



Architecture and Interior Design Ltd

**Proposed Pepe's
Restaurant
Unit 13 Leathers Lane
Halewood
Liverpool
L26 0AD**

**Kitchen Ventilation Extract
Strategy to Support
Planning Application**

Date: 4th November 2022

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(Director)

Introduction

This report has been prepared at the request of Hannah Matthews of Architecture and Interior Design Ltd. To provide supporting documentation for the Planning Application. It provides a description of assumed kitchen ventilation equipment only, which will be provided to serve the proposed Pepes restaurant which would occupy Unit 13, Leathers Lane, Halewood, Liverpool L26 0AD

The report is issued as an opinion only and may not reflect actual installation.

Building Description

The property is commercial unit with a lightweight construction, completed in 2012. The developer's proposal is to fit out the property and create a restaurant within the existing unit. The property is a single-story brick cavity walled structure with curtain walling to the front of the unit and a flat roof above. Refer to Architects proposals for additional information.

Kitchen Ventilation Systems

Canopy

It is assumed that one overhead wall type canopy (extract only) open both ends with full length extract plenums fitted with stainless steel baffle type grease filters shall be provided in the kitchen.

The canopy shall be constructed from grade 304 satin finish stainless steel with all joints and seams welded and/or liquid tight. Removable stainless steel grease collecting drawers shall be provided within the apron of the filter housing.

The canopy is to be fitted with welded hanging cleats to each corner and pre-drilled to accept M10 drop rods.

The anticipated total ventilation rate will be as follows:

- Extract – 2.0675 m³/s

The canopy shall conform fully to the standards and specifications of HVCA specification for Kitchen Ventilation Systems DW172. The grease filters are to comply with the requirements of LPS 1263.

Final design and installation would be confirmed by the occupier.

Kitchen Extract System

A naturally ventilated option has been considered. However, this has been discounted due to the high levels of grease and odours which potentially could create unpleasant atmosphere to occupants of the restaurant, the kitchen staff, as well as a health and safety risk. Commercial kitchen arrangement such as the one proposed would only be suited to a mechanical operated system in order to comply with health and safety requirements.

It is proposed that the kitchen will be served by a single inline ceiling void mounted extract fan adjacent to the canopy as indicated. Attenuation will be provided to meet the requirements of the acoustic specialist report.

It is proposed that a reducing cone discharge will be provided to discharge the exhaust air from the kitchen, vertically at least 1m above the roof ridge line with a minimum efflux velocity of 15 m/s.

The fan will be selected with a 10% pressure margin over and above the design resistance and the motor will be IP65 rated.

The proposed extract fan shall be vertically mounted complete with high deflection anti-vibration mounts with 95% isolation efficiency at the lowest potentially intrusive audio frequency (20 Hz). The fan unit shall be suitable for external location with attenuated enclosure to sit the acoustic specialist requirements.

Ductwork

Access for cleaning the kitchen extract ductwork will be provided; either side of fan units and at 2.5-meter intervals on horizontal runs, all in accordance with Section 25 of HVAC Publications TR/19. Access arrangements to each level would need to be agreed.

All ductwork shall be low pressure Class A and be in accordance with DW/172 and DW/144.

The kitchen extract ductwork will be routed up to roof level and terminate above roof level. All ductwork will be suitably pressure sealed and tested fire rated along its entire length in accordance with local planning guidelines, the Fire Officer and BS3476 Part 24 and BS9999.

Noise breakout from the proposed kitchen extract ductwork will be controlled such that noise levels within the adjacent spaces achieve the background noise levels as stated within acoustic specialist report. The breakout noise can be expected to be controlled by utilising a suitable duct/rise construction which will also be designed to suitably control noise expected from such plant.

The extract ductwork will be supported using isolation hangers on all points of support.

Kitchen Extract – Risk Assessment for Odour

In order to determine the level of odour the site will produce, and the necessary mitigation measures needed, a risk assessment has been carried out in line with Annex C of DEFRA's Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust System. The assessment summary is included for information.

The levels of risk are grouped in the table on the following page:

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

DEFRA have set out four criteria to assess the risk and work out a risk score for the system. The score can then be correlated to the level of odour control required. The criteria and associated risks/score are detailed below:

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.
	Moderate	10	Discharging 1m 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 20m from kitchen discharge.
	Medium	5	Closest sensitive receptor between 20 and 100m from kitchen discharge.
	Fair	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 and chips.
	High	7	Kebab, Vietnamese, Thai or Indian.
	Medium	4	Cantonese, Japanese or Chinese.
	Low	1	Most pubs, Italian, French, Pizza or Steakhouse.

Dispersion

It is proposed that the extract system will discharge 1m above the ridge at a rate of 15 m/s.

This results in a score of 5.

Proximity to Amenities

Due to the proposed restaurant being close to an NHS walk in centre, the discharge the proximity of receptors would be classed as close, as the openable windows on the northwest elevation of the NHS centre would be less than 20m from the kitchen discharge.

This results in a score of 10

Size of Kitchen

Due to size of the proposed establishment, it is assumed to be classed as small sized less than 30 covers.

This results in a score of 1.

Cooking Type

The cooking type for the restaurant has been assumed as very high as it will be fried chicken. The details for a very high cooking type establishment include Pub (high level of fried food), fried chicken, burgers or fish and chips.

This results in a score of 10.

Final Assessment

Accumulation of the above scores, the proposed restaurant achieves a score of 26 which equates to high risk. This requires a high level of odour control as defined within the DEFRA Guidelines and it is proposed that the following will be provided:

In-line, ozone-based disinfectant and odour neutraliser by an oxidation unit where ozone and activate oxygens is used to treat odour emission from commercial and industrial kitchen processes (DEFRA 2005: Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems). The unit injects ozone into the kitchen extraction canopy where it reacts with odour, grease and smoke. These are oxidised in a chemical reaction which results in the production of carbon dioxide and water vapour. The ozone itself is consumed during the process and is converted back into oxygen.

It is proposed to provide an ozone odour control unit as manufactured by Plasma Clean their model Extract 2100.

Conclusion

The report details an assumed kitchen ventilation system including the canopy for a speculative restaurant unit. Ventilation rates and odour control methods are based on assumptions for a typical type of unit. Actual design and system arrangement may differ from the report pending future tenants fit-out requirements.