Odour Risk Assessment	
324 West End Lane, Camden	
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1 Introduction

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1.1.2 Odours from the kitchen have the potential to impact on the amenity of odour sensitive receptors at local properties.The report has been produced in support of a planning application for a change of use from retail to hot food takeaway. This report includes an odour risk assessment, that follows the methodology set out in EMAQ guidance on Control of Odour and Noise from Commercial Kitchen Exhaust Systems (EMAQ, 2018). The risk assessment methodology has been used to determine the level of odour abatement that would be required as part of the kitchen extract system.

Figure 1: Application Site
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2 Odour Legislation and Planning Policy

2.1. Legislation

Environmental Protection Act

2.1.1 Nuisances caused by odours are regulated by the statutory nuisance provisions in Part III of the Environmental Protection Act (EPA) (HMSO, 1990). Section 79(1)(d) of the EPA states that a statutory nuisance is:

"dust, steam, smell or other effluvia arising on an industrial, trade and business premises and being prejudicial to health or a nuisance" (Section 79(1)(d)

2.1.2 Local authorities have a duty under the Environmental Protection Act to inspect their districts from time to time for statutory nuisances and to investigate any complaint about an alleged odour nuisance made by a member of the public. If the local authority finds that a statutory nuisance exists, then it must serve an abatement notice.

2.2. Planning Policy

National Policies

2.2.1 The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these should be applied (Ministry of Housing, Communities & Local Government, 2021). It provides a framework within which locally-prepared plans for development can be produced. At Paragraph 8c, the NPPF states that the purpose of the planning system is to contribute to the achievement of sustainable development and includes an overarching environmental objective:

"To protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy."

2.2.2 At Paragraph 18, the NPPF states that:

"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."

2.2.3 At Paragraph 188, the NPPF goes on the say that:

"The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues

should not be revisited through the permitting regimes operated by pollution control authorities."

2.2.4 The NPPF is supported by Planning Practice Guidance (PPG) (Ministry of Housing, Communities & Local Government, 2019b). The PPG makes clear that that:

"Odour and dust can also be a planning concern, for example, because of the effect on local amenity".

Local Policies

2.2.5 The Camden Local Plan includes Policy A1 Managing the Impact of Development, which states that (Camden Council, 2017):

"The Council will seek to protect the quality of life of occupiers and neighbours. We will grant permission for development unless this causes unacceptable harm to amenity.

We will:

a. seek to ensure that the amenity of communities, occupiers and neighbours is protected;

b. seek to ensure development contributes towards strong and successful communities by balancing the needs of development with the needs and characteristics of local areas and communities;

c. resist development that fails to adequately assess and address transport impacts affecting communities, occupiers, neighbours and the existing transport network; and

d. require mitigation measures where necessary.

The factors we will consider include:

e. visual privacy, outlook;

f. sunlight, daylight and overshadowing;

g. artificial lighting levels;

h. transport impacts, including the use of Transport Assessments, Travel Plans and Delivery and Servicing Management Plans;

i. impacts of the construction phase, including the use of Construction Management Plans;

j. noise and vibration levels;

k. odour, fumes and dust;

l. microclimate;

m. contaminated land; and

n. impact upon water and wastewater infrastructure."

3 Odour Risk Assessment

3.1. Methodology

3.1.1 EMAQ guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems includes a risk assessment methodology for identifying the potential risk of odour impacts from commercial kitchen operations. The results of the risk assessment may then be used to determine a suitable level of odour abatement to be installed into a commercial kitchen.

3.1.2 The risk assessment for odours is split into the following four categories;

- dispersion;
- proximity of receptors;
- size of kitchen; and
- cooking type (odour and grease loading).

3.1.3 A risk rating is scored for each category and the total risk rating, i.e., the sum of the risk rating for each category, is compared with the significance score in **Table 1.** The level of odour control which is likely to be required to prevent the kitchen from causing odour nuisance impacts can then be determined. The risk ratings for each category are shown in **Table 2**.

Table 1: Significance Score and Odour Control Requirement

Impact Risk	Odour Control Requirement	Significance Score [a]
Low to Medium	Low level of odour control	Less than 20
High	High level of odour control	20 to 35
Very High	Very high level of odour control	More than 35

a based on the sum of scores from dispersion, proximity to receptors, size of kitchen and cooking type.

Table 2: Risk Ratings

Criteria	Rating	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 1 m above eaves at 10-15 m/s.
	Good	5	Discharging 1 m above ridge at 15 m/s.
Proximity of Receptors	Close	10	Closest sensitive receptor less than 20 m from kitchen discharge.
	Medium	5	Closest sensitive receptor between 20 and 100 m from kitchen discharge.
	Far	1	Closest sensitive receptor more than 100 m from kitchen discharge. [a]
Size of Kitchen	Large	5	More than 100 covers or large sized takeaway.
	Medium	3	Between 30 and 100 covers or medium sized takeaway.
	Small	1	Less than 30 covers or small takeaway. [a]
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	Kebab, Vietnamese, Thai, Indian, Japanese, Chinese or Steakhouse.
	Medium	4	Cantonese, Italian, French or Pizza (gas fired).
	Low	1	Most pubs (no fried food, mainly reheating and sandwiches etc.), or Tea Rooms. [a]

a A planner may take a pragmatic view when assessing whether certain low risk kitchens require any odour abatement to be fitted. In reaching this decision the Planner may consider the nature of the food being cooked and/or the size of kitchen and/or its location.

3.2. Risk Assessment

Dispersion

3.2.1 The risk rating for dispersion relates to the location of the discharge flue of the kitchen extraction system, and the flow rate of the exhaust air at the point of discharge.

3.2.2 Plans submitted in support of the planning application show that the kitchen extract would discharge above the height of the eaves and 1m above the height of any nearby windows (see **Appendix A1**). A high velocity cowl would be fitted at the extract

terminus. Based on the information in **Table 2**, the risk ratings for dispersion would be described as **Moderate**.

Proximity to Receptors

3.2.3 The risk rating for proximity to receptors relates to the distance from the point of discharge of the kitchen extraction system to the nearest sensitive receptor. Examples of high sensitivity receptors, as set out in the Institute of Air Quality Management (IAQM) Guidance on the Assessment of Odour for Planning (IAQM, 2018), include residential dwellings.

3.2.4 The extract flue would be located within 20m of the residential dwellings located above the commercial units on West End Lane and to the rear of the application site on Crediton Hill; therefore, based on the information in **Table 2**, the risk rating for dispersion would be described as **Close**.

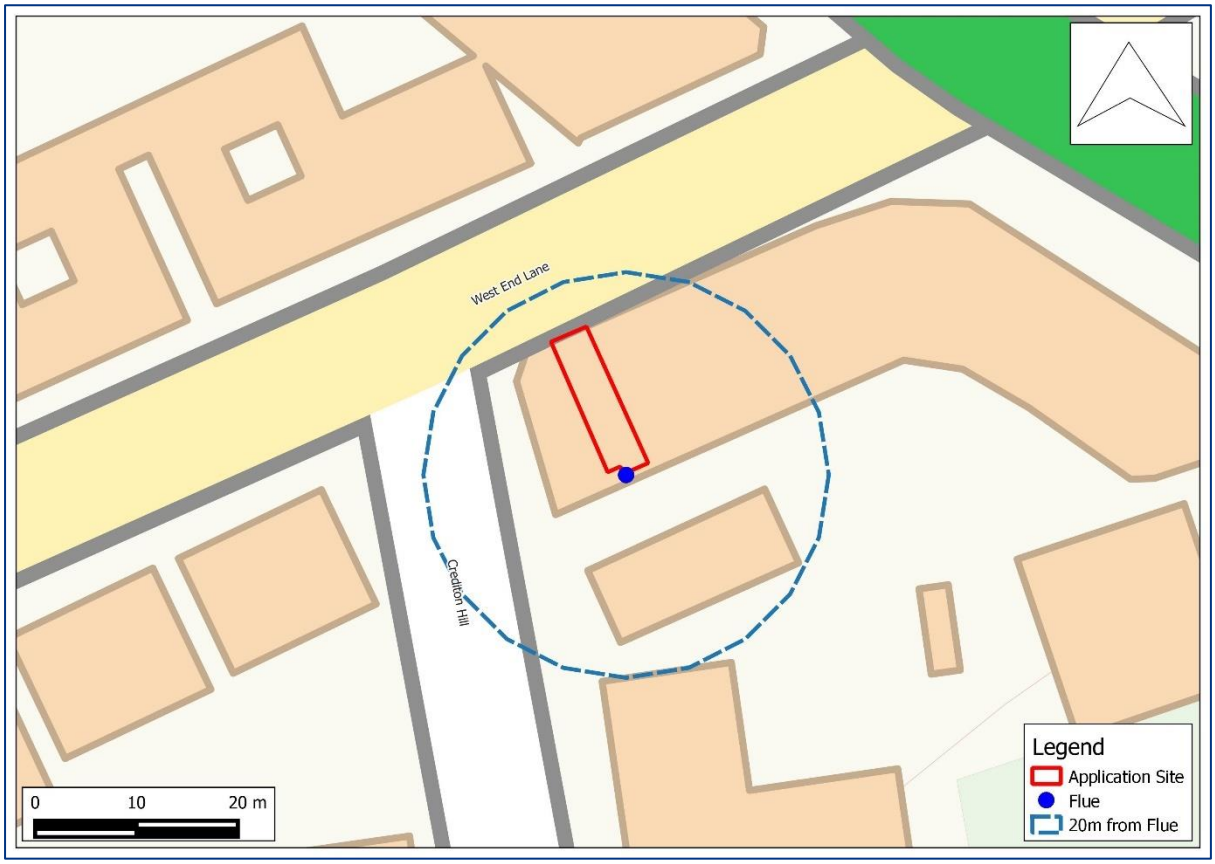

Figure 2: Flue Location
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Size of Kitchen

3.2.5 The risk rating for the size of kitchen relates to the volume of food prepared by the kitchen, as described by the number of covers of a restaurant, or the size of a takeaway.

3.2.6 The restaurant would have seating for less than 10 customers and would operate as a small take-away; therefore, based on the information in **Table 2**, the risk rating for the size of kitchen would be described as **Small**.

Cooking Type

3.2.7 The risk rating for cooking type relates to the type of food prepared in the kitchen, and the cooking methods used.

3.2.8 The kitchen would prepare food that included burgers and fries; therefore, the overall odour and grease loading is likely to be described as **Very High** (based on the information in **Table 2**).

Summary

3.2.9 A summary of the risk assessment and the total risk rating for the commercial kitchen is shown in **Table 3**. With regard to the significance scores set out in **Table 1**, the overall risk rating is **High**; therefore, the extraction system would require a high level of odour control to mitigate the potential odour impacts at local sensitive receptors.

Table 3: Odour Risk Assessment Summary

Criteria	Rating	Significance Score
Dispersion	Moderate	10
Proximity of Receptors	Close	10
Size of Kitchen	Small	1
Cooking Type (Odour and Grease Loading)	Very High	10
Overall Risk Rating	**High**	**31**

4 Odour Mitigation

4.1.1 The odour risk assessment has identified that the commercial kitchen would require a high level of odour control (see **Table 3**). The EMAQ guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems outlines that abatement systems offering a high level of odour control may include:

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

4.1.2 The proposed extract system at the kitchen would include stainless steel baffle filters in the extract canopy, followed by fine filtration and carbon panel filters with a 0.2-0.4 second residence time (see **Appendix A1**). Provided that the odour abatement is installed as specified, the proposed extract system would meet the requirements of the EMAQ guidance there should be no risk of odour effects at local receptors.

Maintenance

4.1.3 A suitably qualified and experienced ventilation systems engineer should design and install the ventilation system.

4.1.4 Regular maintenance of the ventilation system is essential to ensure that it operates effectively and continues to provide adequate mitigation against odour nuisance. Assuming a heavy grease loading and operation for 6-12 hours daily, the EMAQ guidance provides recommended cleaning schedules for extract systems as follows:

- Cooker hoods and grease filters should be cleaned daily;
- Baffle filters should be cleaned weekly as a minimum;
- ductwork should be cleaned every 3-6 months;
- fine filters should be changed every 2 weeks; and
- carbon filters should be changed every 4 to 6 months.

4.1.5 Periodic ‘deep hygiene cleaning’ of the entire ventilation system should be undertaken by a specialist contractor.

5 Conclusions

5.1.1 The odour risk assessment has identified that the commercial kitchen would have a high-risk rating with regard to odour effects and that a high level of odour control would be required.

5.1.2 The proposed extract system would meet the requirements for a high level of odour control, as set out in the EMAQ guidance, and there should be no risk of odour effects, provided the extract system is installed as specified.

5.1.3 With the installation of the specified odour controls, there should be no constraints to the operation of a restaurant at 324 West End Lane, with regard to odour, as the proposed development would be consistent with the relevant parts of:

- The NPPF and PPG; and
- Policy A1 of the Camden Local Plan.

6 References

Camden Council, 2017. *Camden Local Plan.* s.l.:s.n.

EMAQ, 2018. *Control of Odour and Noise from Commercial Kitchen Exhaust Systems.* s.l.:s.n.

HMSO, 1990. *Environmental Protection Act 1990.* s.l.:s.n.

IAQM, 2018. *Guidance on the Assessment of Odour for Planning (v1.1).* s.l.:s.n.

Ministry of Housing, Communities & Local Government, 2019b. *Guidance Air Quality.* [Online]
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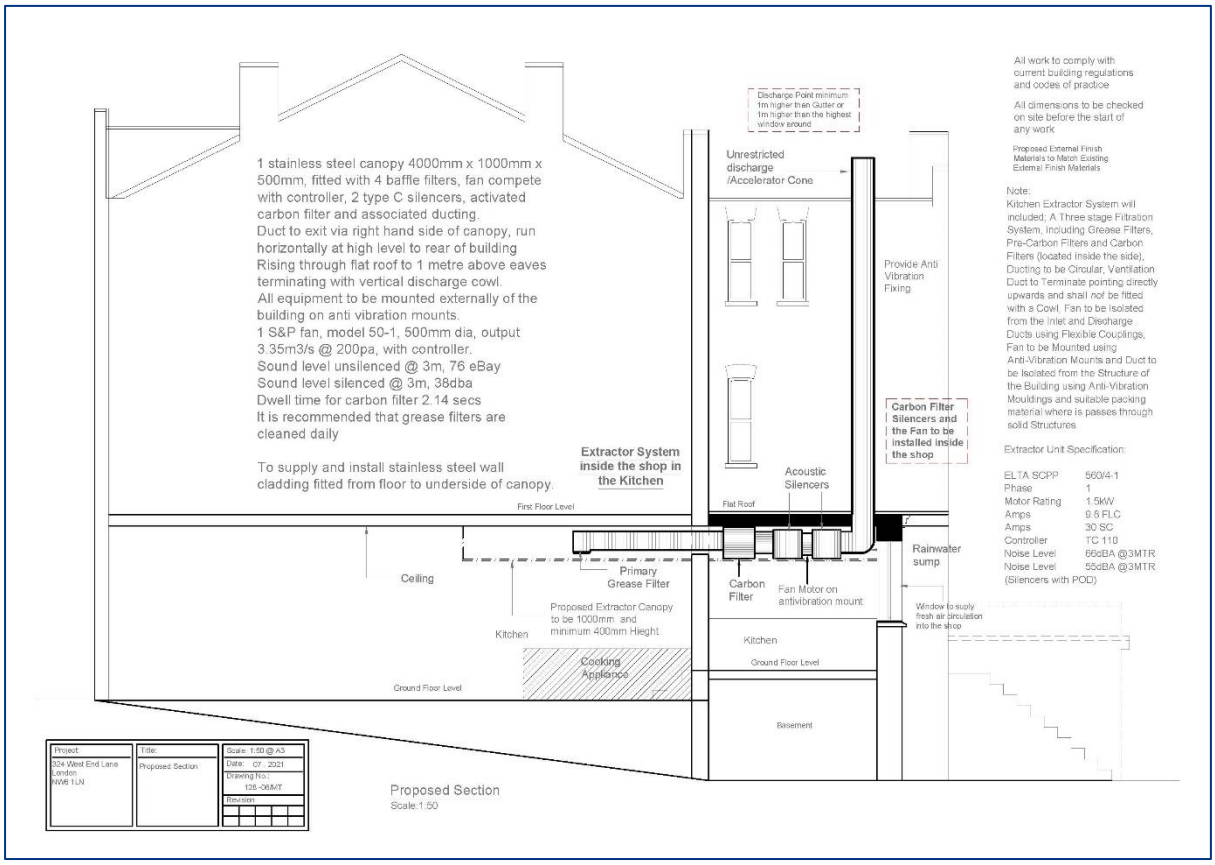
Ministry of Housing, Communities & Local Government, 2021. *National Planning Policy Framework.* s.l.:s.n.

7 Appendices

A1 Plans and Plant Specifications



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Bays 2 & 3 Pattenden Lane, Marden, TN12 9QS. T: 01622 832777 F: 01622 832507

Baffle Type Grease Filters
for Kitchen Extracts and Canopies

Applications

The Airclean Baffle Type Grease Filter is designed for use in commercial kitchens to remove airborne grease prior to entering the extraction system.

It is recognised that there is an increasing need to maintain and improve hygiene standards in kitchens and to reduce the fire hazards above the heat source.

The Airclean Baffle Type Grease Filter reduces fire hazard with their unique design concept of non-grease loading (negligible grease accumulation), and interlocking baffle walls which restrict the passage of flames into the ductwork.

The Baffle Type Grease Filter's smooth surface enables deposited grease to run off via the drainage holes, to grease collecting trays in the canopy or grease filter housing, where it can be easily disposed of. Efficient grease removal by Baffle Type Grease Filters minimises grease build-up in the kitchen extract ductwork system and ensures that duct cleaning requirements are kept to a minimum.

Description

Airclean Baffle Type Grease Filters are manufactured in either Aluminium or Stainless Steel (Mirrored Finish Stainless Steel Grade 430, or Dull Polished Finish Stainless Steel Grade 304).

Housed in a channel framework, a series of vertical air baffles are strategically aligned to change the direction of the grease-laden air. This action causes the deposition of the grease quickly, without re-entrainment onto the baffles, whilst the grease-free air passes through the filter. The Baffle Type Grease Filter's smooth surface enables deposited grease to run off via the drainage holes into collecting trays within the housing, minimising grease build-up.

Baffle type Grease Filters each have layflat handles to facilitate easy removal from the kitchen canopy or grease filter housing.

Size		Flow Rate		Part Numbers	
OT Inches	Actual mm	m^3/s based on FV 1.5m/s	Pressure Drop Pa	ST STEEL ECO *2" (47mm)* Grade 430 St/St	ST STEEL HD 2" (47mm) Grade 304 St/St
16 x 16	394 x 394	0.25	125	1321119	1320119
20 x 10	495 x 242	0.19	125	1321120	1320120
20 x 16	495 x 394	0.31	125	1321121	1320121
20 x 20	495 x 495	0.39	125	1321122	1320122
18 x 18	445 x 445	0.31	125	1321123	1320123
24 x 24	597 x 597	0.54	125	1321124	1320124

FOR NON-STANDARD SIZES CONTACT THE SALES TEAM

Notes
* Actual sized filters will be manufactured as ordered +/- 3mm
* Handles and Drain Holes come as standard
* Handles are located on the shortest side of the grease filter as standard.

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Grease Filter Cleaning Tanks and Agents

To ensure the prolonged efficiency and life of a kitchen Baffle Type Grease Filter they must be cleaned regularly (according to use).

Airclean offer a range of suitable Grease Filter Cleaning Tanks (Heated and Non Heated), and Non Caustic Cleaning Agents (See Catalogue Section 3, Page AC3.8).

Alternative cleaning solutions for grease filters include steam cleaning or an automatic dishwasher.

KATERCARB®

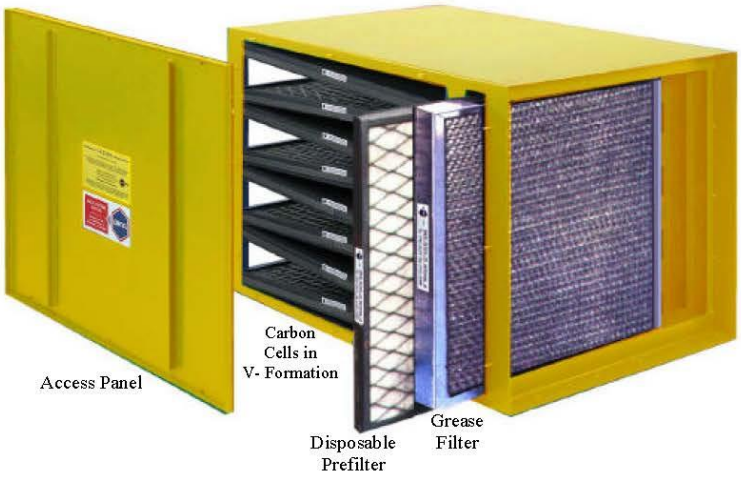
Activated Carbon Filter Units for the effective removal of cooking, catering and food processing odours.

EMCEL FILTERS

To meet the odour control requirements of the catering and food processing industries the Katercarb activated carbon filter unit has been designed and developed by EMCEL Filters Limited.

Applications inc:

- Restaurants
- Public Houses
- Fast Food Outlets
- Take Aways
- Hotels
- Canteens
- Kitchens
- Cafés
- Food Processing



Considerable attention and emphasis has been placed on the catering industry in recent years to provide a comfortable and odour free environment.

Within the Katercarb activated carbon filter EMCEL has brought together three features to counter the problem of catering odours:-

- **Carbon Filter Cells with a special grade of activated carbon to deal more effectively with food and catering odours, especially those generated by onions, garlic and other strong spices.**
- **An integral non-combustible and wash-able grease filter to protect the carbon cells from grease saturation.**
- **A disposable particle pre-filter pad held within a metal grille and frame to protect carbon cells from dust contamination.**

Katercarb Filter Units are produced in three standard versions:

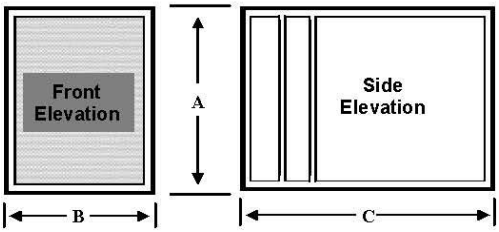
Light Duty:	0.2 second dwell time
Standard Duty:	0.3 second dwell time
Heavy Duty:	0.4 second dwell time

The unique Emcel Filter Cell construction enables a high weight of activated carbon to be employed giving high performance, longer dwell times and therefore greater efficiency.

Longer dwell times may be required where a continuous high odour concentration is present.

Custom built units to suit any airflow or specific conditions can be manufactured as required.

The special Carbon Cells that are used in the Katercarb Filter Unit are also available as replacement cells, manufactured by EMCEL, to suit any old or existing carbon units.



Minimum Carbon Weight Loading: 80 kg/1.0m³/sec
Resistance to airflow: 175 Pa excluding prefilter and grease filter

Katercarb Reference	Capacity (m³/sec)	Dwell Time (Secs)	Dimensions		
			A	B	C
1KXB1	0.25	0.2	355	610	1025
1KXB2	0.25	0.3	355	610	1025
1KXB3	0.25	0.4	355	610	1225
2KXB1	0.50	0.2	660	610	1025
2KXB2	0.50	0.3	660	610	1025
2KXB3	0.50	0.4	660	610	1225
3KXB1	0.75	0.2	965	610	1025
3KXB2	0.75	0.3	965	610	1025
3KXB3	0.75	0.4	965	610	1225
4KXB1	1.00	0.2	1270	610	1025
4KXB2	1.00	0.3	1270	610	1025
4KXB3	1.00	0.4	1270	610	1225

Installation

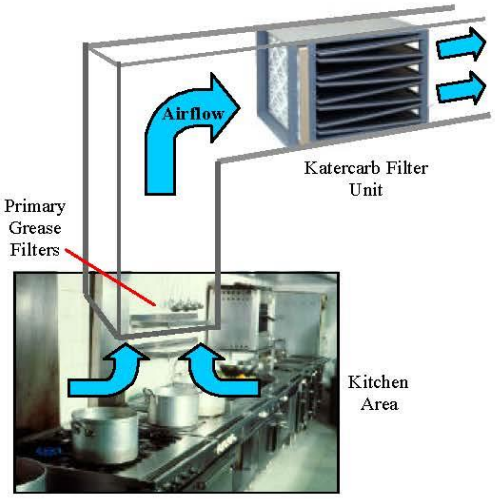
Where air is extracted directly from cooking ranges, the installation of separate primary grease filters at the point of extraction is strongly advised and is essential to protect ductwork.

It is recommended that the Katercarb filter is placed not less than 6 metres from the cooking source, not only to reduce still further risk of contamination by grease particles, but also to satisfy the maximum operating performance conditions for the filter of 50°C and 85% R.H.

Maintenance

It is critical to the performance of the Katercarb unit that all grease and prefiltration is regularly cleaned and maintained. The activated carbon cells will need replacing from time to time depending on the contaminant demands made upon them.

The free EMCEL Carbon Life Prediction Service is available to assist in identifying the optimum filter cell replacement point to ensure maximum filtration efficiency coupled with cost-effective replacement.



Other Emcel products include:

- **Replacement Carbon Panels**
- **Odour Control Filters**
- **Particle Filters**
- **HEPA Filters**
- **Washable/Cleanable Panels**
- **Special Filters**

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A2 Professional Experience

Bob Thomas, BSc (Hons) PgDip MSc MIAQM MIEnvSc CSci

Bob Thomas is a Director at AQA, with over thirteen years' experience in the field of air quality management and assessment. He has carried out air quality assessments for a wide range of developments, including residential, commercial, industrial, minerals and waste developments. He has been responsible for air quality projects that include ambient air quality monitoring of nitrogen dioxide, dust and PM_{10}, the assessment of nuisance odours and dust, and the preparation of Review and Assessment reports for local authorities. He has extensive dispersion modelling experience for road traffic, energy centre and industrial sources, and has completed many stand-alone reports and chapters for inclusion within an Environmental Statement. Bob has worked with a variety of clients to provide expert air quality services and advice, including local authorities, planners, developers, architects and process operators, and has provided expert witness services at public inquiry. He is a Chartered Scientist, a Member of the Institute of Air Quality Management and a Member of the Institution of Environmental Sciences.

A full CV for Bob Thomas is available at http://aqassessments.co.uk/about