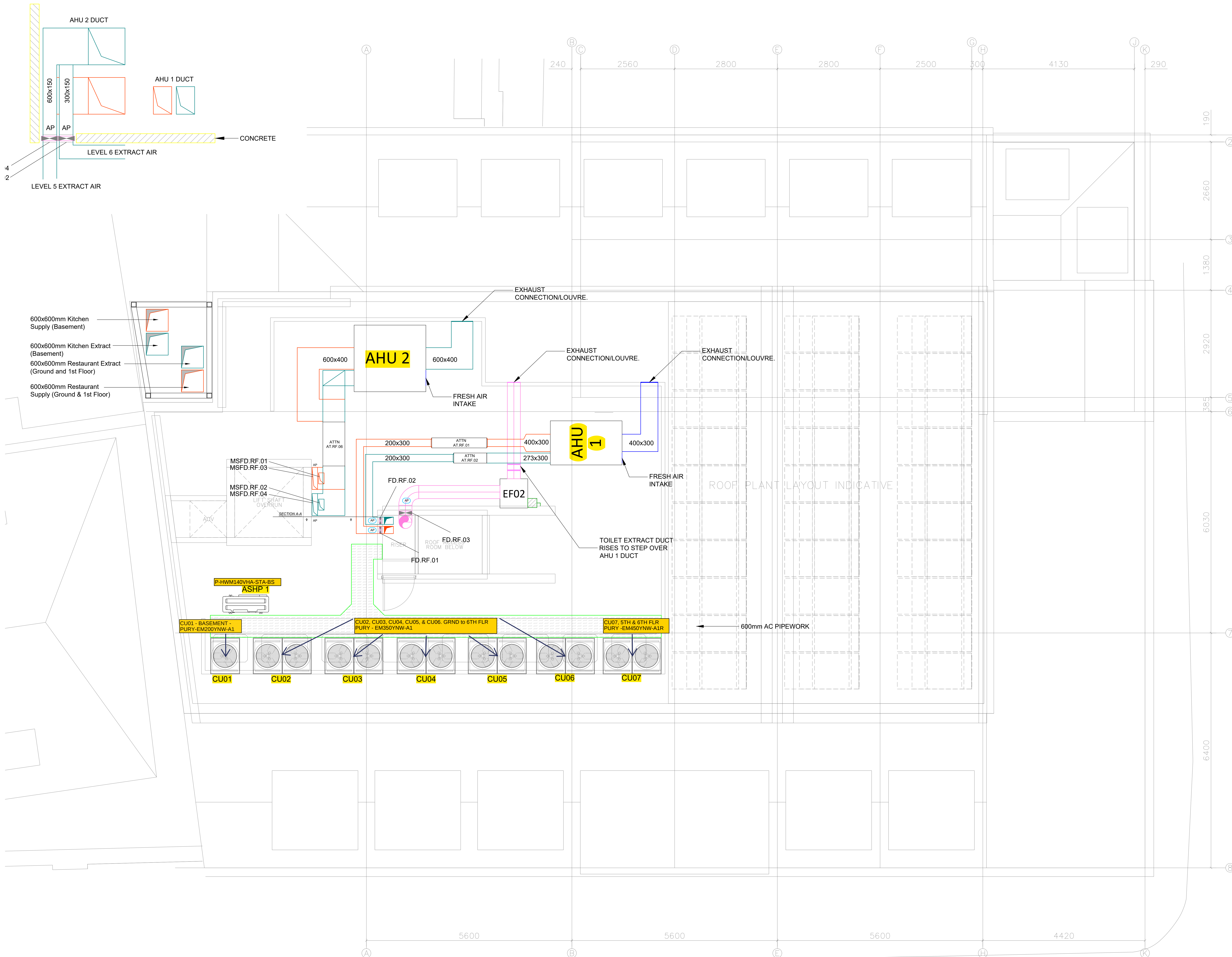




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THIS DRAWING HAS BEEN COMPILED USING THE FOLLOWING INFORMATION:

Groupworks - Roof		SS-C1	C01						
GS-GRW-XX-R-DR-A-1008									

GENERAL NOTES

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL
RELEVANT SERVICES SPECIFICATIONS AND, WHERE
APPLICABLE, ALL OTHER DRAWINGS & SPECIFICATIONS THAT
FORM PART OF THE CONTRACT FOR THE PROJECT.
- ANY DISCREPANCIES BETWEEN THIS DRAWING AND THE
SPECIFICATION, ENGINEERING SERVICES, ARCHITECTURAL OR
STRUCTURAL ENGINEERING DRAWINGS ARE TO BE BROUGHT
TO THE ATTENTION OF THE HOLMES PRIOR TO WORKS.
- THE DESIGN & INSTALLATION OF SERVICES SHALL BE
COORDINATED WITH ALL OTHER TRADES AND SITE
INSTALLATIONS.

PROJECT NOTES

- REFER TO HTSL TECHNICAL SUBMITTALS FOR FINAL SIZING OF
AIR HANDLING UNITS AND FANS.
- USE FLEXIBLE CONNECTIONS TO ALL AIR HANDLING UNITS
AND FANS.

LEGEND

- (MVHR) MECHANICAL VENTILATION
HEAT RECOVERY
- (FD) FIRE DAMPER
- (TR) DUCT TAPER
- (AT) ATTENUATOR
- (SD) SUPPLY DIFFUSER
- (VCD) VOLUME CONTROL DAMPER
- (AP) DUCT ACCESS PANEL
- (FC) FLEXIBLE CONNECTION

P02 'S3' - PRELIMINARY ISSUE.	22/04/21
P01 'S3' - PRELIMINARY ISSUE.	22/03/21
REF	REVISION DATE

PRELIMINARY



Holmes

Holmes Technical Services Limited
216-218 Main Road, Biggin Hill, Kent, TN16 3BD
Tel: 01959 447050
Email: enquiries@weareholmes.com

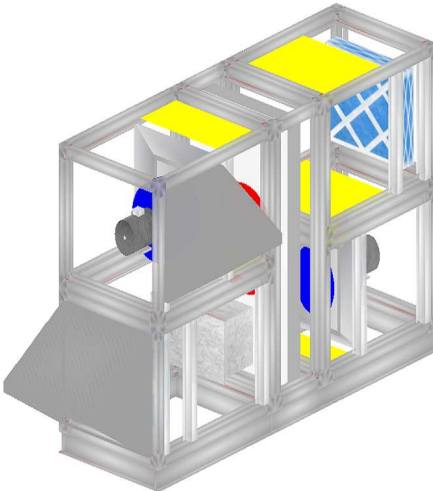
Project:
**20-23 GREVILLE STREET
LONDON, EC1N 8SS**

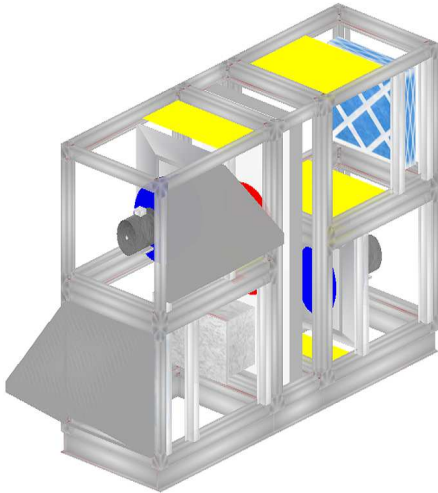
Title:
**VENTILATION SERVICES
ROOF LAYOUTS**

Date:	March 2021	Cad Ref:	-
Project No.:	20090	Scale:	1:50 @ A1
Eng.:	MK	Drawn:	SL
Drawing No.:	HTS-XX-RF-DR-M-57-107	Rev.:	P02

PROJECT DETAILS					
Project no	Q1182962\Rev-00\	Date	12 Oct 2020	Unit No	Q1182962-01-0
				Project Reference	20-23 Greville Street

UNIT DETAILS			
Unit Model	MAX11/B/SW/S		
Customer Reference	AHU.1		
Unit Location	External		
Access Side	Right		
Frame Construction	50mm Post - 50mm Panels		
Frame Finish	STD R7004 Powdercoated		
Panel Insulation	Mineral Wool - 50mm		
Panel Internal Sheet	Natural Galv. Steel - (0.8)		
Panel External Sheet	Std P/Coat Galv. Steel - (0.8)		
Roof Type	Twin Pitched Roof		
Roof Height	125 mm		
Base Frame	100mm Sheet Steel (2)		
Width	800 mm		
Height	1300 mm		
Length	2500 mm		
Weight Approx +-5%	465.3 kg		
Section Quantity	5		
	Supply Extract		
Duty	0.33	0.33	m³/s
External Pressure	200	200	Pa
Total Pressure	406	365	Pa
SFP	0.97	0.82	W/l/s
Unit Combined SFP	1.80		W/l/s
Unit Combined SFP With Inverter	1.86		W/l/s
Energy Classification			
Unit Rating & Performance To	EN13053:2006 +A1:2011		
Unit Mechanical Construction To	EN1886:2007		
Leakage Class	L2 to EN1886:2007		





SECTION WEIGHTS AND DIMENSIONS				
Section No	Width	Height	Length	Weight Approx +-5%
A	800 mm	650 mm	1050 mm	90 kg
B	800 mm	1300 mm	450 mm	99 kg
C	800 mm	650 mm	1000 mm	95 kg
D	800 mm	650 mm	1000 mm	81 kg
E	800 mm	650 mm	1050 mm	101 kg

SUPPLY SIDE SECTION A

001 INLET SECTION			
<u>Weather Hood Galv</u>			
Width	700 mm	Height	550 mm
Velocity	2.04 m/s	Pressure Drop	2.00 Pa
Finish	Painted	Position	Onair

002 PANEL FILTERS			
Stage #	1	Face Velocity	1.20 m/s
Type	Panel	Pressure Drop	11 Pa
Media	Cotton / Synthetic Fibre	Withdrawl	Side
Filter Grade	G4	Framework Material/Type	
Filter Type	AP	Spare Filters	None

EXTRAS			
ACCESSORIES			
Filter Pressure Switch - Fitted			

003 RIGID FILTERS			
Stage #	1	Face Velocity	1.92 m/s
Type	Rigid	Pressure Drop	54 Pa
Media	Glass Fibre Paper	Withdrawl	Front
Filter Grade	F7	Framework Material/Type	
Filter Type	RB7	Spare Filters	None

EXTRAS			
ACCESSORIES			
Filter Pressure Switch - Fitted			

DUAL SIDE SECTION B			
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004 HEAT WHEEL EXCHANGER			
Material	1=Galvanized	Drive Type	
Matrix Type	0=All	Rotor Speed	15
<u>Fresh Air</u>		<u>Extract Air</u>	
Air Volume	.33 m³/s	Air Volume	.33 m³/s
kW Rating	11.80 kW	kW Rating	11.80 kW
Efficiency	80.60 %	Efficiency	80.60 %
Pressure Drop	123.0	Pressure Drop	136.0
Inlet	Temperature -5.00 °C	Inlet	Temperature 21.00 °C
	Humidity 100.0 %		Humidity 50.0 %
Outlet	Temperature 16.00 °C	Outlet	Temperature 0.00 °C
	Humidity 52.00 %		Humidity 98.10 %

SUPPLY SIDE SECTION C			
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005 PLENUM	
Length	275.0 mm

006 SUPPLY PLENUM FAN - SINGLE FAN

Model	RH35V-ZIK.DC.1R-113466			Working RPM	1650 RPM			
Efficiency	40.0 %			Working Hz	33 Hz			
Sound Power	76 dbW			Maximum Hz	Hz			
Fan Blade Type	Backward Curve			Absorbed Power	0.34 kW			
Fan Finish	Standard			Motor Type:	EC (Speed Controller Included)			
Motor Power	1.25 kW			Motor Voltage	400			
FLC	1.65 A							
Frequency	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Inlet-db	81	80	72	68	61	58	52	50
Outlet-db	80	81	76	72	71	66	60	54

EXTRAS**ACCESSORIES**

Airflow Pressure Switch - Fitted

ELGN1050 Motor Isolator Supplied Fitted & Pre-Wired

NOTES

The fan and motor sit on a common sub-frame within the casing that is fully vibration isolated.

The fan has a fitted inlet flexible connection.

Where this unit has to pass through restricted access ways, it may be necessary to supply the fan section in more than one piece. This will then require the fan/motor assembly and casing to be bolted together on-site by others.

007 OUTLET SECTION**50mm Spigot Galv**

Width	700 mm	Height	550 mm
Velocity	2.04 m/s	Pressure Drop	0.00 Pa
Finish	Painted	Position	Ofair

EXHAUST SIDE SECTION D**008 INLET SECTION****50mm Spigot Galv**

Width	700 mm	Height	550 mm
Velocity	2.04 m/s	Pressure Drop	0.00 Pa
Finish	Painted	Position	Onair

009 PANEL FILTERS

Stage #	1	Face Velocity	1.20 m/s
Type	Panel	Pressure Drop	23 Pa
Media	Cotton / Synthetic Fibre	Withdrawal	Side
Filter Grade	M6	Framework Material/Type	
Filter Type	AP	Spare Filters	None

EXTRAS**ACCESSORIES**

Filter Pressure Switch - Fitted

0010 SPACE FOR FITTED CONTROLS

Length	600.0 mm
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EXHAUST SIDE SECTION E**0011 PLENUM**

Length	325.0 mm
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0012 EXHAUST PLENUM FAN - SINGLE FAN

Model	GR35C-ZID.DC.CR-115500/A01			Working RPM			1453 RPM	
Efficiency	43.7 %			Working Hz			23 Hz	
Sound Power	72 dbW			Maximum Hz			Hz	
Fan Blade Type	Backward Curve			Absorbed Power			0.28 kW	
Fan Finish	Standard			Motor Type:			EC (Speed Controller Included)	
Motor Power	3.00 kW			Motor Voltage			400	
FLC	3.80 A							
Frequency	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Inlet-db	75	74	66	62	57	56	51	44
Outlet-db	76	76	70	66	67	63	57	50

EXTRAS**ACCESSORIES**

Airflow Pressure Switch - Fitted

ELGN1050 Motor Isolator Supplied Fitted & Pre-Wired

NOTES

The fan and motor sit on a common sub-frame within the casing that is fully vibration isolated.

The fan has a fitted inlet flexible connection.

Where this unit has to pass through restricted access ways, it may be necessary to supply the fan section in more than one piece. This will then require the fan/motor assembly and casing to be bolted together on-site by others.

0013 OUTLET SECTION**Weather Hood Galv**

Width	500 mm	Height	500 mm
Velocity	1.30 m/s	Pressure Drop	5.00 Pa
Finish	Painted	Position	Lfair

AHU ACOUSTIC DATA**Connection Noise Spectra - Supply Section**

Frequency	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	Overall dB
Inlet Linear Sound Pressure Level L _p dB	72	69	58	55	45	42	30	19	57
Outlet Linear Sound Pressure Level L _p dB	78	77	70	67	68	63	57	51	72

Connection Noise Spectra - Extract Section

Frequency	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	Overall dB
Inlet Linear Sound Pressure Level L _p dB	69	65	56	53	47	48	40	29	56
Outlet Linear Sound Pressure Level L _p dB	74	72	64	61	64	60	54	47	67

Casing Noise Breakout Spectrum at 3m Distance

Frequency	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Supply Fan Power Spectrum L _w dB	80	81	76	72	71	66	60	54
Extract Fan Power Spectrum L _w dB	76	76	70	66	67	63	57	50
Combined Fan Power Spectrum L _w dB	81	82	77	73	72	68	62	55
Case Insertion Reduction	13	17	18	35	39	39	38	38
Reduction for 3m Distance	18	18	18	18	18	18	18	18
Resultant Linear Sound Pressure Level at 3m L _p dB	51	48	41	20	16	11	6	0
NR Level at 3m	32							
Resultant A-Weighted Sound Pressure Level at 3m L _p dBA	25	32	32	17	16	12	7	-1

PROJECT DETAILS

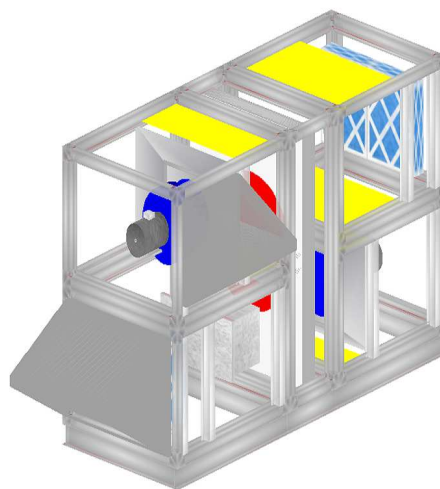
Project no	Q1182962\Rev-00\	Date	12 Oct 2020	Unit No	Q1182962-02-0	Project Reference	20-23 Greville Street
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UNIT DETAILS

Unit Model	MAX15/B/SW/S
Customer Reference	AHU.2
Unit Location	External
Access Side	Right
Frame Construction	50mm Post - 50mm Panels
Frame Finish	STD R7004 Powdercoated
Panel Insulation	Mineral Wool - 50mm
Panel Internal Sheet	Natural Galv. Steel - (0.8)
Panel External Sheet	Std P/Coat Galv. Steel - (0.8)



Roof Type	Twin Pitched Roof
Roof Height	125 mm
Base Frame	100mm Sheet Steel (2)
Width	950 mm
Height	1300 mm
Length	2500 mm
Weight Approx +-5%	519.7 kg
Section Quantity	5



	Supply Extract		
Duty	0.59	0.59	m ³ /s
External Pressure	200	200	Pa
Total Pressure	600	456	Pa

SFP	1.06	0.88	W/l/s
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Unit Combined SFP	1.93	W/l/s
Unit Combined SFP With Inverter	2.00	W/l/s

Energy Classification

Unit Rating & Performance To	EN13053:2006 +A1:2011
Unit Mechanical Construction To	EN1886:2007
Leakage Class	L2 to EN1886:2007

SECTION WEIGHTS AND DIMENSIONS

Section No	Width	Height	Length	Weight Approx +-5%
A	950 mm	650 mm	1050 mm	98 kg
B	950 mm	1300 mm	450 mm	119 kg
C	950 mm	650 mm	1000 mm	103 kg
D	950 mm	650 mm	1000 mm	90 kg
E	950 mm	650 mm	1050 mm	111 kg

SUPPLY SIDE SECTION A

001 INLET SECTION			
<u>Weather Hood Galv</u>			
Width	850 mm	Height	550 mm
Velocity	1.27 m/s	Pressure Drop	5.00 Pa
Finish	Painted	Position	Onair

002 PANEL FILTERS			
Stage #	1	Face Velocity	1.78 m/s
Type	Panel	Pressure Drop	25 Pa
Media	Cotton / Synthetic Fibre	Withdrawl	Side
Filter Grade	G4	Framework Material/Type	
Filter Type	AP	Spare Filters	None

EXTRAS			
ACCESSORIES			
Filter Pressure Switch - Fitted			

003 RIGID FILTERS			
Stage #	1	Face Velocity	3.50 m/s
Type	Rigid	Pressure Drop	178 Pa
Media	Glass Fibre Paper	Withdrawl	Front
Filter Grade	F7	Framework Material/Type	
Filter Type	RB7	Spare Filters	None

EXTRAS			
ACCESSORIES			
Filter Pressure Switch - Fitted			

DUAL SIDE SECTION B			
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004 HEAT WHEEL EXCHANGER			
Material	1=Galvanized	Drive Type	
Matrix Type	0=All	Rotor Speed	15
<u>Fresh Air</u>		<u>Extract Air</u>	
Air Volume	.59 m³/s	Air Volume	.59 m³/s
kW Rating	21.70 kW	kW Rating	21.70 kW
Efficiency	81.10 %	Efficiency	81.10 %
Pressure Drop	169.0	Pressure Drop	186.0
Inlet	Temperature	Inlet	Temperature
	Humidity		Humidity
	Temperature		Temperature
Outlet	Humidity	Outlet	Humidity
	52.70 %		99.00 %

SUPPLY SIDE SECTION C			
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005 PLENUM	
Length	275.0 mm

006 SUPPLY PLENUM FAN - SINGLE FAN

Model	RH35V-ZIK.DC.1R-113466			Working RPM			2088 RPM	
Efficiency	51.6 %			Working Hz			42 Hz	
Sound Power	80 dbW			Maximum Hz			Hz	
Fan Blade Type	Backward Curve			Absorbed Power			0.71 kW	
Fan Finish	Standard			Motor Type:			EC (Speed Controller Included)	
Motor Power	1.25 kW			Motor Voltage			400	
FLC	1.65 A							
Frequency	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Inlet-db	76	74	73	72	65	62	57	55
Outlet-db	75	76	77	76	75	73	66	59

EXTRAS**ACCESSORIES**

Airflow Pressure Switch - Fitted

ELGN1050 Motor Isolator Supplied Fitted & Pre-Wired

NOTES

The fan and motor sit on a common sub-frame within the casing that is fully vibration isolated.

The fan has a fitted inlet flexible connection.

Where this unit has to pass through restricted access ways, it may be necessary to supply the fan section in more than one piece. This will then require the fan/motor assembly and casing to be bolted together on-site by others.

007 OUTLET SECTION**50mm Spigot Galv**

Width	850 mm	Height	550 mm
Velocity	1.27 m/s	Pressure Drop	1.00 Pa
Finish	Painted	Position	Ofair

EXHAUST SIDE SECTION D**008 INLET SECTION****50mm Spigot Galv**

Width	850 mm	Height	550 mm
Velocity	1.27 m/s	Pressure Drop	1.00 Pa
Finish	Painted	Position	Onair

009 PANEL FILTERS

Stage #	1	Face Velocity	1.78 m/s
Type	Panel	Pressure Drop	50 Pa
Media	Cotton / Synthetic Fibre	Withdrawal	Side
Filter Grade	M6	Framework Material/Type	
Filter Type	AP	Spare Filters	None

EXTRAS**ACCESSORIES**

Filter Pressure Switch - Fitted

0010 SPACE FOR FITTED CONTROLS

Length	600.0 mm
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EXHAUST SIDE SECTION E**0011 PLENUM**

Length	325.0 mm
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0012 EXHAUST PLENUM FAN - SINGLE FAN

Model	RH35V-ZIK.DC.1R-113466	Working RPM	1874 RPM
Efficiency	53.1 %	Working Hz	37 Hz
Sound Power	77 dbW	Maximum Hz	Hz
Fan Blade Type	Backward Curve	Absorbed Power	0.53 kW
Fan Finish	Standard	Motor Type:	EC (Speed Controller Included)
Motor Power	1.25 kW	Motor Voltage	400
FLC	1.65 A		

Frequency	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Inlet-db	70	70	70	69	62	60	54	55
Outlet-db	70	72	73	72	72	71	62	57

EXTRAS

ACCESSORIES

Airflow Pressure Switch - Fitted

ELGN1050 Motor Isolator Supplied Fitted & Pre-Wired

NOTES

The fan and motor sit on a common sub-frame within the casing that is fully vibration isolated.

The fan has a fitted inlet flexible connection.

Where this unit has to pass through restricted access ways, it may be necessary to supply the fan section in more than one piece. This will then require the fan/motor assembly and casing to be bolted together on-site by others.

0013 OUTLET SECTION

Weather Hood Galv

Width	500 mm	Height	500 mm
Velocity	2.38 m/s	Pressure Drop	17.00 Pa
Finish	Painted	Position	Lfair

AHU ACOUSTIC DATA

Connection Noise Spectra - Supply Section

Frequency	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	Overall dB
Inlet Linear Sound Pressure Level L _p dB	67	63	59	59	49	46	35	24	58
Outlet Linear Sound Pressure Level L _p dB	73	72	71	71	72	70	63	56	76

Connection Noise Spectra - Extract Section

Frequency	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	Overall dB
Inlet Linear Sound Pressure Level L _p dB	64	61	60	60	52	52	43	40	60
Outlet Linear Sound Pressure Level L _p dB	68	68	67	67	69	68	59	54	73

Casing Noise Breakout Spectrum at 3m Distance

Frequency	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Supply Fan Power Spectrum L _w dB	75	76	77	76	75	73	66	59
Extract Fan Power Spectrum L _w dB	70	72	73	72	72	71	62	57
Combined Fan Power Spectrum L _w dB	76	77	78	77	77	75	67	61
Case Insertion Reduction	13	17	18	35	39	39	38	38
Reduction for 3m Distance	18	18	18	18	18	18	18	18
Resultant Linear Sound Pressure Level at 3m L _p dB	46	43	43	25	20	19	12	6
NR Level at 3m	33							
Resultant A-Weighted Sound Pressure Level at 3m L _p dBA	20	27	34	22	20	20	13	5

Air Conditioning

Product Information

R32 HVRF R2 Series High Efficiency (22.4-56kW)
Simultaneous Heating and Cooling with
Heat Recovery Outdoor Unit

Making a
World of
Difference

R32

Basement
CU01

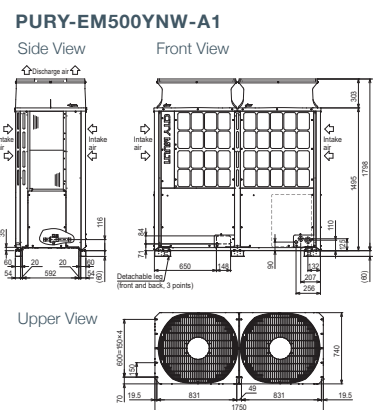
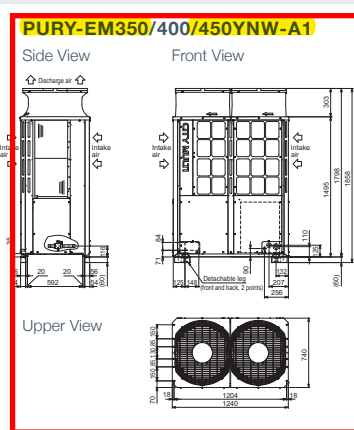
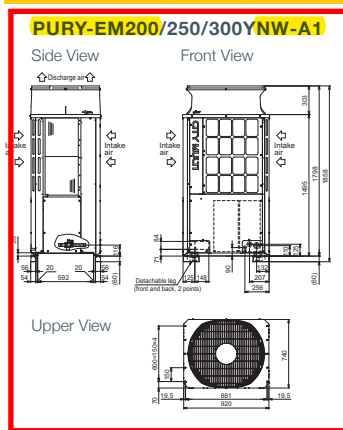
Grnd to 6th floor
CU02, CU03, CU04,
CU05 & CU06

5th & 6th Floor
CU07

OUTDOOR UNITS		PURY-EM200YNW-A1	PURY-EM250YNW-A1	PURY-EM300YNW-A1	PURY-EM300YNW-A1 X 2HBC	PURY-EM350YNW-A1	PURY-EM350YNW-A1 X 2HBC	PURY-EM400YNW-A1	PURY-EM450YNW-A1	PURY-EM500YNW-A1
CAPACITY (kW)	Heating (nominal)	25.0	31.5	37.5	37.5	45.0	45.0	50.0	56.0	58.0
	Cooling (nominal)	22.4	28.0	33.5	33.5	40.0	40.0	45.0	50.0	56.0
	High Performance Heating (UK)	25.0	31.5	37.5	37.5	42.8	42.8	47.5	50.4	52.2
	COP Priority Heating (UK)	22.8	28.7	32.3	32.3	38.7	38.7	43.0	49.3	51.0
	Cooling (UK)	20.1	25.1	30.0	30.0	35.8	35.8	40.3	44.8	50.1
POWER INPUT (kW)	Heating (nominal)	6.23	8.84	10.46	9.93	13.10	12.16	13.88	15.77	17.45
	Cooling (nominal)	5.13	7.69	10.03	8.52	13.91	11.33	13.84	15.24	18.06
	High Performance Heating (UK)	7.54	10.70	14.33	13.60	17.95	16.66	16.10	18.29	20.24
	COP Priority Heating (UK)	6.23	8.84	10.46	9.93	13.10	12.16	13.46	15.30	16.93
	Cooling (UK)	2.98	4.46	5.82	4.94	8.07	6.57	9.00	9.91	11.74
COP / EER (nominal)		4.01 / 4.36	3.56 / 3.64	3.58 / 3.33	3.77 / 3.93	3.43 / 2.87	3.70 / 3.53	3.60 / 3.25	3.55 / 3.28	3.61 / 3.10
SCOP / SEER*		-	-	-	-	-	-	-	-	-
MAX No. OF CONNECTABLE INDOOR UNITS		30	37	45	45	35	35	40	45	50
MAX CONNECTABLE CAPACITY		50-150% OU Capacity	50-150% OU Capacity	50-150% OU Capacity	50-150% OU Capacity	50-150% OU Capacity	50-150% OU Capacity	50-150% OU Capacity	50-150% OU Capacity	50-150% OU Capacity
AIRFLOW (m³/min)		170	185	240	240	250	250	315	315	295
PIPE SIZE mm (in)	Gas	19.05 (3/4")	22.2 (7/8")	22.2 (7/8")	22.2 (7/8")	28.58 (1-1/8")	28.58 (1-1/8")	28.58 (1-1/8")	28.58 (1-1/8")	28.58 (1-1/8")
	Liquid	15.88 (5/8")	15.88 (5/8")	15.88 (5/8")	15.88 (5/8")	15.88 (5/8")	15.88 (5/8")	10.06 (3/4")	10.06 (3/4")	10.06 (3/4")
SOUND PRESSURE LEVEL (dBA)		Heating / Cooling	59.0 / 59.0	61.0 / 60.5	67.0 / 61.0	64.0 / 62.5	64.0 / 62.5	69.0 / 65.0	70.0 / 65.5	64.5 / 63.5
SOUND POWER LEVEL (dBA)		Heating / Cooling	78.0 / 76.0	80.0 / 78.5	86.5 / 80.0	83.0 / 81.0	83.0 / 81.0	88.0 / 83.0	89.0 / 83.0	84.0 / 82.0
DIMENSIONS (mm)		Width	920	920	920	920	1240	1240	1240	1750
		Depth	740	740	740	740	740	740	740	740
		Height (1798mm without legs)	1858	1858	1858	1858	1858	1858	1858	1858
ELECTRICAL SUPPLY*1		380-415v, 50Hz	380-415v, 50Hz	380-415v, 50Hz	380-415v, 50Hz	380-415v, 50Hz	380-415v, 50Hz	380-415v, 50Hz	380-415v, 50Hz	380-415v, 50Hz
PHASE*1		Three	Three	Three	Three	Three	Three	Three	Three	Three
STARTING CURRENT (A)*1		8	8	8	8	8	8	8	8	8
NOMINAL SYSTEM RUNNING CURRENT (A)*1 Heating/Cooling [MAX]		9.9 / 8.2 [16.1]	14.1 / 12.3 [21.8]	16.7 / 16.0 [23.9]	15.9 / 13.6 [23.9]	21.0 / 22.3 [30.0]	19.5 / 18.1 [30.0]	22.2 / 22.1 [35.9]	25.2 / 24.4 [36.9]	27.9 / 28.9 [46.9]
GUARANTEED OPERATING RANGE (°C) Heating / Cooling		-20~-15.5 / -5~-52	-20~-15.5 / -5~-52	-20~-15.5 / -5~-52	-20~-15.5 / -5~-52	-20~-15.5 / -5~-52	-20~-15.5 / -5~-52	-20~-15.5 / -5~-52	-20~-15.5 / -5~-52	-20~-15.5 / -5~-52
FUSE RATING (MCB sizes BS EN 60947-2) - (A)*1		1 x 20	1 x 25	1 x 25	1 x 25	1 x 32	1 x 32	1 x 40	1 x 40	1 x 50
MAINS CABLE No. Cores*1		4	4	4	4	4	4	4	4	4
CHARGE REFRIGERANT (kg) / CO ₂ EQUIVALENT (t) R32 (GWP 675)		5.2 / 3.5	5.2 / 3.5	5.2 / 3.5	5.2 / 3.5	8 / 5.4	8 / 5.4	8 / 5.4	10.8 / 7.3	10.8 / 7.3
MAX ADDITIONAL REFRIGERANT (kg) / CO ₂ EQUIVALENT (t) R32 (GWP 675)		13.5 / 9.1	13.5 / 9.1	15.5 / 10.5	15.5 / 10.5	15.5 / 10.5	15.5 / 10.5	19.5 / 13.2	19.5 / 13.2	19.5 / 13.2

Notes: *SEER/SCOP available separately in the 'City Multi VRF Seasonal Efficiency' document. Based on Ecodesign Lot 21/6 to EN14825 standard. *1 A separate power supply is required for each module. Where more than one figure is quoted there are multiple modules. Specification subject to change. R410A equivalent systems are also available - please contact your local sales office for further information.

PRODUCT DIMENSIONS



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Notes: The fuse rating is for guidance only. Please refer to the relevant databook for detailed specification. It is the responsibility of a qualified electrician/electrical engineer to select the correct cable size and fuse rating based on current regulation and site specific conditions. Mitsubishi Electric's air conditioning equipment and heat pump systems contain a fluorinated greenhouse gas, R410A (GWP:2088), R32 (GWP:675), R407C (GWP:1774) or R134a (GWP:1430). *These GWP values are based on Regulation (EU) No 517/2014 from IPCC 4th edition. In case of Regulation (EU) No.626/2011 from IPCC 3rd edition, these are as follows: R410A (GWP:1975), R32 (GWP: 550), R407C (GWP:1650) or R134a (GWP:1300).



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Effective as of February 2019

OUTDOOR UNIT		PUZ-HWM140VHA(-BS)
HEAT PUMP SPACE HEATER - 55°C	ErP Rating	A++
	η_s	131%
	SCOP (MCS)	3.35
HEAT PUMP SPACE HEATER - 35°C	ErP Rating	A+++
	η_s	176%
	SCOP (MCS)	4.48
HEAT PUMP COMBINATION HEATER - Large Profile ¹	ErP Rating	A+
	η_{wh}	130%
HEATING ² (A-7/W35)	Capacity (kW)	14
	Power Input (kW)	5.71
	COP	2.45
OPERATING AMBIENT TEMPERATURE (°C DB)		-28 ~ +35
SOUND DATA ³	Pressure Level at 1m (dBA)	53
	Power Level (dBA) ⁴	67
WATER DATA	Pipework Size (mm)	28
	Flow Rate (l/min)	40.1
	Water Pressure Drop (kPa)	20
DIMENSIONS (mm)	Width	1020
	Depth	330 + 30 ⁷
	Height	1350
WEIGHT (kg)		132
ELECTRICAL DATA	Electrical Supply	220-240v, 50Hz
	Phase	Single
	Nominal Running Current [MAX] (A) ⁵	TBC [35]
	Fuse Rating - MCB Sizes (A) ⁶	40
REFRIGERANT CHARGE (kg) / CO ₂ EQUIVALENT (t)	R32 (GWP 675)	3.3

Notes:

*1 Combination with E*PT20X Cylinder

*2 Under normal heating conditions at outdoor temp: -7°CDB / -8°CWB, outlet water temp 35°C, inlet water temp 30°C.

*3 Under normal heating conditions at outdoor temp: 7°CDB / 6°CWB, outlet water temp 55°C, inlet water temp 47°C as tested to BS EN14511.

Low Noise mode accessory (reference PAC-SA89TA-EP) available for VHA chassis.

*4 Sound power level tested to BS EN12102.

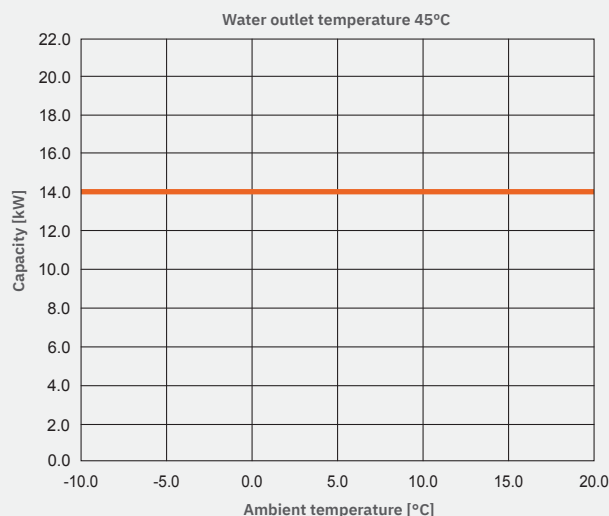
*5 Under nominal heating conditions at outdoor temp: 7°C, outlet water temp: 35°C.

*6 MCB Sizes BS EN60898-2 & BS EN60947-2.

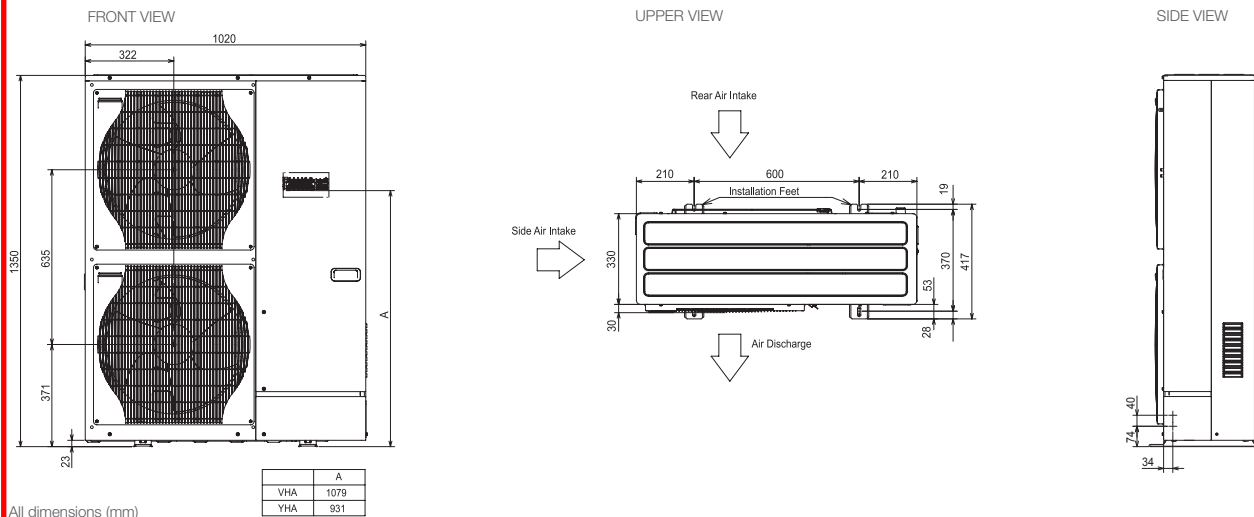
*7 Grille.

η_s is the seasonal space heating energy efficiency (SSHEE) η_{wh} is the water heating energy efficiency

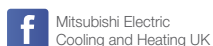
NOMINAL HEATING CAPACITY



PUZ-HWM140VHA(-BS) DIMENSIONS



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Note: The fuse rating is for guidance only. Please refer to the relevant databook for detailed specification. It is the responsibility of a qualified electrician/electrical engineer to select the correct cable size and fuse rating based on current regulation and site specific conditions. Mitsubishi Electric's air conditioning equipment and heat pump systems contain a fluorinated greenhouse gas, R410A (GWP:2088), R32 (GWP:675), R407C (GWP:1774), R134a (GWP:1430), R513A (GWP:631), R454B (GWP:466), R1234ze (GWP:7) or R1234yf (GWP:4). *These GWP values are based on Regulation (EU) No 517/2014 from IPCC 4th edition. In case of Regulation (EU) No.626/2011 from IPCC 3rd edition, these are as follows. R410A (GWP:1975), R32 (GWP:550), R407C (GWP:1650) or R134a (GWP:1300).

Effective as of September 2020



Project :	20-23 Greville Street							Project No	M20090						
Location:	Greville Street, London							Date	28.03.21						
Schedule	HVRF OUTDOOR UNITS														
Service :	Mechanical	HTS-XX-ZZ-SH-M-50-001													
REFERENCE	LEVEL SERVICED	LOCATION	ASSOCIATED BC BOX	NOMINAL HEATING	NOMINAL COOLING	COP / EER	REFRIGERENT	MODEL	SOUND PRESSURE LEVEL	SOUND POWER LEVEL	WxDxH	WEIGHT	ELECTRICAL SUPPLY	RUN CURRENT (heat/cool)	COMMENTS
CU B01	BASEMENT	ROOF	BCBOX B-01	25kW	22.4	4.01 / 4.36	R32	PURY-EM200YNW-A1	59.0 / 59.0	78.0 / 76.0	920 x 740 x 1858	231Kg	400V/20A/50Hz	9.9/8.2	
CU G-02	GROUND	ROOF	BCBOX G-01	45kW	40	3.58 / 3.33	R32	PURY-EM350YNW-A1	64.0 / 62.5	83.0 / 81.0	1240 x 740 x 1858	276Kg	400V/20A/50Hz	21.0/22.3	
CU 1-03	FIRST	ROOF	BCBOX 1-01	45kW	40	3.56 / 3.64	R32	PURY-EM350YNW-A1	64.0 / 62.5	83.0 / 81.0	1240 x 740 x 1858	276Kg	400V/20A/50Hz	21.0/22.3	
CU 2-04	SECOND	ROOF	BCBOX 2-01	45kW	40	3.43 / 2.87	R32	PURY-EM350YNW-A1	64.0 / 62.5	83.0 / 81.0	1240 x 740 x 1858	276Kg	400V/20A/50Hz	21.0/22.3	
CU 3-05	THIRD	ROOF	BCBOX 3-01	45kW	40	3.43 / 2.87	R32	PURY-EM350YNW-A1	64.0 / 62.5	83.0 / 81.0	1240 x 740 x 1858	276Kg	400V/20A/50Hz	21.0/22.3	
CU 4-06	FORTH	ROOF	BCBOX 4-01	45kW	40	3.43 / 2.87	R32	PURY-EM350YNW-A1	64.0 / 62.5	83.0 / 81.0	1240 x 740 x 1858	276Kg	400V/20A/50Hz	21.0/22.3	
CU 5/6-07	FIFTH & SIXTH	ROOF	BCBOX 5-01	56kW	50	3.58 / 3.28	R32	PURY-EM450YNW-A1	70.0 / 65.5	89.0 / 83.0	1240 x 740 x 1858	305Kg	400V/40A/50Hz	25.2/24.4	

Notes

- All HVRF Outdoor Units shall be supplied by Mitsubishi Electric
- Adequate provision should be made to prevent condensate from collecting around the outdoor units. A soak away, drip tray or drain socket set can be used.
- The HVRF outdoor unit must be installed on anti-vibration mounts. Rubber mounting blocks are recommended.

Project :	20-23 Greville Street						Project No	M20090					
Location:							Date	28.03.21					
Schedule	Heat Pumps Schedule												
Service :	Mechanical	HTS-XX-ZZ-SH-M-50-002											
REFERENCE	SERVING	LOCATION	HEATING LOAD	MIN FLOWRATE	MAX FLOWRATE	STARTING CURRENT	BREAKER SIZE	MANUFACTURER	MODEL	HxWxD	HxWxD	WEIGHT	COMMENTS
			[kW]	[l/min]	[l/min]	[A]	[A]						
ASHP.01	Heating System	Roof	14	17.9	40.1	2	16	Mitsubishi	PUHZ-HW140VHA-BS	1350x1020x360	1350x1020x360	148	

- Notes**
- After removing the air, automatic air vent(s) must be closed.
 - The Ecodan outdoor unit must be installed on anti-vibration mounts. Rubber mounting blocks are recommended.
 - Adequate provision should be made to prevent condensate from collecting around the outdoor units. A soak away, drip tray or drain socket set can be used.
 - Flexible connections shall be used to connect the Ecodan unit to the primary pipe work.