

46 HENRY STREET MANCHESTER

Ventilation Statement
P1983-POL-001 Rev D



NOVO

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AMENDMENT HISTORY



REVISION	DESCRIPTION	DATE	AUTHOR	CHECKED
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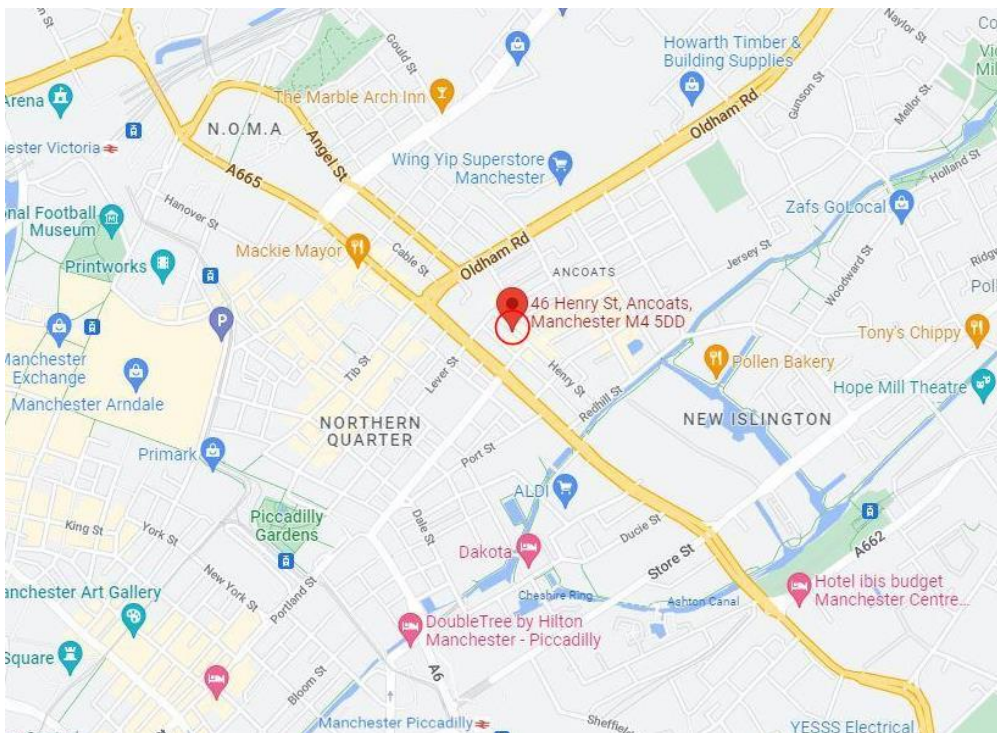
1 INTRODUCTION

NOVO Integration Ltd are appointed by Mere Development Group who has applied for full planning permission for a commercial development which is envisaged as a restaurant, the proposed development.

A 2-story restaurant is proposed for the building at 46 Henry Street, which is located in the Ancoats district of Manchester City Centre.

The development has proximity to amenity including retailers, cafes and restaurants. The development is also easily accessible from Great Ancoats Street and in between Manchester Victoria and Piccadilly train station. Figure 1 below shows a site plan/redline boundary displaying the development area and its situation within the city centre.

Figure 1 Site Location



1.1 PLANNING POLICY AND REGULATIONS

Our ventilation strategy will incorporate a summary from the entirety of the team's supporting technical work. It is critical that everyone ensures that their final report includes the following approach and content:

- Approved Document Part F 2013 (Current version) Ventilation
- Approved Document Part J 2013 (Current version) Combustion appliances and fuel storage systems
- BS 6644:2011 Specification for the installation and maintenance of gas-fired hot water boilers of rated inputs between 70 kW (net) and 1.8 MW (net) (2nd and 3rd family gases)
- EMAQ titled 'Control of Odour and Noise from Commercial Kitchen Exhaust Systems' dated
- September 2018

2 POLLUTANTS

Global concern for environmental pollution has risen in recent years, as concentrations of harmful pollutants in the atmosphere are increasing. Buildings have the potential to create major pollution both from their construction and operation, largely through pollution to the air (dust emissions, NO_x emissions, ozone depletion and global warming) but also through pollution to watercourses and ground water.

Poor air quality has a detrimental effect on humans, fauna and flora. Gases such as nitrous oxides (NO_x) can react with other gases and environmental factors including sunlight to create substances that have a major impact on health and wellbeing. The resulting substances can be highly detrimental to human health. They can be carcinogenic, affect respiratory function (including asthma and other bronchial complaints), have a sensitising effect for allergy sufferers and increase instances of heart disease. Legislation covering the UK sets maximum acceptable limits for measured air pollutants.

The proposed development will aim to minimise the above impacts, both at the design stage and on- site.

2.1 OZONE DEPLETION

CFCs and HCFCs, compounds commonly used in insulation materials and refrigerants, can cause long- term damage to the Earth's stratospheric ozone layer, exposing living organisms to harmful radiation from the sun. They also significantly increase global warming if they leak into the atmosphere. Following the Montreal Protocol, production and use of CFCs is no longer permitted and EC regulations will require phasing out of HCFCs by 2015. However, products that replace these gases are often still potent global warming contributors. Where refrigerants are used for air-conditioning and comfort cooling, they will be CFC and HCFC-free.

2.2 INTERNAL POLLUTANTS

Volatile organic compounds (VOCs) are emitted as gases (commonly referred to as offgassing) from certain solids or liquids. VOCs include a variety of chemicals, some of which are known to have short- term and long-term adverse health effects. Concentrations of many VOCs are consistently higher indoors (up to ten times higher) than outdoors. VOCs are emitted by a wide array of products numbering in the thousands.



Examples include paints and lacquers, paintstrippers, cleaning supplies, pesticides, building materials, furnishings, adhesives, Urea-formaldehyde foam insulation (UFFI), pressed wood products (hardwood plywood wall panelling, particleboard, fibreboard) and furniture made with these pressed wood products. 'No' or 'low' VOC paints are available from most standard mainstream paint manufacturers. These 'eco-friendly' paints are made from organic plant sources and powdered milk-based products. The design team will seek to select internal finishes and fittings with low or no emissions of VOCs and comply with European best practice levels as a minimum.

2.3 NOX EMISSIONS FROM BOILERS

Nitrous oxides (NO_x) are emitted from the burning of fossil fuels and contribute to both acid rain and to global warming in the upper atmosphere. At ground level, they react to form ozone, a serious pollutant and irritant at low level. Burners in heating systems are a significant source of low-level NO_x while power stations (and therefore electric heating) are a significant source of NO_x in the upper atmosphere.

The spaces within the proposed development will incorporate air source heat pump, electric heating to ancillary areas and back of house areas and electric point of use water heaters and showers, which will emit no NO_x at the sit

3 VENTILATION

3.1 RETAIL UNIT AREA

The commercial unit is to be a unit with a commercial kitchen area. The extract ventilation from the kitchen extract canopy shall be routed through to the external façade of the proposed development where it shall terminate on the roof of the building. Where required the respective fire compartmentation and ductwork shall be provided as well as attenuation.

Any kitchen ventilation shall be complete with fume, vapour and odour control. The strategy shall include risk assessments for odour and noise and be based on appropriate guidance such as that published by EMAQ titled 'Control of Odour and Noise from Commercial Kitchen Exhaust Systems' dated September 2018, to demonstrate that suitable mitigation measures will be installed between the kitchens and the extract point.

Details will also be provided in relation to replacement air during the detail design phase to ensure replacement air is also treated to not provide acoustic, odour and fire issues

The kitchen shall have dedicated mechanical supply and extract units to meet the demand of the kitchen appliances as detailed by a kitchen specialist in line with DW 172.

The design of the ventilation system shall be in line with the acoustic consultants recommendations to ensure compliance with MCC policy

A Survey has been carried out by JAMESON ACOUSTIC to assess the noise in accordance with BS 4142:2014.

This requires the following acoustic treatment of the ventilation plant.

Figure 2 Extract of Acoustic Consultants report

Receptor Location	Plant Noise Rating Limit, $L_{A,T,r}$ ref. BS 4142 (dB)	
	Daytime (07:00-23:00)	Night-time (23:00-07:00)
North (apartments over Henry Street)	43	36
South (adjacent apartment block)	38	34

The ventilation plant will be attenuated to suit the sites acoustic design criteria.

In addition the ventilation plant shall be located so it is as far as possible away from the neighbouring residential property

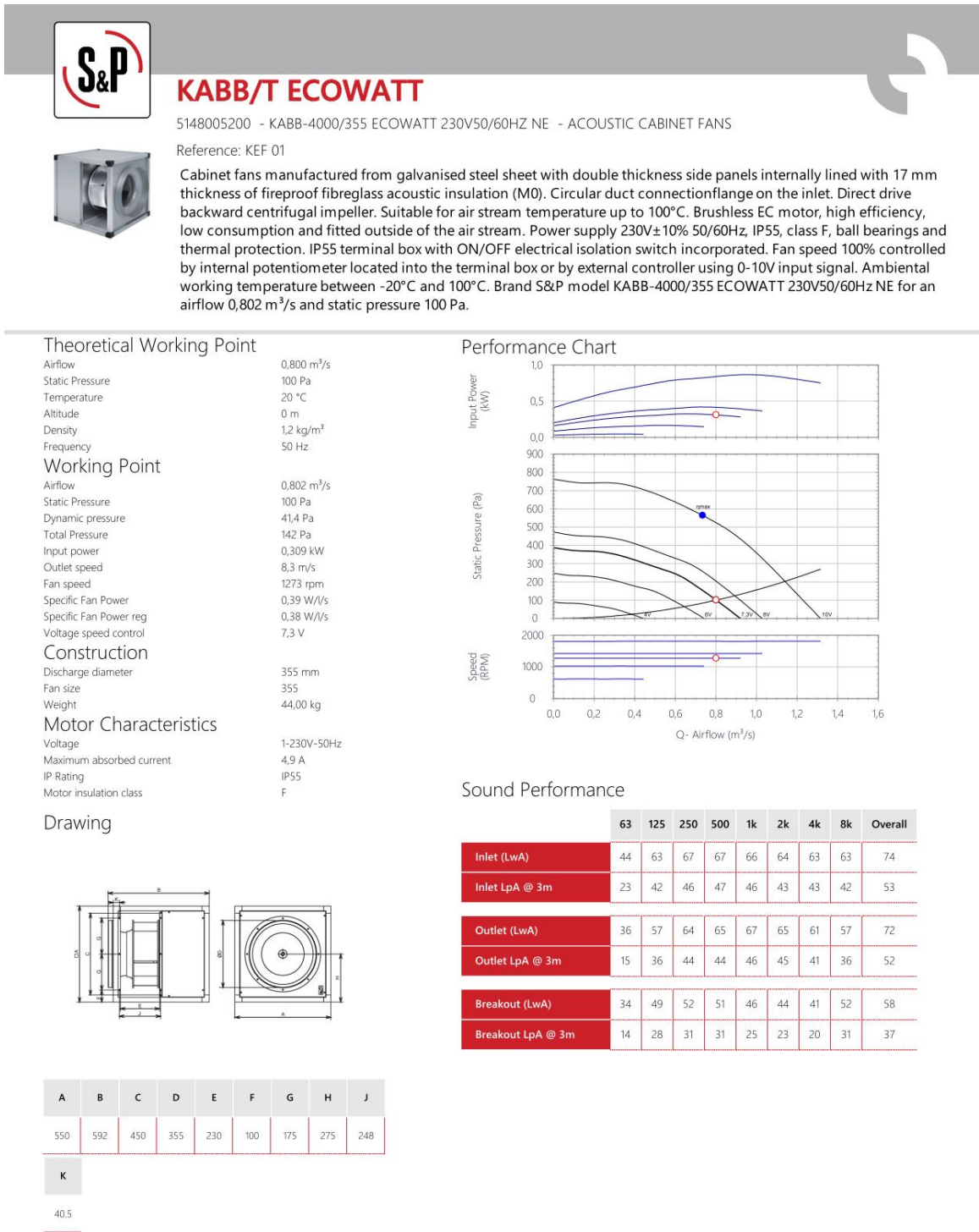
Figure 3 Indicative location of Ventilation Plant



3.1.1 KITCHEN EXTRACT SPECIFICATIONS

The kitchen extract fan, EF01 on the drawing above, has the following specification.

Figure 4 Indicative Kitchen Extract Fan Specification



3 VENTILATION



3.1.2 INDIATIVE KITCHEN EXTRACT SPECIFICATIONS

The kitchen extract fan attenuators, ATT01 and ATT02 on the drawing above, will be 1500mm long x 725mm wide x 500mm high. These shall be selected at Stage 4, but preliminary selections are from CAICE attenuators and are models LG01H/3C/L/S or equal and approved.

3.2 INDICATIVE AIR CONDITIONING UNITS

There shall be air conditioning to heat and cool each floor.

Preliminary selections are that these shall be the following units or equal an approved

R32



PLA-M INDOOR UNITS		PLA-M35EA	PLA-M50EA	PLA-M60EA	PLA-M71EA	PLA-M100EA	PLA-M125EA	PLA-M140EA
CAPACITY (kW)	Heating (nominal)	4.1 (1.0-5.0)	6.0 (1.5-7.2)	7.0 (1.6-8.0)	8.0 (2.0-10.2)	11.2 (2.8-12.5)	13.5 (4.1-15.0)	15.0 (4.2-15.8)
	Cooling (nominal)	3.6 (0.8-3.9)	5.5 (1.2-5.6)	6.1 (1.6-6.3)	7.1 (2.2-8.1)	9.5 (4.0-10.6)	12.1 (5.8-13.0)	13.4 (5.8-14.1)
	Heating (UK)	3.49 (0.85-4.26)	5.11 (1.28-6.13)	6.13 (1.36-6.81)	6.81 (1.70-8.68)	9.63 (2.41-10.75)	11.49 (3.49-12.77)	12.77 (3.57-13.45)
	Cooling (UK)	3.31 (0.74-3.60)	5.06 (1.10-5.15)	5.61 (1.47-5.80)	6.53 (2.02-7.45)	8.65 (3.64 - 9.65)	11.01 (5.28-11.83)	12.19 (5.28-12.83)
SHF (nominal)		0.91	0.77	0.79	0.74	0.77	0.72	0.70
COP / EER (nominal)		4.20 / 4.00	3.46 / 3.40	3.80 / 3.30	3.61 / 3.70	3.71 / 3.50	3.71 / 3.01	3.41 / 2.70
SCOP (nsh) / SEER (nsc) (BS EN14825)		4.70 / 7.40	4.10 / 6.70	4.40 / 6.60	4.50 / 7.50	4.60 / 7.00	4.1 (162%) / 5.6 (231.9%)	4.1 (161.3%) / 5.7 (232.7%)
ErP ENERGY EFFICIENCY CLASS	Heating/Cooling	A++ / A++	A+ / A++	A+ / A++	A+ / A++	A++ / A++	A+ / A+	A+ / A+
AIRFLOW (l/s)	Lo-Mi-Mi2-Hi	183-217-250-267	200-233-317-350	200-233-317-350	233-283-317-350	317-383-433-483	350-417-467-517	400-433-483-533
PIPE SIZE mm (in)	Gas/ Liquid	9.52 (3/8") / 6.35 (1/4")	12.7 (1/2") / 6.35 (1/4")	15.88 (5/8") / 6.35 (1/4")	15.88 (5/8") / 9.52 (3/8")	15.88 (5/8") / 9.52 (3/8")	15.88 (5/8") / 9.52 (3/8")	15.88 (5/8") / 9.52 (3/8")
SOUND PRESSURE LEVEL (dBA)	Lo-Mi-Mi2-Hi	26-28-29-31	27-29-31-32	27-29-31-32	28-30-32-34	31-34-37-40	33-37-41-44	36-39-42-44
SOUND POWER LEVEL (dBA)		51	54	54	56	61	65	65
DIMENSIONS (mm)	Width x Depth x Height (Grille)	840 (950) x 840 (950) x 258 (40)	840 (950) x 840 (950) x 258 (40)	840 (950) x 840 (950) x 258 (40)	840 (950) x 840 (950) x 258 (40)	840 (950) x 840 (950) x 298 (40)	840 (950) x 840 (950) x 298 (40)	840 (950) x 840 (950) x 298 (40)
WEIGHT (kg)	Unit / Panel	19 / 5	19 / 5	21 / 5	21 / 5	24 / 5	26 / 5	26 / 5
ELECTRICAL SUPPLY		Fed by Outdoor Unit	Fed by Outdoor Unit	Fed by Outdoor Unit	Fed by Outdoor Unit	Fed by Outdoor Unit	Fed by Outdoor Unit	Fed by Outdoor Unit
FUSE RATING (BS88) - HRC (A)		6	6	6	6	6	6	6
INTERCONNECTING CABLE No. CORES		4	4	4	4	4	4	4
GRILLE REFERENCE		PLP-6EA	PLP-6EA	PLP-6EA	PLP-6EA	PLP-6EA	PLP-6EA	PLP-6EA
WIRED REMOTE CONTROLLER REFERENCE		PAR-40MAA	PAR-40MAA	PAR-40MAA	PAR-40MAA	PAR-40MAA	PAR-40MAA	PAR-40MAA
WIRELESS REMOTE CONTROLLER REFERENCE		PAR-SL100A-E	PAR-SL100A-E	PAR-SL100A-E	PAR-SL100A-E	PAR-SL100A-E	PAR-SL100A-E	PAR-SL100A-E
SUZ-M / PUZ-M OUTDOOR UNITS		SUZ-M35VAR2	SUZ-M50VAR2	SUZ-M60VAR2	SUZ-M71VAR1	PUZ-M100VAR1	PUZ-M125VAR1	PUZ-M140VAR1
SOUND PRESSURE LEVEL (dBA)	Heating/Cooling	48 / 48	48 / 49	49 / 51	49 / 51	51 / 54	54 / 56	55 / 57
	Cooling	59	64	65	66	70	72	73
WEIGHT (kg)		35	41	54	55	76	84	84
DIMENSIONS (mm)	Width x Depth x Height	800 x 285 x 550	800 x 285 x 714	840 x 330 x 880	840 x 330 x 880	1050 x 330 x 981	1050 x 330 x 981	1050 x 330 x 981
ELECTRICAL SUPPLY		220-240v, 50Hz	220-240v, 50Hz	220-240v, 50Hz	220-240v, 50Hz	220-240v, 50Hz	220-240v, 50Hz	220-240v, 50Hz
PHASE		Single	Single	Single	Single	Single	Single	Single
SYSTEM POWER INPUT (kW)	Heating/Cooling (nominal)	0.97 / 0.90	1.73 / 1.61	1.84 / 1.84	2.21 / 1.91	3.01 / 2.71	3.63 / 4.01	4.39 / 4.96
	Heating/Cooling (UK)	0.83 / 0.77	1.47 / 1.39	1.56 / 1.58	1.88 / 1.64	2.71 / 2.50	3.27 / 3.33	3.59 / 4.12
STARTING CURRENT (A)		5.0	8.0	9.3	9.5	13.0	17.4	21.5
SYSTEM RUNNING CURRENT (A)	Heating/Cooling (MAX)	5.0 / 4.1 [8.5]	8.0 / 7.1 [13.5]	9.3 / 8.4 [14.8]	9.5 / 9.1 [14.8]	13.0 / 11.7 [20]	15.6 / 17.4 [26.5]	19.0 / 21.5 [30]
		10	20	20	20	32	32	40
FUSE RATING (BS88) - HRC (A)		10	20	20	20	32	32	40
MAINS CABLE No. CORES		3	3	3	3	3	3	3
MAX PIPE LENGTH (m)		20	30	30	30	55	65	65
MAX HEIGHT DIFFERENCE (m)		12	30	30	30	30	30	30
CHARGE REFRIGERANT (kg) / CO ₂ EQUIVALENT (t) - R32 (GWP 675)		0.90 / 0.61	1.20 / 0.81	1.25 / 0.84	1.45 / 0.98	3.10 / 2.09	3.60 / 2.43	3.60 / 2.43
MAX ADDITIONAL REFRIGERANT (kg) / CO ₂ EQUIVALENT (t) - R32 (GWP 675)		1.16 / 0.78	1.66 / 1.12	1.71 / 1.15	2.37 / 1.80	4.10 / 2.77	5.00 / 3.38	5.00 / 3.38

Note: No duty/standby operation on SUZ-M35/50/60/71VAR2/1.

3.3 LOCAL EXTRACT SYSTEMS

WC's and cleaners' stores shall be provided with local extract mechanical ventilation to extract stale air that is created by the use of these spaces.

Air volumes shall be as follows and fans shall be wall fans at the rear of the building to extract to atmosphere, again selected and attenuated to meet the acousticians requirements.

Figure 5 Extract of Approved Document Part F Local Extract Systems

Table 6.1a Extract ventilation rates

Room	Extract rate
Rooms containing printers and photocopiers in substantial use (greater than 30 minutes per hour)	Air extract rate of 20 l/s per machine during use. Note that, if the operators are in the room continuously, use the greater of the extract and whole building ventilation rates
Office sanitary accommodation and washrooms	Intermittent air extract rate of: 15 l/s per shower/bath 6 l/s per WC/urinal
Food and beverage preparation areas (not commercial kitchens)	Intermittent air extract rate of: 15 l/s with microwave and beverages only 30 l/s adjacent to the hob with cooker(s) 60 l/s elsewhere with cooker(s) All to operate while food and beverage preparation is in progress
Specialist buildings/spaces (e.g. commercial kitchens, sports centres)	See Table 6.3

3.4 PLANT AREAS

All plant areas shall be on the roof as described in this report.

3.5 SMOKE EXTRACT

Due to the size of the unit, there is not any smoke extract ventilation required.