Odour Assessment

Queensway, Lancing

Client: Fireaway Pizza Lancing Ltd

Reference: 5454r2

Date: 26th August 2022



Report Issue

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Executive Summary

Redmore Environmental Ltd was commissioned by Fireaway Pizza Lancing Ltd to undertake an Odour Assessment in order to address a planning condition attached to a retrospective planning application for the retention of a hot food takeaway at 3-4 Queensway, Lancing.

Emissions from cooking activities on the premises have the potential to cause odour impacts at sensitive locations in the vicinity of the site. An Odour Assessment was therefore undertaken in order to assess potential effects and identify any requirement for mitigation to control effects to an acceptable level.

An assessment using the standard industry methodology was undertaken in order to identify the odour risk associated with emissions from cooking activities on the premises. This was based on a number of site-specific inputs.

The results of the assessment indicated the odour risk was classified as **high**. This prediction does not infer that the takeaway would result in significant odour impact or affect local amenity levels. However, it does suggest that appropriate mitigation is required to reduce potential effects to an acceptable level.

The odour abatement strategy for the takeaway has been specified in line with the relevant guidance for kitchens with a **high** risk of impact. It therefore follows that with this mitigation in place, potential odour impacts at nearby sensitive receptors would be reduced to an acceptable level.

Based on the assessment findings, the relevant condition should be discharged subject to the installation of the specified mitigation.

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1.0 INTRODUCTION

1.1 Background

1.1.1 Redmore Environmental Ltd was commissioned by Fireaway Pizza Lancing Ltd to undertake an Odour Assessment in order to address a condition attached to a retrospective planning application for the retention of a hot food takeaway at 3-4 Queensway, Lancing.

1.1.2 Emissions from cooking activities on the premises have the potential to cause odour impacts at sensitive locations in the vicinity of the site. As such, an Odour Assessment was undertaken in order to assess potential effects and identify any requirement for mitigation in order to control emissions to an acceptable level.

1.2 Site Location and Context

1.2.1 Fireaway Pizza is located at 3-4 Queensway, Lancing, BN15 9AY, at approximate National Grid Reference (NGR): 518302, 104591. Reference should be made to Figure 1 for a map of the site and surrounding area.

1.2.2 The site is located in the village of Lancing and is bordered to the east and west by retail units, including hot food takeaways, to the south by Queensway and to the north by residential properties in North Farm Court. The closest residential units are located at first floor above the premises.

1.2.3 The kitchen is located behind the service counter to the western and rear sections of the property and includes a gas fired pizza oven. The restaurant serves a range of pizzas and sides including garlic bread. The number of meals served is approximately 30 on a weekday and between 50 and 60 on Fridays and Saturdays. The takeaway is operational from 1pm to 10pm, 7-days a week. Reference should be made to Figure 2 for a site layout plan.

1.2.4 Emissions generated by the pizza oven are removed via ductwork which runs along the ceiling prior to entering a dedicated flue. The extract air is discharged to atmosphere horizontally at the rear of the premises. Reference should be made to Figure 3 for a plan of the flue location.

1.2.5 A retrospective planning application to regularise the operation of the hot food takeaway was granted by Adur District Council (ADC) on 10th May 2022, subject to a number of conditions (reference: AQDM/0256/22). These include the following in relation to odour:

> "Within 3 months from the date of this permission details of a suitable system for the extraction and disposal of cooking odours (including details of the extract fans, filters, fan units and ducting together with method of noise abatement, as well as details of grease traps and extraction hoods) has been submitted to and approved in writing by the Local Planning Authority. The scheme shall have regard to the guidance contained within Adur and Worthing Councils Kitchen Extraction and Ventilation - Information & Guidance 2019. The equipment approved under this condition shall be installed within 3 months from the approval of the equipment and thereafter shall be maintained in accordance with the manufacturer's instructions.
>
> Reason: In the interests of amenity and to ensure the use of the site does not have a harmful environmental effect and in accordance with policies 15 and 34 of the Adur Local Plan."

1.2.6 An Odour Assessment has been undertaken in order to address the above condition and identify any requirement for mitigation to control emissions to an acceptable level. This is detailed in the following report.

2.0 ODOUR BACKGROUND

2.1 Odour Definition

2.1.1 The Institute of Air Quality Management (IAQM) guidance[1] defines odour as:

> "[…] the human olfactory response (perception followed by psychological appraisal) to one, or more often a complex mixture of, chemical species in the air."

2.1.2 The stated definition is considered to be relevant in the context of this assessment.

2.2 Odour Impacts

2.2.1 The magnitude of odour impact depends on a number of factors and the potential for complaints varies due to the subjective nature of odour perception. The **FIDOL** acronym, is a useful reminder of the factors that will determine the degree of odour pollution. These are described by the IAQM[2] as follows:

- **F**requency - how often an individual is exposed to odour;
- **I**ntensity - the individual's perception of the strength of the odour;
- **D**uration - the overall duration that individuals are exposed to an odour over time;
- **O**dour unpleasantness - odour unpleasantness describes the character of an odour as it relates to the 'hedonic tone' (which may be pleasant, neutral or unpleasant) at a given odour concentration/ intensity. This can be measured in the laboratory as the hedonic tone, and when measured by the standard method and expressed on a standard nine-point scale it is termed the hedonic score; and,
- **L**ocation - the type of land use and nature of human activities in the vicinity of an odour source. Tolerance and expectation of the receptor. The 'Location' factor can be considered to encompass the receptor characteristics, receptor sensitivity, and socio-economic factors**.**

[1] Guidance on the Assessment of Odour for Planning v1.1, IAQM, 2018.

[2] Guidance on the Assessment of Odour for Planning v1.1, IAQM, 2018.

2.2.2 It is important to note that even infrequent emissions may cause loss of amenity if odours are perceived to be particularly intense or offensive.

2.2.3 The **FIDOL** factors can be further considered to provide the following issues in regards to the potential for an odour emission to cause a nuisance:

- The rate of emission of the compound(s);
- The duration and frequency of emissions;
- The time of the day that this emission occurs;
- The prevailing meteorology;
- The sensitivity of receptors to the emission i.e. whether the odorous compound is more likely to cause nuisance, such as the sick or elderly, who may be more sensitive;
- The odour detection capacity of individuals to the various compound(s); and,
- The individual perception of the odour (i.e. whether the odour is regarded as unpleasant). This is greatly subjective, and may vary significantly from individual to individual. For example, some individuals may consider some odours as pleasant, such as petrol, paint and creosote.

2.3 Legislative Control

2.3.1 The main requirement with respect to odour control from premises not controlled under the Environmental Permitting (England and Wales) Regulations (2016) and subsequent amendments, such as hot food takeaways, is that provided in Section 79 of Part III of the Environmental Protection Act (1990). The Act defines nuisance as:

> "Any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance."

2.3.2 Enforcement of the Environmental Protection Act (1990), in regard to nuisance, is currently under the jurisdiction of the local Environmental Health Department, whose officers are deemed to provide an independent evaluation of nuisance. If the Local Authority is satisfied that a statutory nuisance exists, or is likely to occur or happen again, it must serve an Abatement Notice under Part III of the Environmental Protection Act (1990). The only defence is to show that the process or activity to which the nuisance has been attributed and its operation are being controlled according to best practicable means.

2.3.3 The legislative controls described above were considered as necessary throughout the undertaking of the assessment.

2.4 National Planning Policy

2.4.1 The revised National Planning Policy Framework[3] (NPPF) was published in July 2021 and sets out the Government's planning policies for England and how these are expected to be applied.

2.4.2 The purpose of the planning system is to contribute to the achievement of sustainable development. In order to ensure this, the NPPF recognises three overarching objectives, including the following of relevance to odour:

> "c) An 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"

2.4.3 Chapter 12 of the NPPF details objectives in relation to achieving well-designed place. It states that:

> "Planning policies and decisions should ensure that developments:
>
> […]
>
> f) create places that are safe, inclusive and accessible and which promote health and well-being, with a high standard of amenity for existing and future users; and where crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesions and resilience."

2.4.4 The implications of the NPPF have been considered throughout this assessment.

[3] NPPF, Ministry of Housing, Communities and Local Government, 2021.

2.5 Local Planning Policy

2.5.1 The Adur Local Plan[4] was adopted by ADC on 14th December 2017. A review of the document indicated the following policies in relation to odour that are relevant to this assessment:

> "Policy 15: Quality of the Built Environment and Public Realm
>
> Development should be of a high architectural quality and respect and enhance the character of the site, and the prevailing character of the area, in terms of proportion, form, context, massing, siting, layout, density, height, size, scale, materials, detailed design features and landscaping. Development should:
>
> […]
>
> Make a positive contribution to the sense of place, local character and distinctiveness of an area; and not have an unacceptable impact on adjacent properties, particularly residential dwellings, including unacceptable loss of privacy, daylight/sunlight, outlook or open amenity space;
>
> […]."
>
> "Policy 34: Pollution and Contamination
>
> […]
>
> New development in Adur will be located in areas most suitable to the use of that development to avoid risks from noise, air, odour or light pollution.
>
> Mitigation measures will need to be implemented for developments that could increase levels of pollution or have a negative impact on drinking

[4] Adur Local Plan, ADC, 2017.

water supplies in Adur. Where there are significant levels of increased pollution that cannot be mitigated, development will be refused.

[…]."

2.5.2 The above policies were taken into consideration throughout the undertaking of the assessment.

2.5.3 ADC have produced a 'Kitchen Extraction and Ventilation - Information and Guidance 2019' document[5] which contains guidance on planning a kitchen extract and ventilation system for commercial kitchens. This document was taken into consideration throughout the undertaking of the assessment.

[5] Kitchen Extraction and Ventilation - Information & Guidance 2019, ADC, 2019.

3.0 METHODOLOGY

3.1 Introduction

3.1.1 Emissions from cooking activities on the premises have the potential to cause odour impacts at sensitive locations within the vicinity of the site. An assessment has therefore been undertaken in accordance with the 'Control of Odour and Noise from Commercial Kitchen Exhaust Systems' guidance document prepared by EMAQ+ for the Department for Environment, Food and Rural Affairs (DEFRA)[6]. This document provides an update to the 2005 guidance[7] produced by DEFRA. The assessment approach was agreed with Nadeem Shad, Team Leader Environmental Protection, Public Health & Regulation at ADC, on 9th August 2022.

3.1.2 The relevant process is summarised in the following Sections.

3.2 Assessment Methodology

3.2.1 The EMAQ+ and DEFRA methodology provides an approach for identifying the risk of odour impact associated with food preparation premises and defining an appropriate level of mitigation to control potential effects to an acceptable level.

3.2.2 The first stage in the process is to score the premises in accordance with the criteria outlined in Table 1.

Table 1 Risk Scoring Criteria

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 or below 10m/s
	Moderate	10	Discharging 1m above eaves at 10 - 15m/s
	Good	5	Discharging 1m above ridge at 15m/s

6 Control of Odour and Noise from Commercial Kitchen Exhaust Systems, EMAQ+, 2018.

7 Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems, DEFRA, 2005.

Criteria	Score	Score	Details
Proximity of receptors	Close	10	Closest sensitive receptor less than 20m from kitchen discharge
	Medium	5	Closest sensitive receptor between 20m and 100m from kitchen discharge
	Far	1	Closest sensitive receptor more than 100m from kitchen discharge
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 take away
Cooking type (odour and grease loading)	Very high	10	Pub (high level of fried food), fried chicken, burgers or fish & chips, fast food or any premises cooking with solid fuel
	High	7	Vietnamese, Thai, Indian, Turkish, Kebab houses, Pizza (wood-fired), casual dining (burgers/chicken)
	Medium	4	Cantonese, Chinese, Japanese Italian, French, Pizza (gas fired), Steakhouses
	Low	1	Most pubs (no fried food, mainly reheating and sandwiches etc) or Tea rooms

3.2.3 The score obtained using the values shown in Table 1 is subsequently used to define the associated risk and odour control requirement. The relevant criteria are summarised in Table 2.

Table 2 Odour Control Requirement

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

3.2.4 A suitable odour control system can then be identified from the techniques summarised in the EMAQ+ and DEFRA guidance[8].

[8] Control of Odour and Noise from Commercial Kitchen Exhaust Systems, EMAQ+, 2018.

4.0 ASSESSMENT

4.1 Odour Risk

4.1.1 The odour risk associated with cooking activities on the premises was rated in accordance with the EMAQ+ and DEFRA methodology[9]. The results are provided in the following Sections.

Table 3 Odour Risk

Criteria	Score	Score	Notes
Dispersion	Poor	15	Emissions from the pizza oven are extracted and discharged to atmosphere horizontally via a dedicated flue positioned at the rear of the property
Proximity of receptors	Close	10	The closest sensitive receptor is less than 20m from the kitchen extract discharge point. This includes residential units at first floor level of the building and dwellings in North Farm Court to the north of the premises
Size of kitchen	Medium	3	Approximately 30 orders are processed by the takeaway on any given weekday and between 50 and 60 covers on Fridays and Saturdays
Cooking type (odour and grease loading)	Medium	4	The takeaway prepares pizza and garlic bread using a gas fired oven only. In accordance with the EMAQ+ and DEFRA guidance, moderate levels of odour are anticipated to be produced as a result of the cooking processes

4.1.2 As shown in Table 3, the odour risk associated with emissions from the hot food takeaway was scored as 32. The risk was therefore classified as **high**, in accordance with the EMAQ+ and DEFRA criteria.

4.2 Odour Control

4.2.1 Based on the assessment results, the extraction system associated with the pizza oven requires mitigation suitable for a **high** level of odour risk. There are a number of options for

[9] Control of Odour and Noise from Commercial Kitchen Exhaust Systems, EMAQ+, 2018.

abatement identified within the EMAQ+ and DEFRA guidance[10] that provide this level of control. These include:

- Fine dust filter - Bag, panel or High-Efficiency Particulate Arrestance (HEPA) filters. Alternatively, an Electrostatic Precipitator (ESP) may be used; and,
- Gaseous phase - An activated carbon filter with a 0.2 - 0.4 second residence time should be included for odour removal. Alternatively, an oxidation system using ultraviolet light or ozone may be used.

4.2.2 The following filters will be incorporated into the extraction system associated with the pizza oven:

- A 600mm x 600mm x 98mm G4 standard pleated panel filter to remove particulates; and,
- A 594mm x 594mm x 597mm activated carbon filter system with a 0.26 second residence time to remove odourous compounds prior to discharge to atmosphere.

4.2.3 Reference should be made to Appendix 1 for the relevant filter specifications.

4.2.4 The proposed measures are consistent with the abatement options suggested within the relevant guidance[11][12] for kitchens with a **high** risk of impact. It therefore follows that with this mitigation in place, potential odour impacts would be reduced to an acceptable level.

10 Control of Odour and Noise from Commercial Kitchen Exhaust Systems, EMAQ+, 2018.

11 Control of Odour and Noise from Commercial Kitchen Exhaust Systems, EMAQ+, 2018.

12 Kitchen Extraction and Ventilation - Information & Guidance 2019, ADC, 2019.

5.0 CONCLUSION

5.1.1 Redmore Environmental Ltd was commissioned by Fireaway Pizza Lancing Ltd to undertake an Odour Assessment in order to address a condition attached to a retrospective planning application for the retention of a hot food takeaway at 3-4 Queensway, Lancing.

5.1.2 Emissions from cooking activities on the premises have the potential to cause odour impacts at sensitive locations in the vicinity of the site. An Odour Assessment was therefore undertaken in order to assess potential effects and identify any requirement for mitigation to control emissions to an acceptable level.

5.1.3 An assessment using the EMAQ+ and DEFRA methodology was undertaken in order to identify the odour risk associated with emissions from cooking activities on the premises. This was based on a number of site-specific inputs.

5.1.4 The results of the assessment indicated the odour risk was classified as **high**. This prediction does not infer that significant odour impacts would occur or local amenity levels would be affected. However, it does suggest that appropriate mitigation is required to reduce potential effects to an acceptable level.

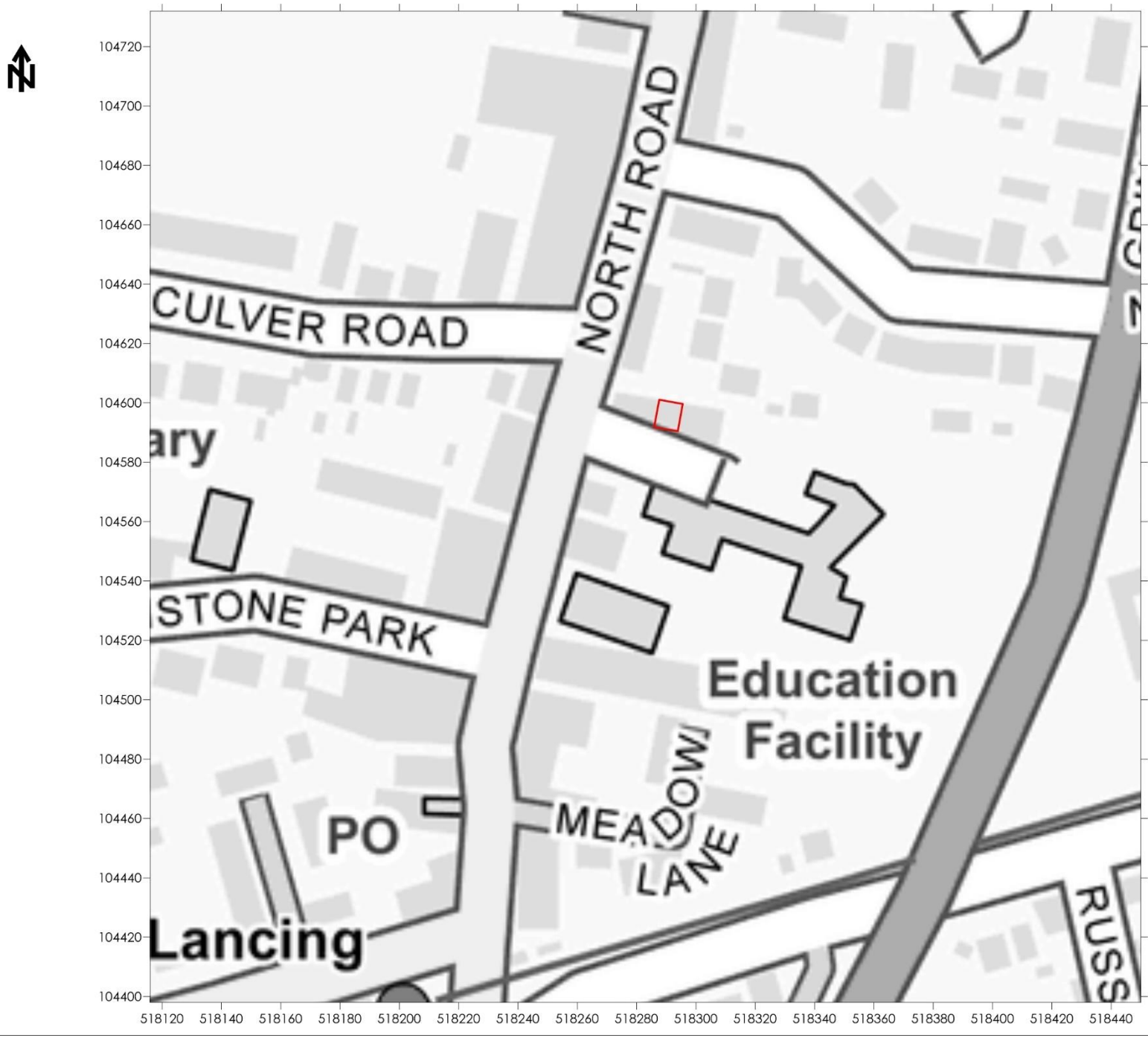
5.1.5 The odour abatement strategy for the pizza oven has been specified in line with relevant guidance for kitchens with a **high** risk of impact. It therefore follows that with this mitigation in place, potential odour impacts would be reduced to an acceptable level.

5.1.6 Based on the assessment findings, the relevant condition should be discharged subject to the installation of the specified mitigation.

6.0 ABBREVIATIONS

ADC	Adur District Council
DEFRA	Department for Environment, Food and Rural Affairs
ESP	Electrostatic Precipitator
HEPA	High-Efficiency Particulate Arrestance
IAQM	Institute of Air Quality Management
NGR	National Grid Reference
NPPF	National Planning Policy Framework

Figures



Legend

Site Boundary

Title
Figure 1 - Site Location Plan

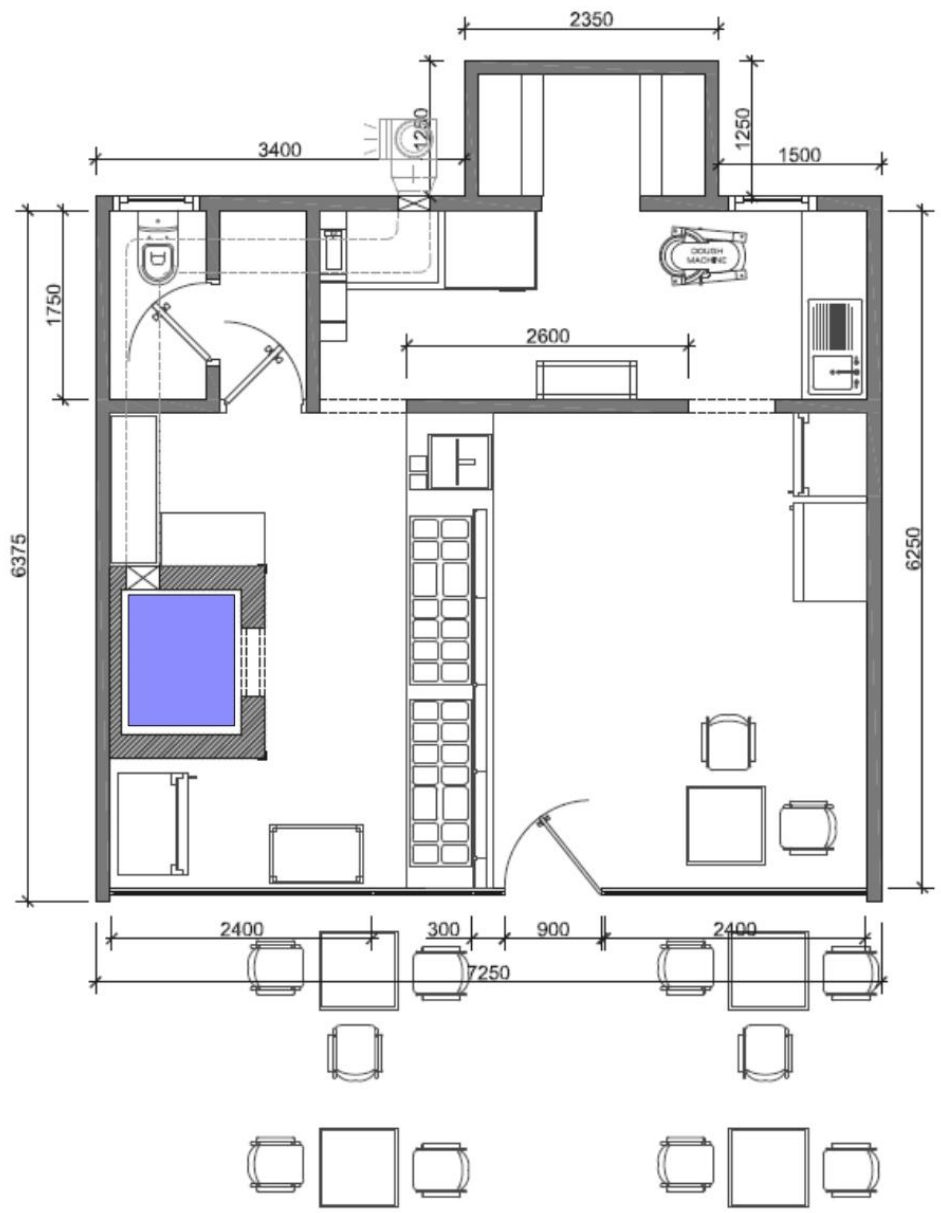
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Legend

Pizza Oven Location

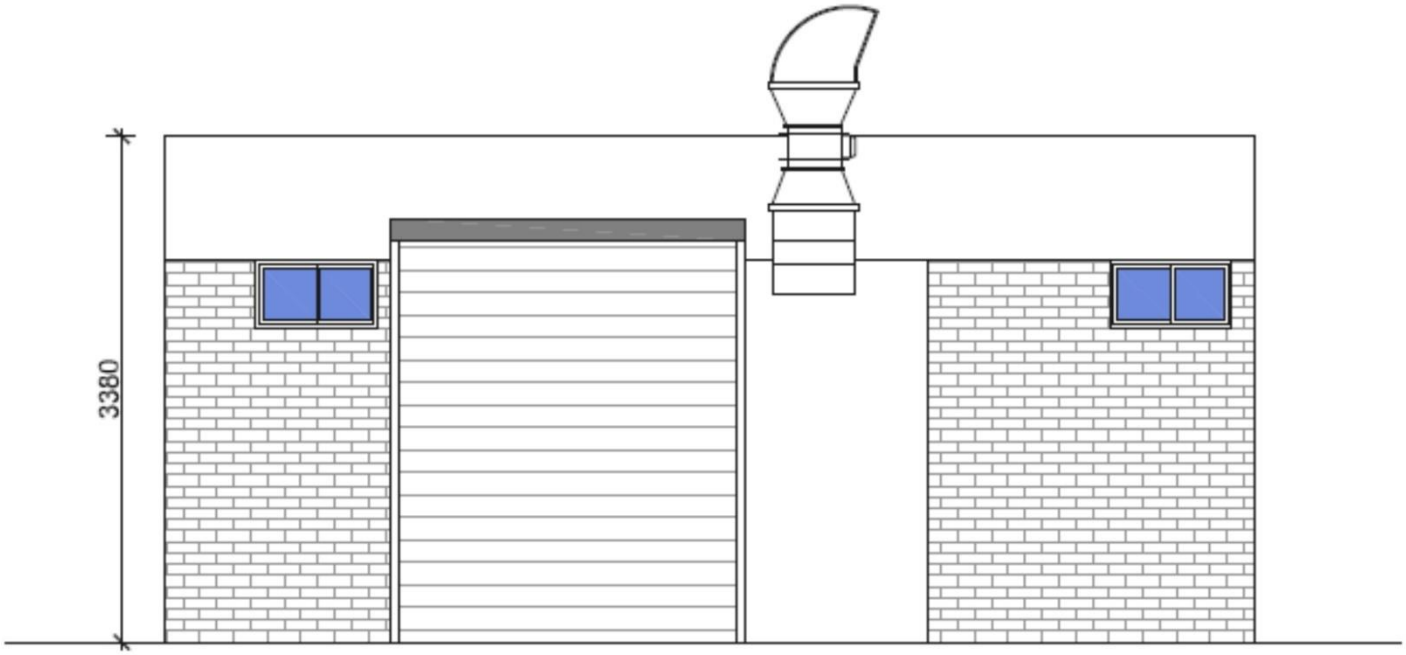
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Figure 2 - Site Layout Plan

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Rear Elevation

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Title
Figure 3 - Existing Flue location

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Appendix 1 - Filter Specifications

Sitesafe Discarb Units

General Description

Standard Discarb multipanel carbon units have been in circulation for over 30 years and there are many tens of thousand of units in service today. These filters are very heavy and nearly always installed in situations with very poor access.

With the new appreciation of risk which we have in the 21st Century it has become apparent that these units represent a real danger to health and potentially offer risk in the work place when a filter change is required.

The new Sitesafe Discarb cells provide exactly the same filter performance with a set of filters which will retrofit exactly for an existing full size cell.

We offering a full set of Site Safe discarbs for the same price as a full sized cell so there is no reason not to change to the new style filters and improve workplace safety.

Will require two people plus lifting gear to carry and install





Discarb DC242424

Size 594x594x597
Gross Weight 68.2Kg
Carbon Weight 50kg
Rated Airflow 3800m³/hr*
Pressure Drop 120Pa

Safe for one person to carry, no special lifting gear required.

Sitesafe discarb cells are a no added cost option so its win win.

Same price as a standard full size discarb - set of 3



Sitesafe DCS240824

Size 594x196x597
Gross Weight 17.95Kg
Carbon Weight 16.6kg
Rated Airflow 1266m³/hr*
Pressure Drop 120Pa



Sitesafe 3xDCS240824

Size 594x594x597
Gross Weight 53.85Kg
Carbon Weight 50kg
Rated Airflow 3800m³/hr*
Pressure Drop 120Pa

*Rated Airflow based on a dwell time of 0.1 seconds.
Available in all sizes to retrofit discarb cells

TECHNICAL DATA



G4 STANDARD CAPACITY SYNTHETIC PLEATED PANEL FILTERS

Nominal Size (mm)	Rated Air Flow (m^3/hr)			Initial Pressure Drop (Pa)		
	22mm	47mm	98mm	22mm	47mm	98mm
250 x 500	596	793	990	35	50	70
400 x 500	980	1305	1629	35	50	70
500 x 500	1231	1638	2046	35	50	70
400 x 625	1255	1631	2037	35	50	70
500 x 625	1539	2048	2557	35	50	70
300 x 600	856	1139	1422	35	50	70
600 x 600	1778	2366	2954	35	50	70

Technical Data

Average Arrestance (EN779)	>90	%
Final Pressure Drop	250	Pa
Filter Classification EN779:2012	G4	Grade
Filter Classification ISO 16890	Coarse 70%	
Maximum Temperature	70	°C
Maximum Humidity	100	%
Media Colour	Green/blue/white	
Flammability (DIN 53438-3)	F1	Class

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