

## Key Points for Operators of Commercial Kitchens to Consider Regarding the Control of Noise and Odour in Commercial Kitchen Ventilation Systems

### Noise

#### **Background**

Users of kitchen ventilation systems will sometimes identify the need to control their noise output following the stipulation of a planning condition or sometimes in response to an instruction from their local Environmental Health Officer. Regardless however of any outside direction, all operators of commercial kitchen ventilation systems have a duty of care not to cause a noise nuisance to their neighbours.

#### **Stipulated Noise Targets**

A stipulated noise target will normally take the form of an instruction from an authorized body (Planning or EHO etc.) to ensure that the noise from the kitchen ventilation plant is 5 dB(A) or sometimes 10 dB(A) less than the background noise level at the “nearest sensitive receptor” (NSR). The background noise level will need to be measured by an appropriately qualified noise engineer to the standards specified in BS4142. The NSR is usually judged to be the windows of the neighboring property.

#### **BWF System Specification to Achieve a Stipulated Noise Target**

Once BWF have been provided with the noise target as derived above, we will select fans, attenuators, and sometimes acoustic enclosures to achieve the set target. It is important to realise however that a neighbour may still consider that they find the noise to be a nuisance even if all the above steps have been taken. Under these circumstances however the ability to demonstrate that a target, derived using best practice guidance, has been achieved provides the operator with an argument that they are not causing a nuisance.

#### **Non-Stipulated Noise Targets**

In the absence of an instruction from an authorized body, operators still have a duty of care not to cause a nuisance and will often request that BWF implement noise controls. Under these circumstances we will use our experience and knowledge of the local conditions to select what we believe are reasonable measures. The majority of the time this proves to be an acceptable approach but it is important to realise that in the absence of specific targets, “reasonable measures” can become a matter of opinion.

### Odour

#### **Background**

In the same way as with noise, the need to control odour output is sometimes based on a stipulation from an authorized body but in any circumstances a kitchen operator always has a duty of care to avoid causing a potential odour nuisance to their neighbours.

#### **Odour Control Best Practice Guidance**

Unlike noise, there is no easy numerical basis for the measurement of odour however best practice guidance is provided by “*The Control of Odour and Noise from Commercial Kitchen Exhaust Systems*” 2005, published on behalf of DEFRA and updated in 2018 by NETCEN.

The guide provides a basis for measuring the degree of odour risk based on scoring a simple series of questions. Based on the score, the odour risk is categorized as medium, high, or very high. Based on the category, a range of control measures are recommended.

It follows therefore that the best way to manage odour risk is firstly to attempt to reduce the risk factors such as to discharge at high level (although this is often limited by available building height or other planning constraints) and then to introduce appropriate additional control measures.

### **Odour Control Methodologies**

There are two fundamentally different methodologies deployable in the control of odour.

The traditional approach is based on passing the exhaust air through an array of activated carbon filters which neutralize odours. This approach works well with small extract volumes but as their effectiveness is based on keeping the air speed through the filters slow, the size of the filter array becomes unmanageable as volumes increase.

The more modern approach a two-stage process using Electrostatic Precipitation (ESP) and Ozone. As extract air is passed across the highly electrostatically charged plates of an ESP, particles of grease and other impurities are attracted to them and drawn out of the air. Ozone which is then injected into the airstream then reacts with odour molecules, neutralizing them.

### **Relative Costs and Benefits of Each Approach**

Where practicable, the use of carbon filters has the advantage of lower initial cost but has the disadvantage of far higher ongoing maintenance costs. In any case they are only suitable for low volume systems.

### **Limitations of Either Approach**

In the absence of specific numerical guidance, it is inevitable that the acceptability or otherwise of odour control measures becomes something of a matter of opinion. The best practice guidance describes suitable odour control measures designed to reduce odour output to what is has been deemed to be a non-nuisance level. It doesn't however mean that no odour will be present and that a neighbour will not feel that the odour still constitutes a nuisance to them.

There are additional odour controls available such as the injection of masking odours into the exhaust airstream or perhaps using a combination of ESP / ozone and carbon filters but the costs and space requirement for the associated plant will obviously increase and at some stage may be deemed unreasonable and unaffordable.

The guidance is unfortunately not able to adjudicate in a dispute with neighbours.