Odour Risk Assessment	
New College Parade, Camden	
Job number:	J0353
Document number:	J0353/1/F1
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Date:	12 August 2019

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1 Introduction

1.1.1 This report considers the potential for annoyance due to kitchen odours from the proposed kitchen extract equipment at Tony's Pita, Unit 4, New College Parade, Finchley Road, London, NW3 5EP. Odours from the kitchen have the potential to impact on the amenity of residents at nearby properties. The assessment has been prepared in support of the planning application for the extract equipment (Application Reference: 2019/0230/P).

1.1.2 This report includes an odour risk assessment that follows the methodology set out in EMAQ guidance on Control of Odour and Noise from Commercial Kitchen Exhaust Systems, which updates the withdrawn Defra Guidance of the same name (Defra, 2005; EMAQ, 2018). The risk assessment methodology has been used to determine the level of odour abatement that will be required.

1.1.3 The assessment has been undertaken on behalf of Tony's Pita Ltd by Air Quality Assessments Ltd (AQA).

1.1.4 The references used in this assessment are shown in **Section 5**.

2 Odour Risk Assessment

2.1. Methodology

2.1.1 EMAQ guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems includes a risk assessment methodology for identifying the potential risk of odour impacts from commercial kitchen operations. The results of the risk assessment may then be used to determine a suitable level of odour abatement to be installed into a commercial kitchen.

2.1.2 The risk assessment for odours is split into the following four categories;

- dispersion;
- proximity of receptors;
- size of kitchen; and
- cooking type (odour and grease loading).

2.1.3 A risk rating is scored for each category and the total risk rating, i.e. the sum of the risk rating for each category, is compared with the significance score in **Table 1.** The level of odour control which is likely to be required to prevent the kitchen from causing odour nuisance impacts can then be determined. The risk ratings for each category are shown in **Table 2**.

Table 1: Significance Score and Odour Control Requirement

Impact Risk	Odour Control Requirement	Significance Score [a]
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

a based on the sum of scores from dispersion, proximity to receptors, size of kitchen and cooking type.

Table 2: Risk Ratings

Criteria	Rating	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 1 m above eaves at 10-15 m/s.
	Good	5	Discharging 1 m above ridge at 15 m/s.
Proximity of Receptors	Close	10	Closest sensitive receptor less than 20 m from kitchen discharge.
	Medium	5	Closest sensitive receptor between 20 and 100 m from kitchen discharge.
	Far	1	Closest sensitive receptor more than 100 m from kitchen discharge. [a]
Size of Kitchen	Large	5	More than 100 covers or large sized takeaway.
	Medium	3	Between 30 and 100 covers or medium sized takeaway.
	Small	1	Less than 30 covers or small takeaway. [a]
Cooking Type (Odour and Grease Loading)	Very High	10	Pub (high level of fried food), fried chicken, burgers or fish & chips. Turkish, Middle Eastern or any premises cooking with solid fuel.
	High	7	Kebab, Vietnamese, Thai, Indian, Japanese, Chinese or Steakhouse.
	Medium	4	Cantonese, Italian, French or Pizza (gas fired).
	Low	1	Most pubs (no fried food, mainly reheating and sandwiches etc.), or Tea Rooms. [a]

a A planner may take a pragmatic view when assessing whether certain low risk kitchens require any odour abatement to be fitted. In reaching this decision the Planner may consider the nature of the food being cooked and/or the size of kitchen and/or its location.

2.2. Risk Assessment

Dispersion

2.2.1 The risk rating for dispersion relates to the location of the discharge flue of the kitchen extraction system, and the flow rate of the exhaust air at the point of discharge.

2.2.2 The kitchen extract system will terminate through a high velocity cowl at a height of at least 1m above the highest point of the roof (see **Figure 1**). Therefore, based on the information in **Table 2**, the risk rating for dispersion would be described as **Good**.

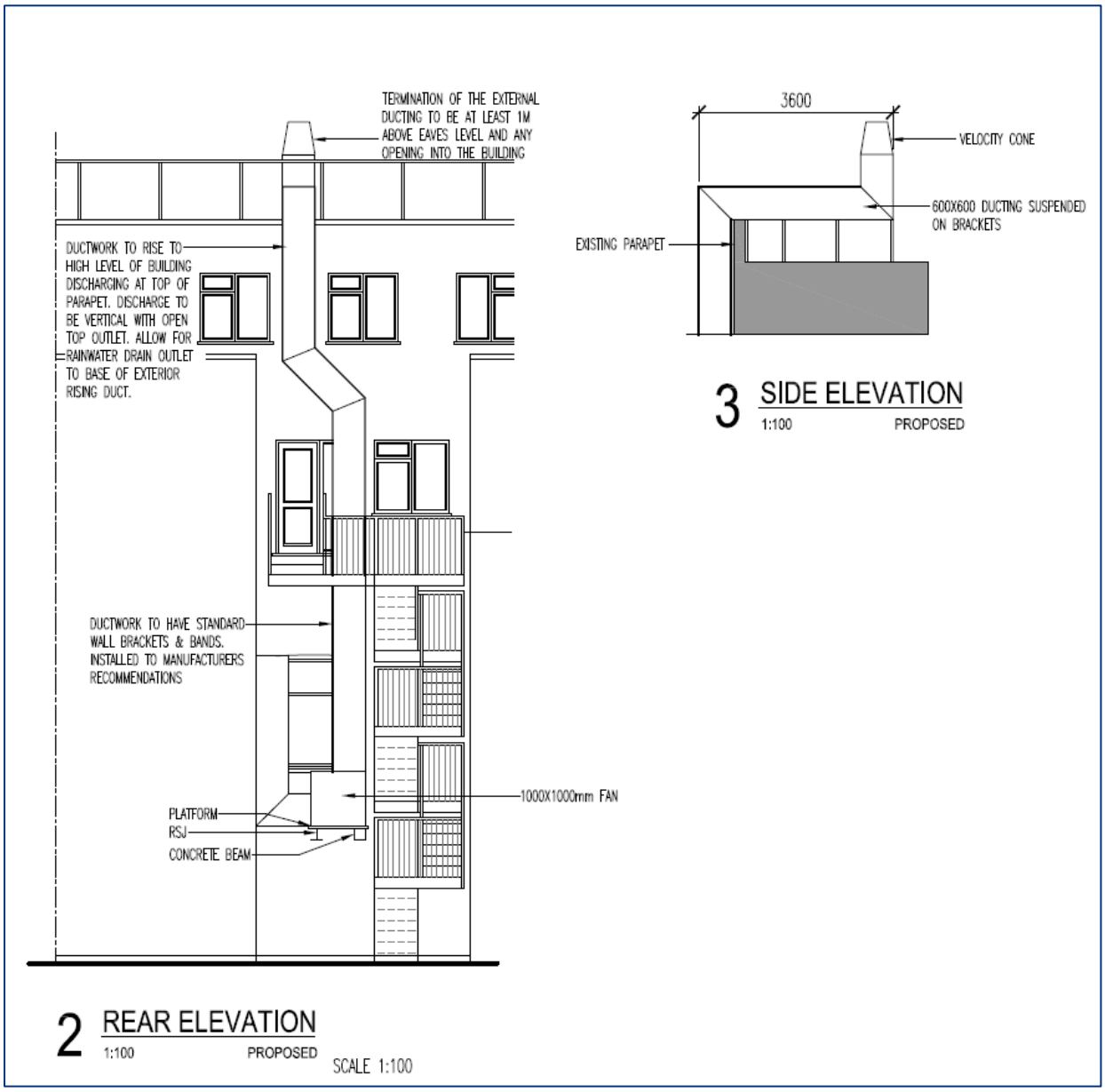

Figure 1: Extract Terminus Location

Proximity to Receptors

2.2.3 The risk rating for proximity to receptors relates to the distance from the point of discharge of the kitchen extraction system to the nearest sensitive receptor. Examples of high sensitivity receptors, as set out in the Institute of Air Quality Management (IAQM) Guidance on the Assessment of Odour for Planning (IAQM, 2018), include residential dwellings.

2.2.4 Residential properties above the commercial units on New College Parade are within 20m of the extract terminus; therefore, based on the information in **Table 2**, the risk rating for dispersion would be described as **Close**.

Size of Kitchen

2.2.5 The risk rating for the size of kitchen relates to the volume of food prepared by the kitchen, as described by the number of covers of a restaurant, or the size of a takeaway.

2.2.6 The restaurant has between 30-100 covers and also operates as a take-away; therefore, based on the information in **Table 2**, the risk rating for the size of kitchen would be described as **Medium**.

Cooking Type

2.2.7 The risk rating for cooking type relates to the type of food prepared in the kitchen, and the cooking methods used.

2.2.8 The restaurant serves traditional Greek food and uses a charcoal grill; therefore, based on the information in **Table 2**, the risk rating for cooking type would be described as **Very High.**

Summary

2.2.9 A summary of the risk assessment and the total risk rating for the restaurant and takeaway is shown in **Table 3**. With regard to the significance scores set out in **Table 1**, the overall risk rating for the restaurant is **High**; therefore, the extraction system would require a high level of odour control to mitigate the potential odour impacts at local sensitive receptors.

Table 3: Odour Risk Assessment Summary

Criteria	Rating	Significance Score	Comments
Dispersion	Good	5	The kitchen extract will discharge through a high velocity cowl at least 1m above the highest point of the roof.
Proximity of Receptors	Close	10	The kitchen extract is discharged within 20m of dwellings above the commercial units in New College Parade.
Size of Kitchen	Medium	3	The restaurant has between 30-100 covers and also operates as a take-away.
Cooking Type (Odour and Grease Loading)	Very High	10	Traditional Greek food is provided using a charcoal grill.
Overall Risk Rating	**High**	**28**	**High level of odour control required.**

3 Odour Mitigation

3.1.1 The odour risk assessment has identified that the proposed restaurant would require a high level of odour control (see **Table 3**). The EMAQ guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems outlines that abatement systems offering a high level of odour control may include:

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

3.1.2 In addition to the recommended mitigation measures above, canopy hoods should also be installed above all cooking areas. The canopy hoods should be fitted with washable grease baffle filters. Grease laden air passing through the filter is forced through direction and velocity changes, depositing grease on the vanes, which is then drained from the filter. The use of baffle filters, which typically have a grease removal efficiency of 65-80%, will help prevent contamination of the fine filters or the ESP. Mesh filters are not recommended as they do not provide a flame barrier.

3.1.3 The extract flow rate of the system should be sufficient to ensure a capture velocity at the extract canopy appropriate to the type of cooking to be undertaken. An adequate capture velocity will also help prevent untreated odour emissions due to leakage from the building, i.e. through doors and windows. Any adjustments to the flow rate of the ventilation air will need to take account of the residence time requirements of the carbon filtration system (if fitted).

Installation and Maintenance

3.1.4 A suitably qualified and experienced ventilation systems engineer should design and install the ventilation system.

3.1.5 Regular maintenance of the ventilation system is essential to ensure that it operates effectively, and continues to provide adequate mitigation against odour nuisance. The restaurant is open from 11:00 to 00:30, and given the use of a charcoal grill, is likely to result in heavy/continuous grease production. The EMAQ guidance provides recommended cleaning schedules for extract systems as follows:

- the minimum cleaning period for baffle filters should be once each week;
- ductwork (heavy use – 12-16 hours/day) should be cleaned every 2-3 months;
- fine filters should be changed every 2 weeks;
- carbon filters (no ESP) should be changed every 4 to 6 months;
- ESP systems should be cleaned and the sump emptied every 4 weeks;
- UV-C systems used in line should be cleaned every 4 weeks;
- Side stream UV-C systems should be cleaned every 3-6 months; and
- Carbon filters with ESP pre-treatment should be changed every 6-12 months.

3.1.6 Periodic ‘deep hygiene cleaning’ of the entire ventilation system should be undertaken by a specialist contractor.

4 Conclusions

4.1.1 The odour risk assessment has identified that the restaurant would have a high risk rating with regard to odour effects.

4.1.2 It is judged that there will not be a significant risk of odour impacts from the kitchen, provided that mitigation, as recommended above, is installed to provide a high level of odour control.

5 References

Defra (2005) *Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems*.

EMAQ (2018) *Control of Odour and Noise from Commercial Kitchen Exhaust Systems*.

IAQM (2018) *Guidance on the Assessment of Odour for Planning (v1.1)*.

6 Appendices

A1 Professional Experience

Bob Thomas, BSc (Hons) PgDip MSc MIAQM MIEnvSc CSci

Bob Thomas is a Director at AQA, with over eleven years' experience in the field of air quality management and assessment. He has carried out air quality assessments for a wide range of developments, including residential, commercial, industrial, minerals and waste developments. He has been responsible for air quality projects that include ambient air quality monitoring of nitrogen dioxide, dust and PM_{10}, the assessment of nuisance odours and dust, and the preparation of Review and Assessment reports for local authorities. He has extensive dispersion modelling experience for road traffic, energy centre and industrial sources, and has completed many stand-alone reports and chapters for inclusion within an Environmental Statement. Bob has worked with a variety of clients to provide expert air quality services and advice, including local authorities, planners, developers, architects and process operators, and has provided expert witness services at public inquiry. He is a Chartered Scientist, a Member of the Institute of Air Quality Management and a Member of the Institution of Environmental Sciences.

A full CV for Bob Thomas is available at http://aqassessments.co.uk/about