

NOISE IMPACT ASSESSMENT

BS 4142:2014+A1:2019

Commercial Noise:
Takeaway

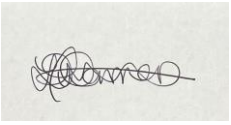


NOISE
ASSESSMENTS LTD
YOUR LOCAL ACOUSTIC SPECIALIST

REPORT DETAILS

Site Address	2 Windmill Street Gravesend Kent DA12 1AD
Report Title	Noise Assessment: Commercial Noise, Takeaway
Project No.	NALPRO040424.1a
Consultant Contact	jonathan@noiseassessments.co.uk

QUALITY ASSURANCE

Issue No.	Status	Issue Date	Comments	Author	Approved
1	FINAL	29/05/24	-		
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1. Proposal

- 1.1 A commercial property (herein referred to as the site) is applying for planning permission for the installation of extraction system and flue to the rear elevation of the property to facilitate the grilling and frying of a mix of Indian and British cuisine and is required to confirm their external venting complies with noise guidance. The client has completed a noise impact assessment at 2 Windmill Street Gravesend Kent DA12 1AD.
- 1.2 A noise assessment is required to assess the likely noise impact from noise generated from the new proposed internal extractor fan unit flue within the rear of the site with the air vented at ground floor level to above the eaves during the daytime.
- 1.3 The discharge flue will be insulated to stop further noise breakout. The extract ducting is rigid in construction and installed with anti-vibration mountings.
- 1.4 The primary internal noise source is customers voices and background music within the takeaway on the ground floor. There are commercial units either side of the unit in question therefore the only sound breaking structure between the commercial and residential property is above.
- 1.5 A noise assessment is required to assess the likely noise impact from noise through the ceiling.

Consultant

- 1.6 Jonathan has experience in environmental, noise and vibration monitoring, acoustic consultancy and impact assessment gained over a period of 20 years in the industry, across the UK, Australia, Brunei, Turkey and the Middle East. He has a Degree in Environmental Science, Postgraduate Diploma in Environmental Monitoring and is a member of the Institute of Acoustics (TechIOA). He has also completed the IOA Certificate in Environmental Noise, from the University of Liverpool.
- 1.7 Jonathan specialises in the measurement and assessment of noise and vibration for a wide range of planning applications, including those requiring EIA, across the industrial, commercial, residential, and mineral extraction sectors. Jonathan is also involved in undertaking various aspects of indoor occupational monitoring and reporting for projects relating to worker health.

2. Existing Context

- 2.1 The site (ground floor) is set within a mainly commercial Highstreet of two storey buildings along a street for general customer footfall during the daytime. There are commercial units adjacent to the front of the site. Apartments to the rear of the site and other commercial units are also present.

- 2.2 The environmental health department of the local planning authority is likely to raise concerns of noise emissions from the use of the fan extraction unit venting on sensitive residential properties during the daytime at the rear of the site.

3. Criteria

- 3.1 The following targets have been selected in accordance with 'BS 4142:2014+A1:2019 – Methods for rating and assessing industrial and commercial sound.' This will be achieved when the Rating Level is below the representative background sound level.
- 3.2 The operational noise from the takeaway space and kitchen should not exceed NR20 Leq,T, within proposed residential apartments above.
- 3.3 The NR20 criterion is spectrum-based criterion, which require that the maximum noise level at a range of frequencies should not be exceeded as indicated in the tables below.

Table 1: NR

	Octave Centre-Frequency Band, Hz						
	63	125	250	500	1k	2k	4k
NR20	51	39	31	24	20	17	14

- 3.4 Whilst there are no prescribed standards for the assessment of noise impact where human voice is the primary source, reference can be made to 'BS8233:2014 – Guidance on sound insulation and noise reduction for buildings' [British Standards Institution] which gives guideline criteria for internal ambient noise levels in residential dwellings.

4. Noise Policy and Guidance

Noise Policy Statement for England (NPSE)

- 4.1 The NPSE sets out the Government's policy on noise and includes the long-term vision of promoting good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.
- 4.2 This long-term vision is supported by the following aims:
- 4.3 Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:
- avoid significant adverse impacts on health and quality of life;
 - mitigate and minimise adverse impacts on health and quality of life; and

- where possible, contribute to the improvement of health and quality of life.

4.4 There are two established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organisation. They are:

- NOEL (No Observed Effect Level) – this is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise;
- LOAEL (Lowest Observed Adverse Effect Level) – this is the level above which adverse effects on health and quality of life can be detected.

4.5 Extending these concepts further, NPSE leads to the concept of a significant observed adverse effect level:

- SOAEL (Significant Observed Adverse Effect Level) – this is the level above which significant adverse effects on health and quality of life occur.

4.6 NPSE acknowledges that it is not possible to have a single objective noise-based measure that defines NOEL, LOAEL and SOAEL that is applicable to all sources of noise in all situations. It is therefore suggested that more specific advice from other applicable noise standards and guidance could be employed to determine suitable noise level criteria within the overall principles of the NPSE.

National Planning Policy Framework (NPPF)

4.7 The revised NPPF was updated on 5 September 2023 and 19 December 2023 and sets out the government's planning policies for England and how these are expected to be applied. This document replaces the first NPPF published in March 2012 and includes minor clarifications to the revised version published in July 2018, February 2019, July 2021.

4.8 Where issues of noise impact are concerned the NPPF provides brief guidance in Chapter 15 '*Conserving and enhancing the natural environment*' as follows:

Paragraph 170:

Planning policies and decisions should contribute to and enhance the natural and local environment by preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability.

Paragraph 180:

Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on

health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

- a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;
- b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and
- c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.

Paragraph 182:

Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.

Planning Practice Guidance (PPG)

- 4.9 PPG is written in support of the NPPF and provides an increased level of specific planning guidance.
- 4.10 It suggests that noise needs to be considered when new developments may create additional noise and when new developments would be sensitive to the prevailing acoustic environment. It is also suggested that noise should not be considered in isolation and separately from issues such as the economic, social and other environmental dimensions of proposed development.
- 4.11 Local planning authorities' plan-making and decision taking should take account of the acoustic environment and in doing so consider:
 - whether or not a significant adverse effect is occurring or likely to occur;
 - whether or not an adverse effect is occurring or likely to occur; and
 - whether or not a good standard of amenity can be achieved.

Technical Guidance

BS 4142:2014+A1:2019 – Methods for rating and assessing industrial and commercial sound'

BS4142 is a recognised standard for assessing the noise impact of fixed plant machinery via relation of noise emissions to current background noise levels.

5. Nearest Sensitive Receptor Locations

- 5.1 The nearest sensitive receptors (NSRs) have been identified as residential dwellings at the rear of the site above the proposed takeaway.

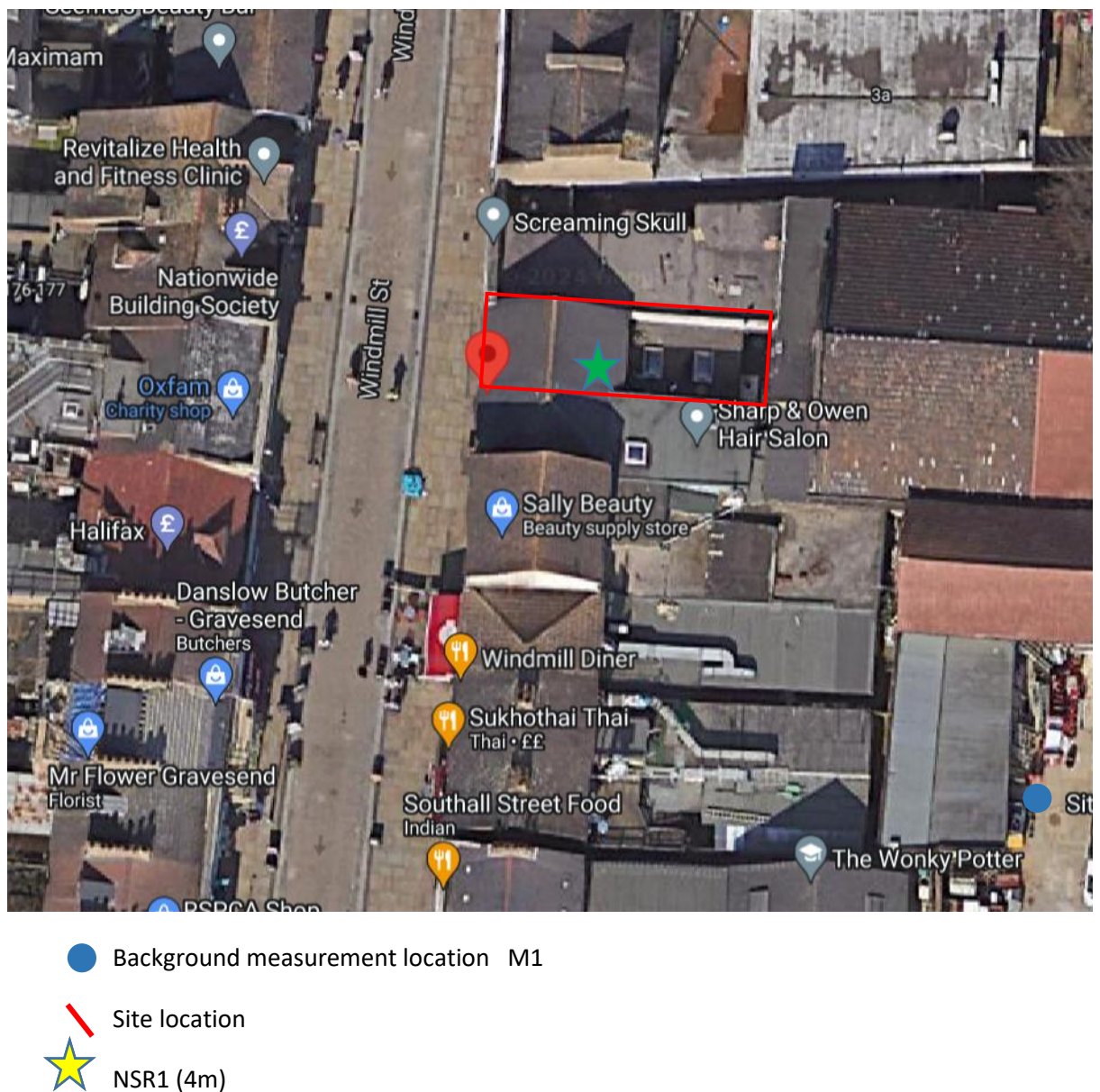
6. Subjective Impressions

- 6.1 The noise climate at the rear of the site is dominated by occasional commercial noise and people talking.

7. Measurement Locations

- 7.1 Background noise measurements were undertaken outside the rear of the nearest sensitive receptor. The data collected during this period has been used to characterise the existing acoustic environment around the site.
- 7.2 Measurement and NSR locations are shown in figure 1 below:

Figure 1: Site & Measurement Location



8. Measurement Procedure

- 8.1 Unattended/attended noise levels were measured on 23rd April 2024. Full measurement times and durations can be found in **Appendix B**.

9. Measurement Equipment

- 9.1 Measurements were undertaken using a calibrated, Pulsar N45 class 1 sound level meter. Full equipment details can be found in **Appendix C**.

- 9.2 Measurements at the monitoring location was 'free field' (no vertical reflective surfaces within 3.5 metres of the microphone) and at a height of between 1.2 – 1.5 metres above ground level. During all measurements the microphone was protected with an outdoor windshield.
- 9.3 The calibration level of the meters was checked before and after the survey with a sound calibrator with no variation in the levels observed.
- 9.4 The sound level meters were set to measure various noise parameters including LAeq and LMax values using a 'fast' time weighting.
- 9.5 Full calibration details can be provided upon request.

10. Weather Conditions

- 10.1 Weather conditions were deemed acceptable for background noise measurement. Full meteorological conditions are detailed in **Appendix E**.

11. Noise Source Levels

- 11.1 The noise level of the extraction unit has been provided by the manufacturer.
- 11.2 The outlet noise level is tabulated below:

Table 2: Manufacturer Noise Level

Equipment	LAeq (dB)	r, m
Extractor fan outlet	65	3.0

BS4142:2014 Assessment

12. Specific Sound Levels

- 12.1 The specific sound level is denoted LAs and is the A-weighted, equivalent noise level at the NSR locations over the reference time period.
- 12.2 The NSRs are located at the rear of the site with a view to the top of the flue, See Figure 1 for the location of sensitive receptors. Full calculations are shown in **Appendix F**:
- 12.3 The overall Specific Sound Level of the air vented from the internal extractor fan unit, air intake and flue at the nearest NSR locations at the front of the site are summarised below:

Table 3: Specific Sound Levels

NSR	Specific Sound Level, dBL _{As}
1	58

13. Background Sound Level

13.1 Environmental noise levels were measured on site 23rd April 2024.

13.2 The lowest 15min day-time background sound level (M1) was measured between 22:15-22:30 as 42 dB LA90,15min.

14. Rating Level

14.1 The specific sound level may be corrected for certain characteristics that make a sound more noticeable at the NSR locations. Corrections for tonality, impulsivity and intermittency may be applied.

14.2 The associated rating penalties and resultant sound rating levels, dB L_{Ar}, are tabulated below:

Table 4: Rating Penalties, dB, and Sound Rating Levels

NSR	dB L _{As}	Tonality	Impulsivity	Intermittency	dB L _{Ar}
1	58	3	0	0	61

15. Rating Level Vs Background

15.1 The rating level is to be compared to the background sound level to determine the resultant noise impact in accordance with BS4142:

A Sound Rating Level at or below the background noise level is indicative of *Low Impact*;

A Sound Rating Level that exceeds the background noise level by around + 5dB is likely an indication of *Adverse Impact*, depending on the context;

A Sound Rating Level that exceeds the background noise level by around + 10dB is likely an indication of *Significant Adverse Impact*, depending on the context.

15.2 The noise impact during the daytime is tabulated below:

Table 5: Noise Impact

NSR	Rating Level, dB L _{Ar}	Difference, dBA	Impact
1	61	+19	Significant Adverse Impact

- 15.3 Significant Adverse Impact has been identified at the NSR therefore mitigation in the form of a silencer/s is required (see appendix for the type of silencer required) to reduce noise by 24dBA in order to be low impact noise at the NSRs.

16. Internal Noise Level

From Voices, Music, Chair movement, and Kitchen operations

- 16.1 Whilst there are no prescribed standards for the assessment of noise impact where human voice is the primary source, reference can be made to 'BS8233:2014 – Guidance on sound insulation and noise reduction for buildings' [British Standards Institution] which gives guideline criteria for internal ambient noise levels in residential dwellings.
- 16.2 The primary noise source within the takeaway will be customers' voices and background music. Internal noise level has been derived based on measured noise levels during a busy evening.
- 16.3 The following spectral data from the internal onsite noise monitoring in the takeaway is tabulated below:
- 16.4 This figure is assumed as a worst-case scenario for internal noise levels with everything in the takeaway occurring at the same time.

Table 6: Internal Noise Within Ground Floor Area

	Octave Centre-Frequency Band, Hz							Equivalent A-Weighted Sum, dB L _{Aeq}
	63	125	250	500	1k	2k	4k	
Internal noise	46	53	60	63	55	51	46	64

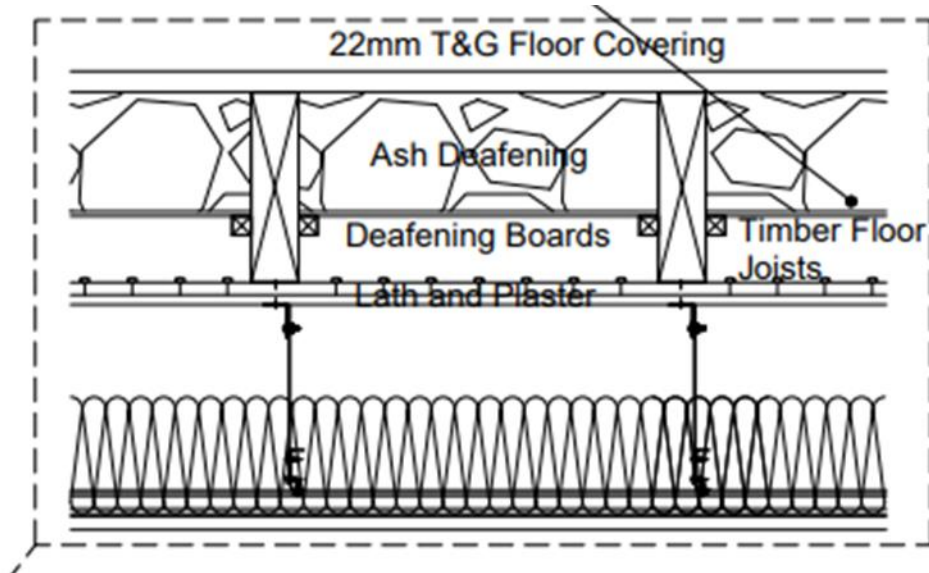
17. Internal Noise Transfer from Takeaway

- 17.1 There are commercial units either side of the unit in question therefore the only sound breaking structure between the commercial and residential unit is above.
- 17.2 Ground floor ceiling partition specifications have been modelled in InsulTM (Marshall Day Acoustics).

Building Ceiling Insulation

17.3 The current ceiling is floorboards wooden joist and plasterboard.

17.4 An improved floor/ceiling partition separating the ground-floor from the residential dwellings has been determined as shown below.



17.5 Noise breakout from customer voices, background music and chopping of food will occur through the ceiling into the above dwelling which is unlikely to achieve the desired noise reduction.

17.6 Based on the proposed acoustic ceiling detailed below. the result of the noise in the above dwelling is shown below with details of the system provided in the Appendix.

Table 6: NR20 via the acoustic ceiling

Frequency, Hz	63	125	250	500	1000	2000	4000
Source Noise Level, dB Lz	46.0	53.0	60.0	63.0	55.0	51.0	46.0
Ceiling Spec.	30.0	48.0	58.0	64.0	67.0	74.0	77.0
Internal Noise, dB Leq	15.0	4.0	1.0	-2.0	-13.0	-24.0	-32.0
A-Weighting	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0
Internal Noise, dB, LAeq	-11.2	-12.1	-7.6	-5.2	-13.0	-22.8	-31.0
NR 20	51.0	39.0	31.0	24.0	20.0	17.0	14.0
Difference NR20	-62.2	-51.1	-38.6	-29.2	-33.0	-39.8	-45.0
Receiver Room Level, dB LA	-1.7						

17.7 This arrangement is predicted to provide an airborne sound insulation performance in the region of 64 dB Rw, and within the NR20 criteria including an error margin of +/- 3dB for RW values.

17.8 The required ceiling construction should consist of the following acoustic material, or similar.

- T & G
- Solid Joist

- **Part E compliant ceiling: AcoustiClip Timber Ceiling System Soundproof Kit (Noise reduction, Airborne 64dB & Impact 54dB) consisting of:**
- **Insulation: DFM acoustic insulation**
- **Metal AcoustiClip channel**
- **15mm soundblock plasterboard**
- **Noisestop 1 plus panel 18mm, 12,5mm acoustic plasterboard bonded to 5mm/10kg mass loaded vinyl**
- **Acoustic Sealant**
- **Standard Suspended ceiling if required**

18. Summary

- 18.1 A commercial property (herein referred to as the site) is applying for planning permission for the installation of extraction system and flue to the rear elevation of the property to facilitate the grilling and frying of a mix of Indian and British cuisine and is required to confirm their external venting complies with noise guidance. The client has completed a noise impact assessment at 2 Windmill Street Gravesend Kent DA12 1AD.
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- 18.3 The discharge flue will be insulated to stop further noise breakout. The extract ducting is rigid in construction and installed with anti-vibration mountings.
- 18.4 The primary internal noise source is customers voices and background music within the takeaway on the ground floor. There are commercial units either side of the unit in question therefore the only sound breaking structure between the commercial and residential property is above.
- 18.5 A noise assessment is required to assess the likely noise impact from noise through the ceiling.
- 18.6 The associated rating penalties and resultant sound rating levels, dB L_{Ar}, are tabulated below:

Rating Penalties, dB, and Sound Rating Levels

NSR	dB L _{As}	Tonality	Impulsivity	Intermittency	dB L _{Ar}
1	58	3	0	0	61

- 18.7 The lowest day-time background sound level (M1) was measured between 22:15-22:30 as 42 dB LA90,15min.
- 18.8 The noise impact during the daytime is tabulated below:

Noise Impact

NSR	Rating Level, dB L _{Ar}	Difference, dBA	Impact
1	61	+19	Significant adverse Impact

- 18.9 Significant Adverse Impact has been identified at the NSR therefore mitigation in the form of a silencer/s is required (see appendix for the type of silencer required) to reduce noise by 24dBA in order to be low impact noise at the NSRs.

Ceiling

18.10 The model by improving the ground floor / first floor partition showed a performance of 64 Rw, this will be adequate in attenuating internal noise transfer and within the NR20 criteria including an error margin of +/- 3dB for RW values.

18.11 The required ceiling construction should consist of the following acoustic material, or similar.

- T & G
- Solid Joist
- Part E compliant ceiling: AcoustiClip Timber Ceiling System Soundproof Kit (Noise reduction, Airborne 64dB & Impact 54dB) consisting of:
 - Insulation: DFM acoustic insulation
 - Metal AcoustiClip channel
 - 15mm soundblock plasterboard
 - Noisestop 1 plus panel 18mm, 12,5mm acoustic plasterboard bonded to 5mm/10kg mass loaded vinyl
 - Acoustic Sealant
 - Standard Suspended ceiling if required

18.12 By adhering to the recommended mitigation measures, which will be satisfactory to reduce the noise level below the noise limits required for both external noise and ceiling noise breakthrough.

19. Uncertainties

19.1 Uncertainty can arise when a calculation method, such as distance correction, is used to determine an overall noise level at an NSR location; however, it is an accepted method when the noise sources are yet to be introduced to the site.

19.2 The monitoring equipment is subject to a 1dB error margin, however calibration before and after measurements allows the drift within the margin to be monitored and thus demonstrates that minimal drift occurred throughout the measurements.

Appendices

APPENDIX A - Measurement Details				
Measurement	Start Date	Start Time	End Date	End Time
M1	23/04/24	10:30	23/04/24	23:00

APPENDIX B - Equipment Details				
Equipment	Make	Model	Class	Serial Number
Sound Meter	Pulsar	N45	1	1425
Calibrator	Pulsar	PM1	1	011254A

APPENDIX C - Calibration Details					
Measurement	Calibrator Ref Level (dB)	Level Before (dB)	Deviation Before (dB)	Level After (dB)	Deviation After (dB)
M1	94.0	94.0	0	94.0	0

APPENDIX D - Meteorology Details						
Date	Temp C	Wind Speed m/s*	Wind Direction	Humidity %	Precipitation mm	Cloud Cover (Oktas)
23/04/24	15	1.2	s	84	0.0	6/8

*Windspeeds measured on site using a Skywatch Xplorer 2 Anemo-Thermometer.

APPENDIX E - Noise Attenuation

Utilising Noise Levels

Equipment	Manufacturer Data, dB LpA	r ₁ , m	r ₂ , m	Barrier	Level at NSR ₂
Extractor flue	65	4	3.0	-5	58 (NSR1)

Barrier attenuation assumed as 5 dB and 10 dB for the partial and complete blockage of the line of sight respectively between source and receiver as per 'BS5228-1:2009 – Noise and vibration control on construction and open sites' pg. 130.

Point source distance attenuation.

$$L_y = 20 \times \log \frac{r_1}{r_2}$$

Where L_y is the distance attenuation factor and r_{1,2} are the source -> measurement distance and source -> NSR distance in metres respectively

APPENDIX F – Terminology and Definitions

Noise

Sound only becomes noise (often defined as ‘unwanted sound’ or sound that is considered undesirable or disruptive) when it causes or contributes to some harmful or otherwise unwanted effect, like annoyance or sleep disturbance.

Acoustic Environment

Sound from all sound sources as modified by the environment.

Equivalent continuous A-weighted sound pressure level $L_{Aeq,T}$

Value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time interval T , has the same mean square sound pressure as a sound under consideration whose level varies with time.

A-weighting

The human ear is most sensitive to frequencies in the range 1 kHz to 5 kHz. On each side of this range the sensitivity falls off. A-weighting is used in sound level meters to replicate this sensitivity and respond in the same way as the human ear.

Octave Band

Band of frequencies in which the upper limit of the band is twice the frequency of the lower limit.

Maximum Sound Pressure Level $L_{Amax,T}$

Highest value of the A-weighted sound pressure level with a specified time weighting that occurs during a given event or measuring period.

The $L_{A10,T}$ Sound Level

The A-weighted sound pressure that is exceeded for 10% of a given time interval, T . It is often used to evaluate road traffic noise.

The $L_{A90,T}$ Sound Level

The A-weighted sound pressure that is exceeded for 90% of a given time interval, T , measured using time weighting F . It is often referred to as the background noise level and which might in part be an indication of relative quietness at a given location

Free-field Level

The sound pressure level away from reflecting surfaces.

NOTE Measurements made 1.2 m to 1.5 m above the ground and at least 3.5 m away from other reflecting surfaces are usually regarded as free-field. To minimize the effect of reflections the

measuring position has to be at least 3.5 m to the side of the reflecting surface (i.e. not 3.5 m from the reflecting surface in the direction of the source).

Façade Level

The sound pressure level 1 m in front of the façade.

NOTE Facade level measurements of LpA are typically 1 dB to 2 dB higher than corresponding free-field measurements because of the reflection from the facade.

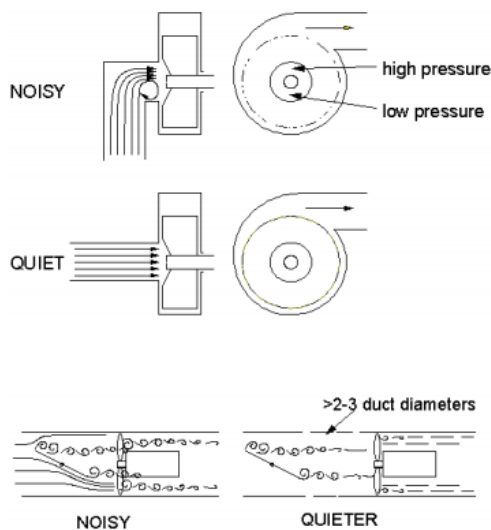
Indoor Ambient Noise

Noise in a given situation at a given time, usually composed of noise from many sources, inside and outside the building, but excluding noise from activities of the occupants.

APPENDIX G – Noise Control Technique Examples and Layout Drawings

FAN INSTALLATIONS

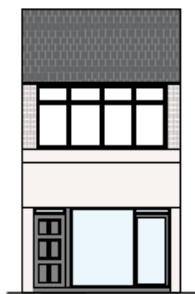
Typical applications Axial flow or centrifugal fans. Technique Maximum fan efficiency coincides precisely with minimum noise. Any fan installation feature that tends to reduce fan efficiency is therefore likely to increase noise. Two of the most common examples are bends close to the fan (intake side in particular) and dampers (close to the fan intake or exhaust).



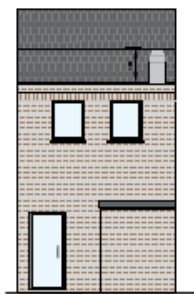
Ideally, for maximum fan efficiency and minimum noise, make sure there is at least 2 - 3 duct diameters of straight duct between any feature that may disturb the flow and the fan itself. Noise reductions of 3 - 12 dB are often possible.

DUCTWORK

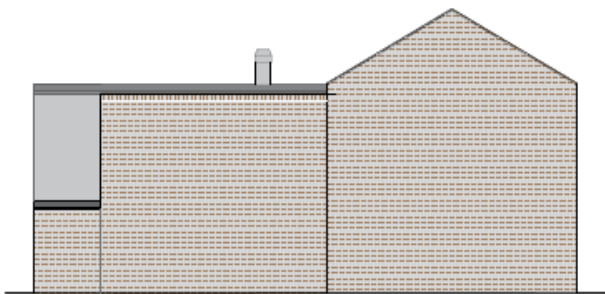
Typical applications Extraction, ventilation, cooling, openings in walls and enclosures. Technique Instead of fitting silencers, it is often possible to achieve a 10 - 20 dB reduction in airborne noise from a duct or opening by lining the last bend in the ductwork with acoustic absorbent (foam or rockwool / fibreglass). Alternatively, construct a simple absorbent lined right-angled bend to fit on the opening. Ideally, either side of the bend should be lined along a length equivalent to twice the duct diameter. Where flow velocities are high (> 3m/s), consider using cloth faced absorbent.



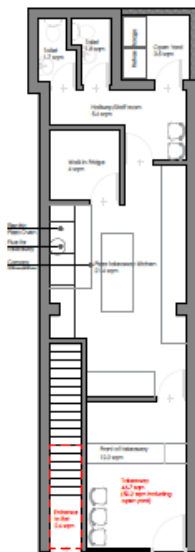
Proposed front elevation



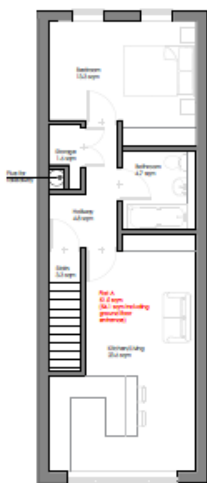
Proposed rear elevation



Proposed side elevation



Proposed ground floor



Proposed first floor

FlaktWoods Limited
 Fan Selector - Technical Datasheet

FlaktGroup

Project :

Customer :

Project Code :

Quotation :

Date : Friday, June 21, 2024

**MaXfan Compac**

40 MaXfan Compac
 2 Windmill Street
 Gravesend Kent DA12 1AD
 1 day - (Fan Only)
 Lead time may vary based on stock availability at
 time of order. Please refresh the lead time in the
 project or reselect the fan before placing an order.

PRODUCT

Model Code	40 MaXfan Compac
Fan Diameter	400 mm
Fan Speed	2840 rpm [Max 9999, Min 556]
Impeller	5 Blades, 16° Angle
Installation	Type D
Fan Casing	Long Case

PERFORMANCE

Requested Duty	1.16 m³/s @ 300 Pa (Static)
Outlet Dynamic Pressure	53 Pa
Velocity	9.37 m/s
Duty Shaft Power	0.620 kW
Peak Power	0.710 kW [Used to size motor]
Efficiency (Total / Static)	68.6 % / 58.6 %

MOTOR

Motor Rating	1.32 kW [80 Frame - 2 Pole]
Full Load Current	4.79 A
Starting Current	25 A
Electrical Supply	220 - 240 Volts 50 Hz 3 Phase
Motor Winding	Standard
Motor Type	TEAR - Pad - IE2 - Class F Insulation

EFFICIENCY GRADES

ErP [FMEQ] Rating	N 60 (ErP Compliant 2015) ✓
ErP [FMEQ]	Target N 58
FMEQ Blade Angle [Range]	16° [16° To 16°]
Measurement Category	D
VSD	No
Fan + Motor Efficiency	53.3% (1.06 m³/s @ 421 Pa)
Motor Input Power (ErP)	0.839 kW

ENVIRONMENT

Air Density	1.2 kg/m³ / 20 °C / 0 m / 40% RH
Smoke Venting	No Smoke Venting
Operating Environment	Normal

RUNNING COSTS

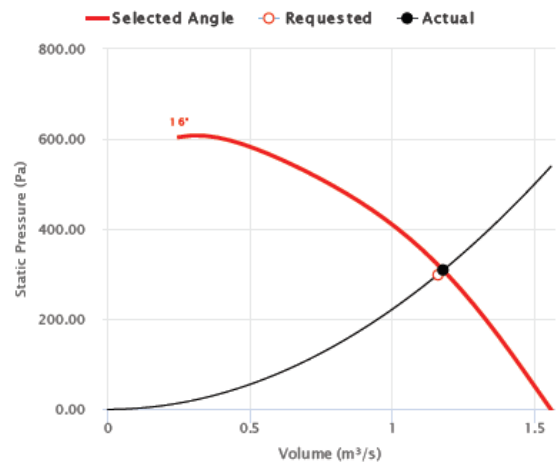
Power from mains	0.873 kW
Energy Consumption	1,746.00 kWh (2,000.00 h/Year)
Running Cost / Year	£436.50
CO2 per Year	613.82 kgCO2e
SFP value	0.74 W/l/s @ Actual Duty

PRODUCT DIMENSIONS**MECHANICAL**

Casing	400mm # Casing
Impeller	Hub, Blades
Operating Temperatures	-20 °C to 80 °C (95% Max Relative Humidity)
Weight	39kg

COMMENTS

Lang_MaxFanCompacComments

FAN PERFORMANCE CURVE**ACOUSTICS**

	Sound Spectrum (Hz)								Overall		Distance (3 m)
	63	125	250	500	1k	2k	4k	8k	Lw*	LWA*	LpA @ 3 m **
Inlet	76	77	83	80	79	78	75	71	88	85	84
Outlet	78	78	86	81	80	78	76	72	90	86	85
Breakout	68	63	66	60	54	49	51	49	72	63	42

Sound Data At Requested Duty. * Lw dB re 10⁻¹² W ** dBA re 2x10⁻⁵ Pa

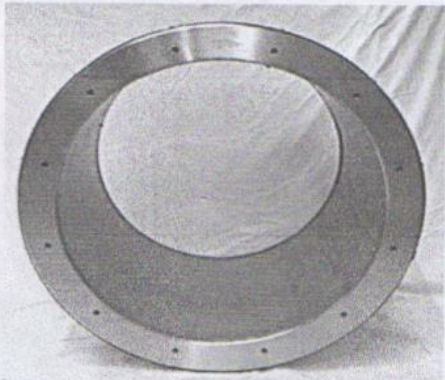
FAN & ACCESSORIES

Item Description	Part Number	Qty	Lead-time
40 MaXfan Compac	EJ413456	1	1 Day
IEXB20 - 1ph to 3ph Inverter	PK901090	1	1 Day

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 Colchester Essex CO4 5DZ
 +44 (0) 1206 222 555
 UK

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 Version 14/6/2024 Rev.35274 (19/6/2024 Rev.1 PRODUCTION)

Fan Mounted Silencers



No need to telephone for a price if you have a requirement for an intermediate size in length. See price list for price banding

A Comprehensive range of cylindrical attenuators, matched to fit directly to all types of metric axial fan flanges or to ducting via optional matching flanges. Two alternative sets of threaded inserts are offered for each silencer to match most fan mounting requirements.

The 'F' Series range is available as standard in two lengths, one x diameter and two x diameter.

Excellent attenuation properties are achieved using sound absorbing acoustic infill, which is glass tissue faced as standard to minimize fibre migration and retained within the silencer casing by a perforated liner.

- Standard sizes 250mm to 1250mm diameter
- Special sizes on request (maximum spun diameter 1850mm)
- Supplied fully packaged to suit transport method and destination
- Maximum temperature 200°C
- Maximum pressure 1500 Pa
- Hexagon mounted drillings giving a higher torque to turn ratio as well as significant thermal expansion and contraction properties reducing the risk of free rotation of the fixings

Material and Finish.. *Casing*: galvanized mild steel (BS2989), seams are sealed lockformed type with spun galvanized steel end rings. *Inner lining*: perforated galvanized mild steel (BS2989). *Sound absorbing material*: mineral fibre slabs, faced with glass tissue. Manufactured to HVCA specification DW144 class B and M&E 100 for sheet steel thickness and stiffening.

SIZE ONLY	CENTRE BAND FREQUENCY							
	63	125	250	500	1000	2000	4000	8000
F1000-2	5	10	16	23	23	16	13	11

ABOUT US

As seen on
Channel 185, Discover Britain



HERE TO HELP

We undertake various noise assessments and noise survey for a wide range of clients to meet their noise requirements and obligations, including for Planning Applications, new developments, building extensions, change of use, small businesses, restaurants, shops and much more.

QUALIFIED AND EXPERIENCED

Over 15 years UK and international acoustic engineering experience of undertaking Noise Monitoring, acoustic solutions, noise survey and Reporting.

Members of the Institute of Acoustics. Undertaken projects in Manchester, North West and across the UK.

GET THE PROJECT DONE

We offer competitive, cost effective acoustic solutions, delivering a noise survey report which complies with Local Planning Authority requirements and sound insulation or health and safety obligations.

We can also undertake Noise Modelling if required.