

The Commercial Kitchen Filtration Experts

Specification & Defra Report

Project: B9725-AEW-PJ001295_Clitheroe

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Interpretation of Requirements

Following your recent email I am pleased to provide an equipment selection for an odour control solution.

As with any project we get involved in we always recommend to our clients that they should closely follow the DEFRA guide for guidance on odour control equipment selection.

This ensures that what they propose will be in line with local authority's requirements and if the system is maintained correctly they will not exhaust nuisance odours leading to complaints from nearby residents.

With this in mind I carried out a risk assessment as detailed in Annex C of the DEFRA Guide. Taking into consideration the level of discharge, proximity of receptors, size of kitchen and cooking type your project requires a high level of odour control to comply.

We have scored as below and as taken from Annex C: Risk Assessment for Odour;

Dispersion = 15 High Level / horizontal discharge at 11m/s

Proximity of receptors = 10 Sensitive receptors within 20 metres of kitchen discharge

Size of kitchen = 3 Medium sized takeaway

Cooking type = 1 - Pizza

Total score = 29

The type of odour abatement system that complies is as below, taken directly from the DEFRA Guide and must be to a high level of control;

Odour arrestment plant performance

High level odour control may include:

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

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

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

Criteria	Score	Score	Details
Dispersion	Very poor	20	Low level discharge, discharge into courtyard or restriction on stack.
	Poor	15	Not low level but below eaves, or discharge at below 10 m/s.
	Moderate	10	Discharging 1m above eaves at 10 -15 m/s.
	Good	5	Discharging 1m above ridge at 15 m/s.
Proximity of receptors	Close	10	Closest sensitive receptor less than 20m from kitchen discharge.
	Medium	5	Closest sensitive receptor between 20 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 take away.
	Medium	3	Between 30 and 100 covers or medium sized take away.
	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.
	High	7	Kebab, Vietnamese, Thai or Indian.
	Medium	4	Cantonese, Japanese or Chinese.
	Low	1	Most pubs, Italian, French, Pizza or steakhouse.

The System

Passive Filtration

At Purified Air we supply a range of passive filtration that can be used both in conjunction with our powered units or as standalone filters dependant on the situation.

These filters include:-

- Carbon Filters
- Bag Filters
- Pleated Panels

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 malodourous 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. The carbons have been sized for a .2 to .4 dwell time with an extract volume of 1.5m³/second.

Bag Filters

Our general purpose bag filters are manufactured using a galvanised steel header to retain the pocket sets. The pockets are produced from synthetic micro-fibres specifically designed for use in air filtration. They can be applied as a pre filter to carbon cells in malodour extraction, taking out oil and grease particles ahead of the carbon filter stage.

Pleated Panels

Our pleated panel filters are constructed using a core of pleated fibrous media designed specifically for use in air filtration. This is then thermally bonded onto a galvanised steel support mesh for maximum rigidity which is then fully bonded into a moisture resistant rigid white lined card frame. These filters are used as stand-alone pre filters or as a pre filter to bag filters filtering oil and grease particles.

As you can see the system that has been specified is in line with DEFRA guidance.

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Specification

- 1) 9 No. 594 x 196 x 597 Sitesafe Carbon Filters
- 2) 3 No 594 x 594 x 45 pleated panel filters
- 3) 3 No 594 x 594 x 300 bag filters
- 4) 1No side access casing