

## The Commercial Kitchen Filtration Experts

### Specification & Defra Report

Project: Unit 2, Bloomsbury Way.  
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Date: 16<sup>th</sup> April 2018

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### Interpretation of Requirements

Following our conversation and my site visit today on the 16<sup>th</sup> April 2018, 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 (important) they will not exhaust nuisance smoke and 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.

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

Dispersion = 20

Proximity of receptors = 5

Size of kitchen = 3

Cooking type = 1

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

1/ The first stage of control should be our Electrostatic Precipitator ESP4500 unit.

As our ESP's have been specifically designed for kitchen extract and not modified from industrial use, they have integral sumps to collect the oil, grease and smoke particles filtered out of the exhaust; this not only simplifies servicing but eradicates potentially dangerous spillage from the bottom of the units and greatly cuts down on flammable build-ups within the duct run.

The ionisation voltage has been designed to run at a negative potential which enhances the ionisation of particles and also produces more Ozone which is helpful in reducing odours in kitchen applications.

Our ESP units fit in-line with the kitchen ducting and can be configured modularly to cope with all extract volume requirements.



The Electrostatic Precipitator is a very efficient means for separating the particulate phase; operating efficiency when clean can be as high as 98% at particle sizes down to 0.01 micron.

The Electrostatic Precipitator does not present a high-pressure loss (175PA approx. dependant on air flow).

This gives a specific advantage in that most standard Kitchen extractor fans will have the capability of overcoming this small differential.

This is particularly advantageous when it is considered that if the pressure loss were high larger noisier fans would probably be necessary resulting in potential noise pollution.

**2/** After the ESP our Site-Safe Carbons should be fitted to neutralise the cooking odours.

This will be designed and installed with a minimum 0.2 second dwell time ensuring the system designed meets DEFRA guidelines.

### Carbon Filters

We manufacture Site-Safe 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 Site-Safe 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 Site-Safe filters, the carbon life span is greatly increased, allowing it to nullify malodours at optimum efficiency for much longer.

The carbon filters should be sized to achieve a minimum 0.2s dwell time.

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

