



Acoustic Survey and Odour Assessment for Proposed restaurant at 369 Bradford Road, Batley, WF17 5PH.

Prepared for:

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1. Introduction

- 1.1. Martin Environmental Solutions has been commissioned to undertake an acoustic survey and odour assessment to support a planning application to convert part of the ground floor of 369 Bradford Road, Batley, WF17 5PH into a restaurant.

Site Location and Context

- 1.2. The development site is situated to the west of Bradford Road, a busy high street, the development site also includes an existing snooker hall and small retail unit. To the north area additional retail units, including a takeaway, on the far side of the road to the east retail units to the ground floors and accommodation to the first, to the south takeaways and to the rear residential.
- 1.3. An aerial Photograph is enclosed in Figure 1.
- 1.4. The report has been produced to clarify the potential impact on the proposed development and to identify mitigation measures if required to ensure the development is appropriate in terms of noise and odour impact.



2. Policy and Guidance

Noise

- 2.1. The impact of noise can be a material consideration in the determination of planning applications. The planning system has the task of guiding development to the most appropriate locations. It is recognised that on occasions it will be difficult to reconcile some land uses, such as housing, hospitals, or schools, with other activities that generate high levels of noise. However, the planning system is tasked to ensure that, wherever practicable, noise-sensitive developments are separated from major sources of noise (such as road, rail and air transport and certain types of industrial development).
- 2.2. The Government's publication of the National Planning Policy Framework (NPPF), updated in December 2024, states that planning policies and decisions should prevent new and existing development from contributing to or being put at unacceptable risk from, of being adversely affected by unacceptable levels of noise pollution.
- 2.3. The Government have also issued the Noise Policy Statement for England (NPSE). The NPSE clarifies the Government's underlying principles and aims in relation to noise and sets a vision to promote good health and a good quality of life through the effective management of noise while having regard to the Government's sustainable development strategy. The NPSE aims to mitigate and minimise adverse impacts on health and quality of life through the effective management and control of noise.
- 2.4. The NPSE introduces the following terms, although no sound levels are given to represent these, many authorities have identified the sound level criteria in line with the World Health Organisation, BS8233:2014 and BS4142: 2014 levels. The terms introduced by the NPSE are:
NOEL – No Observed Effect Level (<30dB(A) inside <50dB(A) outside, 10dB below background)
LOAEL – Lowest Observed Adverse Effect Level (30-35dB(A) inside 50-55dB(A) outside, background to +5dB)
SOAEL – Significant Observed Adverse Effect Level (>35dB(A) inside, >55dB(A) outside, >+10dB above background)
- 2.5. The sound levels within the brackets of the previous paragraph are those determined as appropriate levels to indicate the relevant effect levels represented by the NPSE.



- 2.6. Other commonly used examples of standards utilised by Local Planning authorities for the consideration of noise impacts include comparison of the likely noise levels to be experienced at a development, with levels that have been recommended by the World Health Organisation (WHO) as Guidelines for the prevention of Community Noise Annoyance and within BS8233: 2014.
- 2.7. The WHO recommended noise levels for outdoor amenity areas (gardens) that should not be exceeded are 55dB(A) $L_{Aeq,16hr}$ in order to avoid 'Serious Community Annoyance' or 50dB(A) $L_{Aeq,16hr}$ to avoid 'Moderate Community Annoyance' during the day. For indoor levels WHO set 35dB(A) $L_{Aeq,16hr}$ during the day to prevent Moderate Annoyance and 30 dB(A) $L_{Aeq,8hr}$ at night to prevent sleep disturbance.
- 2.8. The WHO guidance also recommends that maximum sound levels at night should not regularly exceed 45dB(A) within bedrooms to prevent sleep disturbance. Regularly is considered to be more than 10 times during any 8-hour night-time period.
- 2.9. BS 8233:2014 'Guidance on sound insulation and noise reduction for buildings' also specifies desirable noise levels to be achieved inside dwellings.
- 2.10. BS 8233:2014 'Sound insulation and noise reduction for buildings – Code of Practice' also specifies desirable noise levels to be achieved inside dwellings. BS 8233 presents two levels, the first between the hours of 07:00 – 23:00 and the second between 23:00 -07:00.
- 2.11. The daytime period suggests internal noise levels of 35dB $L_{Aeq,16hr}$, for resting in living rooms and bedrooms while for night-time a level of 30dB $L_{Aeq,8hr}$ is recommended. Criteria for external areas mirrors that within the WHO guidance.
- 2.12. Another commonly used standard is British Standard 4142:2014 'Method for rating industrial and commercial sound' compares the sound predicted by the source in question against the background, L_{A90} sound levels.



- 2.13. The "residual" L_{Aeq} measurement is then subtracted from the "ambient" L_{Aeq} measurement (with the sound source) to calculate the sound level created by the "problem" sound alone -termed the "specific" sound level.
- 2.14. If the "problem" sound is tonal, such as whine or hum, or if it is impulsive such as bangs or clatters or if it is irregular enough to attract attention a correction is added to the "specific level" to produce the "rating level". The "background" L_{A90} measurement is then compared against the "rating level".
- 2.15. If the "rating level" exceeds the "background" by around 10dB(A) or more this "indicates a significant adverse impact". A difference of around 5dB(A) 'indicates an adverse impact. The lower the commercial noise level is, the lower the likely impact.
- 2.16. In addition, the 'ProPG Planning & Noise, Professional Practice Guidance on Planning & Noise, New Residential Development' provides a 4-staged approach to undertaking a risk assessment in relation to anticipated sound levels at new residential development and the provision of mitigation measures. The guidance is principally aimed at sites exposed predominantly to noise from transportation sources.
- 2.17. The first stage consists of an initial noise risk assessment, based on indicative day and night-time *noise* levels. Simply put, the higher the ambient noise in an area the greater the impact. The levels given are shown below although it should be noted that these are in excess of both the WHO and BS 8233: 2014 guidance.

Noise Risk Category*	Potential Effect if Unmitigated	Pre-Planning Application Guidance
0 – Negligible $L_{Aeq,16hr} < 50dB$ $L_{Aeq,8hr} < 40dB$	May be noticeable but no adverse effect on health and quality of life	In this category the development is likely to be acceptable from a noise perspective, nevertheless a good acoustic design process is encouraged to improve the existing environment and/or safeguard against possible future deterioration and to protect any designated tranquil areas. A noise assessment may be requested to demonstrate no adverse impact from noise. Application need not normally be delayed on noise grounds.
1 – Low $L_{Aeq,16hr} 50-63dB$ $L_{Aeq,8hr} 40-55dB$	Adverse effect on health and quality of life	In this category the development may be refused unless a good acoustic design process is followed and is demonstrated via a Level 1 Acoustic Design Statement which confirms how the adverse impacts of noise on the new development will be mitigated and minimised and that a significant adverse impact will not arise in the finished development. Planning conditions and other measures to control noise may be required.
2 – Medium $L_{Aeq,16hr} 63-69dB$ $L_{Aeq,8hr} 55-60dB$ $L_{AFmax} > 80dB^{**}$	Significant adverse effect on health and quality of life	In this category the development is likely to be refused unless good acoustic design process is followed and is demonstrated via a Level 2 Acoustic Design Statement which confirms how the adverse impacts of noise on the new development will be mitigated and minimised, and clearly demonstrates that a significant adverse noise impact will not arise in the finished development. Planning conditions and other measures to control noise will normally be required.
3 – High $L_{Aeq,16hr} > 69dB$ $L_{Aeq,8hr} > 60dB$ $L_{AFmax} > 80dB^{**}$	Unacceptable adverse effect of health and quality of life	In this category the development is very likely to be refused on noise grounds, even if a good acoustic design process is followed and is demonstrated via a Level 2 Acoustic Design Statement. Applicants are advised to seek expert advice on possible mitigation measures. Advice on the circumstances when the refusal of a new housing on noise grounds should normally be anticipated is included in the ProPG.

2.18. Stage 2, consists of a full assessment of the prevailing ambient noise and requires 4 elements to be considered:

- I. Element 1 – Good Acoustic Design
- II. Element 2 – Internal Noise Level Guidelines
- III. Element 3 – External Amenity Area Noise Assessment
- IV. Element 4 – Assessment of Other Relevant Issues

2.19. A good acoustic design is implicit in meeting the requirements of the NPPF and can help to resolve many potential acoustic issues.

2.20. Details of the criteria considered suitable are provided above for both internal and external sound levels. Element 4 includes such issues as local and national policy, likely occupants, wider planning objectives.



Odour

- 2.21. The Government sets out its policy in relation to planning in the National Planning Policy Framework (NPPF). The NPPF states that planning policies and decisions should “preventing new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability”; and “In preparing plans to meet development needs, the aim should be to minimise pollution and other adverse effects on the local and natural environment”.
- 2.22. While Odour is not specifically mentioned in is implied by the above and the Planning Practice Guidance (PPG) note issued by the government on Air Quality states “odour and dust can also be a planning concern, for example, because of the effects on local amenity” it continues to state, “mitigation options where necessary, will depend on the proposed development and should be proportionate to the likely impact”.
- 2.23. Before an odour can be present an adverse effect, there must be exposure to the odour and therefore a source, a pathway, and a receptor without these three links no exposure can occur. In the case of this application the source is the take-away. The pathway is the air, and the receptor are the occupants of the nearby existing dwellings.
- 2.24. In assessing the impact of odour on or from a development the scale of the exposure and therefore impact is determined by the parameters collectively known as the FIDO factors (Frequency, Intensity, Duration and Offensiveness) In addition the sensitivity of the receptor (location) will determine the magnitude of the exposure. Factors that influence the magnitude of a commercial odour problem include the size/volume of the cooking facility, the type of food being prepared, and the type of cooking appliances being used.
- 2.25. Furthermore, updated guidance on assessing the impact of extraction systems from commercial kitchens has been published by EMAQ ‘*Control of Odour and Noise from Commercial Kitchen Extraction Systems*’ 2018.



- 2.26. This document details a methodology which should be followed to assess the potential impact from commercial kitchen extraction systems on nearby land uses and how to identify suitable control and mitigation measures as required.



3. The Assessment

The development

- 3.1 The proposed development consists of a conversion of the existing retail unit a vape store and rear kitchen into a restaurant. This will include the installation of a new extraction system to the premises.
- 3.2 The proposed extraction system is to exit the building to the north of the site and terminate above the eaves of the property.
- 3.3 The current extraction system serving the existing kitchen is to be replaced. This exits the building to the north at a low level and odour emissions have historically been identified as a potential issue. Due to internal restrictions the flue cannot exit to the south or be directed through the building.
- 3.4 The front of the property being listed and the southern section to the rear being fitted with a number of windows and close to residential properties so that any extraction flue would need to pass over the windows to the upper floors.

Noise

Existing Situation.

- 3.5 In order to obtain representative background sound levels for the area on site monitoring was undertaken over the 17th-19th March 2025.
- 3.6 A Cirrus Optimus Green sound level meter was utilised for the monitoring. The meter was placed over 1m from the second-floor façade of the neighbouring property overlooking Bradford Road and the proposed location of the extraction system.
- 3.7 The meter was field calibrated at the start and end of the monitoring period with no significant variation and full laboratory calibration certificates are available on request.
- 3.8 The weather during the monitoring was dry with little to no wind <5m/s.
- 3.9 The full results are shown in Appendix A, with a summary in the tables below.

Start Time	End Time	Duration	L _{Aeq}	L _{A90}	L _{Amax}
17/03/2025 13:00	17/03/2025 23:00	09:59:58	68.0	60.2	97.4
17/03/2025 23:00	18/03/2025 07:00	08:00:00	62.2	41.9	90.2
18/03/2025 07:00	18/03/2025 23:00	16:00:00	68.2	60.5	101.1



18/03/2025 23:00	19/03/2025 07:00	08:00:00	62.4	44.2	92.0
19/03/2025 07:00	19/03/2025 11:00	04:00:01	68.2	61.0	92.6

3.10 Background sound levels were dominated by passing traffic along the road.

Impact on identified Receptors

3.11 The front of the adjacent building consists of a stairwell with retail uses beyond, and is owned by the applicant. The upper floors of the development site consist of a snooker hall. Residential accommodation exists on the far side of Bradford Road, 18m away above retail units. These are considered to be the most sensitive receptor locations.

3.12 It is proposed that a Woods EC-Powerbox EC67-450-1-4 fan is installed, combined with flexible connections to both the inlet and outlet to minimise sound and vibration transfer. The fan to be installed internally.

3.13 Manufacturers sound emission data for the system has been obtained and impact on the nearest properties, the commercial units to the north and residential to the east have been calculated, see Appendix B. To ensure no adverse impact a CDA.2D silencer has also been recommended and included within the calculations.

3.14 The resulting sound levels being 48.1dB(A) at the commercial unit and 28.6dB(A) at the residential. Below the prevailing background sound level for both day and night-time periods. The commercial unit windows entering into the stairwell.

3.15 The EC – Powerbox are no one tonal and will operate continuously during opening hours, thus in terms of a BS4142 assessment no correction is required for these features. The fan is likely to be distinctive against the traffic sound , although a similar extraction system exists to the north, a 3dB penalty is to be applied.

	Day	Night	
Measured Ambient sound level	-	-	System not present
Residual Sound level	L _{Aeq} = 68.2dB	L _{Aeq} = 61.0dB	From monitoring
Background Sound Level	L _{A90} = 60.5dB	L _{A90} = 46.6dB	Background taken from monitoring.

Reference period	60 minutes	15 minutes	Normal ref period,
Specific sound Level	$L_{Aeq} = 48.1\text{dB}$	$L_{Aeq} = 48.1\text{dB}$	Calculated – commercial
	$L_{Aeq} = 28.6\text{dB}$	$L_{Aeq} = 28.6\text{dB}$	Calculated – residential
Acoustic feature	3dB	3dB	Distinctive sound
Rating level	51.1dB	51.1dB	Commercial
	31.6dB	31.6dB	Residential
Background sound level	$L_{A90} = 60.5\text{dB}$	$L_{A90} = 46.6\text{dB}$	
Excess of Rating level over background level	(51.1-60.5) dB = -9.4dB indicates no significant adverse impact	(51.1-46.6) dB = +4.5dB indicates adverse impact	Commercial
	(31.6-60.5) dB = -28.9dB indicates no significant adverse impact	(31.6-46.6) dB = -15dB indicates no significant adverse impact	Residential
Uncertainty		Commercial operations are not operating at night, and it has been confirmed that the windows are never opened into the stairwell.	

3.16 The assessment; when considering the above mitigation measures in the form of the silencer will not result in any adverse impact on the nearby commercial or residential properties during the daytime. At night no adverse impact is to be experienced at the residential but a slight adverse impact at the façade of the commercial unit may be observed. The unit is closed at this item and the windows open onto a stairwell. The extraction system is therefore unlikely to result in any adverse impact. .



Odour

Assessment of new extraction system

- 3.17 The extraction system is to terminate at least 1m above the eaves of the building, with sensitive receptor locations within 20m of the termination point. The size of the kitchen is considered to be small, with less than 30 covers.
- 3.18 An assessment of the potential impact on the identified receptors has been undertaken in accordance to the EMAQ guidance document. This assessment is shown in Appendix C and includes the following considerations;
- 3.19 The extraction system will terminate above the eaves of the adjacent building via a jet cowl, in line with the guidance a score of 10 is applied.
- 3.20 The nearest residential receptor is located within 20m of the flue and so a score of 10 is applied.
- 3.21 The business has identified as 'small', and therefore score 1 has been applied.
- 3.22 The odour characteristics from the venue are considered to be very high, in line with the guidance document, a score of 10 has therefore been applied.
- 3.23 This results in a score of 31 or high and as such a high level of odour control is required.
- 3.24 In order to mitigate against this potential impact and to ensure no adverse impact will be experienced by the identified receptors, in line with the guidance, the following measures are recommended as part of the extraction system.
- Prefilters (baffle filters) attached to the extraction hood, reducing grease loading by 65-80%
 - An electrostatic precipitator (ESP) unit to remove oil, grease and smoke particles, appropriately sized for the final kitchen design is to be used, resulting in at least 95% efficiency at removing particles.
 - Following the ESP an activated carbon filter or ozone system to be installed to remove any residual odour, the size of the filter/ozone system will again be appropriately sized based on the final design of the kitchen and the extraction rate to achieve a 2 second residence time.
 - Finally, a jet cowl will be installed at the final exit point to increasing the velocity of the discharged air vertically into the atmosphere for dispersion.
 - The discharge point will be $\geq 1\text{m}$ above the eaves of the building



- 3.25 The system will need to be maintained and cleaned in line with the manufacturer's instructions and a separate cleaning schedule will be produced and maintained once the chosen unit has been installed.
- 3.26 The installation of the above mitigation measures will ensure high level of grease and odour removal from the extraction system, preventing any adverse impact on the identified receptors.

Other sources of odour

- 3.27 A review of the area has identified additional extraction systems to both the north and south of the site, as well as takeaways to the east and below the residential units. The extraction to the north is fitted with a "China-man's hat" to the final exit point forcing odours towards downwards and preventing adequate distribution.



4 Conclusion

Noise

- 4.1 On-site monitoring has identified existing background sound levels in the area and the sound emissions from the proposed extraction system have been compared to these. As such additional mitigation measures are recommended in the form of a silencer .
- 4.2 The inclusion of the above mitigation measures will ensure that the internal and external sound levels are acceptable and will result in a No Observe Effect on the nearby properties in line with the Noise Policy Statement for England.
- 4.3 As such the development will meet the objectives of the National Planning Policy Framework in ensuring that no significant adverse impact is experienced by the neighbouring properties. The development is therefore considered to be acceptable in terms of noise.

Odour

- 4.4 A consideration of the proposed development has been undertaken and a risk assessment produced in accordance with the EMAQ '*Control of Odour and Noise from Commercial Kitchen Extraction Systems*' 2018 guidance document.
- 4.5 This has identified a potentially high risk of adverse impact from odour and as such control measures in the form of baffle filters, ESP and either a carbon filtration or ozone system have been recommended.
- 4.6 The inclusion of the above control measures will treat and remove odour and grease from the extracted air resulting in no adverse impact on the nearby receptor locations.
- 4.7 As such the development will meet the objectives of the National Planning Policy Framework in ensuring that no significant adverse impact is experienced by the neighbouring properties. The development is therefore considered to be acceptable in terms of odour.

Figure 1 – Aerial Photograph





Appendix A – Full Monitoring Results

Time	L _{Aeq} (dB)	L _{AMax} (dB)	L _{A90} (dB)
17/03/2025 13:00	68.7	95.6	61.1
17/03/2025 14:00	68.6	92.8	61.8
17/03/2025 15:00	67.5	84.0	61.1
17/03/2025 16:00	69.0	93.2	61.5
17/03/2025 17:00	68.2	87.3	61.2
17/03/2025 18:00	67.7	97.4	59.7
17/03/2025 19:00	68.5	96.3	59.8
17/03/2025 20:00	67.6	93.0	58.7
17/03/2025 21:00	67.1	91.3	58.8
17/03/2025 22:00	66.2	83.7	56.2
17/03/2025 23:00	63.3	83.8	49.8
18/03/2025 00:00	62.4	90.2	44.9
18/03/2025 01:00	60.1	83.9	41.2
18/03/2025 02:00	57.8	75.7	40.6
18/03/2025 03:00	56.8	76.4	40.4
18/03/2025 04:00	59.7	76.8	42.1
18/03/2025 05:00	63.1	77.2	47.5
18/03/2025 06:00	66.5	85.9	55.9
18/03/2025 07:00	69.0	87.6	61.5
18/03/2025 08:00	68.7	84.7	61.8
18/03/2025 09:00	68.4	88.2	61.4
18/03/2025 10:00	67.7	84.8	60.7
18/03/2025 11:00	68.1	96.0	61.1
18/03/2025 12:00	67.5	83.0	60.8
18/03/2025 13:00	68.4	93.6	61.5
18/03/2025 14:00	69.0	99.1	60.8
18/03/2025 15:00	67.8	90.1	60.4
18/03/2025 16:00	68.2	90.9	61.5
18/03/2025 17:00	68.1	90.8	61.4
18/03/2025 18:00	67.1	83.9	60.2
18/03/2025 19:00	69.2	96.4	60.0
18/03/2025 20:00	68.2	97.1	59.2
18/03/2025 21:00	68.2	101.1	58.3
18/03/2025 22:00	66.1	89.0	56.7
18/03/2025 23:00	64.2	92.0	50.3
19/03/2025 00:00	60.7	76.0	43.9
19/03/2025 01:00	59.5	78.7	44.6
19/03/2025 02:00	57.2	75.5	43.1
19/03/2025 03:00	58.5	78.8	42.7
19/03/2025 04:00	59.2	76.1	44.3
19/03/2025 05:00	63.8	81.3	48.3



19/03/2025 06:00	66.7	82.2	55.5
19/03/2025 07:00	68.3	81.4	60.7
19/03/2025 08:00	68.7	92.6	61.9
19/03/2025 09:00	67.9	81.9	61.0
19/03/2025 10:00	68.0	91.5	60.3

15*-min night-time average

Start Time	L _{Aeq}	L _{A90}
17/03/2025 23:00	64.5	51.5
17/03/2025 23:15	63.7	50.0
17/03/2025 23:30	62.4	49.7
17/03/2025 23:45	62.3	48.4
18/03/2025 00:00	64.7	48.4
18/03/2025 00:15	62.4	46.7
18/03/2025 00:30	60.4	47.0
18/03/2025 00:45	60.5	42.0
18/03/2025 01:00	61.1	44.4
18/03/2025 01:15	61.0	42.8
18/03/2025 01:30	60.1	40.1
18/03/2025 01:45	56.9	40.2
18/03/2025 02:00	58.7	41.5
18/03/2025 02:15	58.7	40.5
18/03/2025 02:30	54.8	40.0
18/03/2025 02:45	57.8	41.1
18/03/2025 03:00	57.3	40.2
18/03/2025 03:15	52.5	40.1
18/03/2025 03:30	57.5	41.9
18/03/2025 03:45	58.1	41.6
18/03/2025 04:00	58.2	41.9
18/03/2025 04:15	59.1	41.8
18/03/2025 04:30	60.4	43.0
18/03/2025 04:45	60.5	45.6
18/03/2025 05:00	59.5	44.5
18/03/2025 05:15	62.7	48.8
18/03/2025 05:30	64.1	51.8
18/03/2025 05:45	64.4	53.3
18/03/2025 06:00	64.7	51.7
18/03/2025 06:15	66.7	56.7
18/03/2025 06:30	67.3	57.2
18/03/2025 06:45	67.0	59.1
18/03/2025 23:00	64.8	54.8
18/03/2025 23:15	63.2	51.1



18/03/2025 23:30	65.6	51.9
18/03/2025 23:45	62.5	47.0
19/03/2025 00:00	62.0	47.1
19/03/2025 00:15	61.1	43.4
19/03/2025 00:30	59.8	42.2
19/03/2025 00:45	59.2	44.2
19/03/2025 01:00	60.5	44.5
19/03/2025 01:15	59.1	45.8
19/03/2025 01:30	59.6	45.3
19/03/2025 01:45	58.8	43.9
19/03/2025 02:00	57.5	43.1
19/03/2025 02:15	57.6	42.8
19/03/2025 02:30	55.9	43.8
19/03/2025 02:45	57.6	43.0
19/03/2025 03:00	57.7	43.4
19/03/2025 03:15	59.0	42.3
19/03/2025 03:30	60.5	43.1
19/03/2025 03:45	54.7	42.5
19/03/2025 04:00	59.0	43.2
19/03/2025 04:15	57.6	45.7
19/03/2025 04:30	59.6	45.6
19/03/2025 04:45	60.1	44.4
19/03/2025 05:00	61.3	45.9
19/03/2025 05:15	63.2	46.4
19/03/2025 05:30	64.0	52.7
19/03/2025 05:45	65.7	54.5
19/03/2025 06:00	65.1	52.4
19/03/2025 06:15	66.8	56.2
19/03/2025 06:30	67.0	57.6
19/03/2025 06:45	67.6	58.9
Average	61.0	46.6



Appendix B – Impact from Extractor

	63	125	250	500	1000	2000	4000	8000	Lw	Lp at 1.8m	17m
Powerbox EC 67-450-1-4	72	81	80	78	75	71	64	63	85		
Directivity	1	1	1	2	3	4	7	12			
silencer - CDA2D	4	7	10	15	19	16	12	9			
a-weighting	-26.2	-16.1	-8.6	-3.2	0	1.2	1	-1.1			
resulting sound level	40.8	56.9	60.4	57.8	53	52.2	46	40.9	64.2	48.1	28.6



Woods Air Movement
Technical Data Sheet Estoc
EC - Powerbox



Quotation Number	:	Project Code	:
Project Name	: ML	Customer	:
Item Reference:	:	Date:	: Thursday, March 24, 2022
Fan Code	ePowerBox EC 67-450-1-4 (G.5FA)		
Fan Diameter / Size	450		
Velocity	6.7 m/s		
Form of Running	B (Horizontal)		
Requested Duty (10V)	1.06m³/s @ 579 Pa (static)	Acoustic figures for adjusted running speeds have been interpolated and are for reference only.	
Actual Duty	1.06m³/s @ 582 Pa (static)		
Control Adjustment	10V		
Outlet Dynamic Pressure	27 Pa		
Input Power	1.06 kW	This Offer is made subject to the latest version of our A100-19 Terms and Conditions, a copy of which can be made available on request. Our lead times will be re-confirmed on receipt of manufacturing release and may be subject to change.	
Full Load Current	4.63 A		
Motor Frame	Integral [Class F]		
Motor Rating	1.03 kW (Maximum Power)		
Electrical Supply	220-240 Volts ±10% 50 Hz 1 Phase		
Regulation 1253/2014			
UVU Efficiency	60.5%		
UVU Target Efficiency	42.1%		
Nominal Flow Rate	1.37 m³/s @ 445 Pa		
Effective Input Power	1.02 kW		
Nominal RPM	1550 rpm		
Air Density	1.2 kg/m³ / 20 °C / 0 m / 50% RH		
Product Number	BE450015		

	Sound Spectrum (Hz)								Overall	
	63	125	250	500	1k	2k	4k	8k	Lw*	LpA @ 3 m**
Inlet*	68	75	77	71	67	65	62	59	80	53
Outlet*	72	81	80	78	75	71	64	63	85	59
Breakout*	64	69	64	50	45	42	37	27	71	37

* Lw dB re 10⁻¹² W
Sound data at requested duty.

** dBA re 2x10⁻⁵ Pa

STANDARD CIRCULAR SILENCER INSERTION LOSS DATA

@ +20°C and 5m/sec FACE VELOCITY

SILENCER SIZE	CODE	P.A	OCTAVE BAND CENTRE FREQUENCIES (Hz)							
			63	125	250	500	1K	2K	4K	8K
200-550 dia	CDA.1D	ALL	2	4	6	10	14	10	7	8
		A	4	8	13	17	23	17	12	11
		B	4	8	12	17	23	17	12	10
	CDAP.1D	C	4	7	10	15	19	16	12	9
		A	4	6	8	12	21	21	18	15
		B	4	6	8	11	18	19	17	14
	CDAP.2D	C	4	6	8	11	14	16	11	10
		A	7	10	12	24	29	29	27	23
		B	7	10	12	21	26	26	24	22
		C	7	10	11	18	21	20	17	15



Appendix C - EMAQ Odour Risk Assessment

Impact Risk	Odour Control Requirement	Significance Score*
Low to Medium	Low level odour control	Less than 20
High	High level odour control	20 to 35
Very high	Very high level odour control	more than 35

Criteria	Score	Score	Details
Dispersion	Moderate	10	Discharging above the eaves
Proximity to Receptors	Medium	10	Closest sensitive receptor 20m from kitchen discharge (below)
Size of Kitchen	Medium	1	Small take-away
Cooking type	High	10	Restaurant, some fried food
Total	High	31	



Appendix D – Report Author Details

This report has been produced by Neil Martin, BSc (Hons), PGDip, CEnvH MCIEH, MIOA.

Neil is the principal acoustic consultant at Martin Environmental Solutions Ltd, a consultancy company specialising in Environmental Health disciplines including environmental noise assessment and control. He holds a Bachelor's degree in Environmental Health and Diploma in Acoustics. He is a Chartered Member of the Chartered Institute of Environmental Health and a Full member of the Institute of Acoustics.

Neil has over 20 years' experience working within a Local Authority Environmental Health setting, principally in the Environmental Protection and Public Health areas and has been working as an acoustic consultant since 2011.

Since its formation, Martin Environmental Solutions has advised and assisted many groups including residents, developers and local authorities about the problems of noise and vibration in the environment and the possible solutions. Neil also acts as an expert witness in the area of acoustics.