

**FRASER HOUSE
36 CHARLOTTE STREET
MANCHESTER**

MECHANICAL AND ELECTRICAL ENGINEERING SERVICES

KITCHEN VENTILATION REPORT

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MECHANICAL AND ELECTRICAL ENGINEERING SERVICES KITCHEN VENTILATION REPORT

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AMENDMENTS MADE

Revisionn	Date	Section	Description
A	22/02/2023	All	First issue.
B	30/03/2023	All	Updated to suite EMAQ guidance.
C	28/07/2023	3.2.3	Cooking type score amended.

MECHANICAL AND ELECTRICAL ENGINEERING SERVICES KITCHEN VENTILATION REPORT

1.0 INTRODUCTION

This report has been produced for the purpose of demonstrating that a kitchen extract design compliant with Planning requirements will be provided for the proposed kitchen at Fraser House, 36 Charlotte Street, Manchester.

The kitchen fitout and associated ventilation provision will be designed and installed by the future tenant. For the purposes of this assessment it has been assumed that a full catering kitchen producing Chinese food.

This report has been compiled in accordance with Appendix 2 of the EMAQ guidance on Control of Odour and Noise From Commercial Kitchen Exhaust Systems.

2.0 REFERENCE DOCUMENTATION & STANDARDS

The mechanical and electrical services design will comply with the following documentation and standards. (Please note this list is not intended to be exhaustive).

- a. British Standards
- b. British Codes of Practice
- c. Building Regulations
- d. Health and Safety at Work Act
- e. Industrial Building Act
- f. Local Fire Brigade requirements
- g. Local Health and Environmental Services requirements
- h. Local Supply Authority requirements
- i. The Institution of Electrical Engineers Regulations for the Electrical Equipment of Buildings, current edition
- j. The Chartered Institution of Building Services Engineers Design Guides
- l. Disabled Discrimination Act
- m. Construction (Design and Management) Regulations
- n. Water Supply Regulations
- o. HSE, Control of Legionellosis in Hot and Cold Water Systems
- p. HVCA DW/171.

Mechanical and Electrical Services

All equipment and materials selected for use within the building shall be selected from good quality manufacturers and shall comply fully with the appropriate CE and British Standards.

Prior to final selection of equipment it is intended to liaise with the Client and maintenance staff to ensure that any standardisation and compatibility requirements are met.

Mechanical and electrical services will be designed in accordance with current versions of the Building Regulations Part L Approved Document L2B and the Non-Domestic Building Services Compliance Guide.

3.0 MECHANICAL SERVICES

3.1 Design Criteria

Details of all construction elements and their thermal performance to be provided by the Architect.

Design Conditions

i) External Design Conditions:

Summer	+ 26°C db, 20wb
Winter	- 4°C

ii) Internal Heating Design Conditions:-

Restaurant/Dining	21°C db +/- 2°C
WCs	19°C db +/- 2°C
Circulation	19°C db +/- 2°C

iii) Noise Criteria

Generally 5dB below background.

3.2 KITCHEN EXTRACT

3.2.1 General

Specialist kitchen extract ventilation will be provided via a ducted extract canopy within the kitchen. The system will be designed by the incoming tenant. However, an extract duct route has been identified on PWC's drawings.

It is anticipated that the kitchen will provide 100 covers, with food being Cantonese, Japanese or Chinese type. This would include wok, hob, fryer and oven based cooking.

Operational hours are likely to be 12:00 to 00:00, subject to any planning conditions imposed on the eventual space usage type.

3.2.2 Extracted Air Volume

Kitchen extract sizing would be completed in accordance with HVCA DW/171 to suit final catering installations.

3.2.3 Filtration & Odour Control

An odour control risk assessment has been completed in line with EMAQ's guidance on Control of Odour and Noise From Commercial Kitchen Exhaust Systems. The following scores were allocated based on the current design proposals.

1. Dispersion – 5: Discharge 1m above ridge at 15m/s.
2. Proximity of Receptors – 10: Closest sensitive receptor within 20m of discharge point.
3. Size of kitchen – 5: More than 100 covers.

4. Cooking Type – 7: Medium, Cantonese, Japanese or Chinese.

The above gives a total risk score of 27, requiring a high level of odour control.

On this basis, the proposal is it utilise a baffle filter within the canopy and duct mounted carbon filter to provide odour control. It is anticipated that these will provide odour removal at up to 95% efficiency.

The locations of the carbon filters will need to be determined as part of the final kitchen and ventilation system design, to be undertaken by the incoming tenant.

3.2.4 Noise Control

A noise assessment will need to be completed as part of the design of the kitchen and associated ventilation installation to take account of the fans and other equipment being installed as part of the tenant fitout.

It is anticipated that fans will be selected to run at sufficiently low speed to limit noise and vibration transfer to the adjacent space and to the attached ductwork.

Duct mounted acoustic attenuators will not be relied upon due to the risk of grease build-up on the internal components.

A noise assessment has been carried out by DBX Acoustics report reference 22101-R01B-BT). Unattended noise measurements were undertaken between Thursday 10th November and Tuesday 15th November with measurements taken on Portland Street and Charlotte Street. Attended noise measurements were taken at two locations along Reyner Street.

It is proposed that the kitchen ventilation terminate above the roof level on the Reyner Street elevation. Reyner Street already houses various kitchen extract and air conditioning condensers serving other commercial establishments. The original kitchen ventilation systems within Fraser House also terminated on this façade, with 1No terminal at ground level and another above roof level. Neither of the original installations included any noise attenuation.

The measurements taken by DBX Acoustics note a peak ambient noise level of 73dBA and a maximum noise level of 85dBA.

The DBX Acoustics report identifies external plant noise limits for plant installed to the building, to ensure suitable noise limitations at the nearest sensitive receptors. The lowest limit that will need to be adhered to is the night time limit of 74dBL. Duct terminals will be sized to ensure that this noise threshold is not exceeded during design air flow. This will be subject to final air flow and duct sizing calculations, to be completed as part of the incoming tenant's design.

3.2.5 Fire Suppression

The incoming tenant will have a duty to ensure that there are suitable fire precautions meeting the requirements of The Regulatory Reform (Fire Safety) Order 2005. The exact requirements will depend on the equipment installed as part of the tenant fitout.

3.2.6 Maintenance

The following maintenance regime is proposed and has been compiled in line with EMAQ recommendations included within the guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems document:

- Daily: Cleaning of cooker hood and primary hood grease filters
- Weekly: Visual inspection of ventilation system including hood, filters, fans and terminals.
- Fortnightly: Filters inspected and changed as necessary.
- 4-6 Monthly: Carbon filters changed.
- 6-12 Monthly: Duct cleaning undertaken by specialist contractor.

Daily inspections would be expected to highlight any issues with grease accumulation and the maintenance regime would be altered accordingly to ensure that any such issues are rectified.