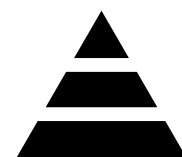


Odour Management Plan

11 BRIDGE STREET, RAMSBOTTOM,
BURY BL0 9AB
Rev 1 Jan 2023

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Architecture & Construction

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1. INTRODUCTION

Delta Tech have been commissioned by the Applicant to provide an Odour Management Plan to accompany a Planning Application for the Change of use of vacant betting shop (Sui Generis use class) into restaurant (E use class) including installation of extraction flue system to rear and new fascia signs with replacement of windows plus external changes.

The planning application proposes a new extraction flue system and seeks to identify a scheme for the extraction and treatment of fumes and odours at the site and in parallel to this provides an Odour Management Plan which would adhere to the fumes/odours not being detectable at the site boundary.

2. ODOUR ASSESSMENT

2.1. Introduction

This odour assessment relates to the potential future odour emanating from any kitchen extraction system associated with the change of use development, and the potential odour impacts on any sensitive receptors in close proximity to the extract flue.

2.2. Nature and Effect of Odour

Odour is perceived by our brains in response to chemicals present in the air we breathe. Odour is the effect that those chemicals have upon us. Humans have sensitive senses of smell and they can detect odour even when chemicals are present in very low concentrations. Most odours are a mixture of many chemicals that interact to produce what we detect as an odour.

Different life experiences and natural variation in the population can result in different sensations and emotional responses by individuals to the same odorous compounds. Because the response to odour is synthesised in our brains, other senses such as sight and taste, and even our upbringing, can influence our perception of odour and whether we find it acceptable, objectionable or offensive.

2.3. Assessment Methodology

The assessment of odour takes on the following aspects:

- A qualitative assessment of proposed odour emissions from the change of use development;
- An assessment taking into account the nature of the premises;
- The height and position of any proposed flue;
- The recommended exit velocity from the flue; and
- The distance between the proposed flue and the potential odorous emissions and the distance to the sensitive receptor.

2.3.1. Guidance on Control of Odours from Kitchens

The Department for Environment Food and Rural Affairs (DEFRA) originally published guidance¹ (now withdrawn) on the control of odours from kitchens. That guidance has been subsequently updated by 'Control of Odour and Noise from Commercial Kitchen Exhaust Systems' (EMAQ, July 2018)

Although the guidance is not statutory, it provides very useful information on best practice techniques for the minimisation of odour nuisance from kitchen exhaust systems. This source of guidance and ACCON's own experience form the basis of the assessment to determine whether nearby occupiers of existing residential properties would consider that odour emanating from the kitchen extract flue is acceptable or not.

2.3.2. General Principles in Controlling Odour

The guidance is generally used for premises where food is cooked for patrons on or off the premises and where a kitchen is used to prepare and cook food. In these instances, a kitchen canopy extract system, are invariably present.

The main purpose of a kitchen canopy is to extract excess heat, steam, fats, smoke and odour arising from cooking processes. Removal of these unwelcome by-products of kitchen activity helps to achieve a reasonably comfortable and safe working environment, protect the working environment, as well as preventing the spread of the products from the kitchen area to other parts of the building.

Odours from cooking are contained both within the solid, liquid and gaseous material which is extracted by the kitchen canopy, and these different phases generally require different abatement techniques to reduce levels of odour to those levels which are acceptable to those in the vicinity. The extent to which any odour mitigation is required is dependent on the type of foods being prepared and cooked.

Commonly the kitchen extract canopy will contain the first line of odour control through the incorporation of coarse grease filters, which take out the largest grease particles from the extracted air stream. Such coarse grease filters tend to be a common feature of almost all kitchen canopy systems.

The type and levels of odour control required downstream of the canopy is very much dependent on a number of factors. The principle ones are:

- Type of food prepared. This is probably the most dominant factor as the type of food, and particularly any spices used, dictates the chemical constituents present in the exhaust air;
- Size of the cooking facility. The number of covers; and
- Types of cooking appliances used. This dictates the level of fat, water droplets and temperature within the ventilation air.

The guidance includes two Tables which classify the odour and grease content of extract air according to the general cooking type and equipment used. These are reproduced in Appendix 3 (Table 2A and Table 2B). The information, in Appendix 3, has been used in this report to carry out the odour risk assessment in respect of the consented change of use development.

2.4. Odour Impact Assessment

Based on the observed location of the proposed external extraction system located to the rear side and running along the elevation wall to the ridge, this odour impact assessment and Odour Management Plan has been undertaken in accordance with the EMAQ guidance 'Control of Odour and Noise from Commercial Kitchen Exhaust Systems'.

2.5. Risk Assessment

The guidance provides a means of risk assessing the impact of any catering establishment and proposed and existing uses. The key elements of the method are reproduced in Appendix 3. The method relies on scoring the proposal on four different aspects:

- Dispersion – where the extract vents to atmosphere are in relation to the building to which the vent is attached;
- Proximity of receptors – the location of the nearest residents;
- The kitchen size – number of covers, i.e. level of activity; and
- Cooking type – based on grease and odour loading.

The level of odour which is created by a premises will depend on the size of kitchen and type of cooking. These can be determined using categories which have been set out in the guidance and are replicated in Appendix 4.

The scores for each aspect are summed to derive an overall significance score, an impact risk, and a statement about the odour control requirement. The guidance has been utilised where possible to determine the risk of odour nuisance from the proposed change of use development, without any additional odour abatement in place.

The risk assessment provided in Table 2.1, is a worst-case scenario.

Table 2.1: Odour Risk Assessment – 11 BRIDGE STREET

	Descriptor	Score	Impact Risk	Odour Control Requirement
Dispersion	Moderate	10	Low to Medium	Low Level Odour Control
Proximity of Receptors	Medium	5		
Size of Kitchen	Small	1		
Cooking Type (Odour & Grease Load)	Low	1		
TOTAL		17		

* Estimated, based on the details provided.

For the proposed flue extract system, it would be discharging 1m above roof at 10-15m/s (Moderate, Score 10). There are receptors within 20m-100m of the proposed flue extract (Medium, Score 5). The kitchen will be small, less than 30 covers/small kitchen (Small, Score 1). The food cooked on site will be Pizza using electric as fuel, the cooking type (odour and grease loading) is classed as Low (Score 1).

The results of the overall assessment are potentially a Low to Medium.

2.6. The Odour Management Plan

Section 2.5 has quantified that as a worst case for the consented change of use development (provided the recommendations are taken into account) there is deemed to be a 'Low to Medium' risk of potential nuisance and ordinarily a Low level of odour mitigation would be recommended.

2.6.1. Proposed Ventilation and Extraction System

2.6.1. Proposed Ventilation and Extraction System The proposals are for the installation of an external high-level flue extract to the rear elevation of the property and terminating at roof level with high velocity discharge to ensure good dispersion. Refer to plans in Appendix 2.

The proposed system is electric oven pizza oven using carbon filters.

The fan is located above the oven, on the flue, designed to efficient and low noise for electric ovens and located within an acoustic insulation housing. It is proposed a fine carbon filter is installed to (carbon filter with a 0.2 – 0.4 residence time) to prevent any form of odour to be captured under very heavy use which is able to stand high temperatures and easily accessible for visual inspection and cleaning. The filter will be located some distance from the oven and thereby the temperatures close to the filter will be cooler with additional passive cooling added to lower temperatures within the flue.

2.6.2. Maintenance Programme (Type, Frequency and Regime)

To minimize the risk of complaints, it is recommended that:

- A visual inspection of the ventilation system be carried out at least once a week. All metal surfaces should be checked to ensure that there is no accumulation of grease or dirt and that there is no surface damage;
- Cooker hoods and grease filters should be cleaned on a daily basis;
- Baffle type self-draining filters and collection drawers should be cleaned weekly, as a minimum. The cleaning period for mesh filters should be at least twice a week;
- Cleaning period for extract ductwork should as follows:

Use No. hours use per day Minimum Cleaning Interval

Heavy use 12 – 16 Every 3 months

Moderate Use 6 – 12 Every 6 Months

Light Use 2 – 6 Annually

Based on the information provided, it is likely that the premises will be of Light to Moderate Use, and should be cleaned at least every 6 months;

- Periodic 'deep hygiene cleaning' should be undertaken by a specialist contractor. All accessible main ductwork runs and branches, including fitted equipment should be inspected and cleaned;
- All fans are to be maintained on a regular basis as recommended by the fan manufacturer; and
- Ventilation grilles, where fitted should have easily removable cores to facilitate cleaning.

Recommendations for maintenance of odour control system

For a system employing fine filtration and carbon filtration;

- Change fine filters every two weeks
- Change carbon filters every 4 to 6 months

For a system employing ESP and other in line abatement systems:

- Clean every 2-6 months

Daily cleaning keeps the filters working at their optimum efficiency and will greatly reduce the number of service visits required throughout the year.

It will be important that the odour control methods are fully implemented and additionally, that the proposed OMP management measures and frequency of servicing is complied with. With respect to the servicing and maintenance regime, audit and service records should be maintained and made available to the Local Authority on demand.

3. CONCLUSIONS

With respect to odour, it has been identified that providing that the recommendations in this Odour Management Plan are taken into account, there should not be a loss of amenity at the existing residential receptors in the vicinity of the extraction flue and as long as the systems recommended in the OMP are implemented, this would consist of using the “best practicable means” and would prevent statutory nuisance occurring.

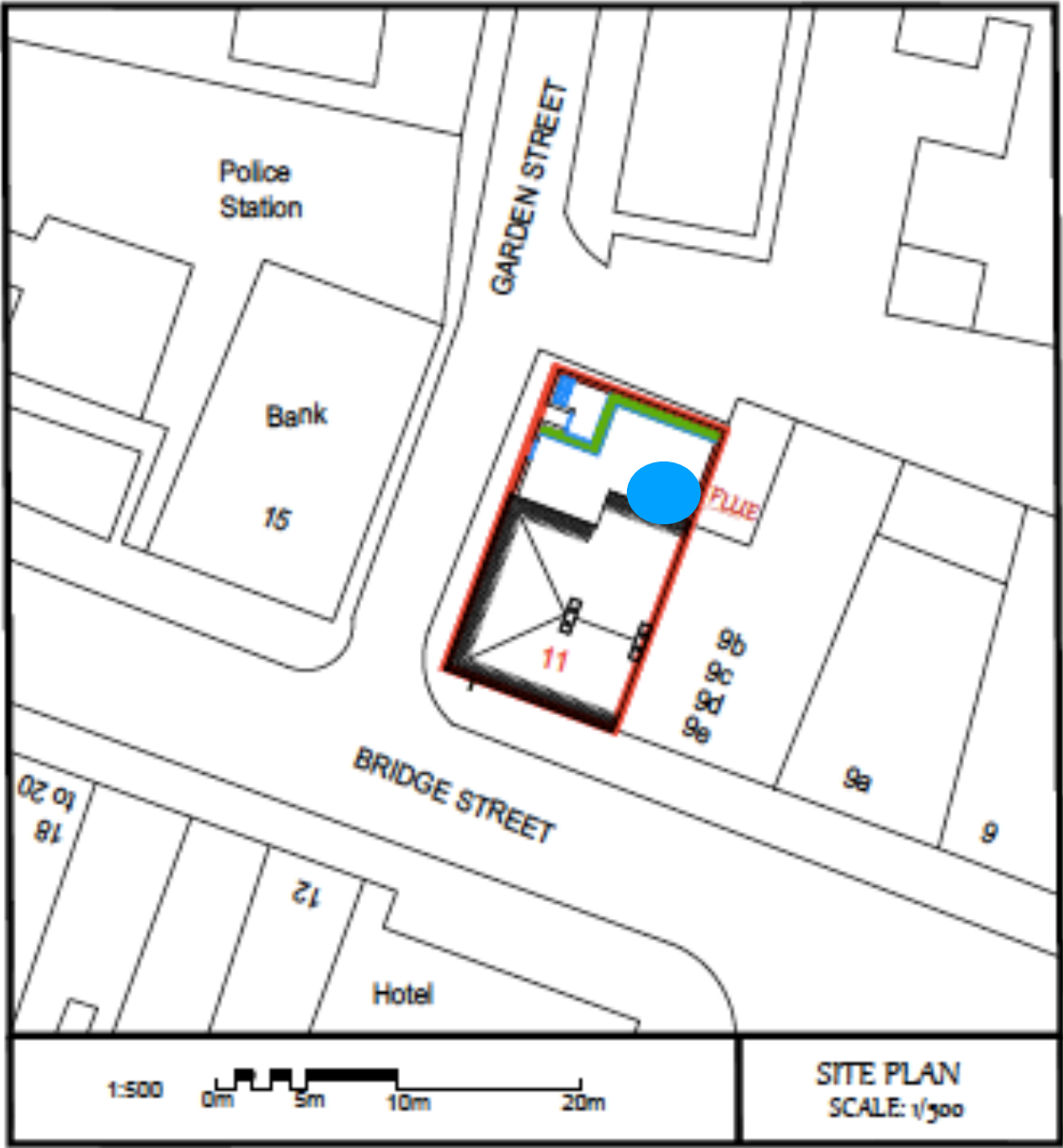
As long as the proposed extraction system is properly maintained on a regular basis, it is highly unlikely that odour would become an issue in the future.

Appendix 1
Site Layout Plan

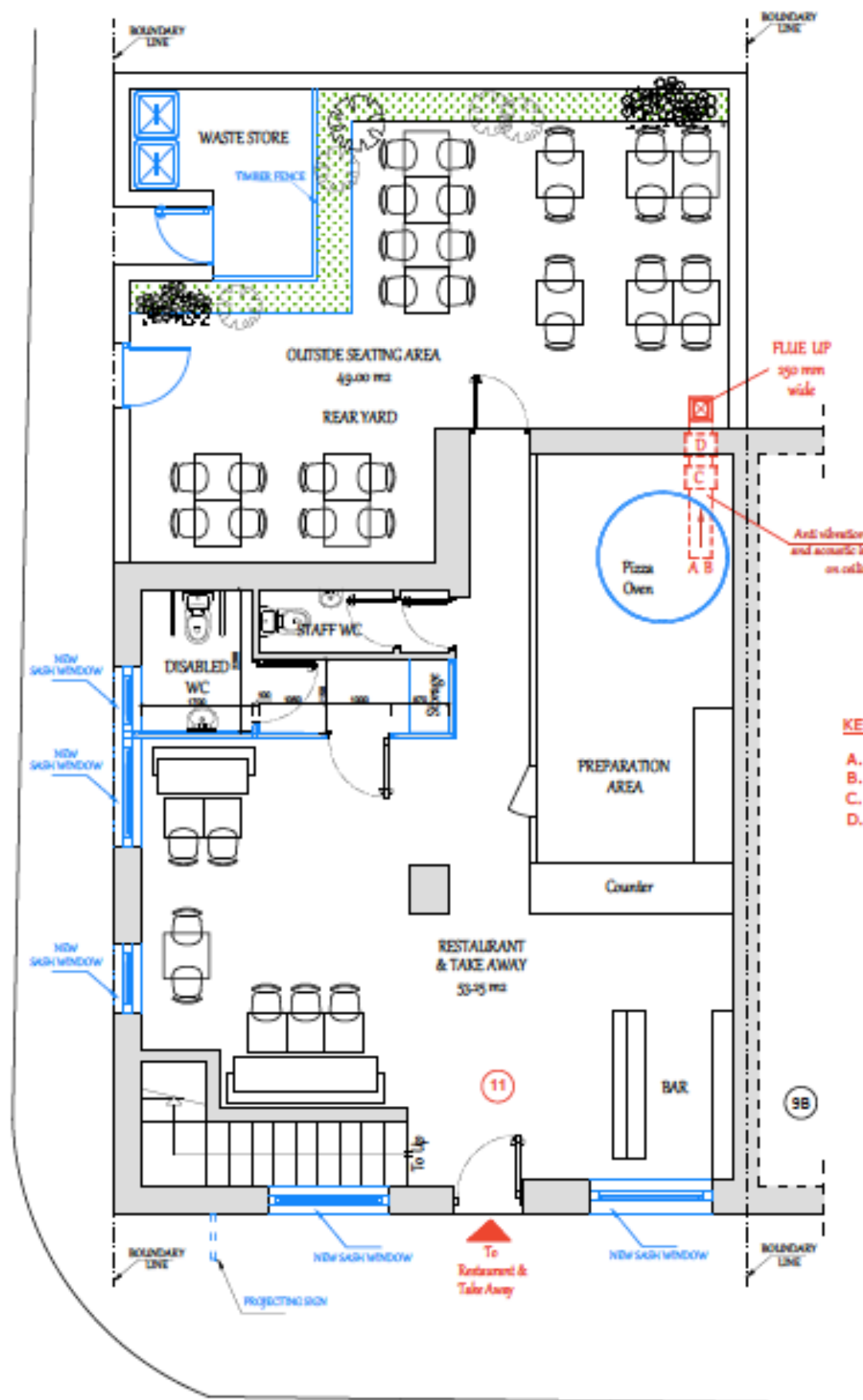
Site:

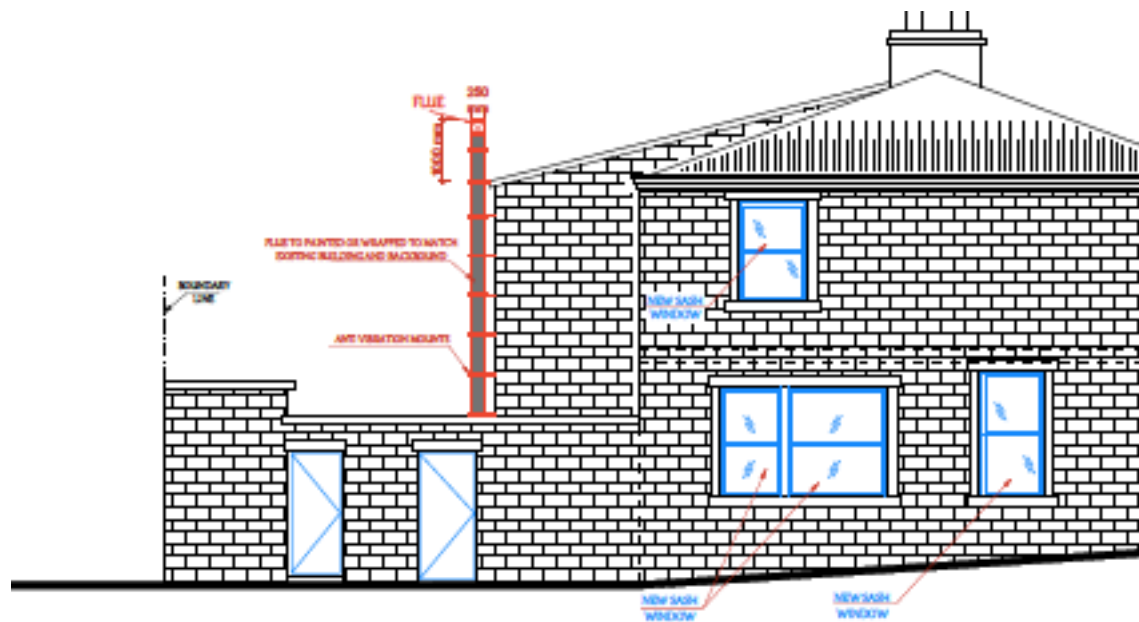
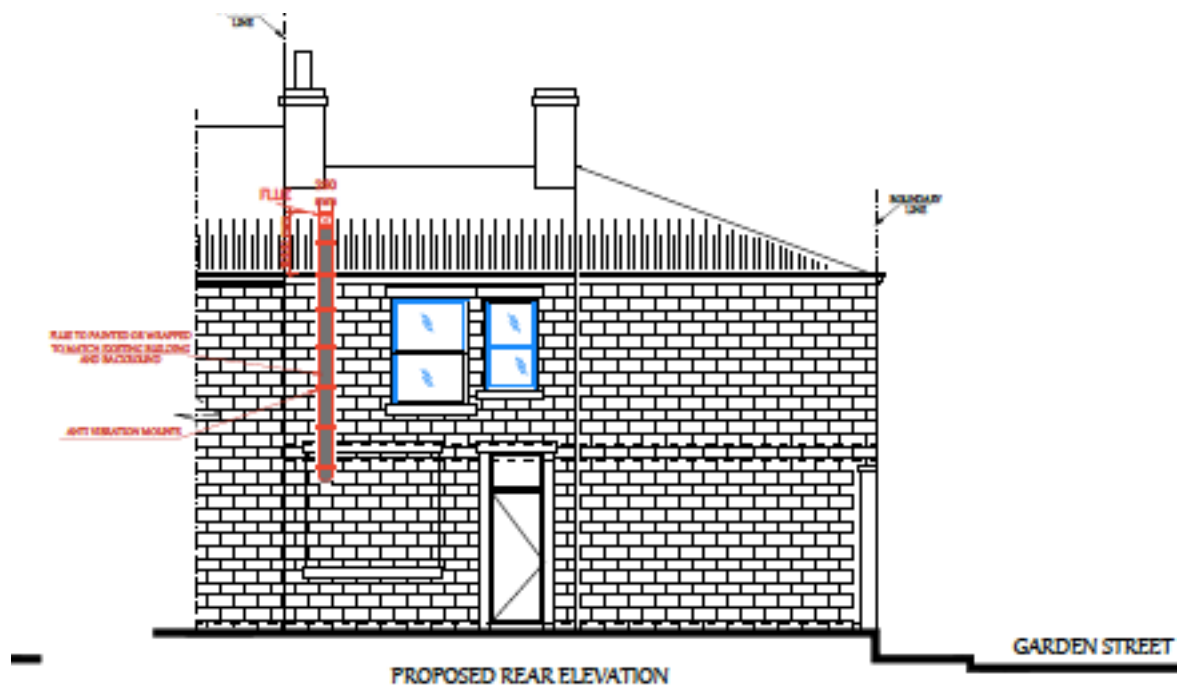


Flue Location:



Appendix 2
Proposed Flue and Ducting Location





Appendix 3

Classification of Odour and Grease Content of Extract Air from Commercial Kitchens

Table 2A: Table detailing the grease and odour content of various types of food

Catering Establishment	Description	Odour Conten				Grease Content			
		Low	Moderate	High	V. High	Low	Moderate	High	V. High
Tea shop		x				x			
Pizza	Herb		x				x		
Steakhouses	Fat		x				x		
French	Herbs/ garlic		x				x		
Italian	Herbs/ garlic		x				x		
Most pubs Fat	Fat		x				x		
Chinese	Ginger, spices, oil		x					x	
Japanese	Spices, oil		x					x	
Cantonese	Spices, oil		x					x	
Indian	Spices, oil			x				x	
Thai	Spices, oil			x				x	
Vietnamese	Spices, oil			x				x	
Kebab	Fat cooking meat			x				x	
Fried Chicken	Oil, cooking meat				x				x
Pubs (fried)	Oil, cooking meat				x				x
Fish & chip	oil				x				x
Fast food, burger	Oil, cooking meat				x				x

Table 2B: Table detailing the grease & moisture content of various cooking appliances

Cooking appliance	Grease loading			Moisture content		
	Light	Medium	Heavy	Light	Medium	Heavy
Cooking pots	x					x
Bains Marie	x					x
Steam ovens	x					x
Pizza ovens		x			x	
Bratt pans		x				x
Oven ranges		x			x	
Flat top grills		x			x	
Chip fryers		x			x	
Salamanders		x			x	
Charcoal			x		x	
Gas fired open grills			x		x	
Char boilers			x		x	
Chinese wok ranges			x			x

Appendix 4

EMAQ Odour Impact Risk Assessment Methodology

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.

Impact Risk	Odour Control Requirement	Significance Score*
Low to Medium	Low Level Odour Control	<20
High	High Level Odour Control	20-35
Very High	Very High level Odour Control	>35

*based on the sum of contributions from dispersion, proximity of receptors, size of kitchen and cooking type.

Criteria	Descriptor	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 10m/s
	Moderate	10	Discharging 1m above eaves at 10-15m/s
	Good	5	Discharging 1m above ridge at 15m/s
Proximity of receptors	Close	10	Closest sensitive receptor less than 20 m from kitchen discharge
	Medium	5	Closest sensitive receptor between 20-100m from kitchen discharge
	Far	1	Closest sensitive receptor greater than 100m from kitchen discharge
Size of Kitchen	Large	5	More than 100 covers
	Medium	3	Between 30-100 covers
	Small	1	Less than 30 covers
Cooking Type (odour & grease loading)	Very High	10	Pub (high level of fried food), fried chicken, burgers or fish and chips
	High	7	Kebab, Vietnamese, Thai or Indian
	Medium	4	Cantonese, Japanese or Chinese
	Low	1	Most pubs, Italian, French, pizza or steakhouse

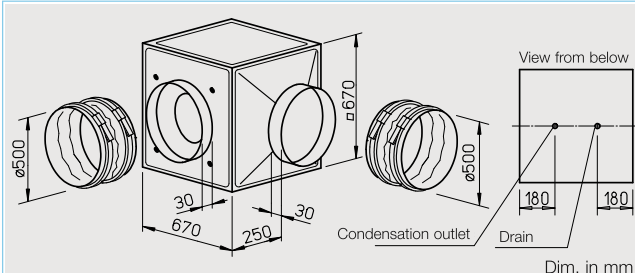
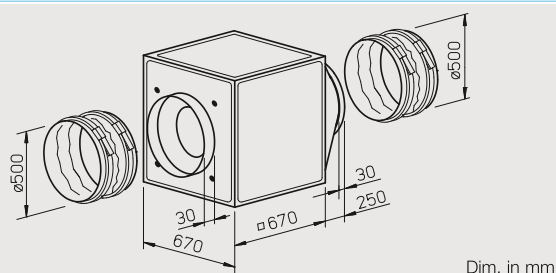
Appendix 5
Specification for proposed motor, flue and Purifiedair Sitesafe
Carbon Filters

GB

Arbitrary installation position and flexible assembly by five possible discharge directions.


GB T120

Designed for moving dirty, humid and hot air up to max. 120° C. Motor located outside the air flow.


Special features of types GB T120

- Designed for moving dirty, humid and hot air volumes up to max. 120° C.
- Motor located outside of air flow.
- Temperature insulated partition panel between motor and impeller, lined with 20 mm thick, flame-retardant mineral wool.
- Easily accessible motor and impeller unit, removable without disassembling the system components.
- Inspection cover with handle, simply remove for cleaning and maintenance.
- Condensate collector with condensate spigot included in delivery. Drill hole for rain drainage (accessories) for outdoor installation is prepared.

Assembly GB T120

Installation must be carried out with condensation discharge showing downward. Flexible assembly by three possible centrifugal discharge directions via the discharge adapter. Outdoor installation is possible using outdoor cover hood and external weather louvers (accessories).

Feature
Assembly of types GB

Arbitrary installation position and flexible assembly by five possible discharge directions via the discharge adapter. For wall mounting the wall bracket (accessories) have to be used. Outdoor installation is possible using outdoor cover

hood and external weather louvers (accessories).

Specification of both types
Casing

Self-supporting frame construction from aluminium hollow profiles. Double-walled side panels from galvanised sheet steel, lined with 20 mm thick temperature insulating and flame-retardant mineral wool. Intake cone for ideal inflow as well as spigot and flexible sleeve (for the respective max. permissible air flow temperature) for duct connection. With discharge adapter (from square to circular) on the pressure side for low-loss discharge and flexible sleeve to reduce vibration transmission. Simple positioning by standard crane hooks.

Impeller

Smooth running backward curved aluminium centrifugal impeller highly efficient and direct driven. Energy efficient with a low noise development. Dynamically balanced together with the motor to DIN ISO 1940 Pt.1 – class 6.3.

Motor

Maintenance-free external rotor motor or IEC-standard motor protected to IP 54. With ball bearings and interference-free as standard.

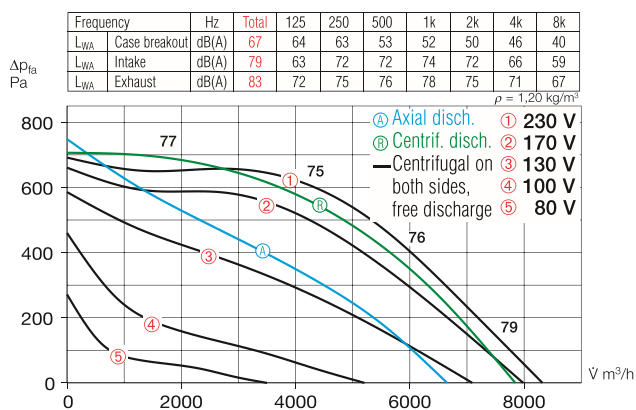
Electrical connection

Standard terminal box (IP 54) fitted on the motor; with GB T120 fitted on the motor support plate.

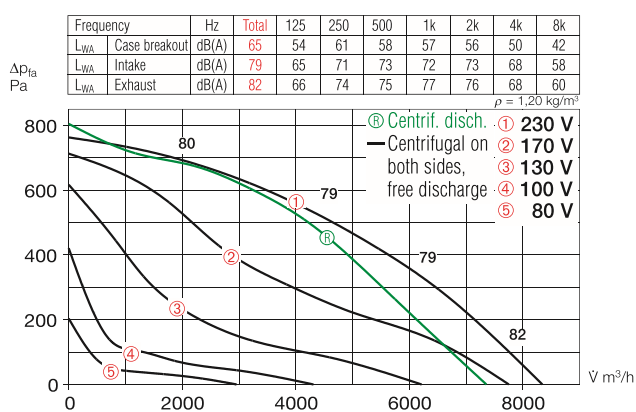
Type	Ref. no.	Air flow volume (FID)	R.P.M.	Sound press. case breakout	Motor power (nominal)	full load	Current speed controlled	Wiring diagram	Maximum air flow temperature Full load controlled	Weight (net) kg	5 step transformer controller with mot. protect. unit	Full motor protection unit using the thermal contacts
		m^3/h	min^{-1}	dB(A) in 4 m	kW	A	A	No.	$^{\circ}\text{C}$	$^{\circ}\text{C}$	Type Ref. no.	Type Ref. no.
1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, protection to IP 54												
GBW 500/4	5517	8321	1401	47	1.50	6.70	9.60	865	65	55	61	MWS 10 1946
2 speed motor, 3 Phase motor, 400 V / 3 ph. / 50 Hz, Y/Δ wiring, protection to IP 54												
GBD 500/4/4	5518	8000/9200	1075/1340	45	0.97/1.45	1.60/2.80	2.90	867	50	50	57	RDS 7 1578
1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, protection to IP 54												
GBW 500/4 T120	5776	8345	1340	45	1.40	6.1	7.0	301	120	100	75	MWS 10 1946
2 speed motor, 3 Phase motor, 400 V / 3 ph. / 50 Hz, Y/Δ wiring, protection to IP 54												
GBD 500/4/4 T120	5777	7320/8350	1120/1370	45	0.95/1.30	1.60/2.50	2.5	947	120	110	75	RDS 4 1316

1) incl. operation switch

GBW 500/4



GBW 500/4 T120



Motor protection

Motors have thermal contacts wired to the terminal block and must be connected to a motor protection unit.

Speed control

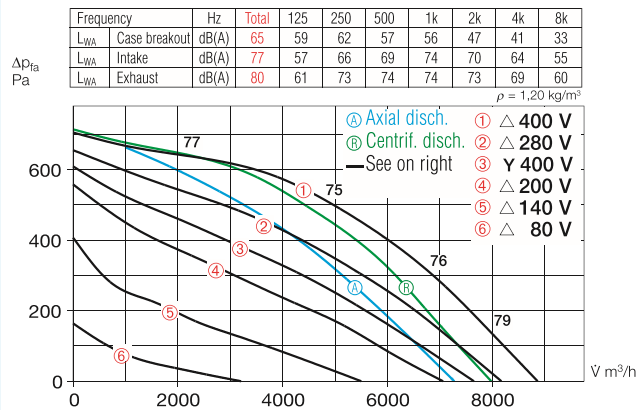
All types are speed controllable by voltage reduction using a transformer controller. The 3-phase models can also be 2 speed controlled by star/delta switch (accessories DS 2 or full motor protection unit M 4). The duties at different speeds are given in the performance curve.

Sound levels

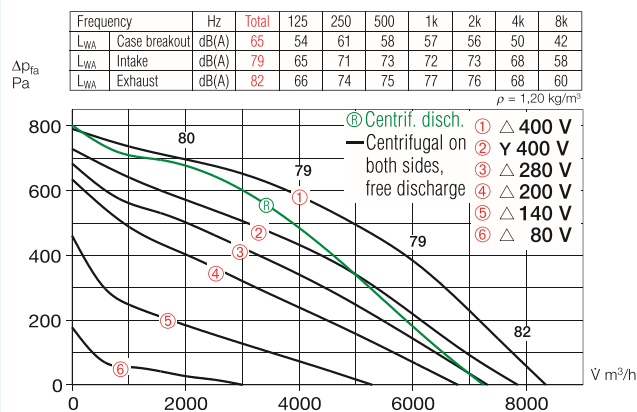
Total sound power levels and the spectrum figures in dB(A) are given for:

- Sound level case breakout
 - Sound level intake
 - Sound level exhaust
- In the table below as well as underneath the performance curve you can find additionally the sound pressure levels at 4 m (free field conditions).

GBD 500/4



GBD 500/4 T120



Accessories of both types

Anti vibration mounts for installation indoors. Set of 4.

SDD-U Ref. no. 5627

Wall bracket for wall mounting.

GB-WK 500 Ref. no. 5626

External weather louvers to cover exhaust opening.

GB-WSG 500 Ref. no. 5639

Outdoor cover hood for outdoor installation.

GB-WSD 500 Ref. no. 5748

On/Off and 2-speed switch for 3-phase Y/Δ motors.

Type DS 2²⁾ Ref. no. 1351

²⁾ full motor protection unit recommended:
MD Ref. No. 5849

Specific accessories

for types GB

Condensate collector with condensate spigot for pipe connection.

GB-KW 500 Ref. no. 5644

(Condensate collector with condensate spigot included in delivery with GB T120).

for types GB T120

Rain drainage for outdoor installation (drill holes for rain drainage is already prepared).

GB-RA Ref. no. 9418

Information	Page
Information for planning	10 on
General techn. information, speed control	15 on
Accessory-Details	Page
Speed controller and full motor protection unit	525 on

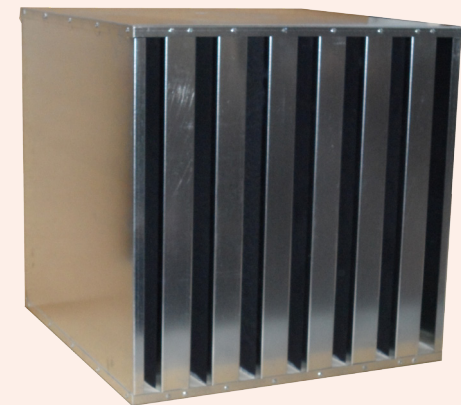
Sitesafe Carbon Filters

We manufacture Sitesafe carbon filters, these innovative carbon units measure 594x196x597mm, three combining to 594x594x597mm, directly replacing our original carbon blocks whilst providing exactly the same filter performance as an existing full size cell.

Their advantage is that they only weigh 18kg each against the 68kg of our original blocks. This takes the strain out of fitting and servicing, allowing only one engineer to complete the task where two had been previously required.

Our Sitesafe carbon filters use panels of activated carbon to remove the malodorous gases within the commercial kitchen extract duct through the process of chemical adsorption. By installing our ESP units before our Sitesafe filters, the carbon life span is greatly increased, allowing it to nullify malodours at optimum efficiency for much longer.

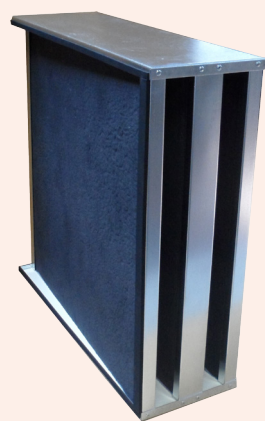
Will require two people plus lifting gear to carry and install.



Carbon PA242424

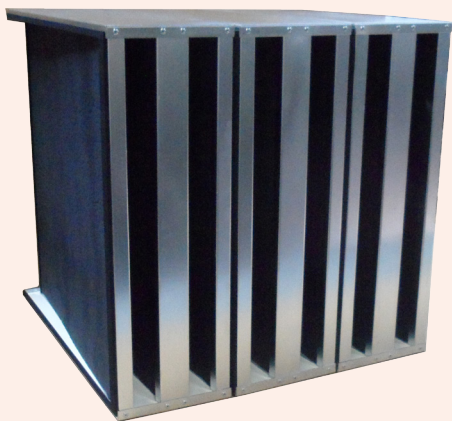
Size	594x594x597
Gross Weight	68.20kg
Carbon Weight	50.00kg
Rated Airflow	3600m³/hr*
Pressure Drop	120Pa

Safe for one person to carry. No special lifting gear required.



Sitesafe PA240824

Size	594x196x597
Gross Weight	17.95kg
Carbon Weight	16.6kg
Rated Airflow	1200m³/hr*
Pressure Drop	120Pa



Sitesafe 3 x PA240824

Size	594x594x597
Gross Weight	53.85kg
Carbon Weight	50.00kg
Rated Airflow	3600m³/hr*
Pressure Drop	120Pa



Please see below for the recommended minimum dwell times required for different applications and scale up accordingly.

It should be noted that filtration performance will be improved by increasing the dwell times applied.

Application	Recommended Dwell Time	Grade
Cooking - Low Odour, Tea Shop, Canteens	0.1 to 0.2 Seconds	Carbon grade Enhanced for improved performance for light catering odours
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
Cooking High Odour, Indian, Thai, Vietnamese, Kebab	0.4-0.6 Seconds	Enhanced Carbon grade suitable for many applications 65% Minimum CTC
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
Reduction of Kerosene Exhaust fumes	0.1 to 0.2 Seconds	General Purpose Activated Carbon
Reduction of Ozone	0.1 to 0.2 Seconds	General Purpose Activated Carbon
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
Museum and Archives	0.2 Seconds	Carbon Museum,Archive, Café Directive: SO ₂ SO _x NO ₂ NO _x Removal

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**