

Fenix Restaurants Limited Manchester

Control of Odour & Noise from Commercial Kitchen Exhaust Systems Strategy

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2.0 OUTLINE BRIEF

This report covers an overall view of the Ventilation Compliance Requirements for Paragraph 17 of the Manchester City Council Planning Permission and Notices Consent conditions, relating to the proposed Class A3 restaurant development on the ground and mezzanine floors within the building to be known as Manchester Goods Yard for Manchester Quays Limited.

This report details the measures proposed for the mitigation of cooking smells and grease discharge from the kitchen ventilation system, and the fire protection of the cooking equipment extract canopies and discharge stack ducting.

The ventilation installation will be designed and installed in pursuant of the interests and amenities of occupiers of nearby properties as detailed in the Core Strategy Policy DM 1 for the City of Manchester.

3.0 EXECUTIVE SUMMARY

The entire kitchen ventilation system has been designed in accordance with the City of Manchester Planning Requirement Paragraph 17, requiring compliance with BESA Design Standard DW/172, Building Regulations Parts B and J, and CIBSE Guide B2.

The ventilation system design is based upon the installation of high-quality specialist canopies and a make-up fresh air system compliant with DW/172.

All canopies over cooking equipment will have Ansul fire suppression system.

The extracted air from the canopies will have UV ozone injection odour-suppression modules installed within the kitchen ceiling void.

The exhaust stack will be fire-rated on entering into the landlord service riser leading to the roof plant deck, with access for cleaning at each level.

The exhaust plant will comprise noise attenuation to mitigate noise transmission to the kitchen and to the neighboring properties, an extract fan with noise attenuated casing will also be employed. A specialist acoustician has been appointed in Sandy Brown to develop this detail. ESP filter units to remove any carry-over of smoke and grease vapors are to be installed prior to the exhaust fan.

All ducting and exhaust stack will have accessible cleaning doors for compliance with the BESA Specifications DW/171 and DW/172.

The roof plant will be accessible for maintenance from the permanent landlord stair.

4.0 DESIGN INTENT

4.1.1 Specialised Cooking Fume and Grease Extract Canopies

The main island and fryer hot cooking extract canopy equipment will be designed by a specialist company Halton with the following attributes: -

1. The required extract volumes will be calculated using the hot plumes from the cooking processes as determined using the coefficients and surface temperatures in Table 2 of the BESA Specification DW/172 for Kitchen Ventilation Systems.
2. The hot process equipment canopies will be complete with a cold water mist system to control the extracted fume temperature ensuring the most efficient deposit of grease droplets within the Halton KSA extract baffles, thus minimising grease carry-over into the extract stack.
3. In addition to the cold water mist system, a hot water cleaning flush system will also ensure daily cleaning of the canopy and baffles as detailed in the BESA Guide to Good Practice- Cleanliness of Ventilation Systems TR/19; both the cold mist and the hot flush systems will be run automatically from a control panel accessible to the kitchen management.
4. To ensure compliance with the DW/172 requirement for a clean cool make-up air volume representing 85% of the extract air volume, will be supplied into the kitchen via local grilles. The balance of clean air will be taken from conditioned air in the restaurant via natural infiltration.

4.1.2 Other Specialist Canopies

The other extract canopies for non-grease and washup equipment will be designed by a specialist company Halton with the following attributes: -

- 1 The required extract volumes will be calculated using the hot plumes from the cooking processes and the hot moisture-laden plume from the dishwasher, as determined using the coefficients and surface temperatures in Table 2 of the BESA Specification DW/172 for Kitchen Ventilation Systems.
- 2 These canopies will be complete with the Halton KSA extract baffles, thus minimising grease/moisture carry-over into the extract stack.

4.1.3 Canopy Fire Protection

- 1 All specialist extract canopies, with the exception of the dishwasher unit, will have an Ansul R-102 fire suppression system, linked to the fire alarm.
- 2 Each Ansul unit will have a manual remote pull activation point.

4.2 EXTRACT VENTILATION SYSTEM

4.2.1 Extract Stack

4.2.1.1 Ducting

The ducting system will be constructed in accordance with BEAS Standard for Kitchen Ventilation Systems DW/171, Building Regulations Parts B and J and CIBSE Guide B2, with access for cleaning complete with quick release catches and sealing gaskets.

All horizontal ducts will be graded to ensure any condensate will gravitate to a cleanable grease/condense trap.

4.2.1.2 Odour Mitigation

- 1 Within the extract ducting leaving the extract canopies will be installed a modular UV (ultraviolet) ozone injection system designed to allow sufficient dwell time for the ozone to mitigate the cooking odours before entry into the extract stack.
- 2 The modular UV equipment will be accessible for maintenance and cleaning through the accessible kitchen ceiling.

4.2.1.3 Stack

- 1 The extract ventilation stack will be installed in a fire-rated steel duct run inside the landlord's service riser, to terminate at roof plant deck level.
- 2 The stack will be installed with access for grease removal and cleaning, each constructed with quick release catches, sealing gasket and thermal, acoustic, and fire-rated insulation properties equal to the fire rating of the duct.

4.2.1.4 Extract Ventilation Plant

- 1 The extract ventilation stack will terminate at roof plant deck level and be fitted with noise attenuation to mitigate noise transmission down to the kitchens.
- 2 An extract fan constructed with a sound-suppressing casing will be installed with adequate access for regular maintenance and cleaning.
- 3 On the discharge from the fan a modular ESP (electro-static precipitator) designed to remove particulate matter and any carry-over of grease vapour or smoke will be fitted, with adequate access for cleaning and maintenance.
- 4 On the exit from the ESP will be fitted a noise attenuator to protect the air discharge mitigating nuisance to other properties in the neighbourhood and terminating in a cleanable exhaust louvre.

5.0 CONCLUSION

The design and installation of the kitchen ventilation systems for the proposed A3 restaurant in the Manchester Goods Yard development ground and mezzanine floors, will comply with Clause 17 of the Planning Requirements of the City of Manchester to discharge extracted air at roof level, and to mitigate fumes, odours and vapours discharges from the premises, in the interest of the amenities of occupiers of nearby properties, pursuant to Core Strategy Policy DM1 for the City of Manchester.

The ventilation system will further be fitted with noise attenuation in compliance as part of Clause 18 of the Planning Requirements relative to the ventilation systems, this is being developed in detail by specialist acousticians Sandy Brown.

6.0 APPENDICES

APPENDIX A – Ventilation Schematic Drawing

