

Planning- Condition 20

Fumes, vapours and odours shall be extracted and discharged from the premises in accordance with a scheme to be submitted to and approved in writing by the City Council as local planning authority before the use commences; any works approved shall be implemented before the use commences.

This statement has been produced to detail the supply and extract ventilation strategy for the proposed fit out.

The ventilation design shall comply with the following building regulation approved documents and standards:

Design Standards

The ventilation systems will be designed in accordance with recognised UK and industry best practice.

Design will be based on standards and guidelines, including:

- British and European Standards (BSI).
- Chartered Institution of Building Services Engineers (CIBSE).
- Building Services Research and Information Association (BSRIA).
- Building Research Establishment (BRE).
- Heating & Ventilating Contractors Association (HVCA).
- Control of Odour and Noise from Commercial Kitchen Exhaust Systems (EMAQ)

Statutory Requirements

Ventilation systems design will also be based on the following Statutory Requirements:

- The Building Regulations.
- Clean Air Act 1993.
- The Control of Pollution Act 1974 and Amendment Acts.
- The Construction (Design and Management) Regulations 2015.
- British Standards and Codes of Practice.
- Manchester City Council Planning Conditions & Requirements.

System Descriptions

All equipment shall be installed so as not to create any nuisance by way of noise, vibration, heat or fumes to neighbouring tenants, residential apartments or the public (including recirculation).

Café prep extract system

The cafe extract system has been designed to provide 60 l/s as per Building Regulations Part F for a kitchenette area. This system comprises 1 x ceiling mounted extract fan, with fore and aft silencers, and exhaust air is to be extracted from unit venue from a louvre above the entrance door.

The fan is complete with an adjustable run-on timer linked to the lighting PIR to ensure the system only activates during use.

Risk assessment as detailed in Appendix 3 of the EMAQ Guide

Not applicable - No cooking present, coffee shop and bar only.

Heat Recovery Fresh Air Ventilation

As the unit is has a very low fixed occupancy, general ventilation is provided by infiltration through the fabric of the unit and via the doors to external and the adjacent concierge area.

As the extract ventilation from the café prep area keeps the area under negative pressure this ensures that fresh air from external is pulled into the space to provide the legal minimum of 10 litres/sec/person.

Heating and cooling fan coil units within the space also ensure that the air is mixed within the unit.

Appendix 1 – Risk Assessment for Odour (extract from EMAQ – Control of Odour and Noise from Commercial Kitchen Exhaust Systems)

Appendix 3: Risk Assessment for Odour

Odour control must be designed to prevent odour nuisance in a given situation. The following score methodology is suggested as a means of determining odour control requirements using a simple risk assessment approach. The odour control requirements considered here are consistent with the performance requirements listed in this report.

Impact Risk	Odour Control Requirement	Significance Score*
Low to Medium	Low level odour control	Less than 20
High	High level odour control	20 to 35
Very high	Very high level odour control	more than 35

* based on the sum of contributions from dispersion, proximity of receptors, size of kitchen and cooking type:

Criteria	Score	Score	Details
Dispersion	Very poor	20	Low level discharge, discharge into courtyard or restriction on stack.
	Poor	15	Not low level but below eaves, or discharge at below 10 m/s.
	Moderate	10	Discharging 1m above eaves at 10 -15 m/s.
	Good	5	Discharging 1m above ridge at 15 m/s.
Proximity of receptors	Close	10	Closest sensitive receptor less than 20m from kitchen discharge.
	Medium	5	Closest sensitive receptor between 20 and 100m from kitchen discharge.
	Far	1	Closest sensitive receptor more than 100m from kitchen discharge ¹ .
Size of kitchen	Large	5	More than 100 covers or large sized take away.
	Medium	3	Between 30 and 100 covers or medium sized take away.
	Small	1	Less than 30 covers or small take away ¹ .
Cooking type (odour and grease loading)	Very high	10	Pub (high level of fried food), fried chicken, burgers or fish & chips. <i>Turkish, Middle Eastern or any premises cooking with solid fuel</i>
	High	7	<i>Vietnamese, Thai, Indian, Japanese, Chinese, steakhouse</i>
	Medium	4	<i>Cantonese, Italian, French, Pizza (gas fired),</i>
	Low	1	<i>Most pubs (no fried food, mainly reheating and sandwiches etc), Tea rooms¹</i>

Note 1: A planner may take a pragmatic view when assessing whether certain low risk kitchens require any odour abatement to be fitted. In reaching this decision the Planner may consider the nature of the food being cooked and/or the size of kitchen and/or its location.

Appendix 2 – Odour Arrestment Plant Performance (extract from EMAQ – Control of Odour and Noise from Commercial Kitchen Exhaust Systems)

Odour arrestment plant performance

Low to medium level control may include:

1. Fine filtration or ESP followed by carbon filtration (carbon filters rated with a 0.1 second residence time).
2. Fine filtration followed by counteractant/neutralising system to achieve the same level of control as 1.

High level odour control may include:

1. Fine filtration or ESP followed by carbon filtration (carbon filters rated with a 0.2 - 0.4 second residence time).
2. Fine filtration or ESP followed by UV ozone system to achieve the same level of control as 1.

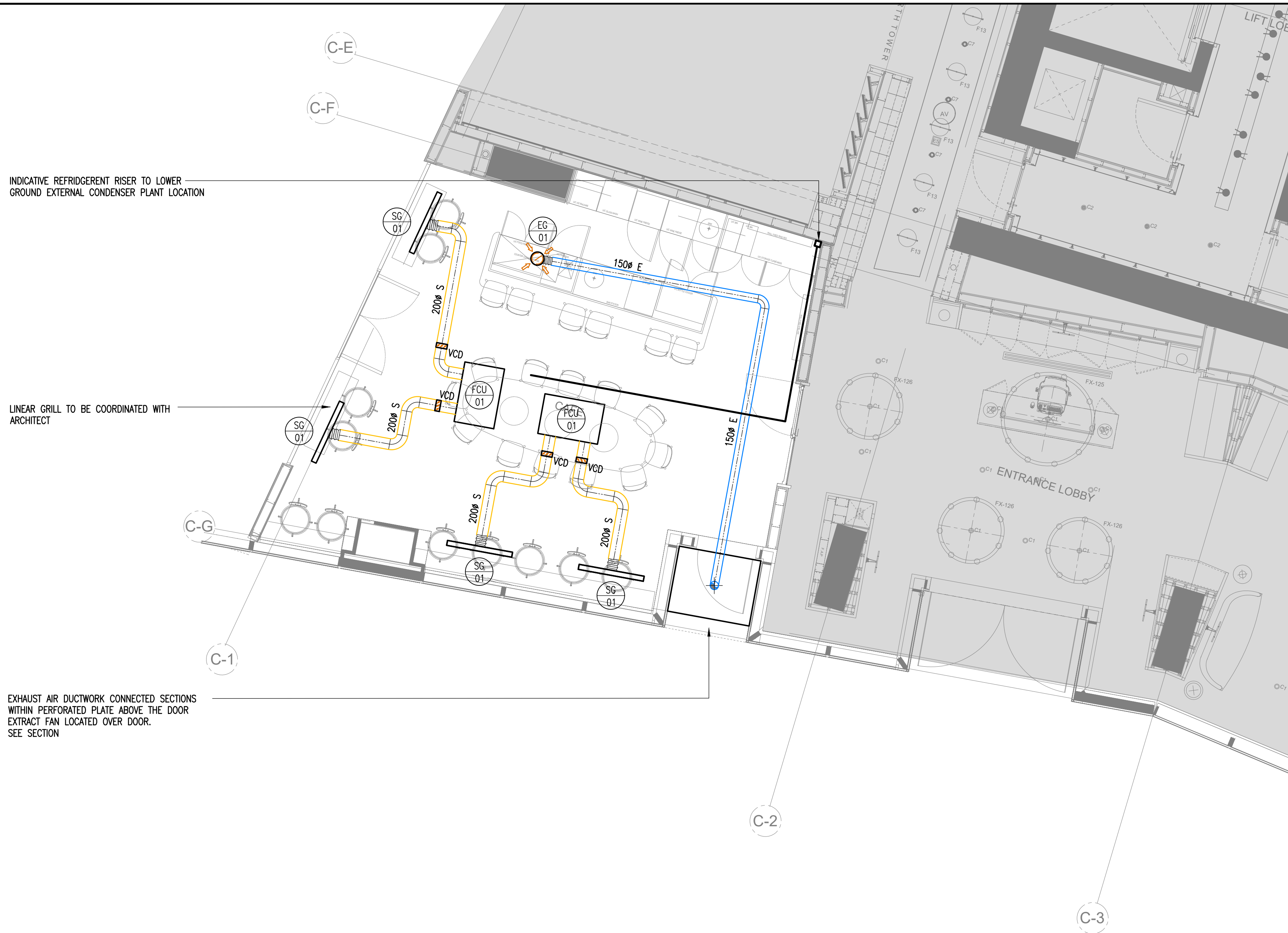
Very high level of odour control may include:

1. Fine filtration or ESP followed by carbon filtration (carbon filters rated with a 0.4 – 0.8 second residence time).
2. Fine filtration or ESP followed by carbon filtration and by counteractant/neutralising system to achieve the same level of control as 1.
3. Fine filtration or ESP followed by UV ozone system to achieve the same level of control as 1.

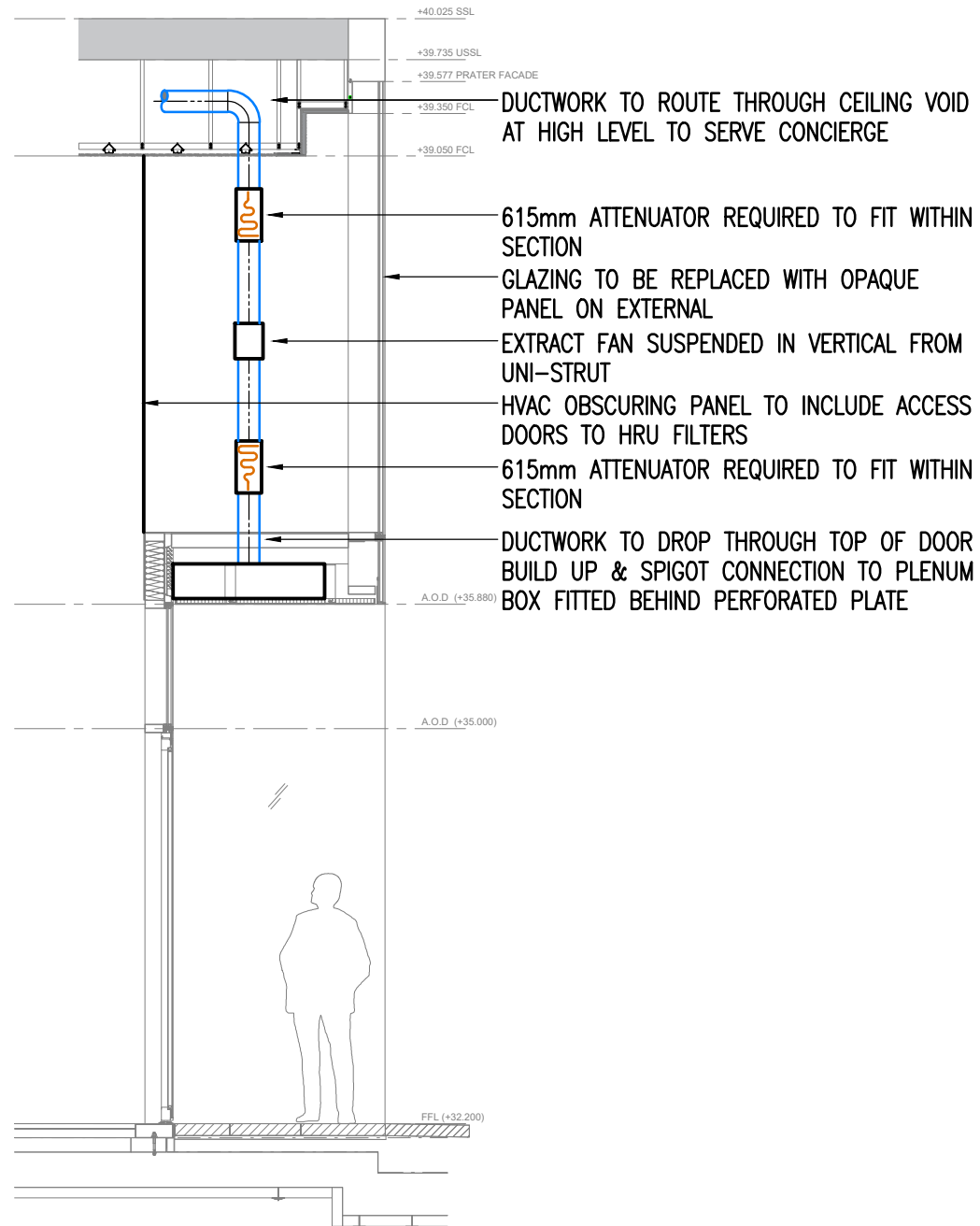
In some instances where very high levels of control are required combinations or sacrificial levels of filtration may be employed.

Maintenance must be carried out to ensure these performance levels are always achieved.

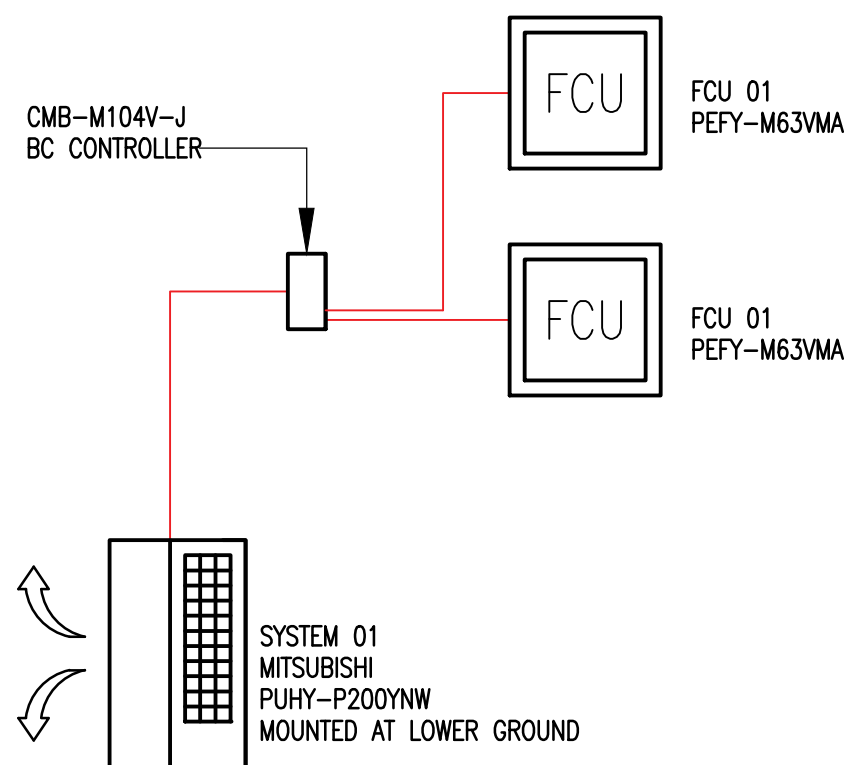
Appendix 3 – Ventilation Design Drawings



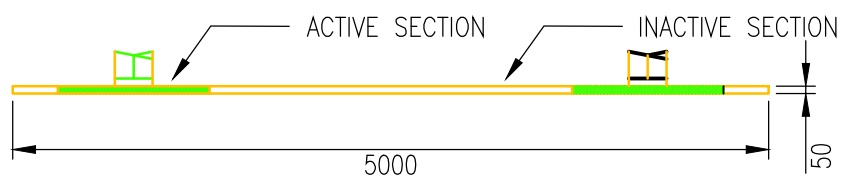
SECTION THROUGH DOOR



VRF – SCHEMATIC



DETAIL - TYPICAL SUPPLY DIFFUSER
NTS



PLENUMS/SPIGOTS TO BE SELECTED BY THE MANUFACTURER TO ACHIEVE THE THROWS BASED ON THE DATA IN THE SUPPLY GRILLE SCHEDULE.

MULTI-SPLIT DX AIR CONDITIONING													
REFERENCE	TYPE	No. OF	MANUFACTURER	SYSTEM	MOUNTING	COOLING LOAD (kW)	HEATING LOAD (kW)	AIR FLOW (l/s)	SIZE (LxHxD (mm))	WEIGHT (KG)	OUTDOOR UNIT	REFRIGERANT	NOTES
FCU 01	PEFY-M63VMA	2	mitsubishi	1	CEILING DUCTED	6.3	8.0	225~267	900x732x250	27	PURY-EP200YNW	R410A	EXTERNAL UNIT LOCATED AT LOWER GROUND

NOTES:

- This schedule shall be read in-conjunction with the specification and drawings
- Refer to Z4-WSP-Q523-PL-LG-001 for condenser locations
- The installer shall include for electrical isolation, control and power cables for both indoor and outdoor units
- All Equipment shall be supplied by MEUK approved VAR PCAIR NORTHWEST Ltd(Contact: Stuart Law 01942 252888 / 07875 195572 / stuart@pcair.co.uk) or equal and approved

HEAT RECOVERY UNIT SCHEDULE							
REFERENCE	TYPE	MANUFACTURER	EXTRACT FLOW RATE (m³/s)	PRESSURE DROP (Pa)	SIZE (LxHxD) (mm)	WEIGHT (KG)	NOTES
FAN 01	ACM150	VENT-AXIA	0.060	150	150x350	-	0.5
SUPPLIED WITH G4 EXTRACT FILTER CASSETTE							

NOTES:

- This schedule shall be read in-conjunction with the specification and drawings
- Where the final layout, based on the installation drawings, and equipment selections associated with the system varies from the tender documents the installer shall be responsible for calculating the final fan resistances
- The installer shall ensure the attenuator insertion losses are suitable for the final fan selection to achieve the required noise levels
- All fans shall be tested to the relevant standards and test certificates provided
- All fans and systems shall comply with the requirements of the Building Regulations

REFERENCE	TYPE	SIZE (LxHxD) (mm)	AIR FLOW (m ³ /s)	PRESSURE DROP	NOTES
ATT 01	ATOMSPHERE SIDE	615x300ø	0.060	<30	45dB(A) AT 5m
ATT 02	ROOM SIDE	615x300ø	1.060	<30	NR35 AT 1.5m

NOTES:

- This schedule shall be read in-conjunction with the specification and drawings
- The Contractor shall order the attenuators scheduled above, and shall send finalised drawings and equipment noise levels to the attenuator supplier to check the selections prior to manufacture.
- Pressure losses are stated in accordance with ISO 7235, which is based on laminar airflow conditions. The system designer shall make allowance for increased attenuator pressure losses where turbulent airflow conditions exist on the attenuator entry or exit.
- Unless stated otherwise all attenuators shall be constructed as follows: Galvanised steel steel casings with 30mm profile flanges that are fully compliant with DW/MTM at a high pressure rating (+2000/-750Pa). Profile flanges shall be compatible with Doby, Mez & Metu flanging systems.

GRILLE SCHEDULE								
REFERENCE	LOCATION	TYPE	AIR FLOW (m³/s)	WIDTH (mm)	LENGTH (mm)	MAX NR	PRESSURE DROP (Pa)	NOTES
SG 01	CAFE	LINEAR	0.160	600	135	40	<30	ACTIVE SECTION OF LINEAR SLOT ALONG FACADE VCD WITHIN GRILLE
EG 01	KITCHENETTE	VALVE	0.060	200Ø	n/a	40	<30	

NOTES:

- * This schedule shall be read in-conjunction with the specification and drawings
- * Acoustic performance of all grilles and diffusers shall be in accordance with BS EN ISO 5135 or other approved standard
- * Prior to ordering the installer shall verify the selection data
- * Diffusers shall be draught free and ensure the design of movement and room temperature gradient is not exceeded
- * The maximum velocity at 1.5m height shall not exceed 0.25 m/s
- * Air diffusion/grille pressure drops shall not be exceeded
- * All grilles and diffusers shall be provided with a neoprene or other sealing strip, complying with necessary fire standards, to provide a seal against the adjacent surface
- * Viable grilles and diffusers shall be secured by concealed fixings wherever possible
- * The room shall be capable of being easily cleaned and have removable covers as indicated
- * The room noise level rating shall not be exceeded with the system operating at maximum duty and taking into effect accumulative effects of grilles/diffusers

D01	21/08/20	JRH	RETAIL UNIT 3B - CAFE - STAGE 4A DESIGN	APL	DC
REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS: STAGE 4

STAGE 4

WS |

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RENAKER

LISTER & LISTER

OWEN STREET
MANCHESTER

MECHANICAL SERVICES
VENTILATION & HEATING SERVICES LAYOUT
TOWER C - GROUND FLOOR LEVEL

SCALE @ A1: 1:50	CHECKED: APL	APPROVED: DC
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PROJECT No.: 70013497	DESIGNED: APL	DRAWN: JRH	DATE: AUGUST 2020
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DRAWING No:	REV:
TC WSP C525 PL 00 003	D01

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