





**CONTRACT: ROYAL HOSPITAL FOR SICK CHILDREN & DCN - EDINBURGH**

**SYSTEM: AHU04-06 SUPPLY**

**AIR SYSTEMS PRE-COMMISSIONING SHEET**

	✓	X	N/A
1. Check AHU for damage and that all the components are secure	✓		
2. Check the transit straps have been removed, if applicable	✓		
3. Check pulleys are secure, tight, aligned and belts are correctly tensioned, if applicable			✓
4. Check with the controls engineer that the system is available to run and that plant rotation is correct	✓		
5. Check all ductwork/air terminals are fitted and that air regulating dampers are open	✓		
6. Check louvres are fitted and clear from obstructions, if applicable	✓		
7. Check fire/smoke dampers are open, if applicable	✓		
8. Check the motor overloads are suitable and set	✓		
9. Check VAV or CAV boxes are installed correctly and ready for use.	✓		
10. Check the floor plenums are complete, if applicable			✓
11. Complete commissioning test sheets.	✓		
Remarks:			
Engineer: [REDACTED]	Date: 30/10/2018	Sheet 2 of 10	



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**DIRECT DRIVE AHU TEST SHEET**

AHU DETAILS										
AHU Manufacturer		Sandometal			Fan/AHU Serial No.		2016_449_2829			
Fan Manufacturer		Ziehl Abegg			Fan/AHU Model No.		eSDM 3/7			
Fan Type		Plug			Fan Size		Not Stated			
Air Volume		External Static Pressure (Pa)			Pre Filter Test Data (Pa)		Sec Filter Test Data (Pa)			
Design (m <sup>3</sup> /s)	4.844	Design	Inlet	767	Inlet	*	Inlet	N/A		
Test (m <sup>3</sup> /s)	5.133		600	Outlet	31	Outlet	*	Outlet	N/A	
% of Design	106%			Total	798	ΔP	20*	ΔP	60*	
Fan Rotational Speed (rpm)		Design Data			1470	Test Data		**		
MOTOR DETAILS										
Motor Manufacturer		Ziehl Abegg			Output (kW)		15.0			
Motor Serial No.		1608584923			Motor FullLoad Current (amps)		28.4			
Voltage		400			Motor Running Current (amps)		28.4			
Motor Rotational Speed (rpm)		Design Data			1470	Test Data		**		
DRIVE DETAILS										
VSD		Yes			Set Point		59Hz			
STANDBY PLANT										
Air Volume		External Static Pressure (Pa)			Motor Rotational Speed		1450			
Test (m <sup>3</sup> /s)	5.133	Design	Inlet	767	Fan Rotational Speed		1450			
% of Design	106%		Outlet	31	Motor Running Current (amps)		28.40			
VSD		Yes			Set Point		59Hz			
Remarks:										
Motor running current taken from Inverter.										
*Filter data taken from magnahelic gauges.										
**Plant construction does not allow speed measurements to be recorded using a Portable Tachometer.										
Instrument Used: HV4/1							Date: 30/10/2018			
Engineer: ██████████							Sheet 3 of 10			



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**DUCT VOLUME TEST SHEET**

**VELOCITY PROFILE (taken facing air flow)**

**TEST HOLE LOCATION: LEVEL 2 RISER**

Test Hole Ref		Duct Dia (mm)		Duct Size (mm)		Duct Area		Design Air Volume		Design Air Velocity	
				Width x Height		m <sup>2</sup>		m <sup>3</sup> /s		m/s	
MAIN TH				1100	650	0.7150		4.844		6.77	
6.50	7.50	7.10	7.10	6.80	7.40						
5.00	7.90	7.90	8.00	7.90	7.90						
7.90	7.70	7.60	7.60	7.60	7.50						
6.40	6.80	6.60	6.50	6.40	6.70						
Velocity Sub Totals											
25.80	29.90	29.20	29.20	28.70	29.50						
Total Velocity		Number of Readings		Average Velocity		Measured Air Volume		% Design		Static Pressure	
m/s				m/s		m <sup>3</sup> /s				Pa	
172.30		24		7.18		5.133		106%		496	
Remarks:											
Instrument Used: HV04/1									Date: 30/10/2018		
Engineer: [REDACTED]									Sheet 4 of 10		





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**SYSTEM: AHU04-06 SUPPLY**

## DUCT VOLUME TEST SHEET

**VELOCITY PROFILE (taken facing air flow)**

**TEST HOLE LOCATION: SG49**

Test Hole Ref		Duct Dia (mm)		Duct Size (mm)		Duct Area		Design Air Volume		Design Air Velocity	
				Width x Height		m <sup>2</sup>		m <sup>3</sup> /s		m/s	
FTH 2		350				0.0962		0.247		2.57	
3.00	2.70										
3.00	2.60										
3.10	2.60										
2.50	2.60										
Velocity Sub Totals											
11.60	10.50										
Total Velocity		Number of Readings		Average Velocity		Measured Air Volume		% Design		Static Pressure	
m/s				m/s		m <sup>3</sup> /s				Pa	
22.10		8		2.76		0.266		108%		64	
Remarks: Test Volume 266l/s ÷ Grille Volume 235l/s = 1.13 Factor.											
Instrument Used: HV04/1									Date: 30/10/2018		
Engineer: ██████████									Sheet 6 of 10		



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**SYSTEM: AHU04-06 SUPPLY**

**GRILLE TEST SHEET**

Design Data		Initial Test Data		Final Test & Regulation Data		
Terminal or Reference No.	Design Air Volume	Balometer Initial Air Volume	Balometer Final Air Volume	K Factor	Balometer Final Air Volume	% of Design
	l/s	l/s	l/s		l/s	
SG63	74.00	48.00	62.00	1.19	73.78	100
SG62	60.00	50.00	54.00	1.19	64.26	107
SG61	60.00	50.00	52.00	1.19	61.88	103
SG59	95.00	81.00	81.00	1.19	96.39	101
SG60	48.00	39.00	44.00	1.19	52.36	109
SG58	95.00	78.00	82.00	1.19	97.58	103
SG57	143.00	110.00	119.00	1.19	141.61	99
SG53	87.00	64.00	73.00	1.19	86.87	100
SG54	87.00	65.00	73.00	1.19	86.87	100
SG51	45.00	15.00	41.00	1.19	48.79	108
SG56	20.00	9.00	17.00	1.19	20.23	101
SG52	87.00	76.00	76.00	1.19	90.44	104
SG55	87.00	91.00	74.00	1.19	88.06	101
SG48	73.00	54.00	63.00	1.19	74.97	103
SG46	78.00	58.00	68.00	1.19	80.92	104
SG47	20.00	15.00	17.00	1.19	20.23	101
SG44	78.00	57.00	66.00	1.19	78.54	101
SG43	79.00	63.00	69.00	1.19	82.11	104
SG45	85.00	71.00	79.00	1.19	94.01	111
SG37	90.00	63.00	79.00	1.19	94.01	104
SG38	97.00	56.00	84.00	1.19	99.96	103
SG39	32.00	23.00	27.00	1.19	32.13	100
SG40	48.00	35.00	40.00	1.19	47.60	99
SG41	50.00	35.00	45.00	1.19	53.55	107
SG36	83.00	74.00	74.00	1.19	88.06	106
SG35	83.00	78.00	75.00	1.19	89.25	108
Remarks:						
Instrument Used: HV6/15					Date: 30/10/2018	
Engineer: [REDACTED]					Sheet 7 of 10	



**CONTRACT: ROYAL HOSPITAL FOR SICK CHILDREN & DCN - EDINBURGH**

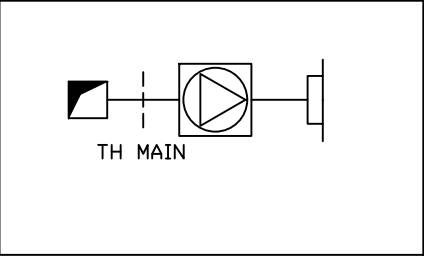
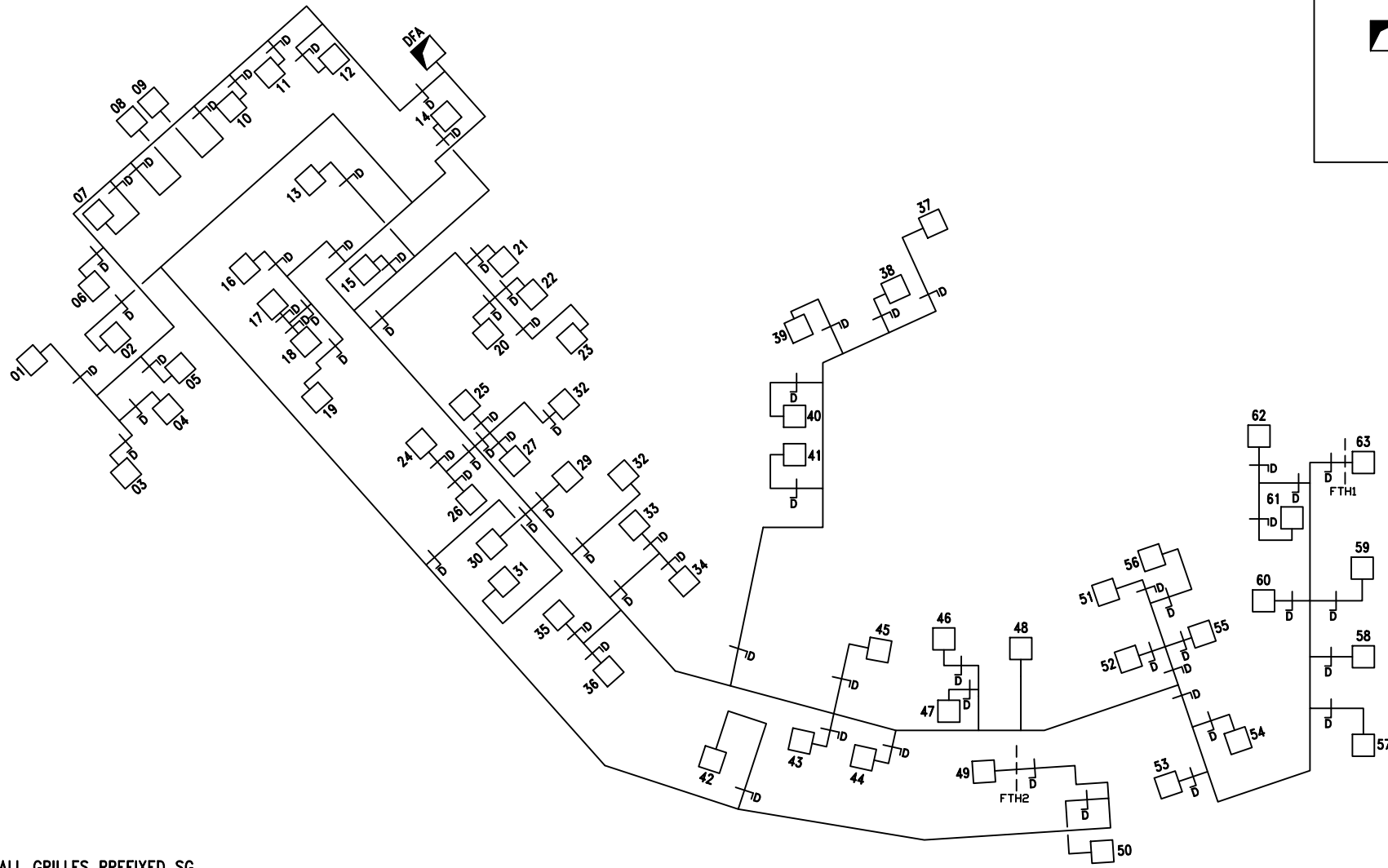
**SYSTEM: AHU04-06 SUPPLY**

**GRILLE TEST SHEET**

Design Data		Initial Test Data		Final Test & Regulation Data		
Terminal or Reference No.	Design Air Volume	Balometer Initial Air Volume	Balometer Final Air Volume	K Factor	Balometer Final Air Volume	% of Design
	l/s	l/s	l/s		l/s	
SG34	83.00	74.00	74.00	1.19	88.06	106
SG33	83.00	86.00	74.00	1.19	88.06	106
SG30	82.00	81.00	75.00	1.19	89.25	109
SG29	69.00	75.00	62.00	1.19	73.78	107
SG27	78.00	81.00	72.00	1.19	85.68	110
SG25	78.00	84.00	72.00	1.19	85.68	110
SG28	48.00	36.00	40.00	1.19	47.60	99
SG26	78.00	94.00	72.00	1.19	85.68	110
SG24	78.00	86.00	72.00	1.19	85.68	110
SG23	48.00	35.00	41.00	1.19	48.79	102
SG20	37.00	31.00	31.00	1.19	36.89	100
SG22	32.00	34.00	28.00	1.19	33.32	104
SG21	41.00	34.00	34.00	1.19	40.46	99
SG19	46.00	43.00	39.00	1.19	46.41	101
SG17	48.00	37.00	40.00	1.19	47.60	99
SG18	48.00	30.00	40.00	1.19	47.60	99
SG16	48.00	38.00	40.00	1.19	47.60	99
SG14	27.00	32.00	23.00	1.19	27.37	101
SG13	27.00	30.00	23.00	1.19	27.37	101
SG15	84.00	219.00	76.00	1.19	90.44	108
*SG49	247.00	219.00	235.00	1.13	265.55	108
*SG50	247.00	221.00	230.00	1.13	259.90	105
*SG42	298.00	265.00	270.00	1.13	305.10	102
*SG31	253.00	246.00	225.00	1.13	254.25	100
*SG2	164.00	146.00	148.00	1.13	167.24	102
SG32	37.00	45.00	32.00	1.18	37.76	102
Remarks: *Isolation Rooms.						
Instrument Used: HV6/15					Date: 30/10/2018	
Engineer: ██████████					Sheet 8 of 10	







ALL GRILLES PREFIXED SG

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**CONTRACT:**  
 RHSC & DCN - EDINBURGH

**CLIENT:**  
 MERCURY ENGINEERING (UK)  
 LTD

**TITLE:**  
 SCHEMATIC LAYOUT OF  
 AHU04-06 SUPPLY

**DRAWN:**  
 LH/KP

**DATE:**  
 23/01/18

**DRG No.:**  
 7281/V84

**SHEET:**  
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