亮聲爐具廠
Leung Sing Limited
Over 35 Years Experience
Specialist and Manufacturer of Fish & Chip Ranges and Asian Cooking Equipment

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Name:
78-80 Tib Street
Manchester
M4 1LQ

Kitchen Ventilation Report

Thursday, October 16, 2025

Site Address:
78-80 Tib Street
Manchester
M4 1LQ

Reference: 7880TSM4

The client had invited us to propose the extraction ventilation system specifications for the site addressed 78-80 Tib Street, Manchester, M4 1LQ.

It is understood where the retail space will be rebuilt and become partly a café/restaurant incorporating Asian meals which are prepared in the rear of the property. A new canopy and associated extraction ventilation system are therefore proposed. The client advised that the cooking activities in the new kitchen would include a deep fat fryer, a small Chinese Wok Range and Open-Top Range & Oven. The canopy and extraction design are based upon this information.

General Notes:

- Canopy to be manufactured in stainless steel to comply with DW172 regulation guidelines.
- Extraction system designed and developed in accordance with the canopy assembly containing 8 of: 500 x 500 x 50 mm baffle style grease filters. Any other filters will invalidate both plant and ducting selection.
- All building and first fix electrical works shall be carried out before ventilation system works.
- All works shall be undertaken by qualified and competent professionals.
- Gas monitoring equipment shall be installed in accordance with current gas safe regulations.
- Extraction ducting routing to be confirmed by client to fulfil aesthetic and suitability.

Specifications and Calculations for Extraction Canopy Unit:

The cooking equipment specified from the client is a Chinese Wok Range using natural gas as the input source. The canopy design is an overhead wall mounted canopy with a single open end. The Deep Fat Fryer has a plan size of 700 x 400 mm which equates to a 0.28 m^2 area where the extraction coefficient of 0.5 giving the calculated flow rate 0.14 m^3s^{-1}. The flow rate is the total for the equipment in the wall mounted extraction canopy, which has a canopy factor of 1.20 due to the single open end. Specific extract flow rate required is estimated to be 1.46 m^3s^{-1} and thus the ventilation plant selection has been selected to fulfil and exceed the requirements.

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Plant Selection:

The recommended extract fan unit is a Systemair MUB 042 500EC Multibox. With notable features such as:

- Acoustic box fan which manages to be low noise and low vibration.
- Low sound pressure level at 3 m free field of 30 dB(A) at required power level (1.46 m^3s^{-1}).
- Maximum airflow of 1.76 m^3s^{-1} (exceeding the specified extract flow rate by >20%). Oversizing allows the unit to run at reduced capacity reducing noise and vibration.
- The double skin panels are manufactured from galvanized steel with 20 mm mineral wool insulation.

It should be noted the unprecedented current market conditions may affect final system selection therefore, client shall confirm with the contractor with the fan selection. 3 phase electric supply required for example via an inverter for energy efficiency and noise reduction.

Recommended Attenuation:

A single 500 mm 1D acoustic silencers to be installed directly inline on both the input and output face of the box fan resulting in a total of 2 acoustic silencers. After the output face box fan 1D silencer there will be a high velocity discharge outlet to enable the free-flowing discharge of the odour-controlled extraction air.

Additional noise reduction may be achieved by the installation of anti-vibration mounts between the fan fixings and mounting brackets.

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Odour Control:

Purified Air were consulted on the odour control requirements which follow the specifications in the EMAQ guide. This is to ensure that odour control proposal will be in line with local authority requirements and with the system maintained correctly the site will not exhaust nuisance odours leading to discomforts from nearby residents. A risk assessment was carried out with the total score of 33 (high level odour control required). The high-level odour control can be achieved by ESP (Electrostatic Precipitator) followed by carbon filtration (carbon filters are rated with a 0.4 residence time).

The odour control system consisted of two distinct areas. The first stage of control will be ESP with grease and smoke particles filtered out of the exhaust through the filter and an integral sump to collect the oil, grease, and smoke particles. The ESP also ionises at a negative potential which enhances the ionisation of the particles and produces ozone which is chemically oxidizing the inorganic and organic materials in the air which enable the gaseous materials to decompose.

The second stage of the system are carbon filters with a 0.4 second dwell time. With the activated carbon removing the malodourous gases within the commercial kitchen exhaust through chemical adsorption.

Additionally, the carbon filters can be interchanged with an UV unit to chemically destroy the malodourous gases to achieve the same results.

More detailed technical specifications are to be found in the Purified Air report however, extraction system must be compatible with the odour control system.

Further Details:

Report prepared by Dr Dennis Zhao. Further details are available on request.