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# ODOUR RISK ASSESSMENT – KITCHEN EXTRACTION SYSTEM

## 55 GREEN LANE, NORTHWOOD HA6 3AG

**FOR**

## THE FARM RESTAURANT & BAR

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## 1. EXECUTIVE SUMMARY

This report was commissioned to support a planning application related to the installation of a kitchen extraction system at 55 Green Lane, London HA6 3AG. Sound Licensing Ltd have been commissioned to carry out an assessment of the odour controls associated with the premises.

The extraction system has been assessed and recommendations have been made to ensure that the "best practicable means" to mitigate any odour nuisance from the extraction system have been employed and compliance with the requirements of the London Borough of Hillingdon Council and the EMAQ+ Control of Odour and Noise from Commercial Kitchen Exhaust Systems 2018 have been achieved.

**Consultants Experience**

This report was prepared by Donal Rooney who qualified as an Environmental Health Officer in 1981. He has worked in the London area as an EHO since 1988 and exclusively in Pollution Control since 1991.

He worked for the Royal Borough of Greenwich from 1991 to 2016 where he investigated odour/smoke/dust complaints & also managed the Noise Team for 5 years. He oversaw the introduction of the licensing regime in Royal Greenwich when it came into force in 2006. He was a lead member of the Councils Licensing Safety Advisory Group.

He has a wide range of experience including providing advice to Planning and Licensing Committees and providing evidence at Planning and Licensing Appeals. He holds two Post Graduate Diplomas in Acoustics and Noise Control and currently works in the Pollution Control Section of the Corporation of the City of London and as a Senior Consultant for Sound Licensing.

## 2. INITIAL ASSESSMENT

Annex C: Risk Assessment for Odour - Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems 2018 EMAQ+ provides guidance on determining the level of odour control required in a commercial kitchen. The initial assessment is based on this approach.

The kitchen extraction system at 55 Green Lane, London HA6 3AG will have a high-level discharge at 1m above the eaves, the fan is a Ventorn Silent box fan unit AMF-500/1 which is fitted with a silencer on both the intake and the atmosphere side of the fan. The discharge point of the flue discharges vertically. The nearest residential receptors are the 2nd floor residential flats immediately above the site at a distance of 2m from the discharge point of the flue. It is anticipated that the restaurant would serve in excess of 100 meals a day when it is fully operational so it would be considered to be a large sized kitchen.

The kitchen will serve a Continental style of cuisine incorporating European style food with a significant vegetarian option. The proposed cooking equipment will include a 6-ring gas hob, electric oven, salamander, gas grill, 2 x 2 fryers and a microwave oven.

This would give a score of 26 as shown in Table 2.1 below:

**Table 2.1**

| Dispersion | Proximity of receptors | Size of Kitchen | Cooking Type | Total Score |
|---|---|---|---|---|
| Moderate | Close | Large | Low | |
| 10 | 10 | 5 | 1 | 26 |

Based on the guidance shown below there is a high odour control requirement for the system.

**Annex C: Risk Assessment for Odour - Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems, 2018, EMAQ+**

*Odour control must be designed to prevent odour nuisance in a given situation. The following score methodology is suggested as a means of determining odour control requirements using a simple risk assessment approach.*

| *Impact Risk* | *Odour Control Requirement* | *Significance Score** |
|---|---|---|
| *Low to Medium* | *Low level of odour control* | *Less than 20* |
| *High* | *High level of odour control* | *20 to 35* |
| *Very high* | *Very high level of 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 10m/s* |
| | *Moderate* | *10* | *Discharging 1m above eaves at 10-15m/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 guidance gives examples of what may constitute a high level of odour control:

High level odour control may include:

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

## 3. Proposed Kitchen Extraction System

The propose extraction system will comprise of a stainless-steel canopy above the cooking equipment which will be fitted with removable baffle filters. The air is then ducted to Pleated Panel Filters (fine filtration) followed by x2 Activated Carbon Filters with a dwell time of 0.2s. The system is powered by an externally located Ventorn Silent box fan unit AMF-500/1 which is fitted with a silencer on both the intake and the atmosphere side of the fan. The air is ducted via a spiral duct to a high-level vertical discharge (1m above the eaves of the roof) The discharge point of the duct will be fitted with a high velocity cowl and the fan should be set to achieve an efflux velocity of 12 to 15m/s.

The guidance indicates that a high level of odour control may include:

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

The extraction system as proposed would comply with the recommendations in EMAQ+ Control of Odour and Noise from Commercial Kitchen Exhaust Systems as set out in Section 2.

## 4. DISCUSSION

### 4.1 Principles of Nuisance Control

Cooking on a commercial basis causes the air to become laden with odours, grease, fumes and products of combustion. There needs to be sufficient air movement through the ventilation system to remove the contaminated air from the restaurant area. No single abatement technology is capable of removing all of the above-mentioned contaminants. It is necessary to use a combination of treatments to ensure that the air discharged to atmosphere does not adversely affect surrounding properties.

### 4.2 Discussion

The system as recommended would meet the requirements in the EMAQ+ guidance provided that the fan is set at a level so that it produces a face velocity at the canopy of 0.5 m/s and a discharge velocity at the duct terminus of 12m/s. The system would provide a high level of odour control and would ensure that odour nuisance or loss of amenity to local residents would not occur.

The recommended system should provide a high level of odour control in accordance with the recommendations in the EMAQ+ Control of Odour and Noise from Commercial Kitchen Exhaust Systems 2018.

**Maintenance**

Manufacturers' instructions with respect to system maintenance and cleaning must be adhered to. Good maintenance is a prerequisite for ensuring that a system complies with Best Practicable Means under statutory nuisance provision and will form a key element of any scheme designed to minimise harm to the amenity under planning regulation. Good maintenance is required by the food hygiene regulations and will also minimise the risk of fire.

Detailed guidance on the maintenance of commercial kitchen extraction systems can be found in guidance document NAAD-21 Edition 1 2021 from the National Association of Air Duct Specialists UK.

For the efficient operation of a kitchen ventilation system the following maintenance procedures shall be implemented. For detailed requirements refer to the HVCA publicationTRII9 Guide to Good Practice – Cleanliness of Ventilation Systems.

The interval between visual inspections of elements of the system incorporated in the kitchen should be determined by the particular cooking process, but shall never be more than once a week. All metal surfaces shall be checked to ensure that there is no accumulation of grease or dirt and that there is no surface damage.

Checks shall be made to ensure that the stiffening channel is free from debris and that installed lights are working. Filters shall be easily removable and the inside of all housings and grease collection drawers, where fitted, should be cleaned regularly.

Typically, the minimum cleaning period for baffle type self-draining filters and collection drawers is once each week, for secondary mesh filters at least twice each week. By the nature of their construction, secondary mesh type filters have a limited life and shall be replaced when necessary. However, specific manufacturers' information should be complied with.

It should be considered that the area immediately above any cooking appliances, including extract plenums, pose the greatest risk of the ignition of any accumulated grease.
Extract plenums for both canopies and ventilated ceilings are considered as a specific section of the grease extract system; in the course of a scheduled specialist duct clean, extract plenums should be included by them as part of the clean. Frequency of cleaning is defined in TRI19 Guide to Good Practice —Cleanliness of Ventilation Systems.