

## **Specifications & Defra report supplied J,A,C Drawing Services For 509 Stanhope Road South Shields**

The following 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.

### **Odour arrestment plant performance**

High level odour control may include:

1. ESP followed by carbon filtration (carbon filters rated with a 0.4 – 0.8 residence)

### **The System**

The first stage of control should be our Electrostatic Precipitator ESP4500 units.. As our ESPs 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.

### **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
- .Absolute (HEPA) 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 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. With this system we recommend fitting 18no site safe carbons to give a residence time of .6seconds

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

### Specification

1) 1 No. ESP 4500E Filter Filtration System(s) to be installed into the Duct by others.

#### Specification per unit

Air Volume Max\* 2.1m<sup>3</sup>/s

Electrical Supply 220/240V 50Hz 1ph

Power Consumption 50 W

Weight each 118kg

Min/Max Working Temperature 4/56oC

Max Relative Humidity 75%

2) 18 No. 594 x 196 x 597 Sitesafe Carbon Filter(s) to give a residence time of .6 seconds.