

NEW CENTURY HALL, MANCHESTER

Annex B

Information Required To Support Planning Application For Commercial Kitchen

1. Information on premises

The following information should be supplied:

- the number of meals to be served per day
- the method(s) of preparation and cooking;
- the types of meal served, e.g. fish and chips, Chinese food, Indian food, pizzas or Italian dishes, etc; and proposed hours of operation of the business and any ventilation plant.

RESPONSE

Meals to be served per day = 200

Method = Oven/Planca/Grill/Fry/Bake

Types of meals/opening hours - Food will be served from 11am to 11pm subject to a degree of flexibility based on events at the property. Food served will be Indian, Chinese, Pizza, Italian, Fish & Chips and an element of rotation to accommodate alternative food types. Details of ventilation plant are provided separately.

2. Plans and drawings

Provide a scaled plan showing the internal arrangement of the premises and the dimensions/location of the ventilation system. The plan must contain external elevations of the buildings showing the

- dimensions;
- route; and
- exhaust characteristics (i.e. appearance) of the ductwork in relation to the building.

The location of **all** filters and the fan must be clearly marked. Where the location of a filter is shown the type must be clearly identified and cross-referenced to the detailed product specification.

RESPONSE

Refer to design drawings and technical submission of fan / filters.

Refer to Solution-ES drawing M10, M11, M12, M13 for mechanical works.

EF11 is the main basement kitchen extract fan.

3. Pre-filters

A copy of the manufacturer's product data sheet should be supplied clearly showing:

- manufacturer's name;
- filter name and product code;
- dimensions of the pre-filter; and
- nature of the filter media.
- manufacturer's recommendations on the frequency and type of maintenance of the pre-filter having regard to the conditions that it will be used under.

RESPONSE

Refer to design drawings and technical submission of fan / filters.

Supply fan SF01 filtration;

KITCHEN SUPPLY PLANT SCHEDULE P1				
AHU DETAILS				
SERVING	(-)	BASEMENT KITCHEN		
ARRANGEMENT	(-)	INLINE ARRANGEMENT		
LOCATION	(-)	KITCHEN - HIGH LEVEL		
SUPPLY CONFIGURATION				
MOTORISED INTAKE DAMPER	INTAKE AIR		OPPOSED BLADE - MOUNTED IN DUCT	
PANEL FILTER	INTAKE AIR	(-)	G4	
	MAXIMUM PRESSURE DROP	(Pa)	100	
HEATING COIL (ELECTRIC)	AIR ON CONDITION	(°C / %)	-4	100% RH
	AIR OFF CONDITION	(°C / %)	16	(ASSUMED)
	MAXIMUM PRESSURE DROP	(Pa)	100	
	DUTY	(kW)	37	
SUPPLY FAN	AIR VOLUME	(m³/s)	1.520	
	EXTERNAL STATIC PRESSURE	(Pa)	1,000	
	SPECIFIC FAN POWER (SFP)	(W/l/s)	1.40	

4. Electrostatic precipitators (where proposed)

A copy of the manufacturer's product data sheet should be supplied clearly showing:

- manufacturer's name;
- ESP name and product code;
- dimensions of the ESP; and
- flow rate rating.

Manufacturer's recommendation on the frequency and type of maintenance of the ESP having regard to the conditions that it will be used under.

RESPONSE

Product data sheets attached;

KITCHEN

Design flow rate from canopy 1.90 m³/s

Electrostatic Precipitator ESP 4500 EI

	ESP 1500EI	ESP 3000EI	ESP 4500EI	ESP 6000EI
Power consumption	20 Watts	30 Watts	40 Watts	50 Watts
Maximum air handling capacity	Up to 0.7m ³ /sec	Up to 1.4m ³ /sec	Up to 2.1m ³ /sec	Up to 2.8m ³ /sec
Dimensions	W 450mm H 630mm D 640mm	W 900mm H 630mm D 640mm	W 1350mm H 630mm D 640mm	W 1800mm H 630mm D 640mm
Weight	55kg	85kg	118kg	153kg
Power supply	220/240V 50Hz 1ph	220/240V 50Hz 1ph	220/240V 50Hz 1ph	220/240V 50Hz 1ph
Filter efficiency	Up to 98%	Up to 98%	Up to 98%	Up to 98%
Housing	Epoxy-coated galvanised steel	Epoxy-coated galvanised steel	Epoxy-coated galvanised steel	Epoxy-coated galvanised steel

POD

SINGLE POD ARRANGEMENT EF05

Design flow rate 0.60 m³/s per POD.

Electrostatic Precipitator ESP 1500 EI

	ESP 1500EI	ESP 3000EI	ESP 4500EI	ESP 6000EI
Power consumption	20 Watts	30 Watts	40 Watts	50 Watts
Maximum air handling capacity	Up to 0.7m ³ /sec	Up to 1.4m ³ /sec	Up to 2.1m ³ /sec	Up to 2.8m ³ /sec
Dimensions	W 450mm H 630mm D 640mm	W 900mm H 630mm D 640mm	W 1350mm H 630mm D 640mm	W 1800mm H 630mm D 640mm
Weight	55kg	85kg	118kg	153kg
Power supply	220/240V 50Hz 1ph	220/240V 50Hz 1ph	220/240V 50Hz 1ph	220/240V 50Hz 1ph
Filter efficiency	Up to 98%	Up to 98%	Up to 98%	Up to 98%
Housing	Epoxy-coated galvanised steel	Epoxy-coated galvanised steel	Epoxy-coated galvanised steel	Epoxy-coated galvanised steel

DOUBLE POD ARRANGEMENT EF06

Design flow rate 0.60 m³/s per POD – TOTAL = 1.20 m³/s

Electrostatic Precipitator ESP 3000 EI

	ESP 1500EI	ESP 3000EI	ESP 4500EI	ESP 6000EI
Power consumption	20 Watts	30 Watts	40 Watts	50 Watts
Maximum air handling capacity	Up to 0.7m ³ /sec	Up to 1.4m ³ /sec	Up to 2.1m ³ /sec	Up to 2.8m ³ /sec
Dimensions	W 450mm H 630mm D 640mm	W 900mm H 630mm D 640mm	W 1350mm H 630mm D 640mm	W 1800mm H 630mm D 640mm
Weight	55kg	85kg	118kg	153kg
Power supply	220/240V 50Hz 1ph	220/240V 50Hz 1ph	220/240V 50Hz 1ph	220/240V 50Hz 1ph
Filter efficiency	Up to 98%	Up to 98%	Up to 98%	Up to 98%
Housing	Epoxy-coated galvanised steel	Epoxy-coated galvanised steel	Epoxy-coated galvanised steel	Epoxy-coated galvanised steel

TRIPLE POD ARRANGEMENT EF07

Design flow rate 0.60 m³/s per POD – TOTAL = 1.80 m³/s

Electrostatic Precipitator ESP 4500 EI

	ESP 1500EI	ESP 3000EI	ESP 4500EI	ESP 6000EI
Power consumption	20 Watts	30 Watts	40 Watts	50 Watts
Maximum air handling capacity	Up to 0.7m ³ /sec	Up to 1.4m ³ /sec	Up to 2.1m ³ /sec	Up to 2.8m ³ /sec
Dimensions	W 450mm H 630mm D 640mm	W 900mm H 630mm D 640mm	W 1350mm H 630mm D 640mm	W 1800mm H 630mm D 640mm
Weight	55kg	85kg	118kg	153kg
Power supply	220/240V 50Hz 1ph	220/240V 50Hz 1ph	220/240V 50Hz 1ph	220/240V 50Hz 1ph
Filter efficiency	Up to 98%	Up to 98%	Up to 98%	Up to 98%
Housing	Epoxy-coated galvanised steel	Epoxy-coated galvanised steel	Epoxy-coated galvanised steel	Epoxy-coated galvanised steel

5. Carbon Filters (where proposed)

The details and type of carbon filter units should be identified. A copy of the manufacturer's product data sheet should be supplied that clearly shows:

- manufacturer's name;
- filter name and product code;
- dimensions of the filter panel; and
- the total number of filter panels in the filter bed.

The following information should also be included:

- the nature of the carbon (including product type);
- the frequency of replacement of the carbon units having regard to the conditions that it will be used under. The assumptions to this calculation must be clearly stated, including the frequency and duration of use. The manufacturer should provide recommendations on the frequency and type of maintenance required;
- total volume of carbon expressed in cubic metres;
- total mass of carbon expressed in kilograms;
- total surface area of the panels exposed to the exhausted air; and
- dwell time of the gases in the filter compartment and the control setting at which this is achieved. The assumptions to this calculation must be clearly stated, and should include the air change rate for the setting quoted.

RESPONSE

Not applicable.

6. Odour counteractant or neutralising system (where proposed)

The details and type of counteractant or neutralising system should be identified. A copy of the manufacturer's product data sheet should be supplied that clearly shows:

- manufacturer's name;
- name of delivery system and product code;
- counteractant or neutralising chemical to be used;
- COSHH data sheets for chemical to be used; and
- anticipated counteractant or neutralising delivery rate.

RESPONSE

Product data sheets attached;

KITCHEN

Design flow rate from canopy 1.90 m³/s

Odour Control Unit UV-O 1000

	UVO500	UVO1000
Electrical Supply:	220/240V 50Hz	220/240V 50Hz
Max Power Consumption:	140 Watts	700 Watts
Max Air Volume:	1m ³ /sec	2m ³ /sec
Weight:	10.5 Kg	50 Kg
Dimensions:	W 610mm	W 1521mm
	H 300mm	H 350mm
	D 200mm	D 404mm

PER POD

Design flow rate 0.60 m³/s

Odour Control Unit UV-O 500

	UVO500	UVO1000
Electrical Supply:	220/240V 50Hz	220/240V 50Hz
Max Power Consumption:	140 Watts	700 Watts
Max Air Volume:	1m ³ /sec	2m ³ /sec
Weight:	10.5 Kg	50 Kg
Dimensions:	W 610mm	W 1521mm
	H 300mm	H 350mm
	D 200mm	D 404mm

7. Cooker hood

The following information on the characteristics of the cooker hood should be supplied that clearly shows the:

- length that the cooker hood overhangs the appliances;
- face velocity at the cooker hood, expressed in metres per second; and
- dimensions of the opening of the cooker hood.

RESPONSE

All Canopies specified on this project include the mandatory side and front overhang over the appliances by 300 mm minimum

The dimensions of the ventilation Canopies openings are as follows.

Pod 2 Pizza Hood 2800x1650x450mm – Face Velocity= 0.6 m³/S

Pod 3 2800x1200x450mm. Face Velocity = 0.81m³/s

Pod4. 2430x1200x450mm. Face Velocity = 0.76m³/s

Pod 5 2100x1200x450mm. Face Velocity = 0.52m³/S

Pod 6 2250x1200x450mm. Face Velocity = 0.81m³/S

Pod 7 3400x1200x450mm. Face Velocity = 1 m³/s

Wash up area are Condense type

Production Kitchen 7400x1650x500mm. Face Velocity = 2.07m³/S

8. System Operation

In addition to the specification of the components the following must be provided about the system:

- extract rate (expressed as m^3/s) at the proposed rate of extract;
- dwell time of the gases in the carbon filtration zone
- volume of the kitchen; and
- efflux velocity

Note: The system performance is dependant upon the extract rate of the air. Where the rate can be adjusted by the use of dampers or a variable speed fan, then the conditions under which the extract rate can be achieved must be described.

RESPONSE

KITCHEN

Design flow rate from canopy $1.90 \text{ m}^3/\text{s}$ equates to 30 air changes per hour, based on 84m^2 x 2.7m ceiling height.

After the kitchen extract fan, the 600dia ductwork reduces to a 450dia efflux termination which will disperse air at a velocity of 11.95 m/s.

POD

Pod 6 & 7 extracts terminate through existing louvre.

Pod 2 extract terminates through exiting louvre.

POD

Pod 3, 4 & 5, 710dia ductwork reduces to a 400dia efflux termination which will disperse air at a velocity of 14.32 m/s.

9. Flue Design

The height and velocity of the final discharge are the two important factors. Generally, the greater the flue height, the better the dispersion and dilution of odours.

The discharge of air should be at a minimum height of 1m above the roof ridge, especially if there are buildings nearby that may affect odour dispersion and dilution.

Where this is not possible (e.g. because of ownership or structural constraints), additional techniques will be required in order to reduce odours, such as an increase in efflux velocity and additional filters, etc.

The final discharge should be vertically upwards, unimpeded by flue terminals. The number of bends in the ducting should be minimised and the ducting should have a smooth internal surface.

RESPONSE

Not applicable.

10. Noise

Data on the noise produced by the system as a whole should be provided including:

- sound power levels or sound pressure levels at given distances (the assumptions to this calculation must be clearly stated);
- an octave band analysis of the noise produced by the system should also be provided, where possible; and
- hours of operation of the ventilation system (where this differs from the hours of opening).

RESPONSE

Refer to technical information of fans.

11. Maintenance

A schedule of maintenance must be provided including details for:

- cleaning of washable grease filters;
- frequency of inspection and replacement of all filters (grease filters, pre-filters and carbon filters where proposed);
- inspection and servicing of fans; and
- if schedule is not based on manufacturer's instructions include the reasons why.

RESPONSE

AIR FILTERS (PANEL/BAG CELLS)

GENERAL MAINTENANCE REQUIREMENTS

DAILY

1. Take manometer reading if reading shows the filter cells are at their maximum pressure drop they should be replaced (throw-away type) or cleaned (washable type). Washable filters should be cleaned in accordance with the manufacturer's instructions and left to dry naturally.
2. Check cells are replaced in the correct direction to air flow.
3. On changing cells wipe any accumulated dirt from the retaining channels and frames.
4. On replacing access doors check that the integral seals/gaskets give a good air seal, if not replace seal gaskets.

AIR HANDLING UNITS/FANS

GENERAL MAINTENANCE REQUIREMENTS

WEEKLY

1. Generally inspect unit for signs of water or air leaks. Check security of all panels, fitments and connections.

MONTHLY

1. Inspect internally and check all panel air seals and insulation padding is in place.

6 MONTHLY

1. Check exterior of unit for signs of corrosion and damage to finish. Repair all blemishes.

YEARLY

1. Thoroughly check unit internally and externally for corrosion and damage. Check security of all fixing bolts. Clean all surfaces.
2. Check and maintain component items (coils, fans, filters, etc.).

12. Additional notes for guidance

The air inlets must not permit pests to enter the kitchen. Fly screens are an example of how this can be achieved.

Sufficient air must be permitted into the premises to replace air extracted. The method for supplying this make-up air should be detailed. The route of the air into the kitchen must not result in its contamination, for example passage through a toilet. Separate provision must be made for ventilation of a toilet.

There must be sufficient access points to permit adequate cleaning of all the ductwork.

RESPONSE

Make-up air is provided by SF01 supply fan – intake route shown on Solution-ES basement drawing M10 from existing weatherproof intake louvre above kitchen location.

Separate WC extract routes are shown on Solution-ES ground floor drawing M11.

Access hatches are illustrated as “AH” along duct runs on drawings.