



Odour Impact Assessment

4 Arnold's Crescent, LE9 9LD

Ali Kulhas

1st July 2024

Project Information

Title	Odour Assessment
Job Code	93443
Sector	Environment
Report	OD
Client	Ali Kulhas
Revision	A
Status	Final
Date of Issue	1 st July 2024

Revision History

Revision	Date	Author	Reviewer	Approver	Status
A	1 st July 2024	AP	MT	AC	Final

Disclaimer

This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken by any third party. This report may include data obtained from trusted third-party consultants/laboratories that have been supplied to us in good faith. Whilst we do everything, we can to ensure the quality of all the data we use, we cannot be held responsible for the accuracy or integrity of third-party data.

Table of Contents

1	Introduction.....	4
1.2	Overview	4
1.3	Site Location and Proposal Information	4
1.4	Key Pollutant – Odour	5
1.5	Regulation Governing the Design and Performance Systems for Commercial Kitchens	6
2	Commercial Kitchen Ventilation Systems Design and Operational Requirements	7
2.2	Minimum Ventilation Rates.....	7
2.3	Minimum Requirements for Canopy	7
2.4	Minimum Requirements for Ductwork.....	8
2.5	Minimum Requirements for Fans.....	8
3	Methodology	9
3.2	Overview	9
3.3	IAQM Guidance	9
3.4	Risk Assessment for Determining Odour Control Requirement	10
4	Odour Impact Assessment.....	12
4.2	Overview	12
4.3	Receptor Sensitivity	12
4.4	Source Odour Potential.....	12
4.5	Pathway Effectiveness.....	12
4.6	Likely Magnitude Odour Exposure.....	12
4.7	Likely Magnitude of Odour Effect.....	13
4.8	Risk Assessment to Determine Odour Control Measures	13
5	Proposed Mitigation Measures.....	1
6	Conclusions.....	2
Appendix A:	Relevant extract from IAQM Guidance	3
Appendix B:	Drawings.....	7

List of Figures

Figure 1.1: Site Location

5

List of Tables

Table 2.1: Duct Velocity	8
Table 3.1: Risk Score for Level of Odour Control Required	10
Table 3.2: Score for Criteria such as Dispersion, Proximity of Receptors, Size of Kitchen and Cooking Type 3:	10
Table 4.1: Summary of likely odour effects at existing sensitive receptors	13
Table 4.2 Risk Assessment for Odour Control System Requirement.	13
Table A1: Examples of risk factors for odour source, pathway and receptor sensitivity based on IAQM (2018)	3
Table A1: Examples of risk factors for odour source, pathway and receptor sensitivity based on IAQM (2018)	4
Table A2: Risk of odour exposure (impact) at the specific receptor location based on IAQM (2018)	6
Table A3: Likely magnitude of odour effect at the specific receptor location based on IAQM (2018)	6

1 Introduction

1.1 Overview

Aval Consulting Group Ltd has been commissioned to carry out an odour assessment at 4 Arnold's Crescent, LE9 9LD.

The proposed development includes the change of use from sandwich shop (Class E) to hot food takeaway (sui generis) including replacing an existing extract system. Further details and design plans of the proposed layouts can be found in Appendix B.

The report will investigate the odour impacts from the proposed development as part of the planning application. The main purpose of this report is to assess if the odour impact from the proposed development is likely to have a detrimental impact on the nearby receptors and, if needed, to also propose required mitigation measures with odour control specifications regarding the proposed equipment and extract system.

The assessment was carried out by the Institute of Air Quality Management's (IAQM) "Guidance on the Assessment of Odour for Planning" (2018) and the updated guidance of Control of Odour and Noise from Commercial Kitchen Exhaust Systems (2018). This guidance is an update of the Defra Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems (2004).

1.2 Site Location and Proposal Information

Figure 1.1 shows the proposed site location. The site is located on Arnold's Crescent. The area surrounding is largely residential properties with a handful of commercial/retail buildings. The nearest receptors have been identified as the commercial unit to the north side of the development and the residential building also local to the north of the site, approximately 10-15m away.



Figure 1.1: Site Location

1.3 Key Pollutant – Odour

IAQM guidance defines odour as a mixture of many chemicals which interact to produce a 'smell'. While odour-free air refers to air containing no odorous chemicals, fresh air is usually perceived as air containing no chemicals or contaminants that could be 'unpleasant'.

While odour is not strictly speaking an air pollutant, certain combinations of chemicals can affect the human olfactory response (perception followed by psychological appraisal) and cause a loss of amenity. Perception of an odour can be subjective to the individual whether it is found as acceptable, objectionable or offensive.

Odour can be produced by several industries including food outlets, production, recycling, waste handling, vehicle respraying, power plants, traffic emissions, agriculture etc.

Factors that influence the control of odour from commercial kitchens include:

- Size of the cooking facility- This influences the intensity of the odour and volume of ventilation air to be handled;
- Type of food prepared – This affects the chemical constituents within the ventilation air; and
- Types of cooking appliances used: This dictates the level of fat, water droplets and temperature within the ventilation air.

Aval Consulting Group Ltd. 3 Lloyds Avenue, London, EC3N 3DS

T +44 (0)20 8004 9196 | E contact@aval-group.co.uk | W www.aval-group.co.uk

THIS REPORT SHOULD NOT BE SUBMITTED TO THE LOCAL AUTHORITY.

1.4 Regulation Governing the Design and Performance Systems for Commercial Kitchens

There is no legislation directly governing the design and performance of commercial kitchen ventilation systems. However, other regulations protecting the health and safety of employees, food safety and local amenity exist. The following legislations are considered relevant to this assessment:

- The Building Regulations 2000 (in response to the Building Act 1984);
- The Environmental Protection Act 1990;
- The Town and Country Planning Act 1990;
- National Planning Policy Framework (England) 2018;
- Workplace (Health, Safety and Welfare) Regulations 1992;
- Health and Safety Executive (HSE) Reference Sheet – 'Ventilation in catering kitchens (2017)';
- The Food Safety Hygiene (England) Regulations (2013) and EU Regulations 852/2004; and
- Relevant BESA standards for Kitchen Ventilation Systems.

2 Commercial Kitchen Ventilation Systems Design and Operational Requirements

Based on the updated guidance of Control of Odour and Noise from Commercial Kitchen Exhaust Systems (2018) the minimum standards for commercial kitchen ventilation systems performance are:

2.1 Minimum Ventilation Rates

- An internal ambient air temperature of 28-degree Celsius maximum.
- Maximum humidity levels of 70%.
- Internal noise level should be between NR40-NR50.
- Dedicated makeup air system to be approximately 85% of the extract flow rate, and
- Extract flow rates for a commercial kitchen should be calculated using the thermal convection method only, as this overcomes heat and odour variation between different types of cooking appliances. Other less reliable methods remain available.

2.2 Minimum Requirements for Canopy

Velocity requirements:

- Light loading – 0.25 m/s (applies to steaming ovens, boiling pans, bain maries and stock pot stoves).
- Medium loading – 0.35 m/s (applies to deep fat fryers, Bratt pans solid and open-top ranges and griddles); and
- Heavy loading – 0.5 m/s (applies to chargrills, mesquite and specialist broiler units).

Sizing:

- Ideally, the plan dimensions of the canopy shall always exceed the plan dimensions of the catering equipment by a minimum of 250 mm on each free side.
- This should be increased to 600 mm in front of combination steaming ovens to cope with the steam or fumes released when the doors of the appliance are opened. Solid Fuel appliances must have an overhang of 300 mm from the door open position.

Materials:

- A material that would comply with the food hygiene requirement is stainless steel.
- Grease Separation

- The grease extracted by the separators shall be collected and removed so that it will not accumulate in either the canopy plenum or the ductwork system or fall back onto the cooking surface.
- The separator shall be constructed so that there are no sharp edges or projections and shall be easily removable for regular cleaning, and
- Primary filters that retain grease within the filtration matrix until cleaned shall not be used (not to be confused with those designed with purpose-made integral collection reservoirs).

2.3 Minimum Requirements for Ductwork

All ductwork should be Low-Pressure Class 'A' and constructed by BESA Specification DW/144 with a minimum thickness of 0.8 mm.

Duct velocities should be as follows:

Table 2.1: Duct Velocity

	Supply	Extract (m/s)
Main runs	6-8	6-9
Branch runs	4-6	5-7
Spigots	3-5	5-7

All internal surfaces of the ductwork should be accessible for cleaning and inspection. Access panels should be installed at 2.0 m centres and should be grease-tight using a heatproof gasket or sealant.

Ductwork should not pass through fire barriers and where it is not possible to immediately discharge the captured air, fire-rated ductwork may be required.

2.4 Minimum Requirements for Fans

Fans should be selected to handle the design resistance with an additional 10% airflow and 20% pressure margin allowed to suit possible extensions to the original kitchen plan.

Backwards curved centrifugal, mixed flow or axial flow impellers are preferred as they are less prone to unbalance and are more easily maintained and cleaned due to their open construction. Fixed or adjustable metal impellers with robust and open construction shall be used.

Care shall always be taken with the location of the supply and extract fans to ensure that there is enough space for regular cleaning and maintenance. Limited space shall not restrict the selection of the correct fan.

For fans serving canopies above solid fuel-burning appliances, the motor must be out of the airstream and impellers must have metal blades

3 Methodology

3.1 Overview

The local authority requested that an odour assessment be carried out for the proposed development. Hence an odour assessment has been carried out using the latest guidance produced by the IAQM.

3.2 IAQM Guidance

IAQM guidance is limited to assessing the effect of odour on amenity and not on human health. For exposure to odour to occur, there must be an emission source to the atmosphere, a pathway for the odour to travel and a receptor that could experience adverse effects. Therefore, the IAQM guidance is based upon Defra's Green Leaves 111 guidance¹ which presents the Source-Pathway-Receptor (S-P-R) concept. The S-P-R concept presents the hypothetical relationship between the source (S) of the odour, the pathway (P) by which exposure might occur, and the receptor (R) that could be adversely affected.

An example framework for conducting odour assessments is laid out in Appendix A of IAQM guidance and has been followed for this assessment.

It is recognised that to assess the magnitude of odour effects from a site it is necessary to estimate the odour-generating potential of the site activity. The source odour potential takes into account the scale of the odour release (magnitude), how inherently odorous the emission is and the relative pleasantness/unpleasantness of the odour (its hedonic tone). Using Table A1 (Appendix A) the source odour potential can be categorised as small, medium or large.

Secondly, the effectiveness of the pollutant pathway for odour through the air versus the dilution/dispersion of the odorous emissions in the atmosphere needs to be estimated. Factors that may increase the odour's dilution and/or dispersion through the pathway will reduce the odour concentration at the receptor, thereby reducing exposure. Factors that need to be considered in this step are presented in Table A1 (Appendix A). The pollutant pathway can be categorised as ineffective, moderately effective or highly effective using Table A1 (Appendix A).

From this, IAQM guidance suggests that the risk of odour exposure (impact) for each receptor may be evaluated by combining the source odour potential and the pathway effectiveness using Table A2 (Appendix A).

IAQM guidance recommends classifying each receptor in terms of its sensitivity. Indicative examples of low, medium and high sensitivity receptors are given in Table A1 (Appendix A) and should be used in combination with professional judgment to assess the sensitivity of receptors to odour.

Justification needs to be given for the selected categorisation of the source odour potential, pathway effectiveness, and receptor sensitivity. This typically involves some degree of quantitative assessment supplemented by the professional judgement of the air quality practitioner.

¹ Defra (2011): Guidelines for Environmental Risk Assessment and Management (Green Leaves 111)
Aval Consulting Group Ltd. 3 Lloyds Avenue, London, EC3N 3DS

T +44 (0)20 8004 9196 | E contact@aval-group.co.uk | W www.aval-group.co.uk

The likely magnitude of the odour effect at specific receptor locations may be determined by combining the risk of odour exposure with the specific receptor sensitivity, as in Table A3 (Appendix A). The likely magnitude of odour effects may be classed as 'negligible', 'slight adverse', 'moderate adverse' or 'substantial adverse'.

The final step for most assessments is to estimate the overall odour effect on the surrounding area as a result of the site, development or process. This assessment must take into account the different magnitude of effects at different receptors and the total number of receptors that experience these different effects. IAQM guidance recommends the suggested descriptors for the total magnitude of odour effects, as reproduced in Table A3 (Appendix A). IAQM guidance suggests that "where the overall effect is greater than 'slight adverse', the effect is likely to be considered significant."

3.3 Risk Assessment for Determining Odour Control Requirement

Odour control must be designed to prevent odour nuisance in a given situation. The following score methodology is suggested as a means of determining odour control requirements using a simple risk assessment approach. The odour control requirements considered here are consistent with the performance requirements listed in this report. The level of odour control required is proposed based on the following scores:

Table 3.1: Risk Score for Level of Odour Control Required

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

Table 3.2: Score for Criteria such as Dispersion, Proximity of Receptors, Size of Kitchen and Cooking Type 3:

Criteria	Score	Score	Details
Dispersion	Very poor	20	Low-level discharge, discharge into courtyard or restriction on stack.
	Poor	15	Not low level but below eaves, or discharge at below 10 m/s.
	Moderate	10	Discharging 1m above eaves at 10 -15 m/s.
	Good	5	Discharging 1m above ridge at 15 m/s.
Proximity of receptors	Close	10	The closest sensitive receptor is less than 20m from kitchen discharge.
	Medium	5	The closest sensitive receptor is between 20 and 100m from kitchen discharge.
	Far	1	The closest sensitive receptor is more than 100m from kitchen discharge.
Size of kitchen	Large	5	More than 100 covers or large-sized take away.
	Medium	3	Between 30 and 100 covers or medium-sized take away.

Aval Consulting Group Ltd. 3 Lloyds Avenue, London, EC3N 3DS

T +44 (0)20 8004 9196 | E contact@aval-group.co.uk | W www.aval-group.co.uk

THIS REPORT SHOULD NOT BE SUBMITTED TO THE LOCAL AUTHORITY.

	Small	1	Less than 30 covers or small takeaway.
Cooking type (odour and grease loading)	Very high	10	Pub (high level of fried food), fried chicken, burgers or fish & chips. Turkish, Middle Eastern or any premises cooking with solid fuel.
	High	7	Vietnamese, Thai, Indian, Japanese, Chinese, steakhouse.
	Medium	4	Cantonese, Italian, French, Pizza (gas-fired),
	Low	1	Most pubs (no fried food, mainly reheating and sandwiches etc), Tea rooms.

4 Odour Impact Assessment

4.1 Overview

As discussed above, the odour impact assessment has been carried out following the IAQM guidance. Key information from the guidance is presented in Appendix A. The assessment has been divided into sub-sections to explain the outcome of each part of the assessment and how it was determined.

4.2 Receptor Sensitivity

The nearest receptors have been identified as the commercial receptors to the north of the proposed development site, approximately 5-10m away and the residential receptors north of the proposed development site, approximately 10-15m away. People would be expected to be present here during working hours (9 am to 6 pm) for the commercial receptors, or at least regularly for extended periods. In terms of the nearby dwelling, people would be expected to be present continuously. Based on the criteria presented in Table A1 in Appendix A, the commercial receptors are considered to have 'Medium' sensitivity, and the residential receptors are considered to have 'High' sensitivity. This is presented in Table 4.1.

4.3 Source Odour Potential

The discharge from the extraction system is directed outward through a duct vertically by at least 1m above the ridge. The odour from the type of cooking may not be considered neutral depending on the perception of the receptor and could impact surrounding amenities. Filtration and flue extract systems have been implemented to reduce smell and grease. Based on Table A1 in Appendix A, it is assumed that the processes of the extraction system are likely to have a 'Small' source odour potential.

4.4 Pathway Effectiveness

It is proposed that the flue would be located above the ridge and would be vertically discharging. It is also within proximity to potential receptors. Therefore, the odour pathway effectiveness towards the identified receptors is considered to be 'Moderately Effective' based on Table A1 in Appendix A.

4.5 Likely Magnitude Odour Exposure

The risk of odour exposure has been calculated using the IAQM criteria summarised in Appendix A: Table A2. As stated above, the source odour potential was considered to be "Small", and the pathway effectiveness was considered to be 'Moderately Effective'. Based on IAQM guidance, the risk of odour exposure for the concerned receptors is considered to be a 'Negligible Risk'.

4.6 Likely Magnitude of Odour Effect

Table 4.1: Summary of likely odour effects at existing sensitive receptors

Receptor Details and Location	Receptor Sensitivity	Source Odour Potential	Pathway Effectiveness	Odour Exposure	Likely Magnitude of the Odour Effect
Commercial receptors	Medium	Small	Moderately Effective	Negligible Risk	Negligible Effect
Residential receptors	High	Small	Moderately Effective	Negligible Risk	Negligible Effect

According to the results above and the criteria in Table A2, odour exposure is considered to be of 'Negligible Risk' for the commercial and residential receptors. Based on the IAQM guidance, the likely magnitude of the odour effect from the proposed development is considered to have a 'Negligible Effect'. IAQM guidance suggests that "where the overall effect is greater than 'slight adverse', the effect is likely to be considered significant. As the likely magnitude of the odour effect is 'Negligible effect' the odour impact is not considered significant.

4.7 Risk Assessment to Determine Odour Control Measures

In relevance to the information in Section 3 of this report, a risk assessment has been carried out to determine the level of odour control measures required and has been tabulated below.

Table 4.2 Risk Assessment for Odour Control System Requirement.

Source	Dispersion	Proximity of receptors	Size of Kitchen	Cooking Type	Total Score
Kitchen Extract	5	10	3	10	28

The resulting score from Table 4.2 is classified as having a "High" Risk and therefore requires a high level of odour control.

5 Proposed Mitigation Measures

According to the findings in Section 4 of this report, a high level of odour control is required. The EMAQ 2018 requirements state that:

“High-level odour control may include

- 1. Fine filtration or ESP followed by carbon filtration (carbon filters rated with a 0.2 – 0.4 second residence time)*
- 2. Fine filtration or ESP followed by UV ozone system to achieve the same level of control as 1.”*

It is recommended that the above odour control measures, as well as the minimum requirements described in Section 2 of this report, should be implemented as part of the design for all extraction/odour abatement systems present on-site, following which, it can be confirmed that the development will abide by the “high” level of odour control as required by the EMAQ 2018 guidelines.

As depicted in the designs (Appendix B), the client has integrated an extraction system that aligns with the standards specified by EMAQ. Consequently, the proposed development's extraction system adheres to the guidelines outlined in EMAQ 2018.

6 Conclusions

This report provides an assessment of the potential odour impact of the proposed changes at 4 Arnold's Crescent, LE9 9LD.

A qualitative assessment of the odour effects has been undertaken for the proposed scheme. Based on the recommendations in Section 2 and as per the results presented in Section 4 of this report, relevant mitigation measures have been recommended and the client's incorporation of said mitigation measures (Section 5).

The proposed development was found to abide by all the minimum requirements of a commercial kitchen as laid out by the Updated Guidance of Control of Odour and Noise from Commercial Kitchen Exhaust Systems (2018) (Section 2 of this report).

It can, therefore, be concluded that the proposed development is not considered to conflict with any national, regional, or local planning policy about operational phase odour impact on existing receptors

Appendix A : Relevant extract from IAQM Guidance

Table A1: Examples of risk factors for odour source, pathway and receptor sensitivity based on IAQM (2018)

Source Odour Potential	Pathway Effectiveness	Receptor
Factors affecting the source odour potential include: • The magnitude of the odour release (taking into account odour-control measures) • How inherently odorous the compounds are, • The unpleasantness of the odour.	Factors affecting the odour flux to the receptor are: • Distance from source to receptor • The frequency (%) of winds from the source to receptor (or, qualitatively, the direction of receptors from the source concerning prevailing wind) • The effectiveness of any mitigation/control in reducing flux to the receptor • The effectiveness of dispersion/ dilution in reducing the odour flux to the receptor topography and terrain.	For the sensitivity of people to odour, the IAQM recommends that the air quality practitioner uses professional judgement to identify where on the spectrum between high and low sensitivity a receptor lies, taking into account the following general principles:

Table A1: Examples of risk factors for odour source, pathway and receptor sensitivity based on IAQM (2018)

Source Odour Potential	Pathway Effectiveness	Receptor
Large Source Odour Potential Magnitude – Larger Permitted processes of odorous nature or large STWs; materials usage hundreds of thousands of tonnes/m³ per year; area sources of thousands of m². The compounds involved are very odorous (e.g. mercaptans), having very low Odour Detection Thresholds (ODTs) where known. - Unpleasantness – processes classed as “Most offensive” in Table 5; or (where known) compounds/odours having unpleasant (-2) to very unpleasant (-4) hedonic score. - Mitigation/control – open-air operation with no containment, reliance solely on good management techniques and best practices.	Highly Effective Pathway for Odour Flux to Receptor - Distance – receptor is adjacent to the source/site; distance well below any official set-back distances. - Direction – high frequency (%) of winds from source to receptor (or, qualitatively, receptors downwind of source concerning prevailing wind). - Effectiveness of dispersion/dilution – open processes with low-level releases, e.g. lagoons, uncovered effluent treatment plant, landfilling of putrescible wastes.	Highly Sensitive Receptor – Surrounding land where: - Users can reasonably expect enjoyment of a high level of amenities; and - The people would reasonably be expected to be present here continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land. Examples may include residential dwellings, hospitals, schools/education and tourist/cultural.
Medium Source Odour Potential Magnitude – smaller Permitted processes or small Sewage Treatment Works (STWs); materials usage of thousands of tonnes/m³ per year; area	Moderately Effective Pathway for Odour Flux to Receptor Distance – receptor is local to the source. Where mitigation relies on dispersion/dilution – releases are elevated but	Medium Sensitivity Receptor– Surrounding land where: Users would expect to enjoy a reasonable level of amenity, but wouldn't reasonably

93443

- sources of hundreds of m².
 - The compounds involved are moderately odorous.
 - Unpleasantness – processes classed in H4 as “Moderately offensive”; or (where known) odours having neutral (0) to unpleasant (-2) hedonic score.
- Mitigation/control – some mitigation measures are in place, but significant residual odour remains.

compromised by building effects.

- expect to enjoy the same level of amenity as in their home; or
- People wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land.

Examples may include places of work, commercial/retail premises and

Small Source Odour Potential	Ineffective Pathway for Odour Flux to Receptor	Low Sensitivity Receptor– surrounding land where:
• Magnitude – falls below Part B threshold; materials usage hundreds of tonnes/m³ per year; area sources of tens m². • The compounds involved are only mildly odorous, having relatively high ODT where known. • Unpleasantness – processes classed as “Less offensive” in H4; or (where known) compounds/odours having neutral (0) to very	• Distance – receptor is remote from the source; distance exceeds any official set-back distances. • Direction – low frequency (%) of winds from source to receptor (or, qualitatively, receptors upwind of source concerning prevailing wind). • Where mitigation relies on dispersion/ dilution – releases are from high levels (e.g. stacks, or	• The enjoyment of amenities would not reasonably be expected; or • There is transient exposure, where the people would reasonably be expected to be present only for limited periods as part of the normal pattern of

Odour Impact Assessment
4 Arnold's Crescent, LE9 9LD
Ali Kulhas

93443

- pleasant (+4) hedonic score.
- Mitigation/control – effective, tangible mitigation measures in place (e.g. BAT, BPM) leading to little or no residual odour.

roof vents >3m above ridge height) and are not compromised by surrounding buildings.

use of the land. Examples may include industrial, farms, footpaths and roads.

Table A2: Risk of odour exposure (impact) at the specific receptor location based on IAQM (2018)

		Source Odour Potential		
		Small	Medium	Large
Pathway Effectiveness	Highly Effective Pathway	Low Risk	Medium Risk	High Risk
	Moderately Effective Pathway	Negligible Risk	Low Risk	Medium Risk
	Ineffective Pathway	Negligible Risk	Negligible Risk	Low Risk

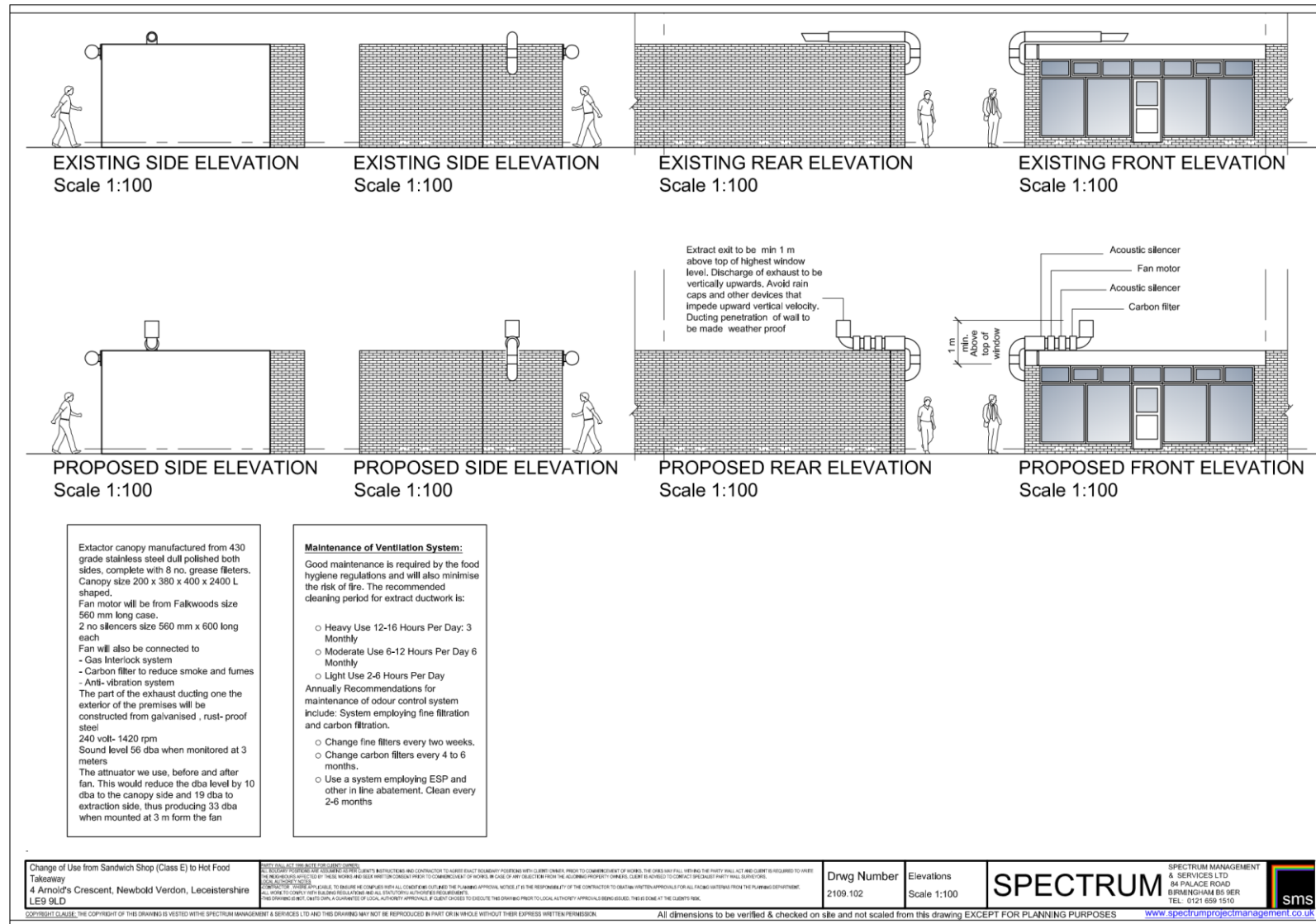
Table A3: Likely magnitude of odour effect at the specific receptor location based on IAQM (2018)

Risk of Odour Exposure	Receptor Sensitivity			
	Low	Medium		High
High Risk of Odour Exposure	Slight Adverse Effect	Moderate Effect	Adverse	Substantial Adverse Effect
Medium Risk of Odour Exposure	Negligible Effect	Slight Adverse Effect		Moderate Adverse Effect
Low Risk of Odour Exposure	Negligible Effect	Negligible Effect		Slight Adverse Effect
Negligible Risk of Odour Exposure	Negligible Effect	Negligible Effect		Negligible Effect

Odour Impact Assessment
4 Arnold's Crescent, LE9 9LD
Ali Kulhas

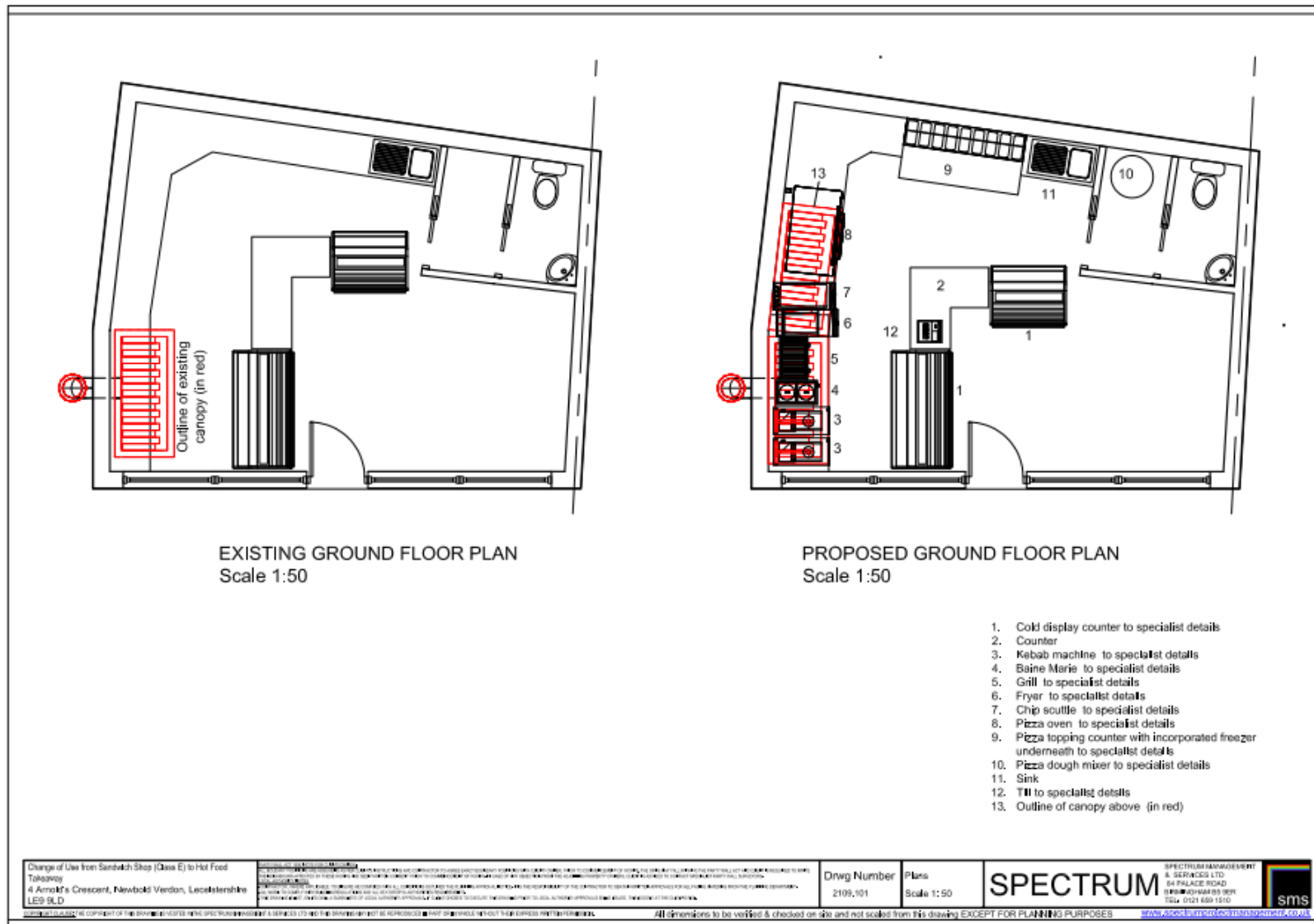
93443

Appendix B : Drawings



Odour Impact Assessment
4 Arnold's Crescent, LE9 9LD
Ali Kulhas

93443



Odour Impact Assessment
4 Arnold's Crescent, LE9 9LD
Ali Kulhas

93443

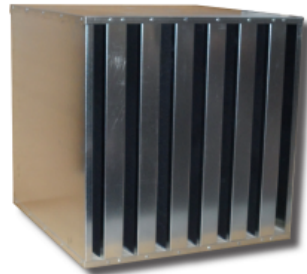
Manufacturing Air Filters in
the UK for Over 40 Years



Discarb Activated Carbon Units

General Description

These filters are manufactured for ease of installation and incorporation into ducted air systems. They can be used on both supply for purifying incoming air, and can be used on the extract to remove toxic gasses and odours generated within a process.



Construction

These modules are manufactured by mounting a series on carbon panel filters with a sealed case. The airflow is optimized by presenting the filtering surfaces in a "V" formation.

Each carbon panel is sealed into the filter case so as to ensure no air can bypass the carbon granules.

The panels are manufactured using long established bonding techniques which hold the activated carbon granules in a rigid biscuit. The biscuit is encapsulated in a carbon impregnated cloth which prevents any leakage of granules or powder.

The unique bonding method used by Jasun Envirocare ensures that, unlike our competitors filters, that the panels will remain intact and rigid even if wet.

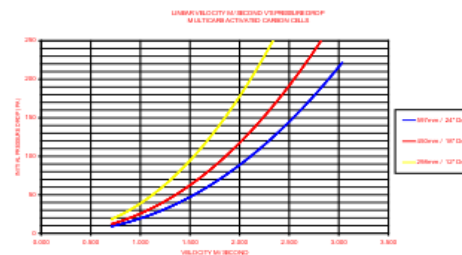
Application	Recommended Dwell Time	Grade	Suffix
Cooking - Low Odour, Tea Shop, Canteens	0.1 to 0.2 Seconds	Carbon grade Enhanced for improved performance for light catering odours	-ACO
Cooking - Moderate Odour, Pizza, Steak House, French, Italian, Pubs, Chinese, Japanese, Cantonese	0.2 to 0.4 Seconds	Enhanced Carbon grade suitable for many applications 65% Minimum CTC	-AC
Cooking High Odour, Indian, Thai, Vietnamese, Kebabs	0.4-0.6 Seconds	Enhanced Carbon grade suitable for many applications 65% Minimum CTC	-AC
Cooking Very High Odour, Fried Chicken, Pubs with large fried food turnover, Fish and Chip Shops, Fast Food / Burgers	0.4-0.8 Seconds	Enhanced Carbon grade suitable for many applications 65% Minimum CTC	-AC
Reduction of Kerosene Exhaust fumes	0.1 to 0.2 Seconds	General Purpose Activated Carbon	-ACS
Reduction of Ozone	0.1 to 0.2 Seconds	General Purpose Activated Carbon	-ACS
Reduction of Diesel Fumes, including H ₂ S, SO ₂ , NO _x , HCl	0.2 Seconds	Carbon Museum/Archive, Café Directive: SO ₂ SO _x NO ₂ NO _x Removal	-ACU
Museum and Archives	0.2 Seconds	Carbon Museum/Archive, Café Directive: SO ₂ SO _x NO ₂ NO _x Removal	-ACU
Mortuary / formaldehyde reduction	0.4 Seconds	Mortuary Grade, formaldehyde Removal	-ACMO

The cooking odour classes above are as classified by DEFRA in **Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems, PB10527**

Discarb Units STANDARD SIZES



No.	Nominal Size (Inches)	Height (mm)	Width (mm)	Depth (mm)	Weight of Carbon (Kg)	Cell Weight	Capacity @ 0.1 Second Dwell Time
DC-CF1	24 x 24 x 8	594	594	197	10	22	800
DC-CF1-HALF	24 x 12 x 8	594	297	197	5	11	400
DC242412/8	24 x 24 x 12	594	594	292	13	24	990
DC121212	12 x 12 x 12	297	297	297	6	12	450
DC181812	18 x 18 x 12	445	445	297	13	25	990
DC241212	24 x 12 x 12	594	297	297	13	25	990
DC242412	24 x 24 x 12	594	594	297	25	36	1900
DC-CF2	24 x 24 x 16	594	594	397	18	34	1370
DC-CF2-HALF	24 x 12 x 16	594	297	397	9	18	685
DC-WA15-206	24 x 6 x 18	144	600	440	7	13	533
DC121218	12 x 12 x 18	292	292	451	10	15	761
DC181818	18 x 18 x 18	445	445	451	19	26	1445
DC241218	24 x 12 x 18	594	297	451	18	26	1369
DC242418	24 x 24 x 18	594	594	451	36	52	2740
DC121224	12 x 12 x 24	292	292	597	13	19	990
DC181824	18 x 18 x 24	445	445	597	25	36	1900
DC241224	24 x 12 x 24	594	297	597	25	36	1900
DC242424	24 x 24 x 24	594	594	597	50	61	3800



Service 5 Stratfield Park, Elstia Avenue, Waterlooville, PO7 7XN
Telephone 0203 9284 4700 Fax 0203 9284 4877 Email service@filters.com

Copyright © Jasun Envirocare PLC 2007-2014

Filter Sales and Production Riverside House, Parrett Way, Bridgwater, TA6 6LB
Telephone 01278 450277 Fax 01278 450873 Email sales@filters.com www.filters.com

ISSUE 09/07/15

Aval Consulting Group Limited, 3 Lloyds Avenue, EC3N 3DS, London, United Kingdom

T +44 (0)20 8004 9196 | E contact@aval-group.co.uk | W www.aval-group.co.uk