

Players – Wimslow Road

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Commercial Kitchen Canopy, Ventilation, Noise and Odour Assessment Report

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The HVAC specification DW172 shall be used as the basis for Kitchen ventilation Systems design and installation.

**Extraction** – The calculations for the extract volume flow rate for each canopy shall be determined by the equipment beneath the canopy and its location. The procedure for design shall be the ‘thermal convection’ method as detailed in DW172. The calculation as follows: -

**Plan size of appliance (m2) x Thermal convection coefficient (m3/s/m2) = Flow Rate (m3/s) per appliance. Total 2.4M3P/S**

**Noise Generating Equipment** – By virtue, the plant is noise generating and measures shall be taken to reduce & mitigate plant noise break out to local residential receptors/premises. We will design the acoustic measures to comply with criterion as indicated with noise report which is yet to be provided.

These can be controlled using measures such as:-

- Acoustic Silencers
- Low Velocity Ductwork Sizing
- Anti-Vibration Ancillaries

**Odour Abatement** – To counteract and control emissions, residual, and spillage nuisance odours we recommend that the following measures are taken to control this.

- Primary Baffle Filters
- ESP
- UVO100

| <u>Specification</u>    | <u>Type</u>                          | <u>Size/Flow Rate/Required Y/N</u> |  |
|-------------------------|--------------------------------------|------------------------------------|--|
| <u>Canopy Type/Size</u> | <u>8300 x 1650 x 400</u>             | <u>2.4M3P/S</u>                    |  |
| <u>Extract Fan</u>      | <u>TCBTX2 4-560</u>                  | <u>2.4M3P/S</u>                    |  |
| <u>Supply Fan</u>       | <u>TCBTX2 4-450</u>                  | <u>1.8M3P/S</u>                    |  |
| <u>Heating Element</u>  | <u>N/A</u>                           |                                    |  |
| <u>Noise Measures</u>   | <u>2no 2D Melinex Lined Silencer</u> | <u>47DbA Each</u>                  |  |
| <u>Odour Measures</u>   |                                      |                                    |  |
| <u>UVO1000</u>          | <u>150 diameter connection</u>       |                                    |  |
| <u>ESP 4500</u>         | <u>Mesh filtered cells</u>           |                                    |  |

I hope the above information is acceptable and contains sufficient information with the proposed development and if any other information is required, please do not hesitate to contact us on the numbers below.

## Risk Assessment for Odour Control

Odour control must be designed to prevent nuisance in a given situation. The following score methodology is suggested as a means of determining odour control requirements require at the aforementioned site.

| <u>Measure</u> | <u>Score 20</u> | <u>Details Carbon Filters + Pre Filters</u> |
|----------------|-----------------|---------------------------------------------|
|----------------|-----------------|---------------------------------------------|

### Dispersion

|                  |           |                                                         |
|------------------|-----------|---------------------------------------------------------|
| <u>Very poor</u> | <u>40</u> | <u>Low Level Discharge into courtyard/public access</u> |
| <u>Poor</u>      | <u>30</u> | <u>Below eaves @ 10m/s</u>                              |
| <u>Moderate</u>  | <u>20</u> | <u>1mtr above eaves but low velocity</u>                |
| <u>Good</u>      | <u>10</u> | <u>1mtr above eaves with high velocity cowl</u>         |

### Proximity of dwellings

|               |           |                                             |
|---------------|-----------|---------------------------------------------|
| <u>Close</u>  | <u>30</u> | <u>Within 10mtrs from kitchen discharge</u> |
| <u>Medium</u> | <u>20</u> | <u>Within 20mtrs from kitchen discharge</u> |
| <u>Fair</u>   | <u>10</u> | <u>Over 20mtrs from kitchen discharge</u>   |

### Size of Kitchen

|               |           |                                                 |
|---------------|-----------|-------------------------------------------------|
| <u>Large</u>  | <u>30</u> | <u>More than 100covers or large Takeaway</u>    |
| <u>Medium</u> | <u>20</u> | <u>Between 50-100 covers or medium Takeaway</u> |
| <u>Small</u>  | <u>10</u> | <u>Less than 30 covers or small Takeaway</u>    |

### Cooking Type (Odour and Grease)

|                  |           |                                                             |
|------------------|-----------|-------------------------------------------------------------|
| <u>Very High</u> | <u>40</u> | <u>Pub with high level of fried food/chargrill/charcoal</u> |
| <u>High</u>      | <u>30</u> | <u>Kebab, Thai, Indian</u>                                  |
| <u>Medium</u>    | <u>20</u> | <u>Chinese, Japanese, Small Pub</u>                         |
| <u>Low</u>       | <u>10</u> | <u>Carvery, Italian, French</u>                             |

|                    |           |
|--------------------|-----------|
| <u>Total Score</u> | <u>90</u> |
|--------------------|-----------|

### Impact Risk

|                      |                                       |                       |
|----------------------|---------------------------------------|-----------------------|
| <u>Low to Medium</u> | <u>Low Level Odour Control if any</u> | <u>Lower than 60</u>  |
| <u>High</u>          | <u>High Level Odour Control</u>       | <u>Between 60-100</u> |
| <u>Very High</u>     | <u>Very High Level Odour Control</u>  | <u>Over 100</u>       |

### Discharge Stack

**The discharge stack shall: -**

1. Discharge the extracted air not less than 1mtr above the eaves of any building.
2. If 1 cannot be complied for planning reasons, then the extracted air shall be discharged 1mtr above eaves or window of the building housing the commercial kitchen. Additional odour reduction methods maybe required.
3. If 1 or 2 cannot be complied with for planning reasons, exceptionally high level of odour control will be required. See Impact Risk – Very High

**Odour neutralising performance**

**Low to Medium level control may include: -**

- i. Baffle Filters / Veritech Filters within Canopy
- ii. Odour Control Neutraliser or Carbon Filters with Dwell time of 0.3

**High level of odour/smoke control may include: -**

- i. Baffle Filters / within Canopy
- ii. Electrostatic Precipitators to suit air volume.
- iii. UV System for smoke

**Very high level of odour/smoke control may include: -**

- i. Veritech Filters within Canopy
- ii. Odour Control Neutraliser and Carbon Filters with Dwell time of 0.5 – 0.6
- iii. Double Pass Electrostatic Precipitators to suit air volume.
- iv. UV System for smoke

**Maintenance**

Proprietors of commercial kitchens have a duty to ensure that the ventilation system has regular maintenance checks and servicing. Good maintenance ensures the designed system works effectively and efficiently and conforms to the local planning authority's guidelines given at the redevelopment stage.

|                            |                                   |                           |
|----------------------------|-----------------------------------|---------------------------|
| <b><u>Light Use</u></b>    | <b><u>12-16 Hours per Day</u></b> | <b><u>6-12 months</u></b> |
| <b><u>Moderate Use</u></b> | <b><u>6-12 Hours per Day</u></b>  | <b><u>3-6 months</u></b>  |
| <b><u>Heavy Use</u></b>    | <b><u>2-6 Hours per Day</u></b>   | <b><u>1-3 months</u></b>  |

## Baffle Grease Filters

### Applications

It is recognised that there is an increasing need to maintain and improve hygiene standards in kitchens and to reduce the fire hazards above the heat source.

The Airclean baffle filter reduces this fire hazard with their unique design concept of non-grease loading (negligible grease accumulation), and interlocking baffle walls which restrict the passage of flames into the ductwork.



### Construction

Housed in a stainless steel channel framework are a series of vertical stainless steel air baffles which are strategically aligned to change the direction of the grease-laden air. This action causes the deposition of the grease quickly, without re-entrainment onto the baffles whilst the grease-free air passes through the filter. The baffle's smooth surface enables deposited grease to run off via the drainage holes to collecting trays in the housing, minimising grease build-up.

The retractable handle facilitates easy removal from the housing.

### Materials available:

Aluminium  
Stainless steel Grade 304  
Stainless steel Grade 430 - ECO.

### Capacity Chart

Data based on Face Velocity of 1.5 m/s (300 fpm)

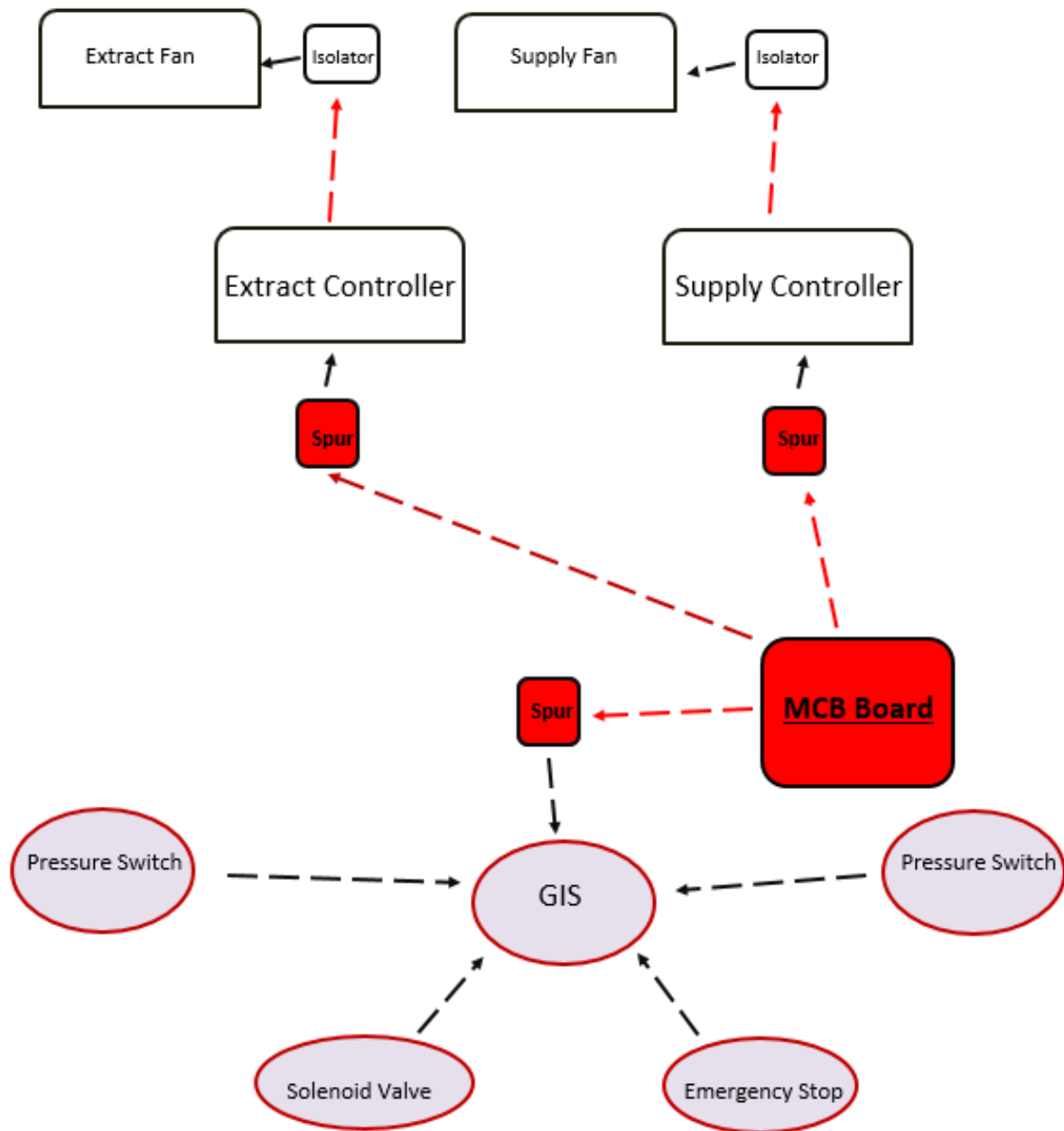
| SIZE<br>OT Inches | SIZE<br>Actual mm | Flow Rate         |     |
|-------------------|-------------------|-------------------|-----|
|                   |                   | m <sup>3</sup> /s | Pa  |
| 16 x 16           | 394 x 394         | 0.25              | 125 |
| 20 x 10           | 495 x 242         | 0.19              | 110 |
| 20 x 16           | 495 x 394         | 0.31              | 125 |
| 20 x 20           | 495 x 495         | 0.39              | 125 |
| 18 x 18           | 445 x 445         | 0.31              | 125 |
| 24 x 24           | 594 x 594         | 0.54              | 110 |

Actual Face Size = Nominal Size less 12mm (0.5")

Actual thickness = Nominal thickness less 3mm (0.125")

Code AC3/3a Ref 01/13

## Basic Schematic for Electrical Layout



Red Box – By Others  
Red Arrow – By Others