

# Technical Extraction & Ventilation Submission Package

778 Hyde Road, Manchester, M18 7JD

This technical submission package has been prepared in support of the planning application relating to the proposed change of use from Class E retail unit to hot food takeaway (sui generis) with ancillary seating area at 778 Hyde Road, Manchester, M18 7JD. The proposed extraction and ventilation system has been designed to minimise operational noise, grease emissions and cooking odours through the use of commercial-grade filtration, UV odour treatment, acoustic attenuation and high-level discharge.

## 1. Equipment Schedule

| Component        | Specification                                  |
|------------------|------------------------------------------------|
| Extractor Canopy | 3000mm x 1200mm x 500mm stainless steel canopy |
| ESP Filtration   | Purified Air ESP3000                           |
| UV Odour Control | Purified Air UV-O 1000                         |
| Fan Motor        | Flakt Woods Compact Max Fan – 400mm Diameter   |
| Acoustic Control | Two Elta 400mm acoustic silencers              |
| Ducting          | Galvanised steel ductwork and brackets         |

## 2. Noise & Odour Mitigation Measures

The extraction system incorporates a combination of electrostatic precipitation (ESP), UV odour treatment and acoustic attenuation measures to minimise environmental impact on surrounding occupiers. The ESP3000 filtration system is designed to remove grease particles and contaminants from the extracted air stream. The UV-O 1000 system uses UV-C technology to assist with odour reduction prior to final discharge. Two acoustic silencers are installed before and after the fan motor to reduce operational noise and vibration. The extraction ductwork discharges vertically at high level above roof height in order to assist with appropriate dispersion of cooking fumes and odours away from neighbouring properties.

## 3. ESP3000 Filtration Unit

**purified air**  
providing a better environment



#### 4. UV-O 1000 Odour Control Unit

## UV-O 1000



### INTRODUCTION

Reduction of cooking odours from commercial kitchens is an increasingly important issue, different combinations of product are required to do this.

### HOW IT WORKS

The Purified Air UV-O 1000 unit uses UV-C technology to produce ozone and hydroxyl free radicals to oxidise odours through a process of Ozonolysis.

Unlike other UV-C systems, the UV-O 1000 is located outside the kitchen extract duct and connects via spigots and small diameter ducting. It is widely accepted that the best way to apply UV-C is in the airstream itself. However, the lamps quickly become dirty and the effectiveness is greatly reduced. By applying the lamps outside of the airstream we are able to fully control the condition of the lamps which provides for a uniform output, the air entering the UV-O 1000 does not come via the extract and is filtered on entry, the system allows a uniform delivery of clean treated air to enter the extract system. A further advantage is that the pressure loss exhibited when the unit is installed is low and uniform.



**purified air**

#### 5. Acoustic Silencer

### ELTA 068-0400-2DEP 400MM DIAMETER X 2D LONG PODDED SILENCER

Elta

▼ Prices & Options



#### 6. Fan Motor Technical Information



## Overview

## Performance

## Technical Details

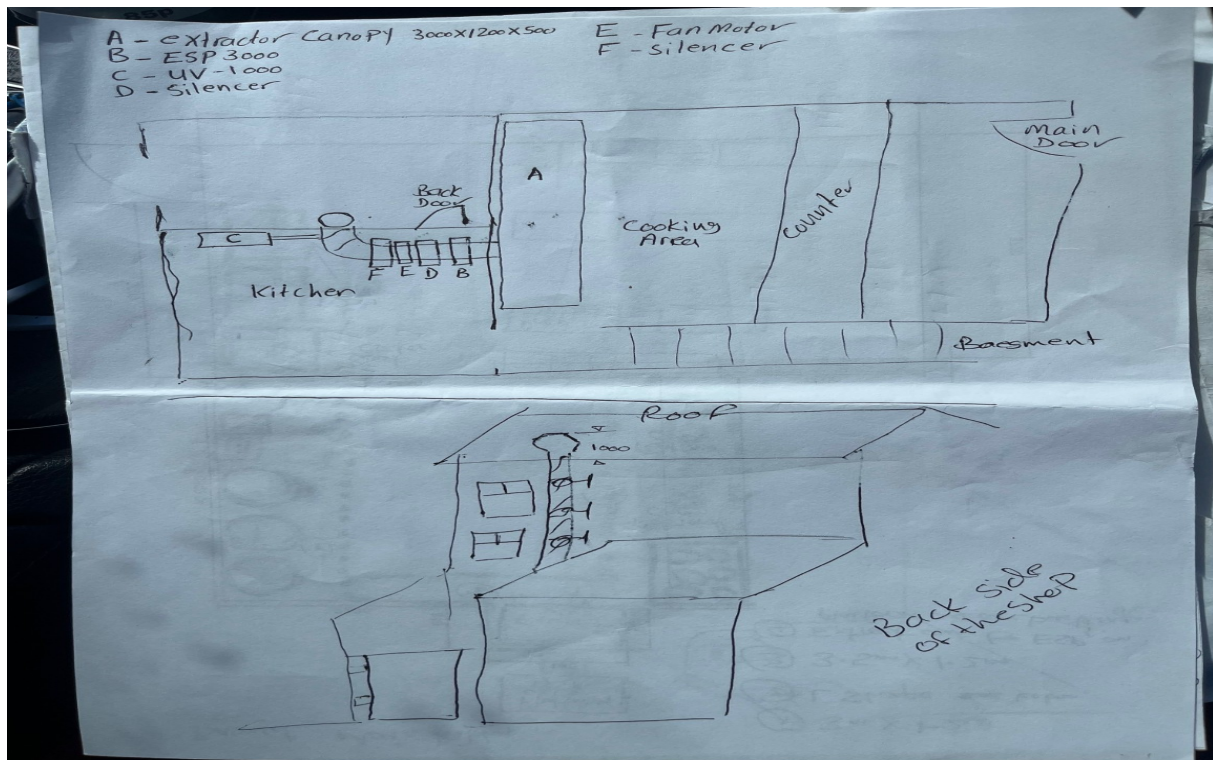
**Fan Code**  
 40 MaxFan Compact  
**Fan Diameter / Size**  
 800 Size / mm  
**Fan Speed**  
 2840 rpm  
**Voltage**  
 230 V  
**Frequency**  
 50 Hz  
**Installation Type / Form of Running**  
 D / AB  
**Exhaust Type**  
 D / AB  
**Requested Duty**  
 0.85 m³/s @ 542 Pa (static)  
**Outlet Dynamic Pressure**  
 16 Pa  
**Supply Shaft Power**  
 0.282 kW  
**Motor Efficiency**  
 52.1 %  
**Motor Frame**  
 80 (Class F I)  
**Motor Rating**  
 1.35 kW (1.82 A)  
**Full Load Current**  
 2.1 A  
**Starting Current**  
 2.1 A  
**Electrical Supply**  
 230-240 Volts 50 Hz 3 Phase  
**Start / Stop**  
 On/Off  
**Enclosure**  
 NEMA 4X (IP65)  
**ESP (FMES) Rating**  
 NEMA 4X (IP65)  
**ESP (FMES) Target**  
 NEMA 4X (IP65)  
**ESP (FMES) Range**  
 NEMA 4X (IP65)  
**VSD - Motor Efficiency**  
 52.1 %  
**Motor Input Power (ESP)**  
 0.282 kW  
**ESP value**  
 1.35 W/(m³) @ Requested Duty  
**Energy Consumption**  
 2622 kWh (3000 h/year)  
**Running Cost / Year**  
 £1.15  
**Air Density**  
 1.2 kg/m³ / 20 °C / 0 m / 50% RH  
**Smoke Venting**  
 Not Suitable Venting  
**Product Number**  
 E413456

Performance data has been derived from tests carried out in a Fluke Woods laboratory, in accordance with ISO 5805 and is specifically applicable for ducted installations. When an electronic controller is incorporated, enhanced motor noise can occur - particularly when the operating speed is well below maximum RPM. Therefore, recommended noise and duty controller speed controller for noise sensitive applications. Silencers are not required when used continuously at >8000. They are not for use in the EEA at lower temperatures.  
 The MaxFan Compact includes a preprogrammed inverter drive to operate via 3 phase supply, offering full speed control and optimized performance.  
 Acoustic data has been derived from tests carried out in a Fluke Woods laboratory, in accordance with BS 848 Pt 2, 1985 / BS EN ISO 5135 under ducted conditions. The single figure provided is the overall sound pressure level at the specified distance, under spherical, free field conditions.  
 Acoustic figures for adjusted running speeds have been interpolated and are for reference only.  
 Terms and Conditions: This offer is made subject to the terms and conditions detailed on the accompanying letter.

| Sound Spectrum (Hz) |      |    |     |     |     |    |    |    |    | Overall |    |
|---------------------|------|----|-----|-----|-----|----|----|----|----|---------|----|
| 16                  | 31.5 | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | 1m      | 1m |
| 88                  | 85   | 81 | 80  | 80  | 80  | 80 | 80 | 80 | 80 | 75      | 75 |
| 88                  | 85   | 81 | 80  | 80  | 80  | 80 | 80 | 80 | 80 | 75      | 75 |
| 88                  | 85   | 81 | 80  | 80  | 80  | 80 | 80 | 80 | 80 | 75      | 75 |
| 88                  | 85   | 81 | 80  | 80  | 80  | 80 | 80 | 80 | 80 | 75      | 75 |

Sound data at requested duty.

## 7. Proposed Extraction Layout Sketch



## 8. Conclusion

The proposed extraction and ventilation system represents a commercial-grade installation suitable for hot food takeaway use. The specification has been selected specifically to minimise nuisance relating to cooking odours, grease emissions and operational noise. The combination of ESP filtration, UV odour treatment, acoustic attenuation and high-level discharge provides an appropriate extraction solution for the proposed development.