



Kitchen Odour Risk Assessment

Cake & Cream, 11-13 St Peters Rd

September 2020

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Cake & Cream, 11-13 St Peters Road, Reading

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Rammurti Design Ltd

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1. Introduction

- 1.1 Phlorum Ltd has been commissioned by Rammurti Design Ltd to undertake a kitchen odour risk assessment (KORA) to assist in the prior approval planning application (Ref: 191534) for the change of land-use class from the existing ground floor shop (class A1) to a food preparation place (Class B1(c)), at 11-13 St Peters Road, Reading (RG6 1NT).
- 1.2 A prior approval planning application was submitted in May 2020 before being subsequently removed following a request from Reading Borough Council (RBC) that the application must include an odour assessment. This KORA should identify whether odour emissions from the proposed food preparation activities could cause nuisance to nearby sensitive receptors, and whether such risks can be sufficiently reduced using appropriate odour abatement technology.
- 1.3 This assessment provides guidance on what an appropriate level of mitigation might comprise, based on the identified level of risk, to limit odour risks associated with the proposed food preparation activities.
- 1.4 RBC's Senior Environmental Health Officer (EHO) was contacted on September 24th, 2020 to discuss the use of Defra and EMAQ+ guidance, and scope of this assessment. A response from RBC's Senior EHO was received on September 25th, 2020 with the following statement:

"The proposed use of the EMAQ guidance for the assessment is acceptable."

As such, it was agreed that a KORA would be produced, following EMAQ+ and Defra's "Control of Odour and Noise from Commercial Kitchen Exhaust Systems" to determine the odour risks associated with the proposal on nearby receptors.

2. Kitchen Odour Risk Assessment

Methodology

- 2.1 Defra provides guidance¹ on the determination of the odour impact risk from commercial kitchens. The guidance also outlines the level of mitigation that might be required to reduce the risk to an acceptable level. Whilst this guidance has been withdrawn (due to the onus for provision of environmental guidance being shifted from the government to industry), it still provides a framework from which the likely odour risk can be determined. EMAQ+ have produced an addition to this guidance² which has also been referred to in this KORA.
- 2.2 Across both guidance documents, the odour risk impact is determined as a function of:
-  dispersion characteristics;
 -  proximity of sensitive receptors;
 -  cooking type; and
 -  the size of kitchen.
- 2.3 The odour risk assessment scoring matrix is set out in Table 2.1 below.

Table 2.1: Odour Risk Assessment Scoring Matrix

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 10 m.s ⁻¹ .
	Moderate	10	Discharging 1 m above eaves at 10-15m.s ⁻¹ .
	Good	5	Discharging 1 m above ridge at 15m.s ⁻¹ .
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.

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

2 EMAQ+ (2018) Amendment to Defra (2005). *Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems*

Criteria	Score	Score	Details
	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. <i>Middle Eastern or any premises cooking with solid fuel.</i>
	High	7	Vietnamese, Thai, Indian, Japanese, Chinese, Steakhouse.
	Medium	4	Cantonese, Italian, French, Pizza (gas fired)
	Low	1	Most pubs (no fried food, mainly reheating and sandwiches etc, tea rooms.

- 2.4 Once the total score has been determined, the odour impact risk, and the level of odour control required to mitigate that risk, can be identified from the matrix in Table 2.2, below.

Table 2.2: Odour impact risk and control requirement level

Impact Risk	Odour Control Requirement	Significance Score
Low to Medium	Low level odour control	Less than 20
High	High level odour control	20 to 35
Very high	Very high level odour control	more than 35

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- 2.5 It is understood that the proposed development comprises a change in land-use class from A1 ground floor shop to B1(c) food preparation place. The proposed development is a kitchen for food preparation for off-site consumption. There will be no customer consumption of food at the premises, as such the development does not include any seating areas.

- 2.6 The proposed development consists of two kitchens, the first of which will be situated directly behind the existing ground floor shop. The second kitchen will be situated at the rear of the building, with the extraction unit.
- 2.7 The primary function of the food preparation facility is to prepare food for outside events which occur on an intermittent basis, as such, the development will not function on the basis of regular business opening hours. The kitchen may be in use in the morning, afternoon, or evening, based entirely on the timings of events that the food may have to be prepared for.
- 2.8 The catering service would specialise in Indian cuisine and would utilise specialist equipment, including a tandoor, when cooking. Any tandoors used at the business will operate infrequently, and will use electricity rather than traditional, solid cooking fuels such as charcoal, which can be odorous.
- 2.9 The KORA for the proposed food preparation site is set out below in Table 2.3.

Table 2.3: Odour impact risk for this Food Preparation Facility

Criteria	Score	Score	This Development
<i>Dispersion</i>	Moderate	10	A high velocity kitchen exhaust stack is proposed to be located approximately 3m above the eaves of the single-storey building and 1m above the eaves of the adjacent two-storey building, but 1.5m below the ridge of the two-storey building.
<i>Proximity of receptors</i>	Close	10	Residential receptors are located above and adjacent to the property, within 20m of the exhaust stack.
<i>Size of kitchen</i>	Small	1	The small kitchen provides food for catering and off-site consumption, with no intended consumption of produce on site.
<i>Cooking type (odour and grease loading)</i>	Very high	10	Food prepared in these facilities will comprise mainly Indian cuisine, cooking primarily spicy and aromatic oily foods.
		Score	31

- 2.10 Based on the proposed ventilation strategy, odour emissions from the restaurant are considered to present a *High Impact* odour risk.

Mitigation and Recommendations

- 2.11 With regards to reducing odour concentrations before they are released from the exhaust stack, a *High Level* of odour abatement equipment should be installed.

2.12 EMAQ+ provides guidance on what a *High Level* of odour mitigation might 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."

Note: ESP = Electrostatic Precipitation, used to separate solid or liquid particles from the ventilation air.

- 2.13 Currently, the proposed extraction system comprises an extract canopy complete with four grease filters, which will be located directly above the main cooking units.
- 2.14 The grease filters feed into ductwork which transfers extracted air from the canopy to the roof-level high-velocity exhaust stack. Within the ductwork there will be an activated carbon filtration unit and kitchen extract fan, fitted with noise attenuators. The proposed system does not include any fine filtration or ESPs before the carbon filters, although these are recommended for kitchen facilities with a *High* odour impact risk.
- 2.15 As the kitchen facilities will be used intermittently, as and when required to cater for upcoming external events, odours from it will likely be infrequent and perhaps short in duration when compared to regular emissions from a restaurant kitchen.
- 2.16 Guidance³ produced by the Institute of Air Quality Management refers to the following odour emission parameters when assessing odour nuisance in relation to proposed development: frequency; intensity; duration; offensiveness; and location sensitivity.
- 2.17 In terms of the current proposals, the frequency and duration of odours are expected to be far lower than those emanating from a restaurant with a similar odour risk level. This is pertinent because the EMAQ+ guidance is principally aimed at emissions from restaurants. As such, the odour risk for the proposed development might be lower than that predicted in Table 2.3, and it could be argued that the enhanced level of mitigation indicated might not be necessary.

³ IAQM (2018). Guidance on the Assessment of Odour for Planning.

3. Conclusion

- 3.1 Phlorum Ltd has been commissioned by Rammurti Design Ltd to undertake a kitchen odour risk assessment (KORA) to assist with the prior approval planning application (Ref: 191534) for the proposed food preparation facility at 11-13 St Peters Road, Reading.
- 3.2 The KORA has been undertaken in line with EMAQ+ Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems and has identified that the proposed facility requires a *High Level* of odour control, primarily due to the type of cuisine and proximity to sensitive receptors.
- 3.3 Currently, the proposed kitchen extract system comprises: four grease filters within the extraction canopy; an extract fan; carbon filtration unit; and a high velocity exhaust stack above the roof eaves.
- 3.4 The intermittent nature of the catering business operating out of the development might mean that the above extraction system will suffice, as odours might be infrequent depending on the catering schedule of the business. However, following EMAQ+ guidance on recommended odour abatement measures for *High* odour risk sites, the food preparation facilities might require additional mitigation by way of ESP units or Fine Filtration.
- 3.5 The EMAQ+ guidance, which provides a framework for calculating odour risk levels, is primarily aimed at restaurants. Therefore, the odour risk associated with the proposed catering business might be lower than predicted, as odours will likely be infrequent and short in duration compared to those emanating from a restaurant kitchen. As such, an enhanced level of mitigation may not be necessary for the kitchen facilities associated with this catering business. However, the possibility remains that further odour mitigation measures might have to be considered to reach the recommended level of mitigation.



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