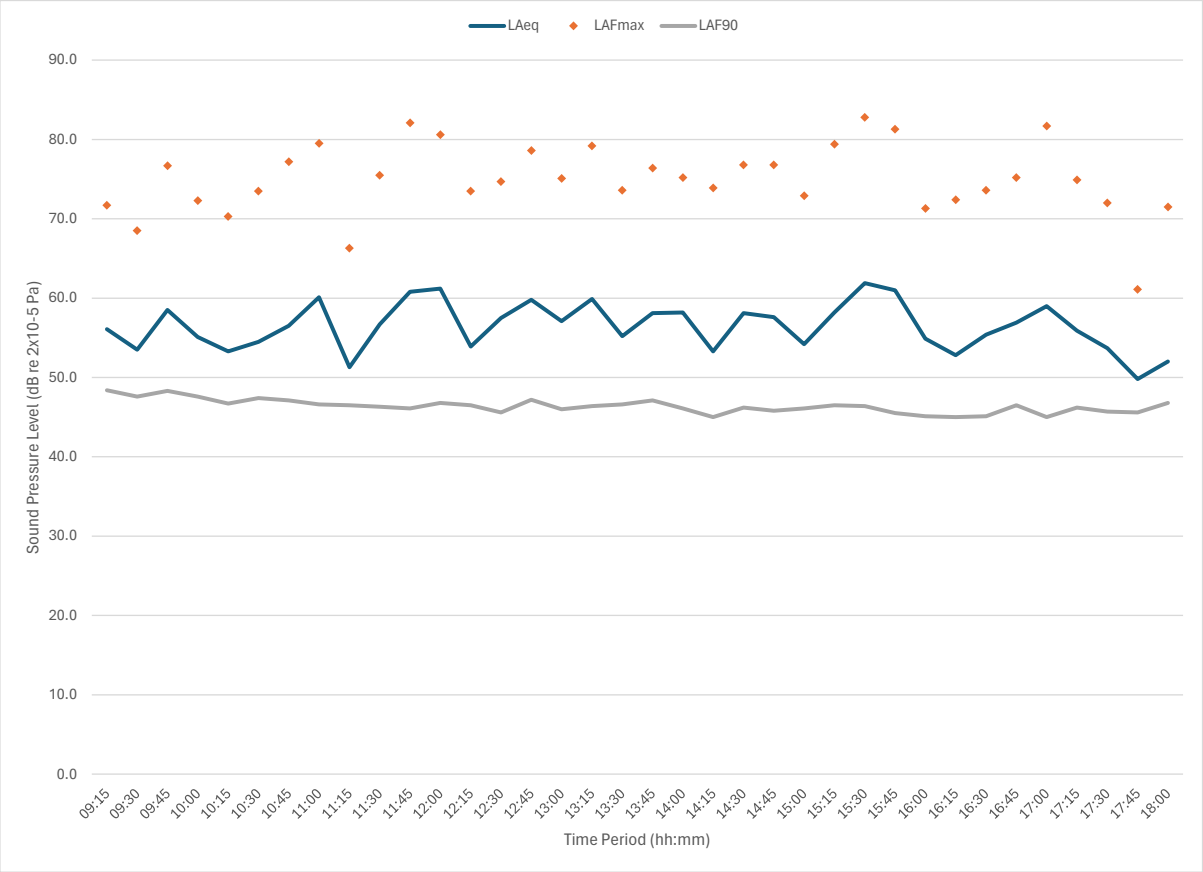


Figure 4.1 – Measured noise levels

Analysis of the measured noise levels shows that the background noise level remained relatively consistent throughout the survey.

The following table provides a summary of the noise levels measured on site at the fixed microphone position during the survey period including the equivalent continuous A-weighted sound pressure level; $L_{Aeq,T}$ and representative background noise level; $L_{A90,T}$.

Time Period	Average Noise Level L_{Aeq}, dB	Representative Background L_{A90}, dB
Day (09:00 – 18:00 hours)	58	47

Table 4.1 - Summary of measured noise levels

5.0 ASSESSMENT CRITERIA

Section 4.0 above provides a summary of measured noise levels on site. The following section provides a summary of guidance documentation relevant to this development.

5.1 British Standard 4142

BS 4142:2014 describes a method of determining the level of noise of an industrial nature, together with the procedures for assessing whether the noise in question is likely to give rise to complaints from persons living in the vicinity. As such, an assessment to BS 4142 is typically called for within planning conditions.

The likelihood of complaints in response to a specific noise depends on various factors. BS 4142 assesses the likelihood of complaints by considering the margin by which the noise in question exceeds the background noise level. BS 4142 states that:

a) Typically, the greater this difference, the greater the magnitude of the impact.
b) A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.
c) A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.
d) The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

This standard also allows for an appropriate correction for the acoustic features present in the noise using a number of methods. A correction should be applied if one or more of the following features (see the list below), are present within the noise sources in question.

- The noise is of a tonal nature, i.e. it contains a distinguishable, discreet, continuous note such as whine, hiss, screech, hum;
- The noise is impulsive, i.e. it contains distinct impulses such as bangs, clicks, clatters, or thumps;
- The noise contains other characteristics that are neither tonal nor impulsive but is irregular enough to attract attention.

BS4142 states that 'where the initial estimate of the impact needs to be modified due to the context, take all pertinent factors into consideration including the following':

- The absolute level of sound. Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.
- The character and level of the residual sound compared to the character and level of the specific sound.

It can be concluded from BS4142 guidance document that noise levels from plant and equipment associated with the development should not generally exceed the background noise level when measured at the nearest noise sensitive location. This is a positive indication of low noise impact.

6.0 TARGET PLANT NOISE LEVELS

It is understood that the proposed Showroom and garage will operate in the day time only, i.e. between 09:00 – 18:00 hours. The garage is not intended as a fully functioning workshop but will be used to carry out light repairs and MOT testing.

Local Planning Authorities typically require noise levels from plant and commercial units to achieve a design target of -10 dB below the existing background noise levels. This is seen as a design target where noise impact would be 'low' in accordance with BS 4142 and complaints from nearby noise sensitive receptors deemed unlikely.

Based on the representative background noise level during the proposed operating period and the suggested design targets including any tolerance or correction factors, the following table shows the maximum permissible noise level from the daily operations when measured at the window of the nearby noise sensitive receptors.

Time Period	Representative Background, L_{A90}	Tolerance Factor	Correction Factor	Max Noise Level at Residential
Day (07:00 – 23:00 hours)	47 dBA	-10 dB	-0 dB	**37 dBA**

Table 6.1 - Plant Noise Level Target

7.0 PLANT NOISE LEVEL ASSESSMENT

The service area is partitioned off from the main showroom as shown on the site plans in Appendix A. The showroom is mainly a sales area where normal conversation will take place. The service area to the rear will be used for light mechanical work and MOT testing.

The main concern will be noise breakout from the service area through the flat roof along with noise from the fume extract fan ducted to the rear of the building.

7.1 Service Area Noise Breakout

In order to quantify the likely noise levels from the repair area it is necessary to define the various activities to be undertaken and the equipment used.

The repair area is fully enclosed within the building and hand held tools will mainly be used to carry out repairs. A tyre changing machine and air compressor will be used along with hand held battery powered impact wrenches for removing wheels.

Measurements were carried out on site of noise levels from the equipment to be used with the exception of the fume extract fan where manufacturers noise level data has been used The following table provides a list of equipment along with associated noise level and the combined noise level. Noise levels are referenced to a distance of 1m.

Plant Description	Noise Level, dBA
Air Compressor	87
Extract Fan	69
Impact Gun	80
Tyre Changer	79
Bench Grinder	77
Combined Noise Level	**88**

Table 7.1 - Plant Schedule

The nearest noise sensitive receptor to the location of service area are the rear windows of the residential flat located directly above. Noise breakout calculations were carried out based on the current flat roof construction and it was determined that additional mitigation would be required.

It is understood the existing flat roof construction is formed from a 200mm joist with plywood deck and 2 layers of 12.5mm plasterboard. To improve the sound insulation performance a dropped ceiling should be formed using a suspended Metal Frame to form a 200mm cavity

and full filled with mineral wool insulation of minimum density ≥45 kg/m^3. Ceilings should be formed using 2 layers of 12.5mm SoundBloc plasterboard to provide an overall sound reduction of 51 dB R_w as shown in the following figure

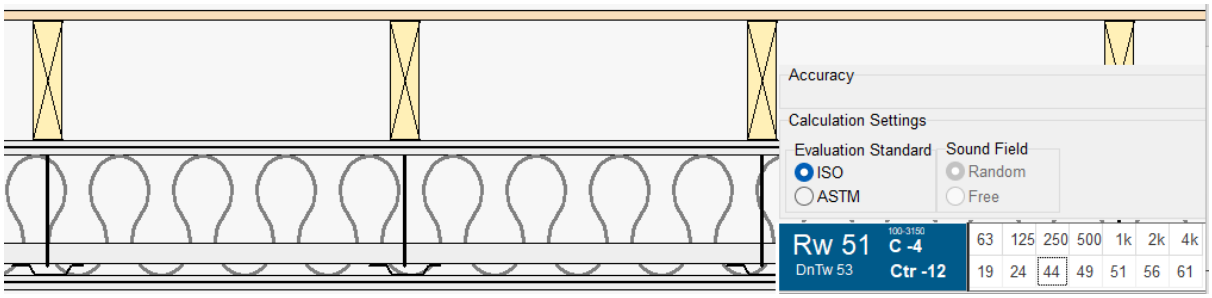


Figure 7.1 – Dropped Ceiling to Service Area

Based on the above mitigation, calculations show that worst case noise levels from all equipment in operation at the nearest noise sensitive receiver would be 36 dBA. This does not exceed the noise level target in Table 6.1 therefore noise impact would be considered 'low' in accordance with BS4142.

7.2 Fume Extract Fan

The fume extract fan is ducted to the rear of the building using flexible ducting. The nearest noise sensitive receptor to the location of the extract duct are the rear windows of the residential flat directly above.

At distance, noise from the duct is considered a point source and noise levels will decay at a rate of 6dB per doubling of distance. The rear wall will act as a noise barrier due to no direct line of sight therefore a barrier correction has been included in our calculations.

Calculations show that noise levels from the extract fan when measured at the nearest noise sensitive receptors would be approximately 31 dBA. This does not exceed the noise level target in Table 6.1 therefore noise impact would be considered 'low' in accordance with BS4142 therefore no further mitigation is proposed at this stage.

7.3 Showroom Noise

The main showroom is used as a sales area where normal conversations will take place in person or over the phone. Noise levels in the showroom would be considered similar to a small office environment with an upper level of 65 dBA.

Proposal are to upgrade the existing ceiling between the showroom and residential flat above using a lay in grid ceiling tile system with additional mineral wool insulation with minimum density ≥45 kg/m^3 placed within the cavity as shown in the following figure.

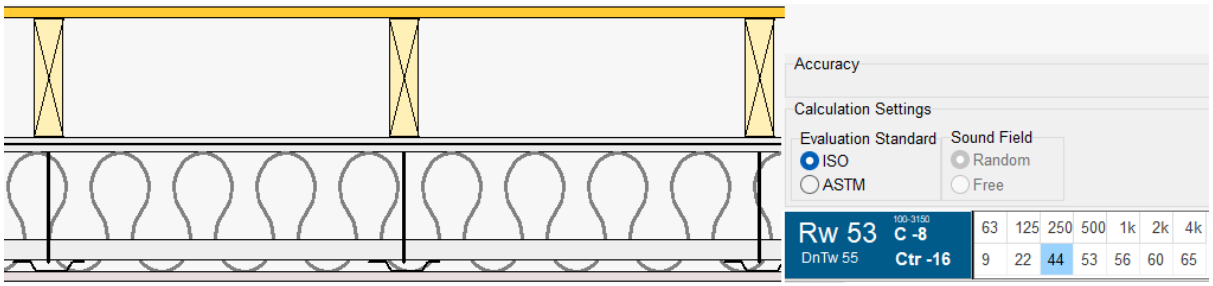


Figure 7.2 – Dropped Ceiling to Showroom Area

Using INSUL sound insulation prediction software an assessment of the proposed floor construction has been carried out. Results show the proposed floor achieves a sound insulation performance of 53 dB R_w.

For assessment purposes Aran Acoustic have used noise levels previously measured in a Café during a busy period and adjusted to correlate with an upper noise level of 60 dBA for an office environment. The following table provides a summary of the measured noise levels.

	Octave Band Centre Frequency (Hz)							
Measured Data	**63**	**125**	**250**	**500**	**1000**	**2000**	**4000**	**$L_{Aeq,T}$**
$L_{eq,1min}$ (dB)	64.1	63.5	63.5	64.8	62.4	60.2	59	**68**

Table 7.2 - Typical Internal Noise Levels within Office

Planning Conditions requires noise levels in habitable rooms above the Showroom area not to exceed NR 20. This is in line with BS8233: 2014 recommendations for residential rooms.

Based on typical noise levels within a busy office (Showroom) shown in Table 7.2 above and the SRI of the proposed floor construction provided in Figure 7.2, calculations were carried out to determine noise levels within adjacent residential rooms using the following formula:

$$L_2 = L_1 + 10\,log\left(\frac{S}{A}\right) - SRI + X \qquad \textit{[Equation 7.1]}$$

Where L_1 is the sound pressure level in source room; L_2 is the sound pressure level in receiver room; S is the area of diving element; A is the equivalent absorption area in receiver room; SRI is the sound reduction index of separating element; X is a correction factor to account for flanking transmission, 5dB in this case.

Calculations show that based on the sound reduction of the proposed floor/ceiling construction and using typical noise levels in an office environment, NR 20 limits would not be exceeded in the residential flat above which is a positive indication of low noise impact.

Plant noise calculation sheets are provided in Appendix C and Insul data sheets in Appendix D. Manufacturers noise level data sheets are provided in Appendix E.

7.4 Bike Engines

It is expected that motorcycle engines will be started within the service area. Noise levels from engines vary depending on the capacity of the engine along with the exhaust and muffler system fitted and RPM of the engine.

It is recommended that an upper noise limit of 85 dBA at 1m from the exhaust port is not exceeded within the service area. Where higher RPM's are needed a silencer on a telescopic arm should be fitted over the exhaust and connected to the extract fan.

A type 2 sound level meter should be added to the workshop inventory and used to control the maximum permissible noise level.

It should be further noted that the Governments Control of Noise at Work Regulations 2005 require mandatory hearing protection for all employees and visitors where noise levels regularly exceed 85 dBA within a working environment. A full Noise at Work assessment will be required in this case to protect employees with regular health surveillance carried out.

7.5 Noise Control Management Plan

While calculations show that the worst case noise levels from the daily operations will be low impact, management should take every opportunity to reduce the risk of noise impact on local residents through a noise control management plan.

Staff should be made fully aware of the type of work where instantaneous noise levels have the potential to cause disturbance to nearby noise sensitive properties and follow a procedure for mitigating these noise levels. The following points should be considered to reduce the likelihood of disturbance although this list is not exhaustive:

- Ensure doors remain closed between the service area and showroom when repairs and inspection are being carried out.
- Suitable signage should be placed around the service area to remind employees of their duty to protest residents and other employees again noise.
- Revving of engines should be avoided and engines switched off when not in use.
- Exhaust ports should always be facing away from the showroom area.
- Acoustic panels may be added to the service area to reduce noise build up.
- When replacing older equipment, select new equipment that has reduced sound power levels through innovative or technical means.

8.0 SUMMARY AND CONCLUSION

A noise survey was carried out at the proposed location for a motorcycle showroom and repair garage at 141 Broadway, West Ealing on 10 January 2024.

From this survey the representative background noise level at the nearby sensitive receptors was found to be 47 dB L_{A90} during the daytime period.

Using guidance in BS 4142 including any corrections, noise levels from daily operations should not generally exceed -10 dB below the background noise level at the window of the nearby noise sensitive receptors taken into account all pertinent factors.

Based on manufacturer's noise level data along with measurements on-site, calculations show that operational noise levels at nearby noise sensitive receptors would not exceed the noise level target which is a positive indication of low noise impact in accordance with BS 4142 where complaints are deemed unlikely.

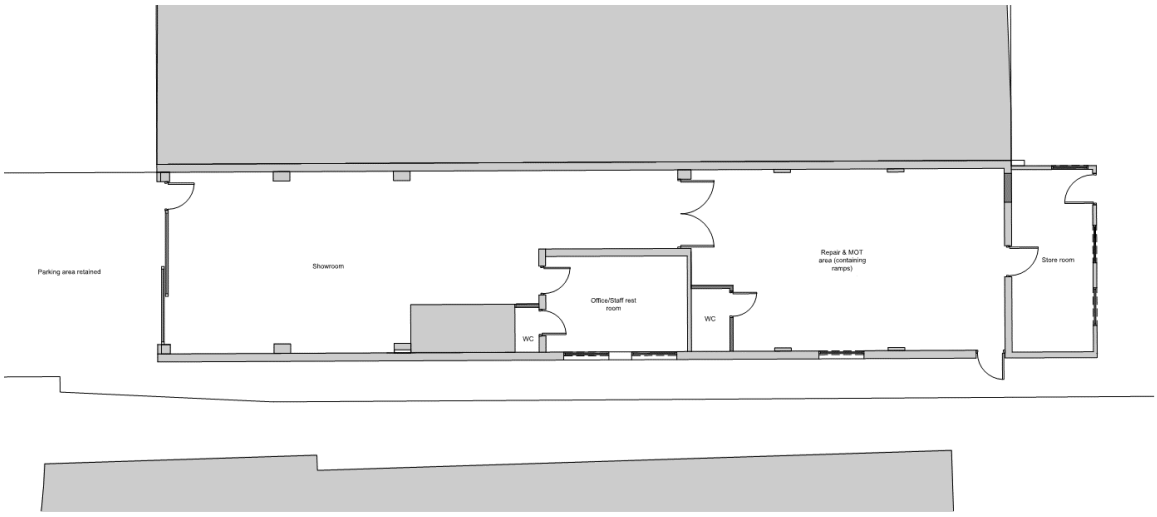
An assessment of internal noise levels within the showroom shows that noise level within the residential flat above would not exceed NR 20.

APPENDIX A – SITE PLAN

Existing / Proposed Site Block plan
1:500

10 m 50 m

PROJECT TITLE: 141 Broadway, West Ealing, W13 9BE
DRWG TITLE: Exist/prop block plan
DRWG No: 2327_P011
REV: A
SCALE: 1:500@A3 DATE: 15.10.23
DRWG STATUS: Information
jorges salman architects



posed Ground floor plan
0

1 0 10

Existing Walls
Proposed walls
Demolition

PROJECT TITLE: 141 Broadway, West Ealing, W13 9BE
DRWG TITLE: Proposed Ground Floor
DRWG No: 2327_P112
REV: C
SCALE: 1:100@A3 DATE: 15.10.23
DRWG STATUS: Information
jorges salman architects

APPENDIX B – SITE PHOTOS

APPENDIX C – PLANT NOISE CALCULATION SHEETS

	QTY	63 Hz	125 Hz	250 Hz	500 Hz	1.0 kHz	2.0 kHz	4.0 kHz	dBA
Air Compressor (Lp)	1	68.0	72.1	80.0	86.5	77.3	72.2	65.7	**85**
Calculated Souce Level (Lp)		70	74	82	88	79	74	67	**87**
Extract Fan (Lw)	1	71.0	58.0	64.0	66.5	68.0	71.0	68.0	**75**
Calculated Souce Level (Lp)		65	52	58	60	62	65	62	**69**
Impact Gun (Lp)	1	47	38	37	46	57	70	71	**75**
Calculated Souce Level (Lp)		52	43	42	51	62	74	76	**80**
Tyre Changer (Lp)	1	58	66	70	61	66	71	64	**74**
Calculated Souce Level (Lp)		63	70	75	66	71	75	68	**79**
Bench Grinder (Lp)	1	56	70	71	67	63	67	66	**73**
Calculated Souce Level (Lp)		61	75	76	72	68	72	71	**77**
Combined Source Level (Lp)	5	72	78	84	88	80	80	78	**88**
Service Area Breakout	**QTY**	**63 Hz**	**125 Hz**	**250 Hz**	**500 Hz**	**1.0 kHz**	**2.0 kHz**	**4.0 kHz**	**dBA**
Combined Source Level (Lp)	2	72	78	84	88	80	80	78	**88**
Reflection Factor (Q)	4	6	6	6	6	6	6	6	
Flat Roof SRI	1	-19.0	-25.0	-44.0	-49.0	-51.0	-55.0	-64.0	
10Log(S) -14	54.8	3.4	3.4	3.4	3.4	3.4	3.4	3.4	
Distance Attenuation (-20Log(R))	5.2	-14.3	-14.3	-14.3	-14.3	-14.3	-14.3	-14.3	
SPL at Receiver (Lp)		48.1	48.2	34.6	34.5	24.2	20.3	9.4	**36**
	QTY	**63 Hz**	**125 Hz**	**250 Hz**	**500 Hz**	**1.0 kHz**	**2.0 kHz**	**4.0 kHz**	**dBA**
Extract Fan (Lw)	1	71.0	58.0	64.0	66.5	68.0	71.0	68.0	**75**
Duct Attenuation	5	-0.8	-1.7	-2.5	-1.7	-1.7	-1.7	-1.7	
End Reflection	160mm	-18.0	-12.0	-7.0	-3.0	-1.0	0.0	0.0	
Barrier Attenuation	1	-10.0	-11.0	-13.0	-17.0	-19.0	-23.0	-26.0	
Distance Attenuation	10	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0	
Reflection Q	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
SPL at Receiver (Lp)		22.2	13.4	21.6	24.9	26.4	26.4	20.4	**31**
Combined SPL at Receiver (Lp)		48.1	48.2	34.8	34.9	28.4	27.3	20.7	**37**
Showroom Breakout	**QTY**	**63 Hz**	**125 Hz**	**250 Hz**	**500 Hz**	**1.0 kHz**	**2.0 kHz**	**4.0 kHz**	**dBA**
Source Level (Lp)	2	48	48	35	35	28	27	21	**37**
Reflection Factor (Q)	4	6	6	6	6	6	6	6	
Flat Roof SRI	1	-19.0	-25.0	-44.0	-49.0	-51.0	-55.0	-64.0	
10Log(S) -14	54.8	3.4	3.4	3.4	3.4	3.4	3.4	3.4	
Distance Attenuation (-20Log(R))	5.2	-14.3	-14.3	-14.3	-14.3	-14.3	-14.3	-14.3	
SPL at Receiver (Lp)		24.2	18.3	-14.1	-19.0	-27.5	-32.6	-48.2	**4**

Upper Flat	**QTY**	**63 Hz**	**125 Hz**	**250 Hz**	**500 Hz**	**1.0 kHz**	**2.0 kHz**	**4.0 kHz**	**dBA**
Internal Noise Level	1.0	56.0	56.0	56.0	57.0	54.0	52.0	51.0	**60**
10*Log(S/A)	58.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
SRI Ceiling	53.0	-9.0	-22.0	-44.0	-53.0	-56.0	-60.0	-65.0	
SPL at Receiver (Lp)		48.1	35.1	13.1	5.1	-0.9	-6.9	-12.9	**24**
NR 20 Limit		51.0	39.0	31.0	24.0	20.0	17.0	14.0	
NR Exceedance		0.0	0.0	0.0	0.0	0.0	0.0	0.0	

APPENDIX D – INSUL DATA SHEETS

Sound Insulation Prediction (v8.0.7)

Program copyright Marshall Day Acoustics 2015

- Key No. 1548

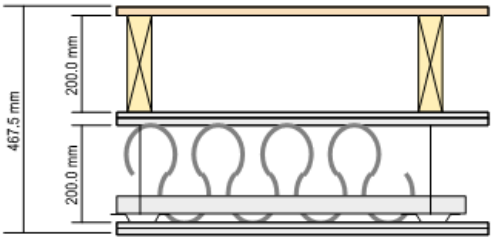
Margin of error is generally within Rw +/- 3 dB

Job Name:

Job No.: Page No.: Notes:

Date: 6 Feb 24 Initials:dhesn

File Name: insul



Rw	51 dB
C	-4 dB
C_{tr}	-12 dB
D_{nTw}	53 dB

System description

Panel 1 : 1 x 17.5 mm Plywood (?:560 kg/m3,E:4.4GPa,?:0.01)

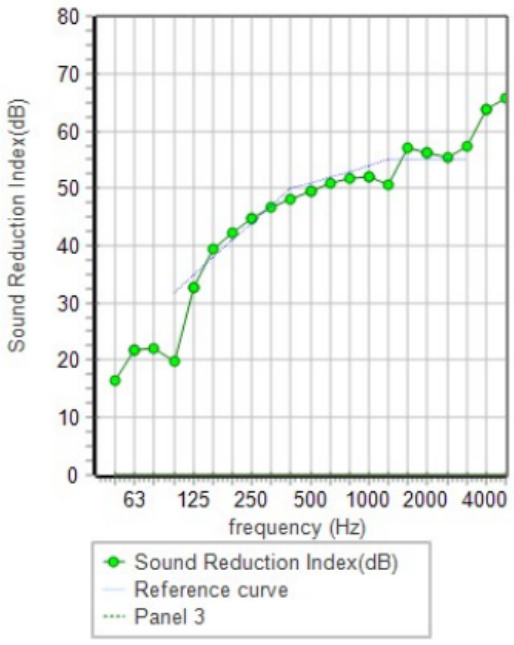
Cavity: Solid joist(timber or Twinaplate): Stud spacing 600 mm
Panel 2 + 2 x 12.5 mm Gyproc Wallboard 12.5mm (?:640 kg/m3,E:1.6GPa,?:0.01)

Cavity: Suspended light steel grid: Stud spacing 600 mm , Infill Rockwool (48kg/m3) Thickness 200 mm (?:48 kg/m3, Rf:19400 Pa.s/m2)
Panel 3 + 2 x 12.5 mm Gyproc Fireline 12.5mm (?:784 kg/m3,E:2.4GPa,?:0.01)

Mass-air-mass resonant frequency =37 Hz , 69 Hz

frequency (Hz)	R(dB)	R(dB)
50	16	
63	22	19
80	22	
100	20	
125	33	24
160	39	
200	42	
250	45	44
315	47	
400	48	
500	50	49
630	51	
800	52	
1000	52	51
1250	51	
1600	57	
2000	56	56
2500	55	
3150	57	
4000	64	61
5000	66	

Panel Size 2.7x4 m; Mass 55.0 kg/m2



Sound Insulation Prediction (v8.0.7)

- Key No. 1548

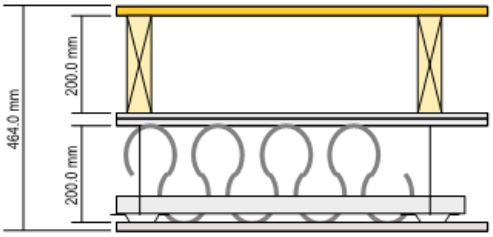
Margin of error is generally within Rw +/- 3 dB

Job Name:

Job No.: Page No.: Notes:

Date: 7 Feb 24 Initials:

File Name: insul



Rw	53 dB
C	-8 dB
C_{tr}	-16 dB
D_{nTw}	55 dB [V:50m3] [A:11m2]

System description

Panel 1 : 1 x 20.0 mm Flooring Particle Board (?:710 kg/m3,E:3.4GPa,?:0.03)

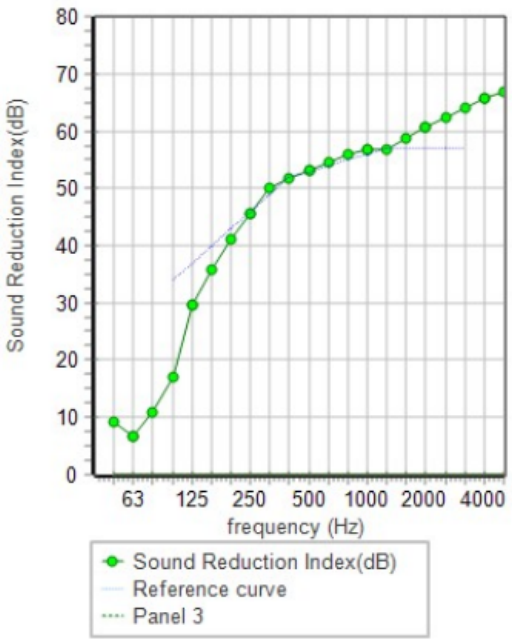
Cavity: Solid joist(timber or Twinaplate): Stud spacing 600 mm
Panel 2 + 2 x 12.5 mm Gyproc Wallboard 12.5mm (?:640 kg/m3,E:1.6GPa,?:0.01)

Cavity: Suspended light steel grid: Stud spacing 600 mm , Infill Rockwool (40kg/m3) Thickness 200 mm (?:40 kg/m3, Rf:16200 Pa.s/m2)
Panel 3 + 1 x 19.0 mm Mineral fibre ceiling tile (Generic) (?:300 kg/m3,E:0.04GPa,?:0.03)

Mass-air-mass resonant frequency =49 Hz , 72 Hz

Panel Size 2.7x4 m; Mass 43.9 kg/m2

frequency (Hz)	R(dB)	R(dB)
50	9	
63	7	9
80	11	
100	17	
125	30	22
160	36	
200	41	
250	46	44
315	50	
400	52	
500	53	53
630	55	
800	56	
1000	57	56
1250	57	
1600	59	
2000	61	60
2500	62	
3150	64	
4000	66	65
5000	67	



APPENDIX E – TECHNICAL DATA SHEETS

Nederman

Fan N16, Single phase

A centrifugal fan mainly designed for use with Nederman extraction products.

- Compact
- Easy to use

Product name	Fan N16, Single phase
Noise level (dB(A))	62 dB at 1000 m3/h
Installation	[Indoor], [Outdoor]
Material	Material: Fan casings: galvanised sheet steel Impeller: die cast aluminium
Application	[dust], [fumes]
Airflow (m^3/h)	1250
Capacity (max airflow m3/h)	1250
Power Voltage (V)	230
Frequency (Hz)	50
No of phases	1
Amperage (A)	3,3
Weight (kg)	14,5
Power (kW)	0,55
Note	

Fumes Dust CE

Technical Leaflet
150318(00) I 2008-12

Nederman
IMPROVING YOUR WORKSPACE

Technical Description FAN N16, 50 HZ, 1~

TECHNICAL DATA

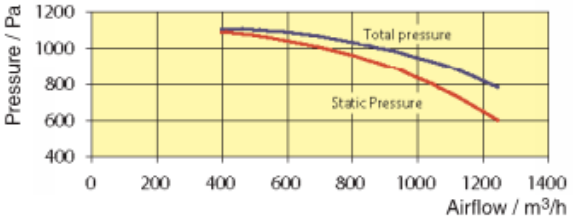
Part No:	14510121
Capacity:	Up to 1250 m³/h
Motor power:	0.55 kW
Speed:	2720 rpm
Voltage:	110-120/220-240 V
Phase:	1 ~
Frequency:	50 Hz
Current at market voltage:	8.7/4.35 A
Degree of protection:	IP 55
Weight:	14.7 kg

Nederman N16 is a centrifugal fan designed for use with NEDERMAN extraction products. The fan can also be mounted on a stand which is available as an accessory.

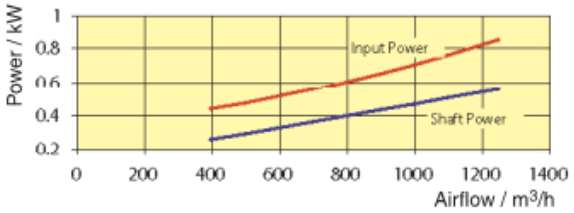
- Working temperature: max. 60 °C
- Ambient temperature: -30°C to +40°C
- Impeller with radial tip blades
- Material:
  Fan casings: galvanised sheet steel
  Impeller: die cast aluminium
- Surface treatment: epoxypolyester powder paint
- The fan is manufactured in accordance with the following standards or other normative documents: 98/37/EC, 2006/95/EC and 2004/108/EC.

The graphs are according to ducts connected to the inlet and exhaust side of the fan. Air density = 1,2 kg/m³

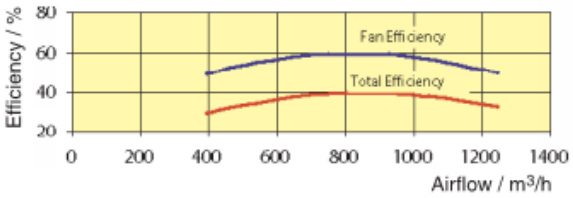
FAN DIAGRAM



POWER

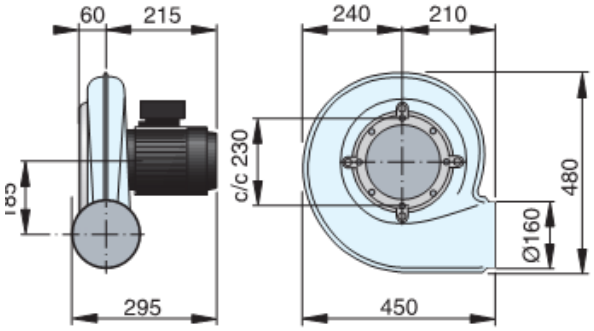


EFFICIENCY

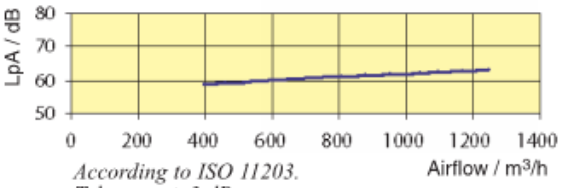


The efficiency concerns the fan without a motor.

DIMENSIONS

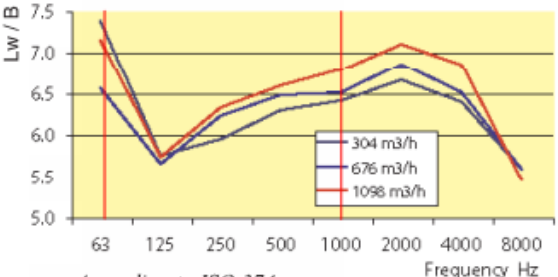


SOUND PRESSURE LEVEL



According to ISO 11203.
Tolerance ± 3 dB.

SOUND POWER LEVEL



According to ISO 374.
Tolerance ± 3 dB.

WARNING!
Risk of fire or explosion! The fan must not be used in an environment with danger of explosion or for transport of inflammable or explosive gases.

EC DECLARATION OF CONFORMITY

In accordance with EN ISO 17050-1:2004

We	**SIP (Industrial Products) Ltd**
Of	Gelders Hall Road Shepshed Loughborough Leicestershire LE12 9NH England

In Accordance With The Following Directive(s):

2004/108/EC	The Electromagnetic Compatibility Directive
98/37/EC	The Machinery Directive
2000/14/EC	The Noise Emission in the Environment by Equipment for Use Outdoors Directive
2006/95/EC	The Low Voltage Directive
87/404/EEC As Amended By 2009/105/EC	The Simple Pressure Vessels Directive
97/23/EC	The Pressure Equipment Directive

Hereby Declare That:

Equipment	Airmate 3HP/200-SRB Compressor
SIP Model Number	06294
Suppliers Model Number	B2800B

Noise measurements have been made in accordance with the internal control of production (Annex VI). The declared noise values are as follows:

Measured Sound Power Level	Guaranteed Sound Power Level
94 dB(A)	96 dB(A)

Notified Body: Eurofins Modulo Uno S,p.A, Via Cuorgnè, 21-10156
Torino, ITALY. +39 011 22 22 225

I hereby declare that the equipment named above has been designed to comply with the relevant sections of the above referenced specifications and is in accordance with the requirements of the Directive(s)

Signed by:

Name:	Paul Ippaso
Position:	Director
Done at:	Shepshed
On:	21 May 2012

Document ref. No.

The technical documentation for the machinery is available from:

Name:	Daniel Hudson, Technical Manager
Address:	Gelders Hall Road, Shepshed, Loughborough, Leicestershire, England, LE12 9NH

CE