NOISE IMPACT ASSESSMENT

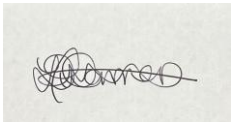
BS 4142:2014+A1:2019

Commercial Noise: Siting of a shipping container to rear of showroom property (Use Class E) for use to create a Cloud Kitchen (Use Class Sui Generis) E(B) With Extraction Unit to the Rear.

REPORT DETAILS

Site Address	5 Whiteleys Parade, Uxbridge, UB10 0PD
Report Title	Noise Assessment: Siting of a shipping container to rear of showroom property (Use Class E) for use to create a Cloud Kitchen (Use Class Sui Generis)
Project No.	NALPRO140525.01b
Consultant Contact	jonathan@noiseassessments.co.uk

QUALITY ASSURANCE

Issue No.	Status	Issue Date	Comments	Author	Approved
1	FINAL	12/06/25	-		
				J Mape BSc (Hons) PgDip IOA Cert. Environ. Noise TechIOA **Noise Consultant**	D Warren **Director**

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Contents

1. Proposal

1.1 A siting of a shipping container to rear of showroom property (Use Class E) for use to create a Cloud Kitchen (Use Class Sui Generis) (herein referred to as the site) is applying for planning permission to operate their proposed extraction system for their cloud kitchen, also known as a dark kitchen or ghost kitchen, is a professional food preparation and cooking facility set up for the preparation of delivery-only meals and is required to confirm their external flue complies with outdoor noise guidance. The client has completed a noise assessment at 5 Whiteleys Parade, Uxbridge, UB10 0PD.

1.2 A noise assessment is required to assess the likely noise impact from noise generated from the extractor fan unit within the rear of the site with the air vented at ground floor level to exit above the top of the container during the daytime. The extract fan inside the kitchen and the discharge flue are insulated to stop further noise breakout. The extract ducting is rigid in construction and installed with anti-vibration mountings. Large section ducts may include bracing or stiffeners to prevent drumming. Lined or lagged ducts, including bends, elbows or spigots, may be required if additional noise reduction is necessary.

Consultant

1.3 Jonathan has experience in environmental, noise and vibration monitoring, acoustic consultancy and impact assessment gained over a period of 22 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.

1.4 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 proposed site (ground floor) is set within the grounds of commercial row of 2-storey attached buildings. The site is surrounded by residential apartments on the upper floors and commercial units on the ground floors and 2 storey dwellings at the rear.

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

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.

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 in December 2024 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, and 2023.

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 noise sensitive receptors (NSRs) have been identified as residential apartments above at the rear of the site and residential dwellings opposite the site.

6. Subjective Impressions

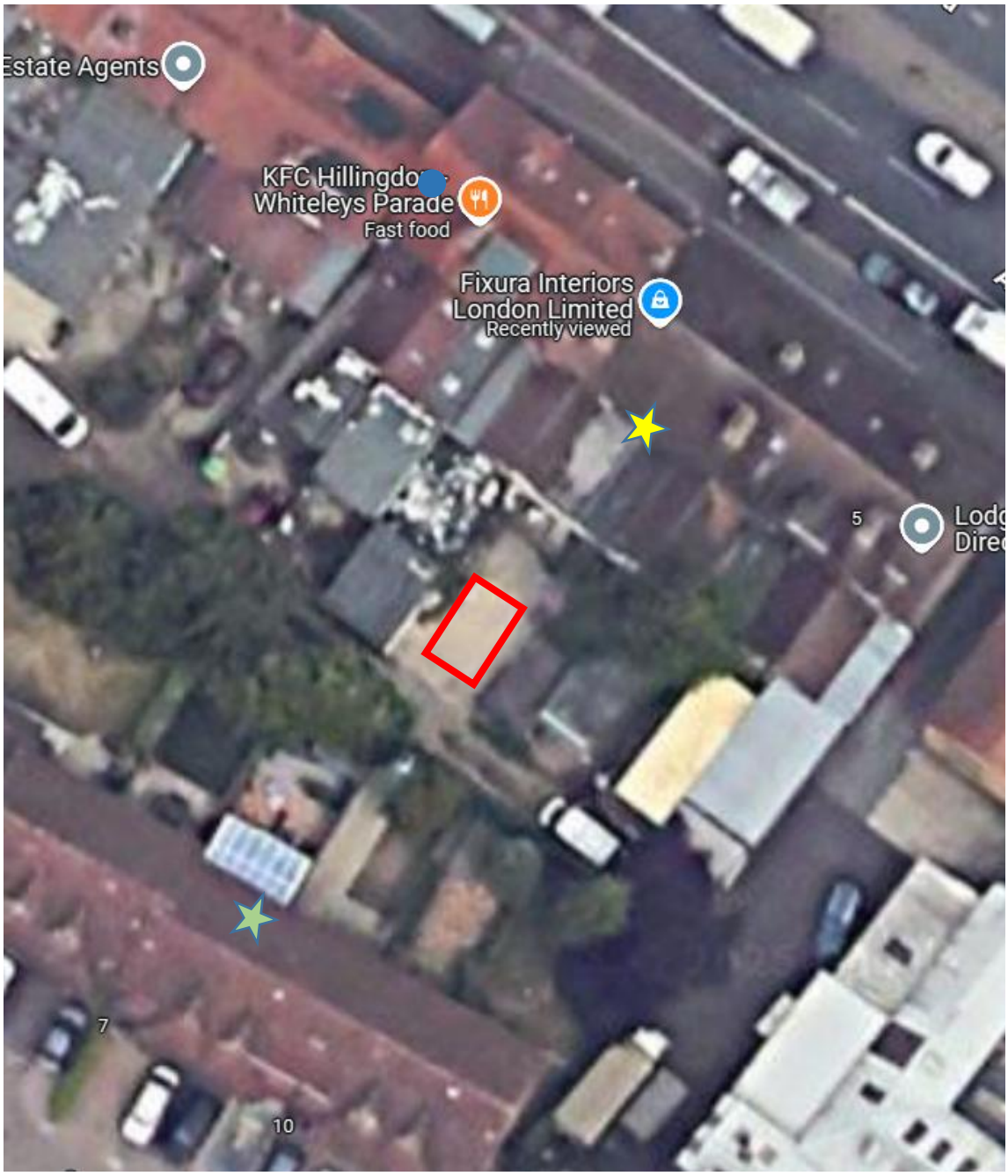
6.1 The noise climate at the rear of the site is dominated by other kitchen extraction, occasional road traffic throughout the day and evening including cars and HGVs / LGVs where tyre / road interaction noise. Secondary noise sources have been identified as bird song and people chatting.

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



Background measurement location M1

Site location

NSR1 (14m)

NSR1 (20m)

8. Measurement Procedure

8.1 Noise levels were measured on 3rd June 2025. 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 meters. Full equipment details can be found in **Appendix C.**

9.2 Measurements at the monitoring locations were '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 meter was set to measure various noise parameters including LAeq and LAmax values using a 'fast' time weighting.

9.5 Full calibration details can be provided.

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	62	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 adjacent to and directly above the site, however the location of the extractor flue exit will be above the receptor with no direct line of sight for the apartments above. See Figure 1 for the location of sensitive receptors. Full calculations are shown in **Appendix F**:

12.3 The Specific Sound Level of the air vented from the internal extractor fan unit at the nearest NSR locations at the rear of the site are summarised below:

Table 3: Specific Sound Levels

NSR	Specific Sound Level, Db L_{As}
1 (14m)	49
2 (20m)	46

13. Background Sound Level

13.1 Environmental noise levels were measured on site 3rd June 2025.

13.2 The lowest daytime background sound level was measured between 20:00-20:15 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 LAr, are tabulated below:

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

NSR	dB L_{As}	Tonality	Impulsivity	Intermittency	dB L_{Ar}
1	49	3	0	0	52
2	46	3	0	0	49

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	52	+10	**Significant Adverse Impact**
	49	+7	**Significant Adverse Impact**

15.3 Significant Adverse Impact has been identified at the NSR therefore mitigation in the form of a silencer is required (see appendix A for the type of silencer/s required) to reduce noise by **15dBA** to be low impact noise at the NSRs.

16. Summary

16.1 A siting of a shipping container to rear of showroom property (Use Class E) for use to create a Cloud Kitchen (Use Class Sui Generis) (herein referred to as the site) is applying for planning permission to operate their proposed extraction system for their cloud kitchen, also known as a dark kitchen or ghost kitchen, is a professional food preparation and cooking facility set up for the preparation of delivery-only meals and is required to confirm their external flue complies with outdoor noise guidance. The client has completed a noise assessment at 5 Whiteleys Parade, Uxbridge, UB10 0PD.

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NSR	dB L_{As}	Tonality	Impulsivity	Intermittency	dB L_{Ar}
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Noise Impact

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16.6 Significant Adverse Impact has been identified at the NSRs therefore mitigation in the form of a silencer is required (see appendix A for the type of silencer required) to reduce noise by **15dBA** to be low impact noise at the NSRs.

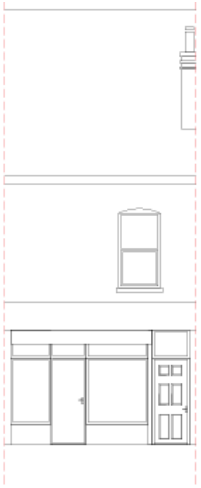
17. Uncertainties

17.1 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.

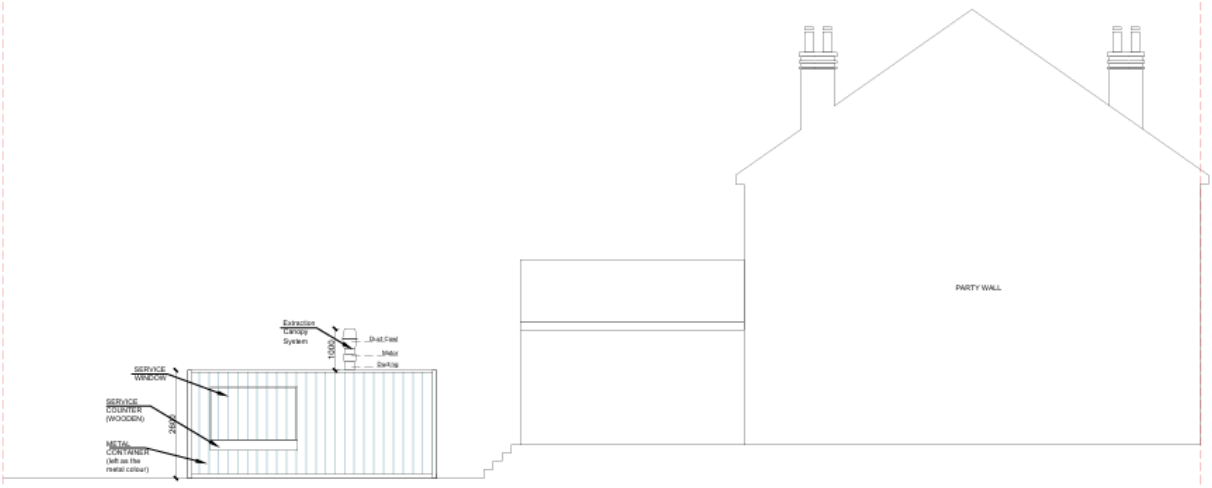
17.2 The monitoring equipment is subject to a 1dB error margin, however calibration before and after measurements allows the drift within the margin to be monitored and thus demonstrates that minimal drift occurred throughout the measurements.

Appendices

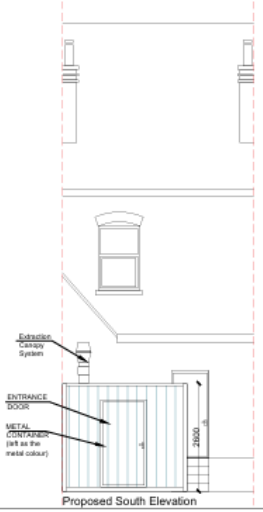
APPENDIX A – Extractor and flue details



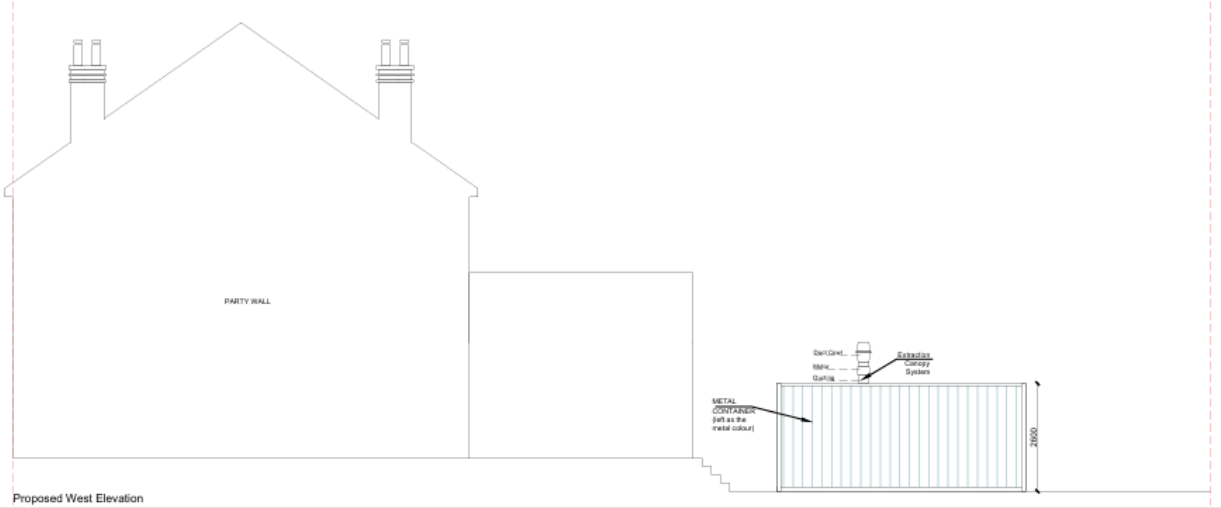
Proposed North Elevation (no proposed change)



Proposed East Elevation



Proposed South Elevation



Proposed West Elevation

Any dimensions shown should be checked on site and discrepancies reported to the Architect prior to construction. Designs are not coordinated with engineer projects. Do not scale for construction purposes.

0 1 2 3 4
Scale Bar 1:100
M.

Existing Proposed

Drawing Name: Proposed Elevations	Scale: 1/100 at A3	Drawing No.: 06
Project Adress: 5 Whiteleys Parade, UB10 0PD	Designer: BB	Revision: V3
Drawing No.: 5WhiteleysParade_ ProposedElevations_V3	Date: 26.08.2024	

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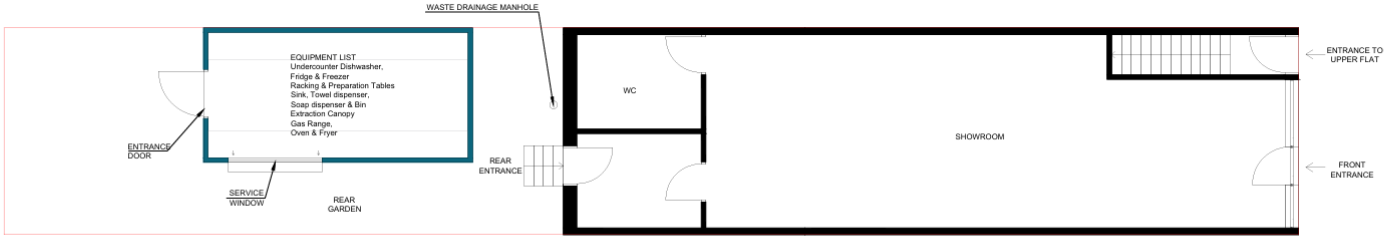
hello@planning-by-design.co.uk

Existing Ground Floor Plan



Proposed Ground Floor Plan

Any dimensions shown should be checked on site and discrepancies reported to the Architect prior to construction. Designs are not coordinated with engineer projects. Do not scale for construction purposes.

0 1 2 3 4
Scale Bar 1:100 M.

Existing Proposed

Drawing Name: Existing And Proposed Plans	Scale: 1/100 at A3	Drawing No.: 04	
Project Adress: 5 Whiteleys Parade, UB10 0PD	Designer: BB	Revision: V3	
Drawing No.: 5WhiteleysParade_ Plans_ V3	Date: 26.08.2024		

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Tel: +44 (0)1384 275800 Fax: +44 (0)1384 275810 email: sales@eltafans.co.uk
46 Third Avenue, Pensnett Trading Estate, Kingswinford, West Midlands DY6 7US, UK

Technical Data - Fan Model CF500/4-3AC

Location: **Designation:**

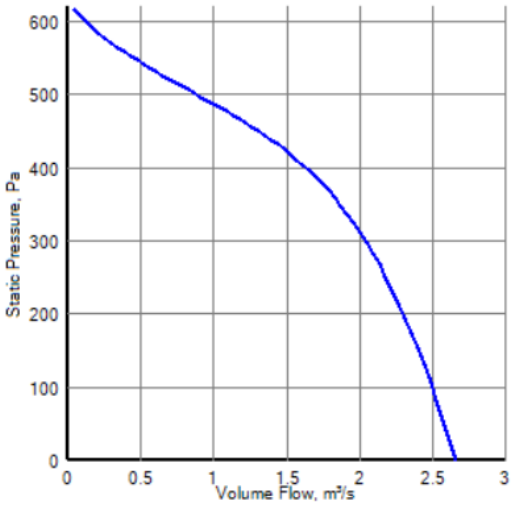
Please Note: Data shown is nominal - enter more criteria for accurate detail.

Performance - Required

Air Flow :	0.00 m³/s
Static Pressure :	0 Pa
Selection Pressure:	0 Pa
Installation Type:	n/a
Air Density:	1.204 kg/m³
- Atmos. Temp:	20 °C
- Altitude:	0 m
- Humidity:	0.0 %

Actual

Air Flow:	0.00 m³/s
Static Pressure:	0 Pa
Total Pressure:	0 Pa

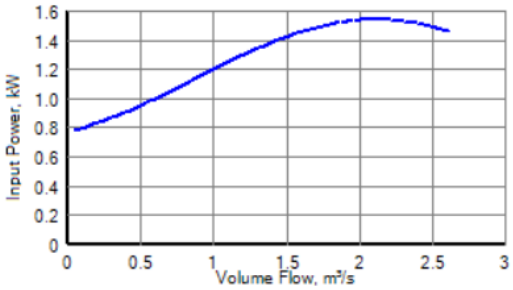


Fan Data

Catalogue Code:	CF500/4-3AC		
Description:	Centrifugal Vertical Roof		
Diameter:	500 mm		
Impeller Type:	Centrifugal		
Blade Material:	-		
Speed:	1315 r/min @50 Hz		
Power, Abs:	-		
Input Power:	0.78 kW	Peak:	-
Efficiency Total:	-		
SFP:	-	Static:	-
Fan Weight:	67.0 kg		

Motor Data (at STP)

Motor Type:	
Electrical Supply:	400V 3ph 50Hz
Motor Frame:	
Motor Power:	1.45kW
FLC/Start:	2.80A / 9.50A
Motor Speed:	4 pole
Motor Efficiency:	-



Sound Data

Spectrum (Hz):	63	125	250	500	1K	2K	4K	8K	dBW	dB(A) @ 3m
Inlet (dB):	72	84	77	74	72	71	69	67	86	58
Outlet (dB):	74	82	79	78	78	75	70	67	86	62

Sound levels are quoted as in-duct values. dB(A) values are average spherical free-field for comparative use only.

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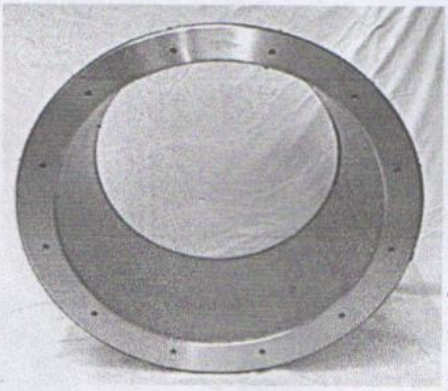
Fan Mounted Silencers



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

FUSIONHOT LTD

Stainless Steel Fabrication

Commercial Kitchen Design and Installation

Anti Vibration Mounts (A.V. Mounts)

Load range per mount 5Kg -28Kg

Anti Vibration Mounts (A.V. Mounts) attach to the bottom of Mounting Feet.

A.V. Mounts are used to isolate the fan from the system to prevent vibration transfer through fixings or structures.

A.V. Mounts can be used to isolate any products from the main system to prevent vibration transfer

The main uses A.V. Mounts for are, Axial flow fans, Box fans, Centrifugal fans, in fact A.V. Mounts can be used with anything that causes vibration.

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Unit5 Firefly Square Plantation Road Burscough Industrial Estate L40 8JT

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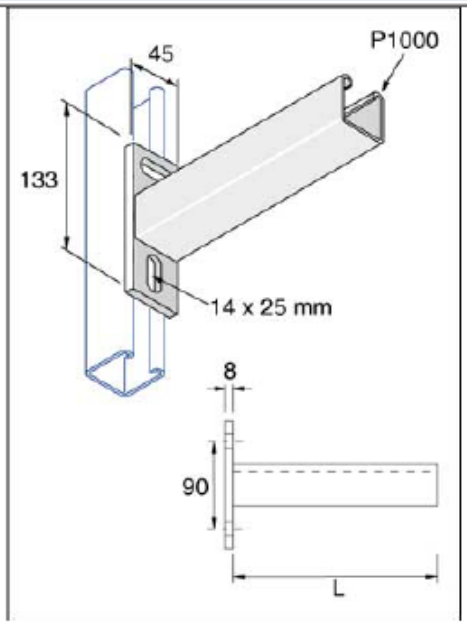
Email: fusionhot1@gmail.com **Web:** wwwFusionHot.co.uk

UNISTRUT P2663



Load Data (All Loads are kN)					
Part Number	L	F1 1/2 L 1/2 L	F1	F2 1/3L F2 1/3L F2 1/3L	F3 1/4L F3 1/4L F3 1/4L F3 1/4L
P2663/150	150	6.2	3.1	3.1	2.06
P2663/300	300	3.2	1.6	1.6	1.06
P2663/450	450	2.15	1.07	1.07	0.71
P2663/600	600	1.62	0.81	0.81	0.54
P2663/750	750	1.3	0.65	0.65	0.43

Part No.	Finish	Size	Length	Weight
P2663/150	HG	41mm	150mm	0.80
P2663/300	HG	41mm	300mm	1.17
P2663/450	HG	41mm	450	1.59
P2663/600	HG	41mm	600	2.03
P2663/750	HG	41mm	750	2.53
P2663/150	SS	41mm	150mm	0.81
P2663/300	SS	41mm	300mm	1.20
P2663/450	SS	41mm	450	1.62
P2663/600	SS	41mm	600	2.08
P2663/750	SS	41mm	750	2.62

Project: A
Architect / Engineer: B
Date: C **Phone:** D
Contractor: E
Address: F
Notes 1: G

Approval Stamp:

APPENDIX B - Measurement Details

Measurement	Start Date	Start Time	End Date	End Time
M1	03/06/25	12:30	04/06/25	11:30

APPENDIX C - Equipment Details

Equipment	Make	Model	Class	Serial Number
Sound Meter	Pulsar	N45	1	1365
Calibrator	Pulsar	PM1	1	011121C

APPENDIX D - 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 E - Meteorology Details

Date	Temp C	Wind Speed m/s*	Wind Direction	Humidity %	Precipitation mm	Cloud Cover (Oktas)
04/06/25	25	1.9	w	82	0.0	4/8

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

APPENDIX F - Noise Attenuation

Utilising Manufacturer Levels

Equipment	Manufacturer Data, dB LpA	r_1 , m	r_2 , m	Barrier	Level at NSR_2
Extractor	62	14	3.0	-	49 (NSR1)
		20	3.0	-	46 (NSR2)

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 G – 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 LAeq,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 LAmax,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 LA10,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 LA90,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).

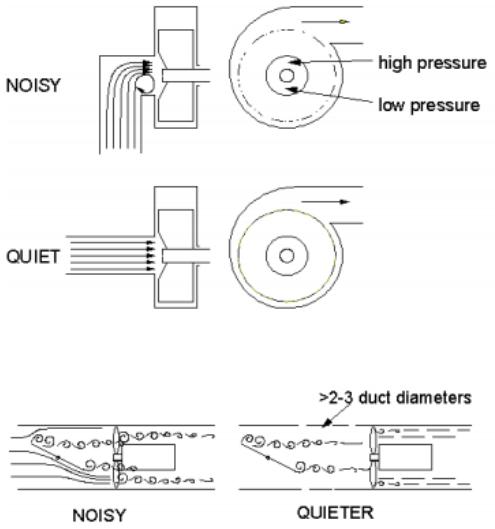
Façade Level
The sound pressure level 1 m in front of the façade.
NOTE Facade level measurements of LpA are typically 1 dB to 2 dB higher than corresponding free-field measurements because of the reflection from the facade.

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 H – Noise Control Technique Examples

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.

ABOUT US

As seen on Channel 185, Discover Britain