

# ODOUR IMPACT ASSESSMENT

EMAQ, (2018) Control of Odour and Noise from  
Commercial Kitchen Exhaust Systems,  
(amendment DEFRA, 2005)

**Commercial Odour**


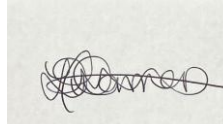


**NOISE**  
**ASSESSMENTS LTD**  
YOUR LOCAL ACOUSTIC SPECIALIST

## REPORT DETAILS

<b>Report Title</b>	Odour Assessment: Siting of a shipping container to rear of showroom property (Use Class E) for use to create a Cloud Kitchen (Use Class Sui Generis)
<b>Site Address</b>	5 Whiteleys Parade, Uxbridge, UB10 0PD
<b>Project No.</b>	NALPRO140525.01a
<b>Consultant Contact</b>	<a href="mailto:jonathan@noiseassessments.co.uk">jonathan@noiseassessments.co.uk</a>

## QUALITY ASSURANCE

Issue No.	Status	Issue Date	Comments	Author	Approved
1	FINAL	16/06/25	-		
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## Assessment Summary

A siting of a shipping container to rear of showroom property (Use Class E) for use to create a Cloud Kitchen (Use Class Sui Generis) (herein referred to as the site) is applying for planning permission to operate their proposed extraction system for their cloud kitchen with contemporary cuisine, also known as a dark kitchen or ghost kitchen, is a professional food preparation and cooking facility set up for the preparation of delivery-only meals and is required to confirm their external flue complies with outdoor odour guidance. The client has completed an odour assessment at 5 Whiteleys Parade, Uxbridge, UB10 0PD.

An odour assessment is required to assess the likely impact from odour generated during the cooking process from a new extraction system within the rear of the site which will have the air vented from the ground floor to above the top of the container during the daytime.

The environmental health department of the local planning authority is likely to have concerns of odour emissions from the use of the extraction fan flue venting on neighbouring sensitive residential properties.

With respect to odour, it has been identified that providing that the recommendations are taken into account, there should not be a loss of amenity at the existing residential receptors in the vicinity of the extraction flue and providing recommendations in the OMP are implemented, this would consist of using the “best practicable means” and would prevent statutory nuisance occurring.

As long as the proposed extraction system is properly maintained on a regular basis, it is highly unlikely that odour would become an issue in the future.

## 1. Proposal

- 1.1 A siting of a shipping container to rear of showroom property (Use Class E) for use to create a Cloud Kitchen (Use Class Sui Generis) (herein referred to as the site) is applying for planning permission to operate their proposed extraction system for their cloud kitchen with contemporary cuisine, also known as a dark kitchen or ghost kitchen, is a professional food preparation and cooking facility set up for the preparation of delivery-only meals and is required to confirm their external flue complies with outdoor odour guidance. The client has completed an odour assessment at 5 Whiteleys Parade, Uxbridge, UB10 0PD.
- 1.2 An odour assessment is required to assess the likely impact from odour generated during the cooking process from a new extraction system within the rear of the site which will have the air vented from the ground floor to above the top of the container during the daytime.
- 1.3 The environmental health department of the local planning authority is likely to have concerns of odour emissions from the use of the extraction fan flue venting on neighbouring sensitive residential properties.

## 2. Existing Context

- 2.1 The site (ground floor level) will be a detached single storey building set within the rear space near residential/commercial row of 2-storey terraced buildings and 2-storey dwellings.
- 2.2 The environmental health department of the local planning authority is likely to raise concerns of odour emissions from the use of the fan extraction unit venting on sensitive residential properties at the rear of the site.

## 3. Policy and Guidance

### Odour Technical Guidance

- EMAQ, (2018) Control of Odour and Noise from Commercial Kitchen Exhaust Systems, an amendment of the original DEFRA document published in 2005, deals specifically with the control of kitchen odours.
  - Guidance on the Assessment of Odour for Planning, Version 1.1 Institute of Air Quality Management (IAQM), 2018. The IAQM published the 'Guidance on the Assessment of Odour for Planning' document in July 2018. This guidance specifically deals with assessing odour impacts for planning purposes, namely potential effects on amenity.
- 3.1 The magnitude of odour impact depends on a number of factors and the potential for adverse impacts varies due to the subjective nature of odour perception. The FIDOL acronym is a useful reminder of the factors that can be used to help determine the degree of odour pollution:

- Frequency of detection - frequent odour incidents are more likely to result in adverse impacts;
- Intensity as perceived - intense odour incidents are more likely to result in adverse impacts;
- Duration of exposure - prolonged exposure is more likely to result in adverse impacts;
- Offensiveness - more offensive odours have a higher risk of resulting in adverse impacts; and,
- Receptor sensitivity - (The type of land use and nature of human activities in the vicinity of an odour source. Tolerance and expectation of the receptor.)

3.2 It is important to note that even infrequent emissions of odours may cause loss of amenity if odours are perceived to be particularly intense or offensive.

## **4. Nearest Sensitive Receptor Locations**

4.1 The nearest sensitive receptors (NSRs) have been identified as residential apartments within 20 meters of the site.

## **5. Odour Assessment**

### **Introduction**

5.1 This odour assessment relates to the potential future odour emanating from any kitchen extraction system associated with the change of use development, and the potential odour impacts on any sensitive receptors in close proximity to the extract flue.

### **Nature and Effect of Odour**

5.2 Odour is perceived by our brains in response to chemicals present in the air we breathe. Odour is the effect that those chemicals have upon us. Humans have sensitive senses of smell, and they can detect odour even when chemicals are present in very low concentrations. Most odours are a mixture of many chemicals that interact to produce what we detect as an odour.

5.3 Different life experiences and natural variation in the population can result in different sensations and emotional responses by individuals to the same odorous compounds. Because the response to odour is synthesised in our brains, other senses such as sight and taste, and even our upbringing, can influence our perception of odour and whether we find it acceptable, objectionable, or offensive.

### **Assessment Methodology**

5.4 The assessment of odour takes on the following aspects:

- A qualitative assessment of proposed odour emissions from the change of use development;
- An assessment taking into account the nature of the premises;
- The height and position of any proposed flue;

- The recommended exit velocity from the flue; and
- The distance between the proposed flue and the potential odorous emissions and the distance to the sensitive receptor.

### **Guidance on Control of Odours from Kitchens**

- 5.5 The Department for Environment Food and Rural Affairs (DEFRA) originally published Guidance (now withdrawn) on the control of odours from kitchens. That guidance has been subsequently updated by 'Control of Odour and Noise from Commercial Kitchen Exhaust Systems' (EMAQ, July 2018).
- 5.6 Although the guidance is not statutory, it provides very useful information on best practice techniques for the minimisation of odour nuisance from kitchen exhaust systems. This source of guidance and Noise Assessments Ltd.'s own experience form the basis of the assessment to determine whether nearby occupiers of existing residential properties would consider that odour emanating from the kitchen extract flue is acceptable or not.

### **General Principles in Controlling Odour**

- 5.7 The guidance is generally used for premises where food is cooked for patrons on or off the premises and where a kitchen is used to prepare and cook food. In these instances, a kitchen canopy extract system, are invariably present.
- 5.8 The main purpose of a kitchen canopy is to extract excess heat, steam, fats, smoke and odour arising from cooking processes. Removal of these unwelcome by-products of kitchen activity helps to achieve a reasonably comfortable and safe working environment, protect the working environment, as well as preventing the spread of the products from the kitchen area to other parts of the building.
- 5.9 Odours from cooking are contained both within the solid, liquid and gaseous material which is extracted by the kitchen canopy, and these different phases generally require different abatement techniques to reduce levels of odour to those levels which are acceptable to those in the vicinity. The extent to which any odour mitigation is required is dependent on the type of foods being prepared and cooked.
- 5.10 Commonly the kitchen extract canopy will contain the first line of odour control through the incorporation of coarse grease filters, which take out the largest grease particles from the extracted air stream. Such coarse grease filters tend to be a common feature of almost all kitchen canopy systems.
- 5.11 The type and levels of odour control required downstream of the canopy is very much dependent on several factors. The principle ones are:

- Type of food prepared. This is probably the most dominant factor as the type of food, and particularly any spices used, dictates the chemical constituents present in the exhaust air;
- Size of the cooking facility. The number of covers (for these premises, as no dining is included, the important aspect is the amount of general food output from the kitchen); and
- Types of cooking appliances used. This dictates the level of fat, water droplets and temperature within the ventilation air

5.12 The guidance includes two Tables which classify the odour and grease content of extract air according to the general cooking type and equipment used. These are reproduced in Appendix 3 (Table 2A and Table 2B). The information, in Appendix 3, has been used in this report to carry out the odour risk assessment in respect of the consented change of use development.

## 6. Odour Impact Assessment

6.1 Based on the location of the external extraction system, this odour impact assessment and Odour Management Plan has been undertaken in accordance with the EMAQ guidance 'Control of Odour and Noise from Commercial Kitchen Exhaust Systems'.

### Risk Assessment

6.2 The guidance provides a means of risk assessing the impact of any catering establishment and proposed and existing uses. The key elements of the method are reproduced in Appendix 3. The method relies on scoring the proposal on four different aspects:

- **Dispersion** – where the extract vents to atmosphere are in relation to the building to which the vent is attached.
- **Proximity of receptors** – the location of the nearest residents;
- **The kitchen size** – number of covers, i.e. level of activity; and
- **Cooking type** – based on grease and odour loading.

6.3 The level of odour which is created by a premises will depend on the size of kitchen and type of cooking. These can be determined using categories which have been set out in the guidance and are replicated in Appendix 4.

6.4 The scores for each aspect are summed to derive an overall significance score, an impact risk, and a statement about the odour control requirement. The guidance has been utilised where possible to determine the risk of odour nuisance from the proposed change of use development, without any additional odour abatement in place.

6.5 The risk assessment provided in Table 1, is a worst-case scenario.



**Table 1: Odour Risk Assessment – 5 Whiteleys Parade, Uxbridge, UB10 0PD.**

	Descriptor	Score	Impact Risk	Odour Control Requirement
Dispersion	Very Poor	20	High	High level odour control
Proximity of Receptors	Close	10		
Size of kitchen/food cooking area	Small	1		
Cooking Type (Odour & grease loading)	Low	1		
Total		32		

6.6 For the proposed flue extract system, is into a courtyard (Very poor, Score 20). There are receptors within 20m of the proposed flue extract (Close, Score 10).

6.7 The kitchen will be Small, less than 30 covers or small sized restaurant/takeaway (Small, Score 1).

6.8 There will be contemporary cuisine cooking to take place at the premises. Therefore, the cooking type (odour and grease loading) is classed as Low (Score 1).

6.9 The results of the overall assessment are potentially a **High Risk**.

## 7. The Odour Management Plan

7.1 Section 7 has quantified that as a worst case for the planning (provided the recommendations are taken into account) there is deemed to be a 'High' risk of potential nuisance and ordinarily a Low level of odour mitigation would be recommended.

### Proposed Ventilation and Extraction System

7.1 The proposals are for the use of an external flue extract on the rear of the site façade exiting above the ground floor to above the top of the container.

1. Carbon, grease and particulate filtration (carbon filter with a 0.2 – 0.4 residence time), see attached example.

### **Maintenance Programme (Type, Frequency and Regime)**

7.2 To minimize the risk of complaints, it is recommended that:

- A visual inspection of the ventilation system be carried out at least once a week. All metal surfaces should be checked to ensure that there is no accumulation of grease or dirt and that there is no surface damage;
- Cooker hoods and grease filters should be cleaned on a daily basis;
- Baffle type self-draining filters and collection drawers should be cleaned weekly, as a minimum. The cleaning period for mesh filters should be at least twice a week;
- Cleaning period for extract ductwork should as follows:

Use	No. hours use per day	Minimum cleaning interval
Heavy use	12-16	Every 3 months
Moderate use	6-12	Every 6 months
Light use	2-6	Annually

7.3 Based on the information provided, it is likely that the premises will be of Moderate Use and should be cleaned at least every 6 months.

- Periodic 'deep hygiene cleaning' should be undertaken by a specialist contractor. All accessible main ductwork runs and branches, including fitted equipment should be inspected and cleaned.
- All fans are to be maintained on a regular basis as recommended by the fan manufacturer; and
- Ventilation grilles, where fitted should have easily removable cores to facilitate cleaning.

### **Recommendations for maintenance of odour control system**

7.4 If the system employs fine filtration and carbon filtration ;

- Change fine filters every two weeks
- Change carbon filters every 4 to 6 months

7.5 Daily cleaning keeps the filters working at their optimum efficiency and will greatly reduce the number of service visits required throughout the year.

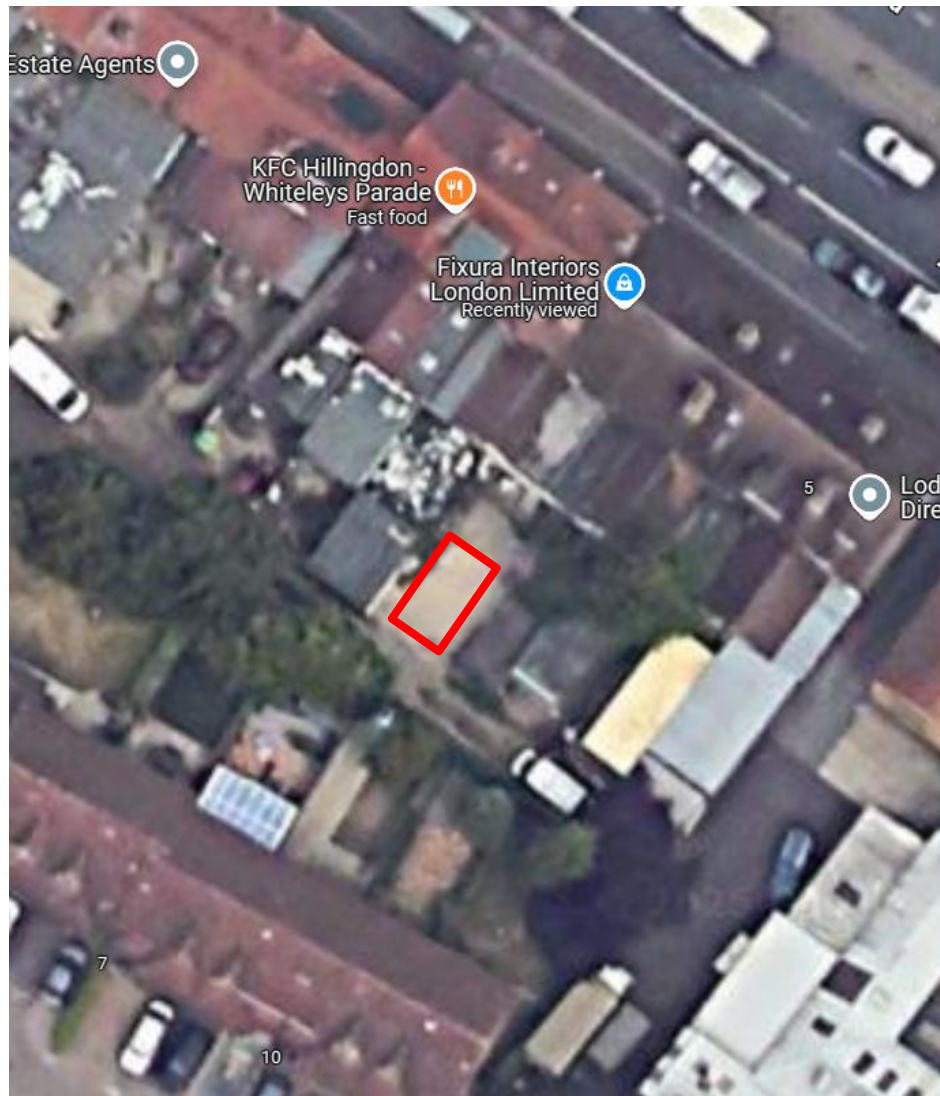
- 7.6 It will be important that the odour control methods are fully implemented and additionally, that the proposed OMP management measures and frequency of servicing is complied with. With respect to the servicing and maintenance regime, audit and service records should be maintained and made available to the Local Authority on demand.

## **8. Summary**

- 8.1 With respect to odour, it has been identified that providing that the recommendations are taken into account, there should not be a loss of amenity at the existing residential receptors in the vicinity of the extraction flue and as long as the system similar to the ones recommended in the OMP are implemented, this would consist of using the “best practicable means” and would prevent statutory nuisance occurring.
- 8.2 If the extraction system is properly maintained on a regular basis, it is highly unlikely that odour would become an issue.

## **Appendices**

## APPENDIX A – Site Location



Site location 

## APPENDIX B – Classification of Odour and Grease Content of Extract Air from Commercial Kitchens

**Table 2A: Table detailing the grease and odour content of various types of food**

Catering establishment	Description	Odour content				Grease content			
		Low	Moderate	High	Very high	Low	Moderate	High	Very high
Tea shop									
Pizza restaurant	Herb								
Steakhouses	Fat								
French	Herbs/garlic								
Italian	Herbs/garlic								
Most pubs	Fat								
Chinese	Ginger, spices, oil								
Japanese	Spices, oil								
Cantonese	Spices, oil								
Indian	Spices, oil								
Thai	Spices, oil								
Vietnamese	Spices, oil								
Kebab	Fat cooking meat								
Fried Chicken	Oil, cooking meat								
Pubs (fried)	Oil, cooking meat								
Fish & chip	Oil								
Fast food, burger	Oil, cooking meat								

**Table 2B: Table detailing the grease & moisture content of various cooking appliances**

Cooking appliance	Grease loading			Moisture content		
	Light	Medium	Heavy	Light	Medium	Heavy
Cooking pots						
Bains Marie						
Steam ovens						
Pizza ovens						
Bratt pans						
Oven ranges						
Flat top grills						
Chip fryers						
Salamanders						
Charcoal						
Gas fired open grills						
Char boilers						
Chinese wok ranges						



## APPENDIX C – EMAQ Odour Impact Risk Assessment Methodology

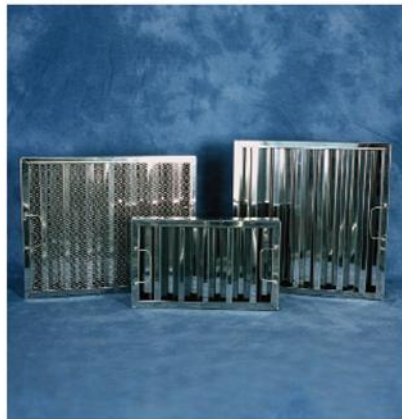
Odour control must be designed to prevent odour nuisance in a given situation. The following score methodology is suggested as a means of determining odour control requirements using a simple risk assessment approach.

Impact Risk	Odour Control Requirement	Significance Score*
Low to medium	Low level odour control	<20
High	High level odour control	20-35
Very high	Very high level odour control	>35

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

Criteria	Descriptor	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 15m/s
Proximity of receptors	Close	10	Closest sensitive receptor less than 20 m from kitchen discharge
	Medium	5	Closest sensitive receptor between 20-100m from kitchen discharge
	Far	1	Closest sensitive receptor greater than 100m from kitchen discharge
Size of kitchen  Cooking type (odour and grease loading)	Large	5	More than 100 covers or large sized restaurant
	Medium	3	Between 30-100 covers or medium sized restaurant
	Small	1	Less than 30 covers or small restaurant
	Very high	10	Pub (high level of fried food), fried chicken, burgers or fish and chips
	High	7	Kebab, Vietnamese, Thai or Indian
	Medium	4	Cantonese, Japanese or Chinese
	Low	1	Most pubs, Italian, French, pizza or steakhouse

## **APPENDIX D – Filtration Specifications**



## LONGAR INDUSTRIES LIMITED

### AIRGARD™ FEATURES

- Rolled stainless steel section with safety edge on frame and blades.
- Welded construction.
- Folding handles.
- Drain holes.
- Optional mesh to front and rear.

### TYPE 2 COMMERCIAL KITCHEN FILTER

For use in commercial kitchens and ventilation to extract grease laden air and act as a fire barrier. Fire barriers prevent any cooking flames traveling past the extract canopy. The new Type 2 is a development of customers requesting certain attributes for the baffle filter, the main ones being rolled edges on frame and blades. The Type 2 is available in 20mm or 45mm depths only, this is required for the filter to operate at a constant efficiency and to protect the system as a flame barrier as tested to European Standard DIN 18869-5. The Type 2 Baffle design has a higher grease filtration efficiency than other baffle filters on the market due to the blade design and spacing.

Pressure drops and test results please see the enclosed chart below.

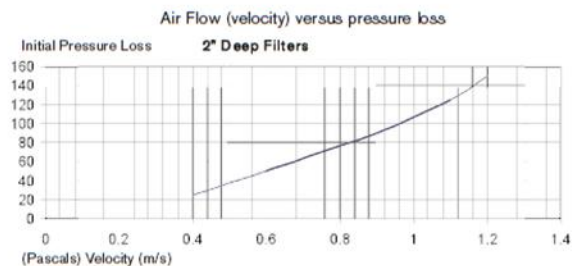
### MATERIAL SPECIFICATIONS

As standard, all baffles are Stainless Steel 430 with a polished finish. (Other finishes and material are available)

### TECHNICAL SPECIFICATIONS

Longar specifies the Baffle Filter as height x width x thickness. The handles are fixed to the height and drain holes punched on the width. The length of the baffle is the height, please ensure correct orientation is given when ordering.

H × W × D Actual Size (mm)	
243 × 395 × 45	496 × 395 × 45
243 × 496 × 45	496 × 496 × 45
395 × 395 × 45	597 × 597 × 45
395 × 496 × 45	624 × 395 × 45
444 × 444 × 45	Custom sizes are available



### PACKAGING

All filters are packed in secure corrugated cardboard cartons, tape sealed for protection against dust and other contaminants.

Longar Industries Limited  
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