

Odour Control Report

**Kitchen 2
Cooper Yard
Coopers Lane
Holmfirth
HD9 3DP**

Date 14 - 12 - 23

Aynsley Building Services has completed this report based on the information provided by the client, and the agreed scope of work. Aynsley Building Services does not accept liability for any matters arising outside the agreed scope of work, or for changes that may be required due to omissions in the information provided.

Introduction

This report considers the potential for annoyance due to kitchen odours from the proposed property Coopers Yard, Coopers Lane, Holmfirth HD9 3DP. Odours from the kitchens 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 proposed development.

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set out in EMAQ guidance on Control of Odour and Noise from Commercial Kitchen Exhaust Systems, which updates the withdrawn Defra Guidance of the same name (Defra, 2005; EMAQ, 2018).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.

Odour Risk Assessment

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.

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).

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.

Table 1: Significance Score and Odour Control Requirement

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

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.

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.
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.
Cooking Type (odour & grease Load)	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

Risk Assessment

Dispersion

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.

The kitchen extraction system, and the flow rate of the exhaust air at the point of discharge.

The kitchen extract system will terminate through a high velocity cowl above the roof of the side of the building at a height above the roof eaves. Therefore, based on the information in Table 2, the risk rating for dispersion would be described as moderate.

Proximity to Receptors

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.

Residential properties rear to the commercial unit the application site will be within 20m from the flue; therefore, based on the information in Table 2, the risk rating for dispersion would be described as Medium.

Size of Kitchen

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.

The unit in question will operate as a takeaway only; therefore, based on the information in Table 2, the risk rating for the size of kitchen would be described as Small.

Cooking Type

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

The takeaway will serve Italian foods, pizzas; therefore, based on the information in Table 2, the risk rating for cooking type would be described as medium.

Summary

A summary of the risk assessment and the total risk rating for the Restaurant is shown in Table 3. With regard to the significance scores set out in Table 1, the overall risk rating for the restaurant is Low to medium; therefore, the extraction system would require a medium 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	Moderate	5	Discharging 1 m above ridge at 10-15 m/s.
Proximity of Receptors	Medium	5	Closest sensitive receptor between 20 and 100 m from kitchen discharge.
Kitchen Size	Small	1	Less than 30 covers or small takeaway.
Cooking Type	Medium	4	Italian, French, Pizza or Steakhouse
Overall Risk Rating	Low	15	Moderate level of odour control required

Odour Mitigation

The odour risk assessment has identified that the proposed restaurant would require a Low 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 moderate level of odour control may include:

1. Emission Collection - Odour should be collected via extract hoods situated above hot food preparation areas.
2. Grease filtration systems - baffle grease filters should be incorporated in the extract hoods.
3. Dispersion - Emissions should be discharged vertically through a stack high enough to ensure adequate dilution, 1 mtr above ridge.

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 extract system. Mesh filters are not recommended as they do not provide a flame barrier.

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.

Conclusions

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

An odour abatement system consisting grease baffles and dispersion is recommended.

It is judged that there will not be a significant risk of odour impacts from the proposed restaurant, provided that the extract system is installed, as specified, to provide a low level of odour control. The system should be maintained in line with EMAQ (2018) & IAQM (2018) to maintain the efficiency of the odour control measures. There should be no constraints to the development of the site as a restaurant with regard to odour.

References

EMAQ (2018) Control of Odour and Noise from Commercial Kitchen Exhaust Systems. IAQM (2018) Guidance on the Assessment of Odour for Planning (v1.1).

Further Additional details

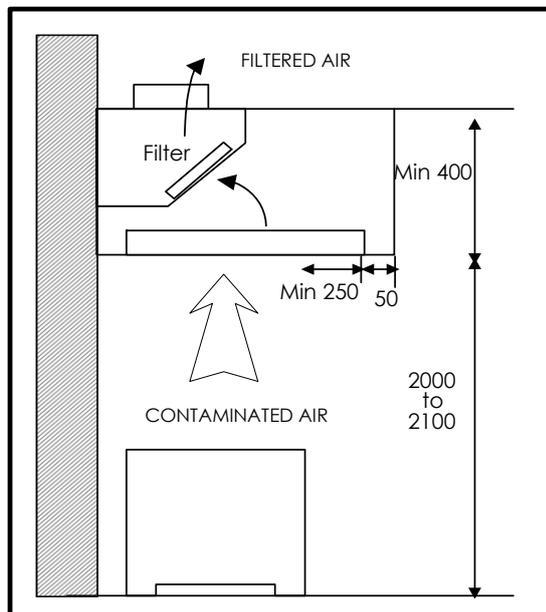
Canopy Hood details

The canopy will be a straight overhead wall mounted hood. Constructed of 304 grade stainless steel with ultrafine grains. The stainless steel will be designed with a plain polish.

The canopy hood will be located on the ground floor internal gable wall in the kitchen area.

Approximately 2.5 metres long.

The extraction rate for the canopy will be heavy duty no less than 0.31-0.62 (m³/s)



Ductworks 450mm Diameter

The ducting will start from the top of the canopy hood (mid-point) running horizontally and exiting through the wall and turn to exhaust vertically. The ducting will be 1.2mm thickness low pressure class A and be in accordance with HVCA Specification number DW/144.

Where gaskets are required, they will be non-porous, impervious to grease and cooking oils and withstand temperatures experienced within the extract hood.

The ductwork will be terminated 1 meter above the ridge with a jet cowl, injecting the contaminated air vertically.

Extraction Fan

The extraction fan to be installed is a 450mm Vent Axia Saba Plate Mounted fan which has a speed (rpm) 1310 and a potential velocity of 8.0 m/s. Accompanied with anti-vibrations housing and a lagging around the fan.

Gas System

From the meter 35mm copper pipe will lead into the kitchen area which begin with a main emergency control valve (ECV). The gas system will have a gas interlock fitted and a CO2 detector for safe working.

Each gas appliance will have an additional ECV with a service maintenance in place and will meet the Gas Safe regulations.

Extract Maintenance

The following activities are recommended to be carried out to maintain the systems odour control properties.

Monitoring of the ventilation system can be done by use of different methods shown below:

Deposit Thickness test DTT.
Dust Vacuum Test (DVT).
Wet Film Thickness Test (WFTT).
Indicative Test.

A frequent physical inspection of the ventilation system should be done. To achieve this, there should be at least a once a week inspection of the ventilation system. Accumulation of dirt and grease on the metallic surface should be checked. Inspection hatches have been provided to facilitate this.

A daily cleaning of cooker hoods and grease filters should be observed. Cleaning of baffle type self-draining systems together with the collection drawers must be done at least once weekly.

Fans should regularly be maintained according to instructions given by the manufacturer.

A specialist contractor should be called to carry out periodic deep hygiene. The period within which cleaning of the equipment will be done should be determined by the frequency of its use.

Heavy Use 6-12 Hours a day - Heavy / continuous grease production - 3-6 month
Heavy Use 12-16 Hours a day - Heavy / continuous grease production - 2-3 month

Moderate Use 6-12 Hours a day - Moderate grease production - 6-12 month
Moderate Use 12-16 Hours a day - Moderate grease production - 3-4 month

Light Use 6-12 Hours a day - No significant grease production - 12 month
Light Use 12-16 Hours a day - No significant grease production - 6 month