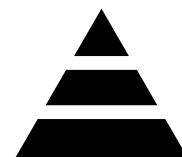


Odour Management Plan

11 BRIDGE STREET, RAMSBOTTOM,
BURY BL0 9AB

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Delta Tech Ltd
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 gas 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 gas fired pizza oven using high temperatures thereby mitigating the formation of smoke and odours. The high temperatures of 300c within the oven and the cooking of pizzas for 60-90 seconds mean fatty meats do not omit grease into the system.

The high temperature fan is located above the oven, on the flue at high level, specially designed for high temperature 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.

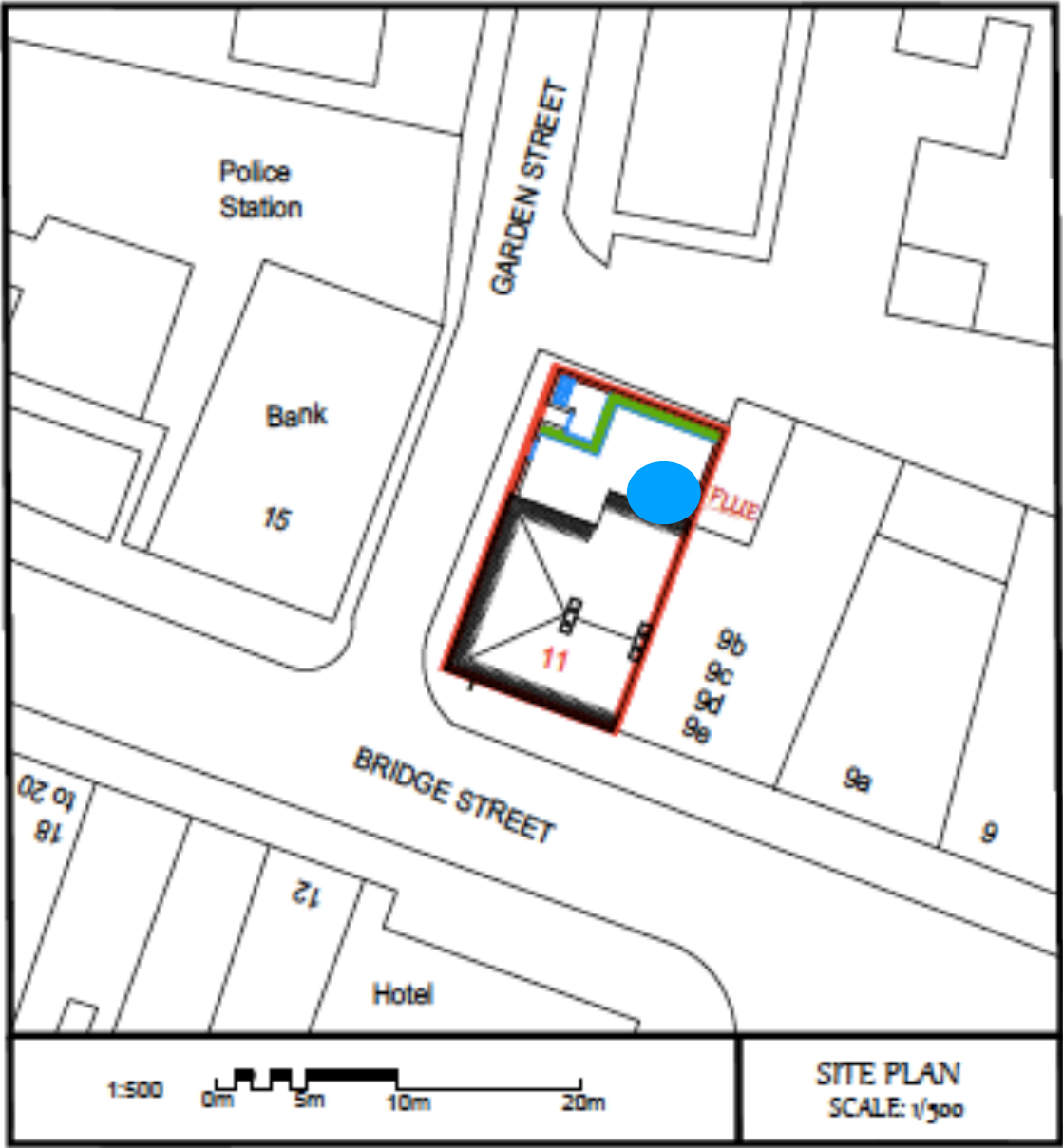
As long as the proposed extraction system is properly maintained on a regular basis, it is highly unlikely that odour would become an issue in the future.

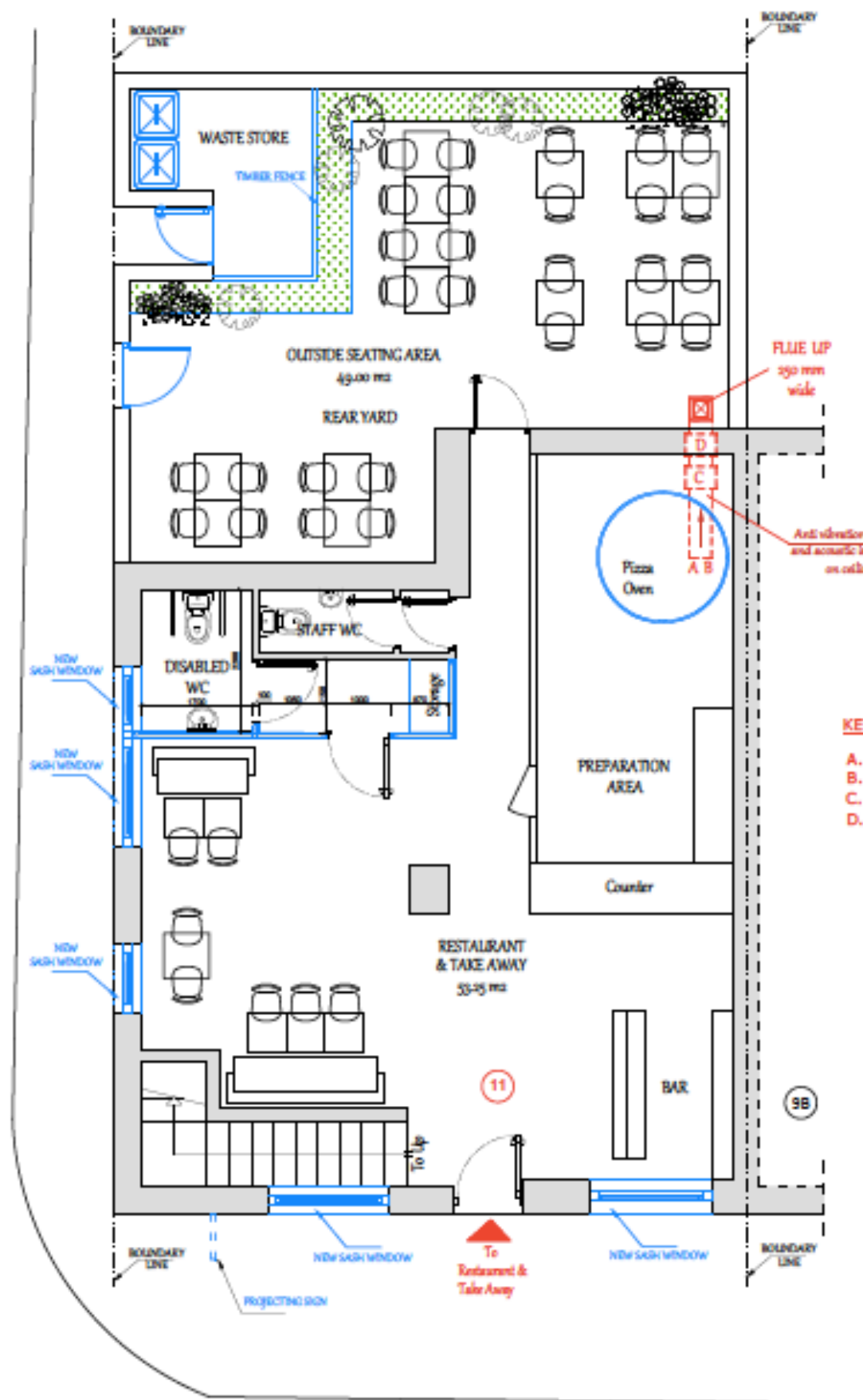
Appendix 1
Site Layout Plan

Site:

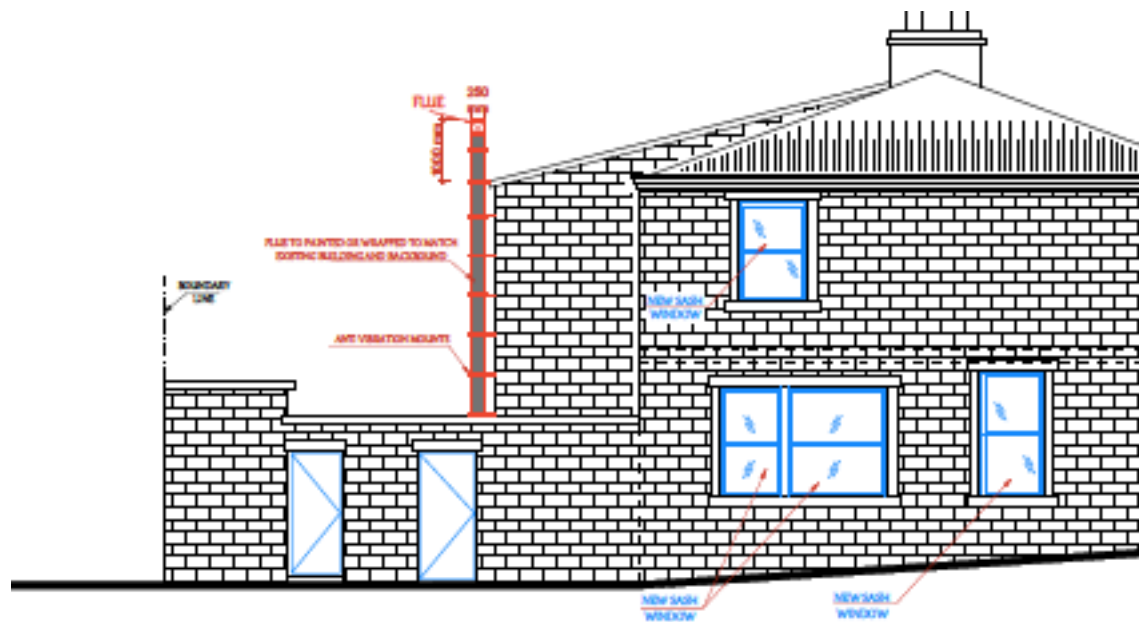
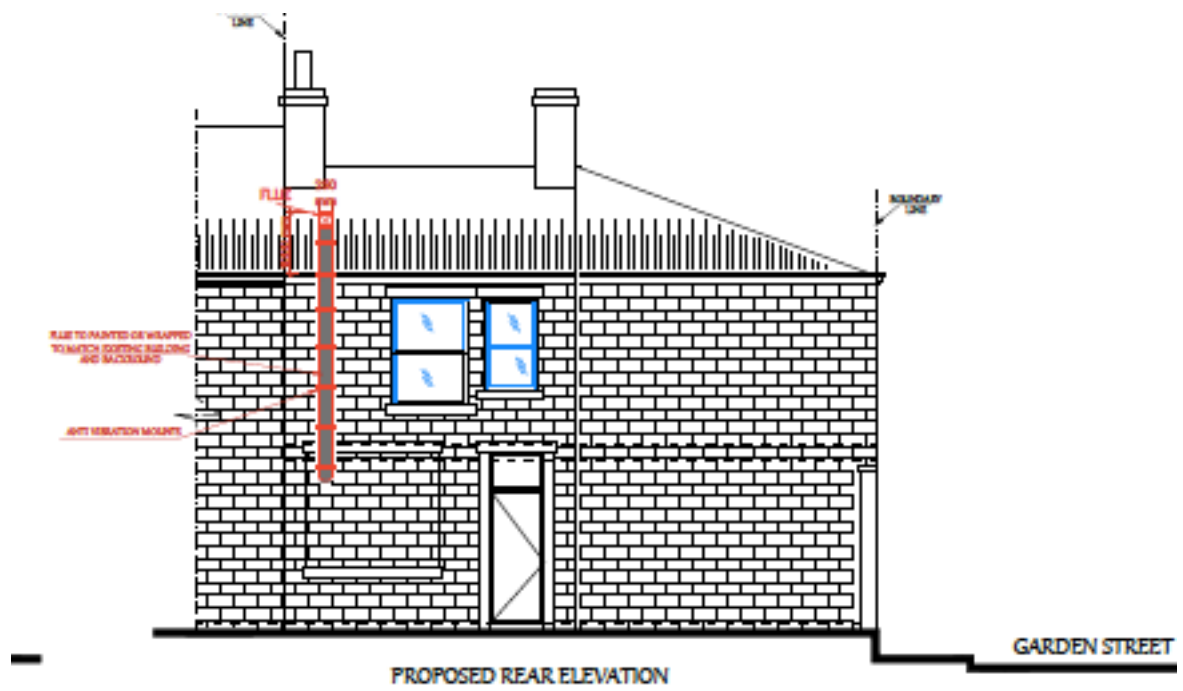


Flue Location:





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

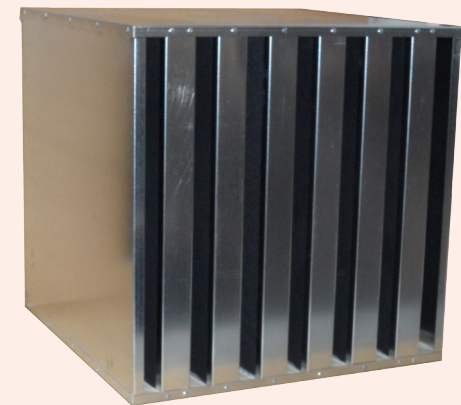
Sitesafe Carbon Filters

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.

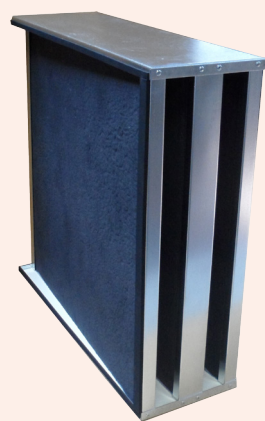
Will require two people plus lifting gear to carry and install.



Carbon PA242424

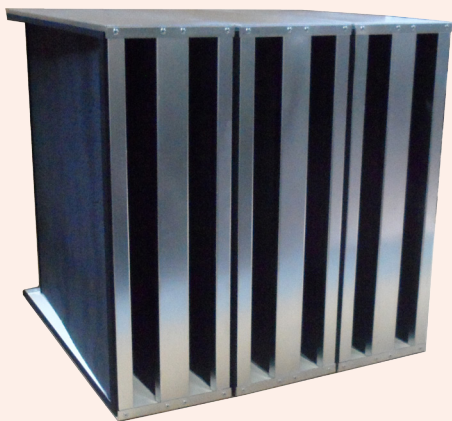
Size 594x594x597
Gross Weight 68.20kg
Carbon Weight 50.00kg
Rated Airflow 3600m³/hr*
Pressure Drop 120Pa

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**



Flue Spec and Sizes

Product Description

Eco ICID is a Twin Wall Insulated System Chimney designed specifically for use on open or closed stoves with continuous operating temperatures of up to 450°C.

The system is designed so that the outer case is load bearing and the inner liner is free to expand independently, therefore thermal expansion is accommodated within each and every joint of the system.

Available in two versions with a choice of either a bright annealed or a matt black painted stainless steel outer case. Eco ICID is available in the following range of diameters:- 125, 150, 180 and 200mm.

Joint Design



- Twist-lock bayonet jointing system. Secured by locking band.
- Advanced corrosion resistant design and construction uses laser welded 316L stainless steel inner liner and stainless steel case.
- The 25mm of high density rockwool insulation maintains flue gas temperature, maximising efficiency improving flue draught on start up and minimising condensation.
- Low external case temperature.
- The inner liner is free to expand through the female collar, allowing for maximum thermal expansion even during a soot fire.
- The inner liner has an inward bead at the female end which acts as a capillary break preventing moisture being drawn through the joint.

Technical Data

Fuel	Wood, solid fuel
Firing Temp	450° C
Short Firing Temp	500° C
Thermal Shock	1000° C
Mode of Operation	Zero & negative pressure
Pressure Capabilities	40Pa
Fire Rating	4 Hour Fire Rating to BS 476 Part 20
Outer Case (Standard)	Stainless Steel
Outer Case (Optional)	Painted matt black
Outer Case Thickness	0.5mm
Seam	Laser or inert gas welded
Liner	316L 1.404 XQC/Nb 17-12-2
Liner Thickness (mm)	0.5mm
Seam	Laser or inert gas welded
Insulation	High performance mineral fibre
Insulation Thickness	25mm
Average Thermal Resistance (200°C)	0.4m ² K/W

CORROSION RESISTANCE

Chimneys are subject to significant corrosion attack by flue gas condensates, particularly from solid fuel. Eco ICID is specifically designed and manufactured to resist this corrosion.

CHIMNEY DIAMETER

The chimney size should be as recommended by the appliance manufacturer. Where there is a requirement for a flue diameter smaller than the appliance spigot, then the operational requirements of the appliance and the configuration of the flue must satisfy the flue sizing requirements of EN13384-1 for single appliances, and EN13384-2 for multi appliances.

Diameter
Internal 200mm
External 256mm
Distance to combustibles 60mm



Approvals



Eco ICID is CE Certified to EN1856-1 TÜV 0036 CPD 9195 010 with designations:

High Temperature Applications	
T450 NI WV2 L50050 G40 T450 NI DV3 L50050 G40 60mm Distance to combustibles in a combustible shaft*	T450 NI WV2 L50050 G50 T450 NI DV3 L50050 G50 50mm Distance to combustibles in a non combustible shaft or in free air*

*For full information refer to p.10 and p.11

- Manufactured under a Quality Management Scheme approved to BS EN ISO 9001:2008
- 4 Hour Fire Rating to BS476 Part 20
- Certified for corrosion resistance on gas, oil and solid fuel by Gastec, MPA and TÜV
- HETAS listed for use on solid fuel applications.

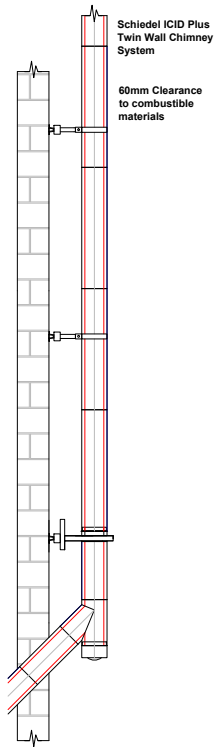
SPECFLUE

Customer
EXOFUE LTD

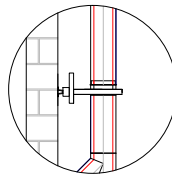
Project
ICID PLUS

Date APRIL 2019	Scale NTS	Drawn CB
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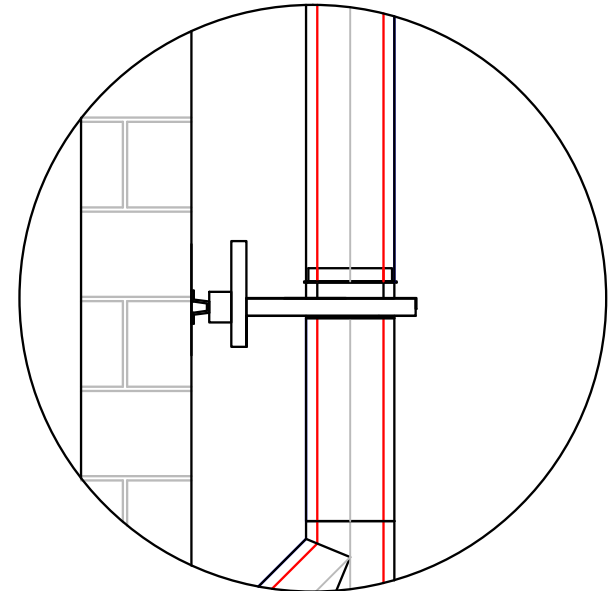
8 Curzon Road, Chilton Ind. Est. Sudbury, Suffolk CO10 2DW
Tel: 01438 81 21 22
email: info@exofue.com



Anti-Vibration Mounts
Uni-Strut
ICID Plus Wall Support Bracket



Anti-Vibration Mounts Uni-Strut ICID Plus Wall Support Bracket



Description

GN1 is a high temperature fan, Italian made (since 1983), specially designed for high temperature fireplace chimneys, ovens, restaurants and pizza ovens.

The fans can be used with all types of solid fuel burning appliances however if used with Gas consult appliance manufacturer and GASSAFE engineer.

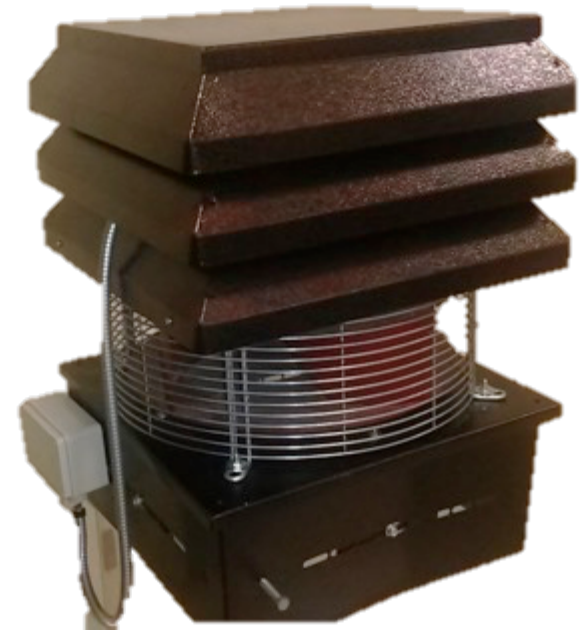
The fan is installed on top of a chimney and creates a negative pressure.

Its unique design means it can be installed on a masonry or twin wall flue system.

The fan is part of a system and has a variable speed controller.

The design and construction of these professional models can withstand continuous flue gas temperatures of 250 degrees C and does not obstruct the air flow of smoke even when not in operation.

The device is silent and has a low energy consumption and is constructed of high quality temperature resistant materials.



Dimensions

W 500mm - D 500mm - H 600mm

GN1 sound data

SOUND Data at 3m

Speed	1	2	3	4	5	6
db.	38	38	41	53	56	59

The fan has been sized to not exceed Speed 3

Isolation switch



It is a legal requirement that an isolation switch is installed in the immediate vicinity of the chimney fan, so that, for example, chimney sweeps can disconnect the electrical current to the chimney fan. The type of isolation switch required depends on the chimney fan control system.