HENSALL

FINAL ISSUE, ALL INFORMATION RECEIVED

OPERATION & MAINTENANCE MANUAL

Elmwood Leisure Centre

Decarbonisation and refurbishment: air source heat pumps, LTHW plant, air handling units, air conditioning and domestic water services Mechanical Services

Volume 9 of 9: Certificates
Documents 7.46 to 7.65

Revision	Issue date	Practical completion	Job reference
A	**9th of October 2026**	**2nd of June 2026**	**HEN0203**

Prepared for Hensall Mechanical Services Ltd · Westgate Leisure Services Ltd (for the London Borough of Elmwood; operated by FitLife Active)

Compiled by OnTrack O&M

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SECTION 7

7

Testing, commissioning and certificates

Documents 7.46 to 7.65 are in this volume, each exactly as received and checked.

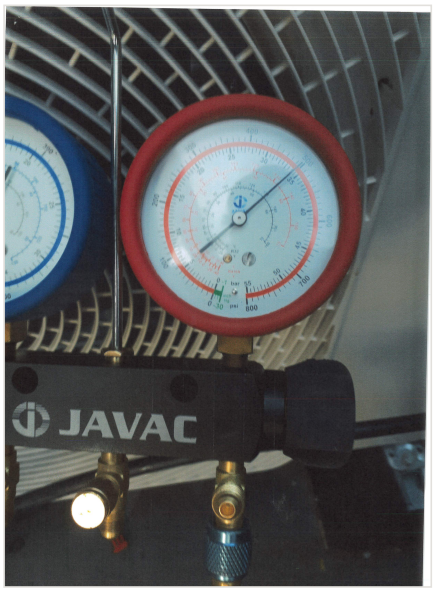
7.46

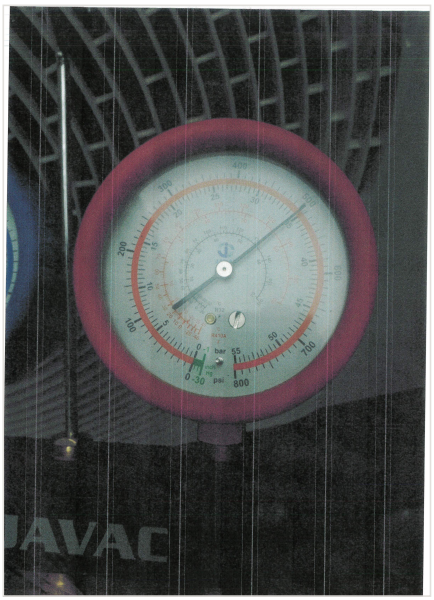
CU 2.07 refrigerant pipework pressure test certificate

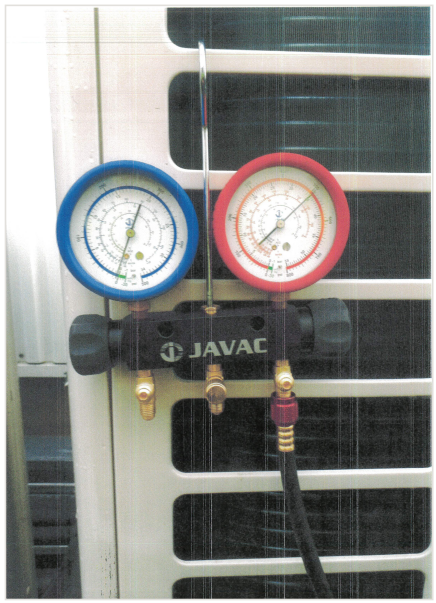
The certificates and mark-up follow as received. Their gauge photos are below and at the end, smaller.

Reference	HEN0203-CU207-TC
Asset	CU 2.07
Provided by	Frost Air Conditioning
Source file	Refrigerant pipework pressure tests, sheet 2 of 2.pdf
Pages	8

GAUGE PHOTOS, SHOWN SMALLER







PRESSURE TEST CERTIFICATE

Roall Hall
Roall Lane
Eggborough
North Yorkshire
DN14 0NZ

HENSALL

t 01977 661318
f 01977 662127
e admin@hensall.com
w www.hensall.com

Project: Elmwood Leisure Centre	Project Ref: HEN 0203
Scheme:	Sheet No.

Identification of Equipment/System: LOWER FITNESS SUIT SYSTEM 2

Test Method	Medium	Pressure	Duration
PRESSURE TEST	NITROGEN (OFN)	35 BAR	15 HRS

Observations / Comments:

PRESSURE TESTED TO 35 BAR FOR 15 HRS, NO PRESSURE DROP DETECTED DURING TEST PERIOD

Test Carried Out By: VINCENT SWEENEY
Hensall Mechanical Services Operative
VSweeney

Witnessed By: G. KOSTUSIAK
Clients Authorised Signatory

Date: 10-03-2026

11.3.8

PRESSURE TEST CERTIFICATE

Roall Hall
Roall Lane
Pgeborough
North Yorkshire
DN14 0NY

HENSALL

t 01977 661618
f 01977 662127
e admin@hensall.com
w www.hensall.com

Project: Elmwood Leisure Centre	Project Ref: HEN 0203
Scheme:	Sheet No.

Identification of Equipment/System: RECEPTION / BOH SYSTEM.

Test Method	Medium	Pressure	Duration
PRESSURE TEST	NITROGEN (OFN)	35 BAR	15 HRS

Observations / Comments:

PRESSURE TESTED TO 35 BAR FOR 15 HRS. NO PRESSURE DROP DETECTED DURING TEST PERIOD

Test Carried Out By:
Hensall Mechanical Services Operative V Sweeney VINCENT SWEENEY

Witnessed By:
Clients Authorised Signatory G. KOSTUSIAK

Date: 11-03-2026

11.3.8

PRESSURE TEST CERTIFICATE

Roall Hall
Roall Lane
Eggborough
North Yorkshire
DN14 0NY

HENSALL

t 01977 661318
f 01977 662127
e admin@hensall.com
w www.hensall.com

Project: Elmwood Leisure Centre	Project Ref: HEN 0203
Scheme:	Sheet No.
Identification of Equipment/System: GFLOOR BOH, COMMUNITY HUB	

Test Method	Medium	Pressure	Duration
PRESSURE TEST	NITROGEN (OFN)	35 BAR	16 HRS

Observations / Comments:

PRESSURE TESTED TO 35 BAR FOR 16 HRS, NO PRESSURE DROP DETECTED DURING TEST PERIOD.

Test Carried Out By: VINCENT SWEENEY
Hensall Mechanical Services Operative
VSweeney

Witnessed By: Greg Kostyszek
Clients Authorised Signatory

Date: 20-03-2026

11.3.8

PRESSURE TEST CERTIFICATE

Roall Hall
Roall Lane
Eggborough
North Yorkshire
DN14 0NY

HENSALL

t 01977 661515
f 01977 662127
e admin@hensall.com
w www.hensall.com

Project: Elmwood Leisure Centre	Project Ref: HEN 0203
Scheme:	Sheet No.

Identification of Equipment/System: UPPER FITNESS SUITE

Test Method	Medium	Pressure	Duration
PRESSURE TEST	NITROGEN (OFN)	35 BAR	14 HRS

Observations / Comments:

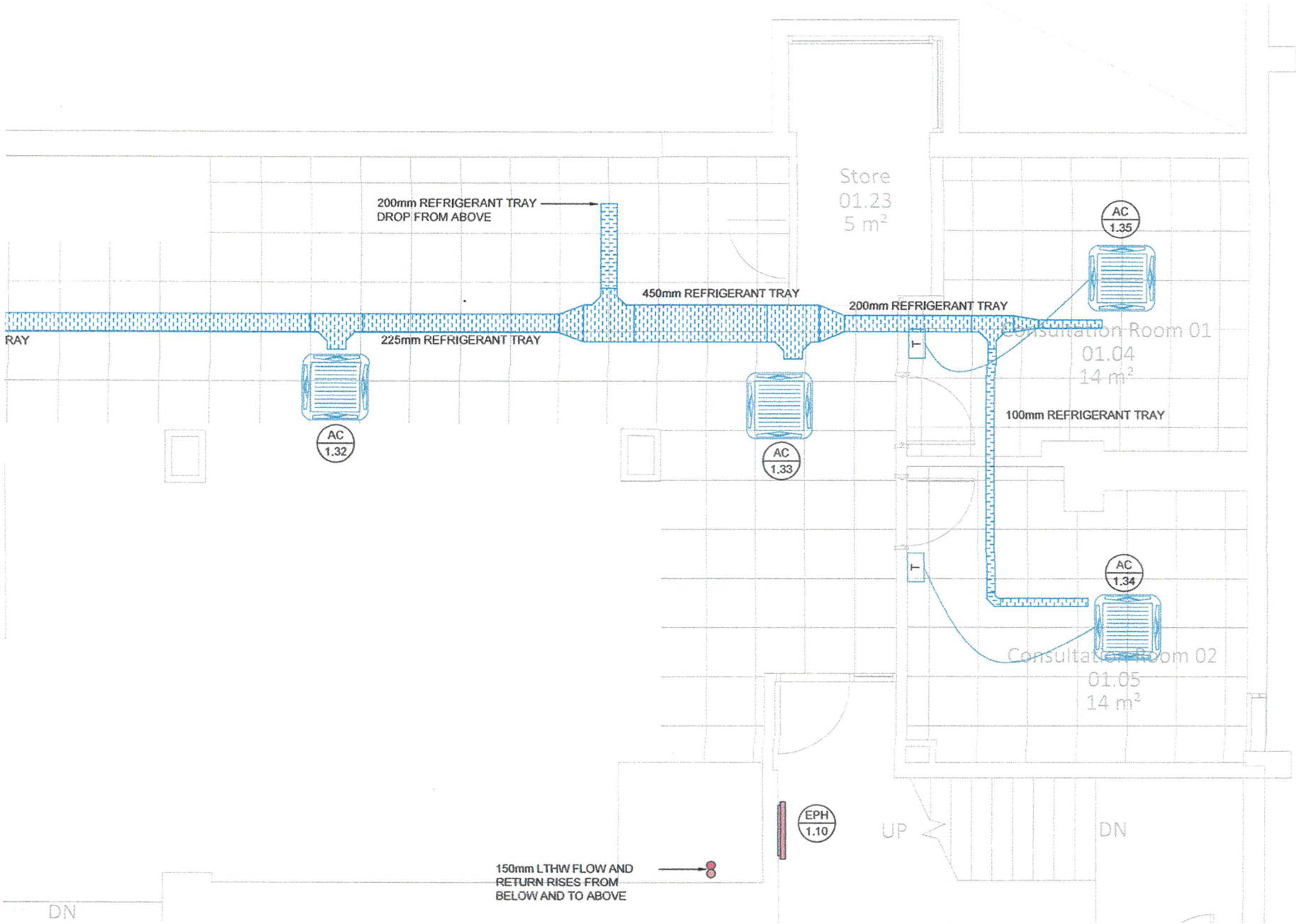
PRESSURE TESTED TO 35 BAR FOR 14HRS, NO PRESSURE DROP DETECTED DURING THE TEST PERIOD

Test Carried Out By: VINCENT SWEENEY
Hensall Mechanical Services Operative
VSweeney

Witnessed By: G. Kostusiak
Clients Authorised Signatory

Date: 05-03-2026

1138


200mm REFRIGERANT TRAY
DROP FROM ABOVE
RAY
225mm REFRIGERANT TRAY
450mm REFRIGERANT TRAY
200mm REFRIGERANT TRAY
100mm REFRIGERANT TRAY
AC
1.32
AC
1.33
AC
1.34
AC
1.35
Store
01.23
5 m²
Consultation Room 01
01.04
14 m²
Consultation Room 02
01.05
14 m²
EPH
1.10
UP
DN
150mm LTHW FLOW AND
RETURN RISES FROM
BELOW AND TO ABOVE
DN

PRESSURE TEST CERTIFICATE

Ball Hall
Ball Lane
Eggborough
North Yorkshire
DN14 0LY

HENSALL

t 01977 661818
f 01977 662127
e admin@hensall.com
w www.hensall.com

Project: Elmwood Leisure Centre

Scheme:

Project Ref: HEN 0203

Identification of Equipment/System: SPIN STUDIO

Sheet No.

Test Method	Medium	Pressure	Duration
PRESSURE TEST	NITROGEN (OFN)	35 BAR	15 HRS

Observations / Comments:

PRESSURE TESTED TO 35 BAR FOR 15 HOURS, NO PRESSURE DROP DETECTED DURING TEST PERIOD

Test Carried Out By:
Hensall Mechanical Services Operative V.SWEENEY

Witnessed By:
Clients Authorised Signatory G.KOSTUS/AR

Date: 11-03-2026

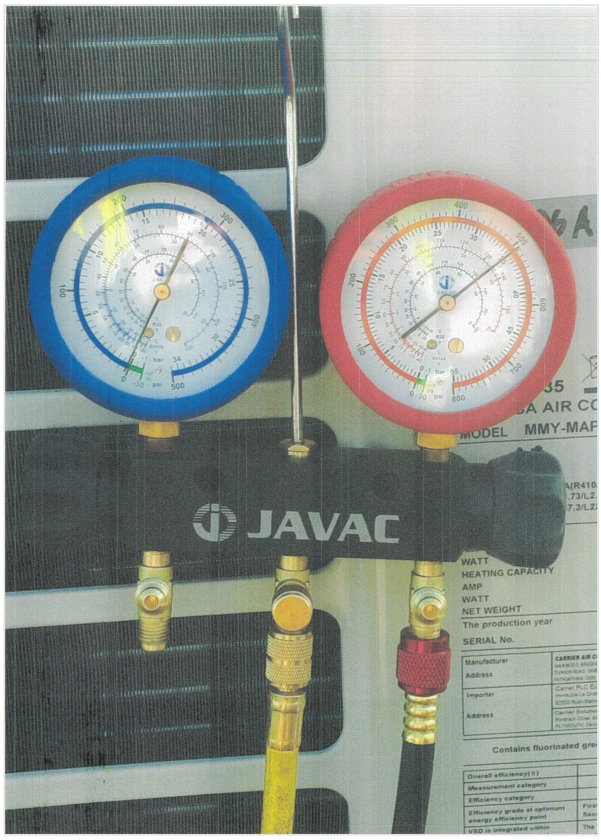
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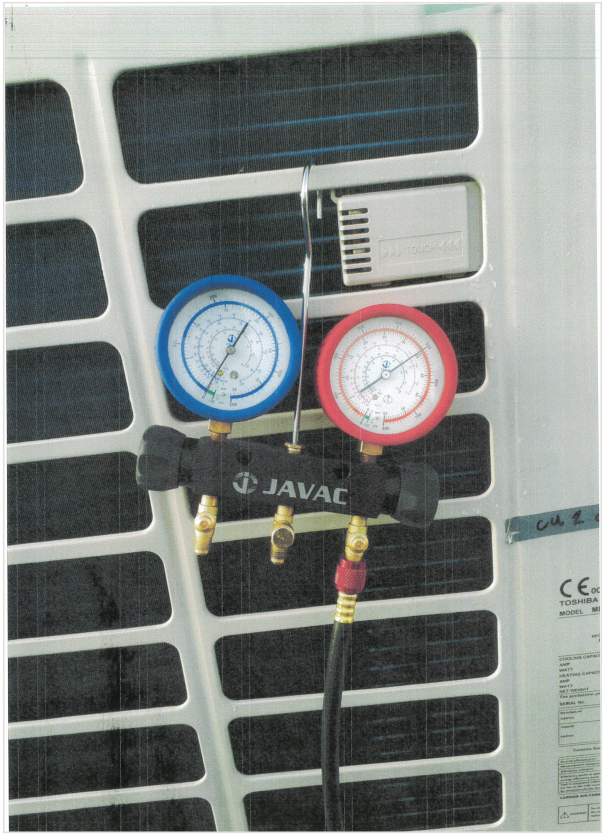
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CU 2.07 refrigerant pipework pressure test certificate: gauge photos, continued (1 of 2)

GAUGE PHOTOS, SHOWN SMALLER







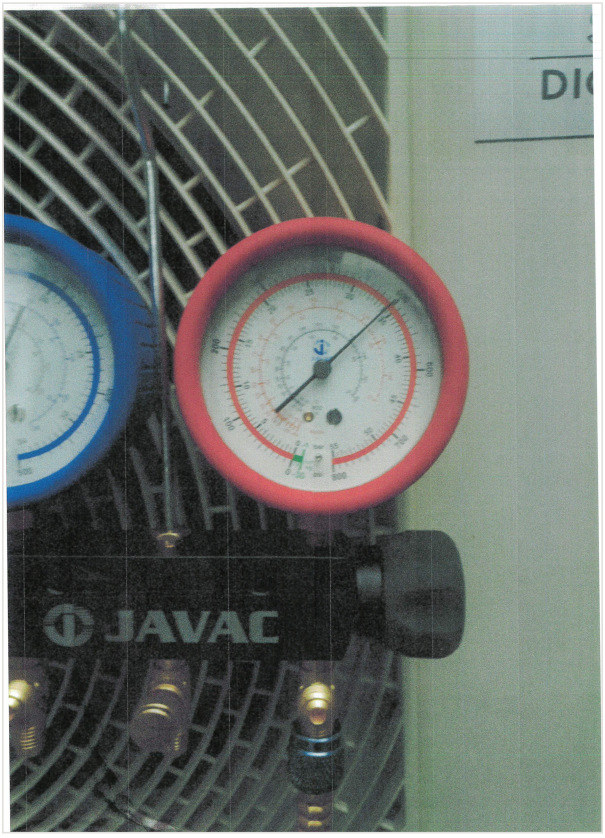


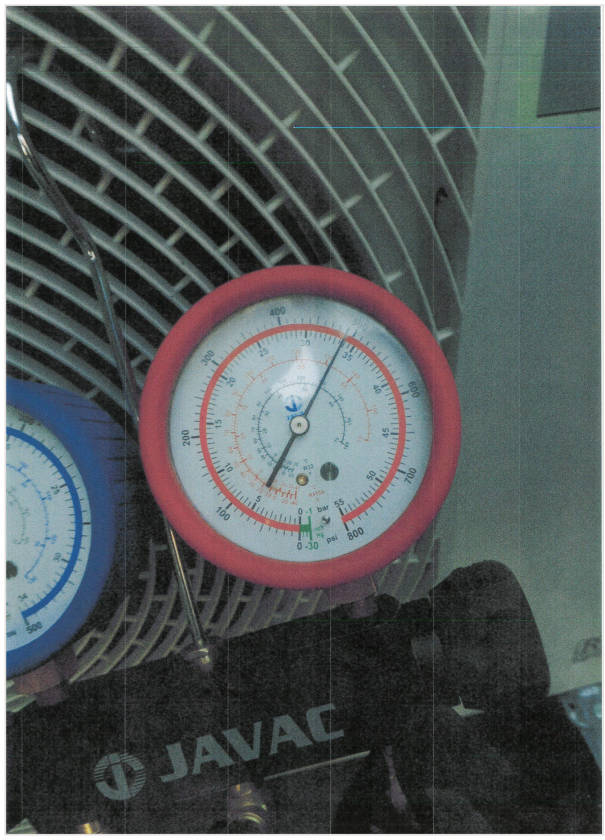
7

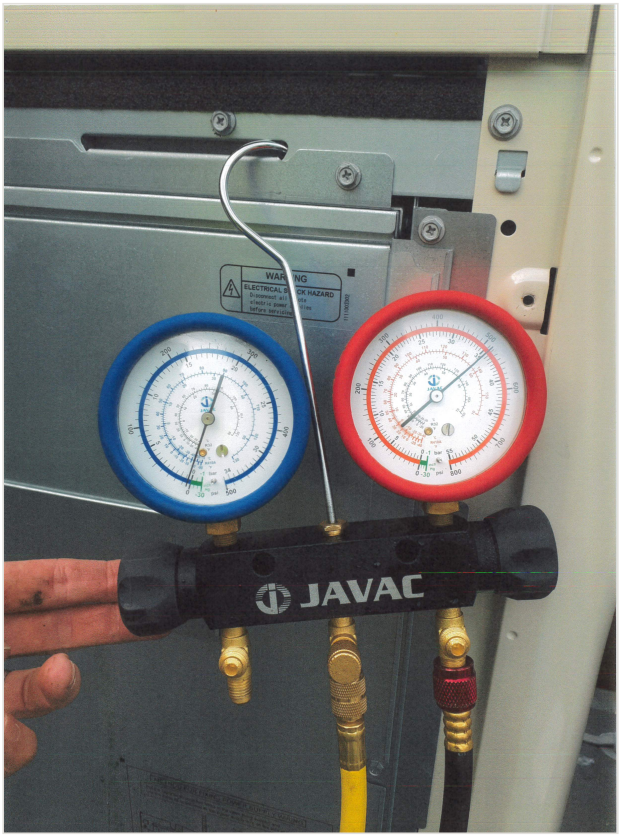
7.46

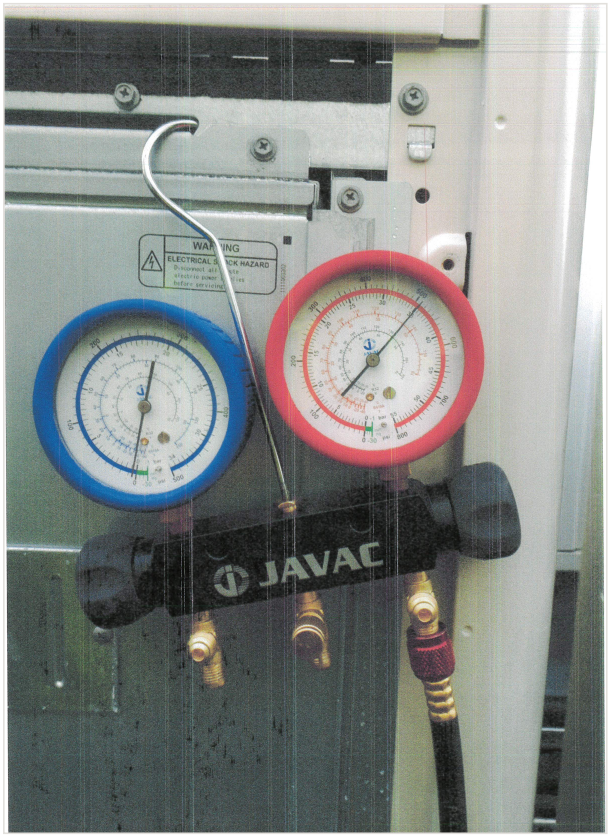
CU 2.07 refrigerant pipework pressure test certificate: gauge photos, continued (2 of 2)

GAUGE PHOTOS, SHOWN SMALLER









7.47

Ashton air flow record AHU R.04 dance studio extract

The following 6 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	
Asset	General
Provided by	Not recorded
Source file	`Ashton air flow record AHU R.04 dance studio extract.pdf`
Pages	6

RJ Ashton Commissioning Ltd
Unit 7, Ashton Business Park • Mill Lane
Elmwood • EL6 2RA
Tel: 01632 960 418 • Fax: 01632 960 419
e-mail: commissioning@rjashton.com

COMMISSIONING & TESTING DOCUMENTATION

System Reference	AHU 04 - Dance Studio extract
Contract Name	Elmwood Leisure Centre - Elmwood
Job №	250571
Client	Hensall
Consultant	TBC

System Balance Acceptance (Client)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Witness Authority)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Engineer)

Signed: **Glyn Whitcombe** **For:** RJA **Date:** 06/05/2026

This is to certify that the above system has been commissioned and demonstrated in accordance with all relevant guidelines.

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 04 - Dance Studio extract
Client	Hensall



COMMISSIONING REPORT

RJ Ashton Group have attended site to carry out the required commissioning works under instruction from Hensall.

The AHU & test points are located on the roof.

The system serves the new dance area.

Due to access restrictions we were requested just to obtain a main volume on this system, the grilles are at high level.

The fan was set at 44% to achieve these results.

Instruments Used			
Instrument	Anemometer	**Serial №**	126432
Instrument	Micromamnometer	**Serial №**	pvm 12019007
Instrument	Balometer	**Serial №**	90504028

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 04 - Dance Studio extract
Client	Hensall



PLANT INFORMATION & TEST DATA: DIRECT DRIVEN

Plant Reference	AHU 04 - Dance Studio extract

Fan Data			
Manufacturer	Trane	**Serial №**	
Fan Type	Wheel - EC 400	**Model №**	EC 355
Fan Size	400	**Pitch Angle**	

Motor Data			
Manufacturer	Trane	**Serial №**	0
Motor Type	400	**Model №**	EC 355
Motor Rating	1.2 KW	**Frame №**	EC 355
Voltage/~/Hz	415 / 3 / 50	**Full Load Amps**	3.20 Amps

Design Specifications			
Design Volume	0.990 m³/s	**Static Pressure**	250 Pa
		Motor Speed	3100 Max RPM

AHU Pressure Profile

Units: Pa

Test Results		
Inverter Setting	44.0	%
Tested Volume	0.999	m³/s
% of Design	102	%
Fan Suction	35	Pa
Fan Discharge	12	Pa
Static Pressure	47	Pa
Running Current	Others	Amps

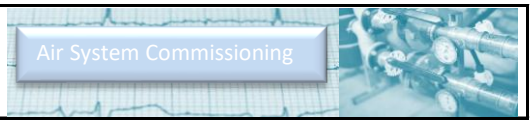
Running Current taken by others unless shown on inverter display

Comments

None.

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 04 - Dance Studio extract
Client	Hensall



RECTANGULAR DUCT TRAVERSE

Test Point Reference
TP 1

Test Point Location
Roof

Duct Dimensions (mm)
400 x 400

Tested Area
0.160 m^2

Design Volume
0.445 m^3/s

Design Velocity
2.78 m/s

	1	2	3	4	5	6	7	8	9	10	11	12
1	2.7	2.9	3.1	2.8								
2	3.0	3.0	3.2	2.7								
3	2.9	2.8	3.0	2.6								
4	3.0	2.9	2.9	2.8								
5												
6												

Units: m/s

Total
46.3

Average Velocity
2.89 m/s

Tested Volume
0.463 m^3/s

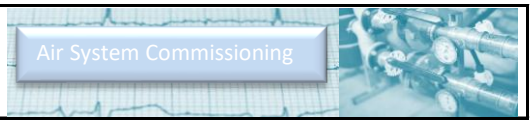
Percentage of Design
104 %

Static Pressure
9 pa

Comments
None.

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 04 - Dance Studio extract
Client	Hensall



RECTANGULAR DUCT TRAVERSE

Test Point Reference
TP 2

Test Point Location
Roof

Duct Dimensions (mm)
400 x 400

Tested Area
0.160 m^2

Design Volume
0.445 m^3/s

Design Velocity
2.78 m/s

	1	2	3	4	5	6	7	8	9	10	11	12
1	2.8	2.6	2.6	3.1								
2	2.6	2.7	2.6	3.0								
3	3.0	2.5	2.8	2.9								
4	2.8	2.4	3.0	2.8								
5												
6												

Units: m/s

Total
44.2

Average Velocity
2.76 m/s

Tested Volume
0.442 m^3/s

Percentage of Design
99 %

Static Pressure
7 pa

Comments
None.

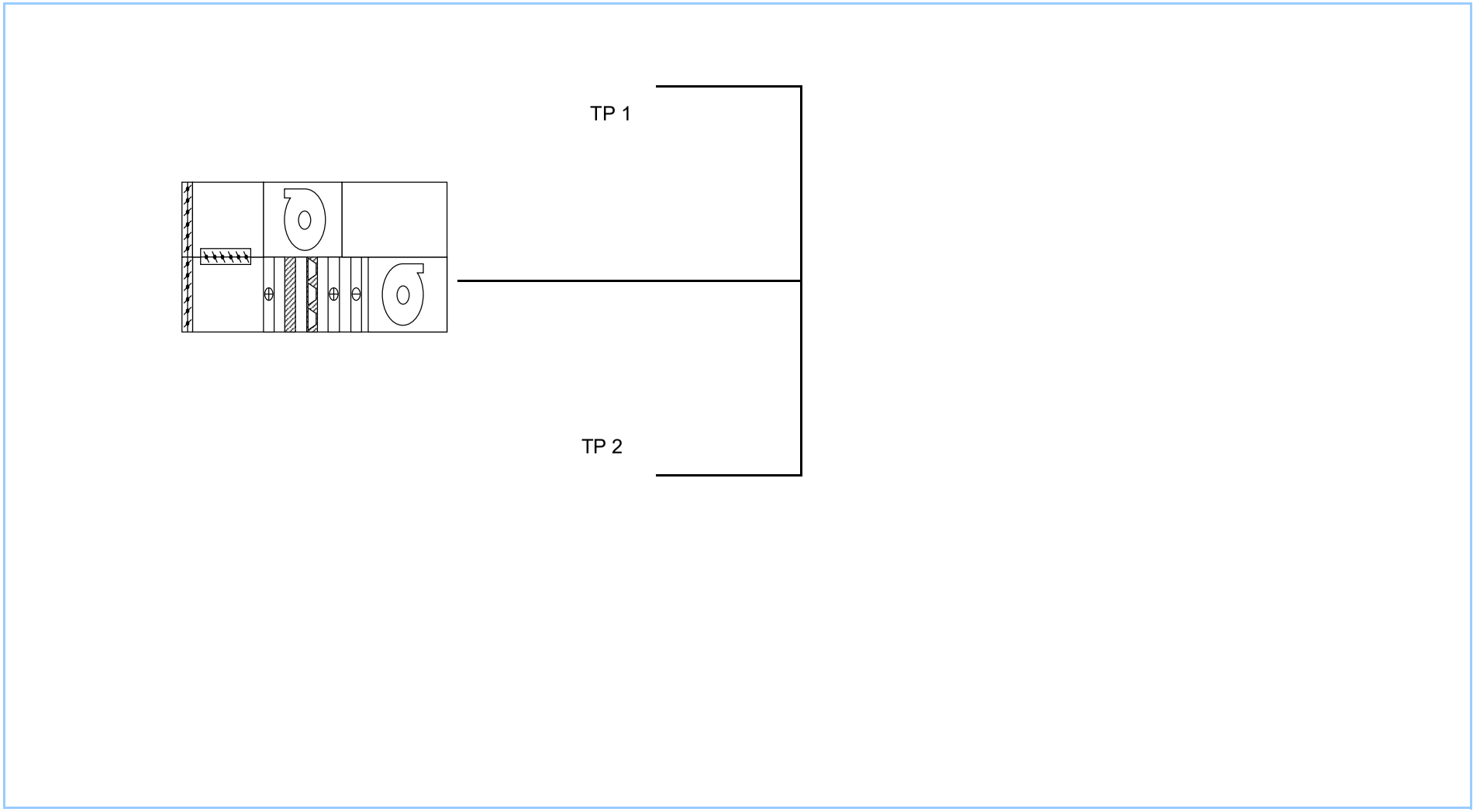
Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 04 - Dance Studio extract
Client	Hensall

ASHTON

Air System Commissioning

SYSTEM SCHEMATIC



Engineer	Glyn Whitcombe	**Date**	06/05/2026		**Revision**	1

7.48

AHU R.04 commissioning certificate

The following 6 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	HEN0203-AHUR04-CC
Asset	AHU R.04
Provided by	Trane UK Ltd
Source file	Ashton air flow record AHU R.04 dance studio supply.pdf
Pages	6

RJ Ashton Commissioning Ltd
Unit 7, Ashton Business Park • Mill Lane
Elmwood • EL6 2RA
Tel: 01632 960 418 • Fax: 01632 960 419
e-mail: commissioning@rjashton.com

COMMISSIONING & TESTING DOCUMENTATION

System Reference	AHU 04 - Dance Studio Supply
Contract Name	Elmwood Leisure Centre - Elmwood
Job №	250571
Client	Hensall
Consultant	TBC

System Balance Acceptance (Client)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Witness Authority)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Engineer)

Signed: **Glyn Whitcombe** **For:** RJA **Date:** 06/05/2026

This is to certify that the above system has been commissioned and demonstrated in accordance with all relevant guidelines.

Project	Elmwood Leisure Centre - Elmwood
System	AHU 04 - Dance Studio Supply
Client	Hensall



COMMISSIONING REPORT

RJ Ashton Group have attended site to carry out the required commissioning works under instruction from Hensall.

The AHU & test points are located on the roof.

The system serves the new dance are.

The fan is set at 44% to achieve these results.

The grilles are located at high level in the dance area.

Instruments Used			
Instrument	Anemometer	**Serial №**	126432
Instrument	Micromamnometer	**Serial №**	pvm 12019007
Instrument	Balometer	**Serial №**	90504028

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 04 - Dance Studio Supply
Client	Hensall



PLANT INFORMATION & TEST DATA: DIRECT DRIVEN

Plant Reference	AHU 04 - Dance Studio Supply

Fan Data			
Manufacturer	Trane	**Serial №**	
Fan Type	Wheel - EC 355	**Model №**	EC 355
Fan Size	355	**Pitch Angle**	

Motor Data			
Manufacturer	Trane	**Serial №**	0
Motor Type	355	**Model №**	EC 355
Motor Rating	1.2 KW	**Frame №**	EC 355
Voltage/~/Hz	415 / 3 / 50	**Full Load Amps**	3.20 Amps

Design Specifications			
Design Volume	0.990 m³/s	**Static Pressure**	250 Pa
		Motor Speed	3100 Max RPM

AHU Pressure Profile

Units: Pa

Test Results		
Inverter Setting	44.0	%
Tested Volume	0.924	m³/s
% of Design	108	%
Fan Suction	8	Pa
Fan Discharge	37	Pa
Static Pressure	45	Pa
Running Current	Others	Amps

Running Current taken by others unless shown on inverter display

Comments

None.

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 04 - Dance Studio Supply
Client	Hensall



RECTANGULAR DUCT TRAVERSE

Test Point Reference
TP 1

Test Point Location
Roof

Duct Dimensions (mm)
550 x 550

Tested Area
0.303 m^2

Design Volume
0.445 m^3/s

Design Velocity
1.47 m/s

	1	2	3	4	5	6	7	8	9	10	11	12
1	1.5	1.6	1.5	1.6								
2	1.6	1.4	1.6	1.7								
3	1.7	1.5	1.5	1.7								
4	1.7	1.5	1.5	1.5								
5												
6												

Units: m/s

Total
25.1

Average Velocity
1.57 m/s

Tested Volume
0.475 m^3/s

Percentage of Design
107 %

Static Pressure
7 pa

Comments
None.

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 04 - Dance Studio Supply
Client	Hensall



RECTANGULAR DUCT TRAVERSE

Test Point Reference
TP 2

Test Point Location
Roof

Duct Dimensions (mm)
550 x 550

Tested Area
0.303 m^2

Design Volume
0.445 m^3/s

Design Velocity
1.47 m/s

	1	2	3	4	5	6	7	8	9	10	11	12
1	1.7	1.6	1.7	1.5								
2	1.5	1.7	1.5	1.5								
3	1.6	1.5	1.6	1.4								
4	1.7	1.5	1.7	1.8								
5												
6												

Units: m/s

Total
25.5

Average Velocity
1.59 m/s

Tested Volume
0.482 m^3/s

Percentage of Design
108 %

Static Pressure
5 pa

Comments
None.

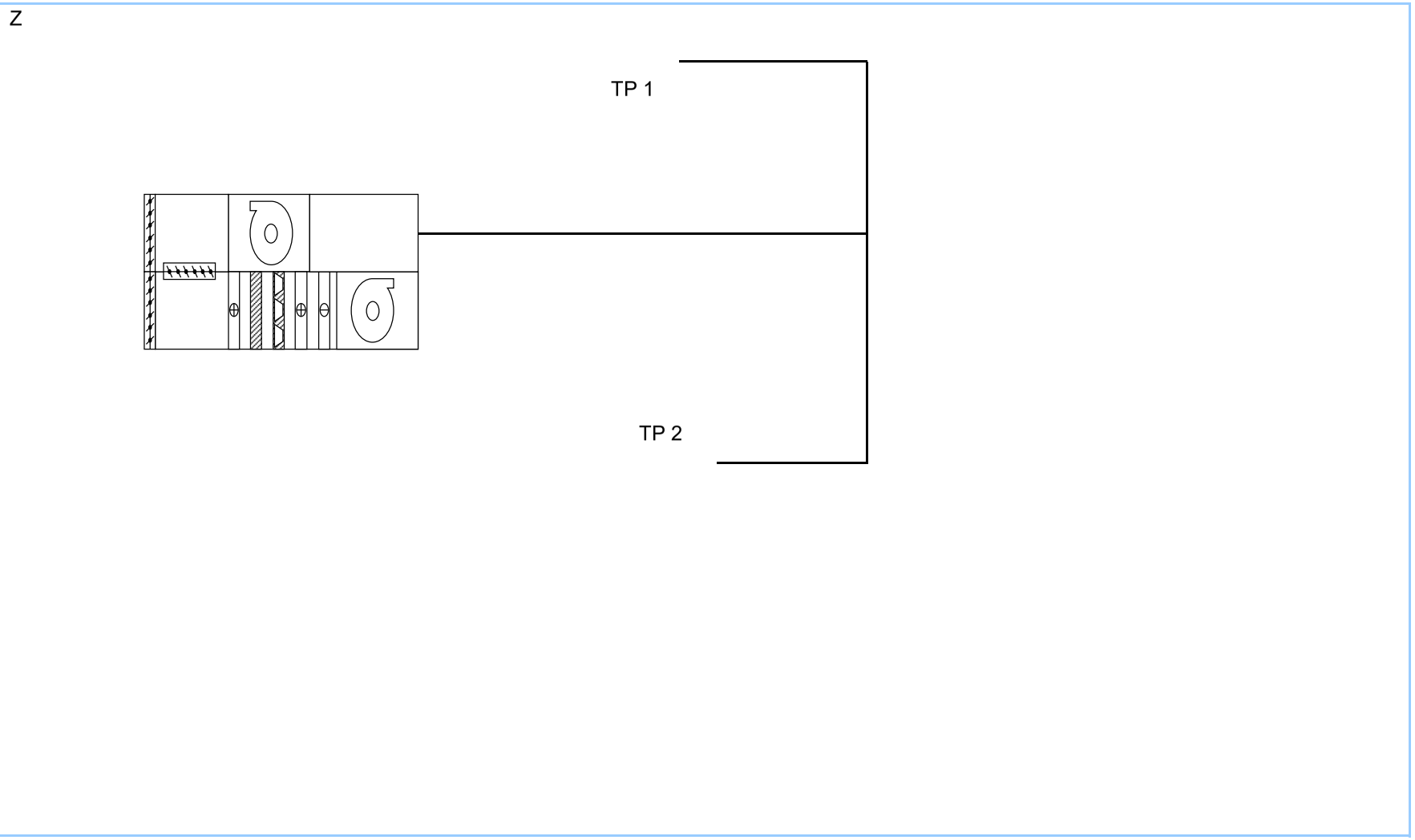
Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 04 - Dance Studio Supply
Client	Hensall

ASHTON

Air System Commissioning

SYSTEM SCHEMATIC



Engineer	Glyn Whitcombe	**Date**	06/05/2026		**Revision**	1

7.49

Ashton air flow record AHU R.05 soft play extract

The following 4 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	
Asset	General
Provided by	Not recorded
Source file	`Ashton air flow record AHU R.05 soft play extract.pdf`
Pages	4

RJ Ashton Commissioning Ltd
Unit 7, Ashton Business Park • Mill Lane
Elmwood • EL6 2RA
Tel: 01632 960 418 • Fax: 01632 960 419
e-mail: commissioning@rjashton.com

COMMISSIONING & TESTING DOCUMENTATION

System Reference	AHU 05 -soft play Extract
Contract Name	Elmwood Leisure Centre - Elmwood
Job №	250571
Client	Hensall
Consultant	TBC

System Balance Acceptance (Client)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Witness Authority)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Engineer)

Signed: **Glyn Whitcombe** **For:** RJA **Date:** 06/05/2026

This is to certify that the above system has been commissioned and demonstrated in accordance with all relevant guidelines.

Project	Elmwood Leisure Centre - Elmwood
System	AHU 05 -soft play Extract
Client	Hensall



COMMISSIONING REPORT

RJ Ashton Group have attended site to carry out the required commissioning works under instruction from Hensall.

The AHU & test point are located on the roof.

The system serves the new soft play area. The diffusers for this system are at very high level above the soft play equipment. We were requested to obtain a traverse into the open area.

The fan is set at 80% to acheive these results.

Instruments Used			
Instrument	Anemometer	**Serial №**	126432
Instrument	Micromamnometer	**Serial №**	pvm 12019007
Instrument	Balometer	**Serial №**	90504028

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 05 -soft play Extract
Client	Hensall



PLANT INFORMATION & TEST DATA: DIRECT DRIVEN

Plant Reference	AHU 05 -soft play Extract

Fan Data

Manufacturer	Trane	**Serial №**	5587445
Fan Type	Wheel - EC 450	**Model №**	EC 450
Fan Size	450	**Pitch Angle**	n/a

Motor Data

Manufacturer	Trane	**Serial №**	5587445
Motor Type	450	**Model №**	EC 450
Motor Rating	3.5 KW	**Frame №**	EC 450
Voltage/~/Hz	415 / 3 / 50	**Full Load Amps**	4.20 Amps

Design Specifications

Design Volume	1.661 m³/s	**Static Pressure**	280 Pa
		Motor Speed	1950 max RPM

AHU Pressure Profile

Units: Pa

Test Results

Inverter Setting	80.0	%
Tested Volume	1.789	m³/s
% of Design	108	%
Fan Suction	208	Pa
Fan Discharge	25	Pa
Static Pressure	233	Pa
Running Current	Others	Amps

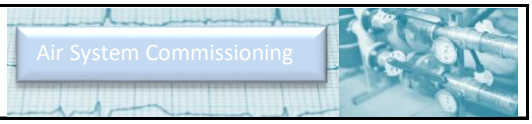
Running Current taken by others unless shown on inverter display

Comments

None.

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 05 -soft play Extract
Client	Hensall



RECTANGULAR DUCT TRAVERSE

Test Point Reference
TP 1

Test Point Location
Roof

Duct Dimensions (mm)
600 x 600

Tested Area
0.360 m^2

Design Volume
1.661 m^3/s

Design Velocity
4.61 m/s

	1	2	3	4	5	6	7	8	9	10	11	12
1	4.6	5.2	5.0	4.6								
2	4.9	5.3	4.9	4.7								
3	5.1	5.4	4.9	4.7								
4	5.0	5.2	5.1	4.9								
5												
6												

Units: m/s

Total
79.5

Average Velocity
4.97 m/s

Tested Volume
1.789 m^3/s

Percentage of Design
108 %

Static Pressure
95 pa

Comments
None.

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

7.50

AHU R.05 commissioning certificate

The following 5 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	HEN0203-AHUR05-CC
Asset	AHU R.05
Provided by	Trane UK Ltd
Source file	Ashton air flow record AHU R.05 soft play supply.pdf
Pages	5

RJ Ashton Commissioning Ltd
Unit 7, Ashton Business Park • Mill Lane
Elmwood • EL6 2RA
Tel: 01632 960 418 • Fax: 01632 960 419
e-mail: commissioning@rjashton.com

COMMISSIONING & TESTING DOCUMENTATION

System Reference	AHU 05 - soft play supply
Contract Name	Elmwood Leisure Centre - Elmwood
Job №	250571
Client	Hensall
Consultant	TBC

System Balance Acceptance (Client)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Witness Authority)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Engineer)

Signed: **Glyn Whitcombe** **For:** RJA **Date:** 06/05/2026

This is to certify that the above system has been commissioned and demonstrated in accordance with all relevant guidelines.

Project	Elmwood Leisure Centre - Elmwood
System	AHU 05 - soft play supply
Client	Hensall



COMMISSIONING REPORT

RJ Ashton Group have attended site to carry out the required commissioning works under instruction from Hensall.

The AHU & test points are located on the roof.

The system serves the new soft play area. The diffusers for this system are at very high level above the soft play eqipment so we were requested to obtain a traverse into the open area,

The fan is set at 80% to achieve these results.

Instruments Used			
Instrument	Anemometer	**Serial №**	126432
Instrument	Micromamnometer	**Serial №**	pvm 12019007
Instrument	Balometer	**Serial №**	90504028

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 05 - soft play supply
Client	Hensall



PLANT INFORMATION & TEST DATA: DIRECT DRIVEN

Plant Reference	AHU 05 - soft play supply

Fan Data			
Manufacturer	Trane	**Serial №**	
Fan Type	Wheel - EC 450	**Model №**	EC 450
Fan Size	450	**Pitch Angle**	

Motor Data					
Manufacturer	Trane			**Serial №**	0
Motor Type	450			**Model №**	EC 450
Motor Rating	2.7		KW	**Frame №**	EC 450
Voltage/~/Hz	415 /	3 /	50	**Full Load Amps**	4.20 Amps

Design Specifications				
Design Volume	1.800	m³/s	**Static Pressure**	425 Pa
			Motor Speed	3100 Max RPM

AHU Pressure Profile

Units: Pa

Test Results		
Inverter Setting	80.0	%
Tested Volume	1.942	m³/s
% of Design	105	%
Fan Suction	15	Pa
Fan Discharge	230	Pa
Static Pressure	245	Pa
Running Current	Others	Amps

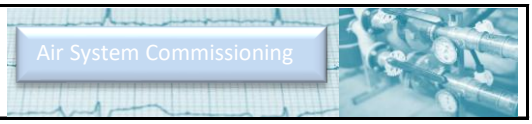
Running Current taken by others unless shown on inverter display

Comments

None.

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 05 - soft play supply
Client	Hensall



RECTANGULAR DUCT TRAVERSE

Test Point Reference
TP 1

Test Point Location
Roof

Duct Dimensions (mm)
450 x 450

Tested Area
0.203 m^2

Design Volume
0.900 m^3/s

Design Velocity
4.44 m/s

	1	2	3	4	5	6	7	8	9	10	11	12
1	4.2	4.0	5.1	4.6								
2	4.4	4.7	4.8	5.0								
3	4.3	4.7	4.6	5.0								
4	4.4	4.6	4.8	5.2								
5												
6												

Units: m/s

Total
74.4

Average Velocity
4.65 m/s

Tested Volume
0.942 m^3/s

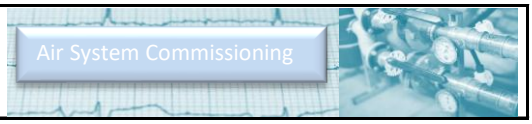
Percentage of Design
105 %

Static Pressure
62 pa

Comments
None.

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 05 - soft play supply
Client	Hensall



RECTANGULAR DUCT TRAVERSE

Test Point Reference
TP 2

Test Point Location
Roof

Duct Dimensions (mm)
450 x 450

Tested Area
0.203 m^2

Design Volume
0.900 m^3/s

Design Velocity
4.44 m/s

	1	2	3	4	5	6	7	8	9	10	11	12
1	4.4	3.9	4.8	4.8								
2	4.0	4.5	4.5	4.4								
3	4.3	4.6	4.7	4.6								
4	4.0	4.4	5.0	4.7								
5												
6												

Units: m/s

Total
71.6

Average Velocity
4.48 m/s

Tested Volume
0.906 m^3/s

Percentage of Design
101 %

Static Pressure
59 pa

Comments
None.

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

7.51

Ashton air flow record AHU R.08 upper & lower gym extract

The following 6 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	
Asset	General
Provided by	Not recorded
Source file	`Ashton air flow record AHU R.08 upper & lower gym extract.pdf`
Pages	6

RJ Ashton Commissioning Ltd
Unit 7, Ashton Business Park • Mill Lane
Elmwood • EL6 2RA
Tel: 01632 960 418 • Fax: 01632 960 419
e-mail: commissioning@rjashton.com

COMMISSIONING & TESTING DOCUMENTATION

System Reference	AHU 08 - upper & lower gym extract
Contract Name	Elmwood Leisure Centre - Elmwood
Job №	250571
Client	Hensall
Consultant	TBC

System Balance Acceptance (Client)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Witness Authority)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Engineer)

Signed: **Glyn Whitcombe** **For:** RJA **Date:** 06/05/2026

This is to certify that the above system has been commissioned and demonstrated in accordance with all relevant guidelines.

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 08 - upper & lower gym extract
Client	Hensall



COMMISSIONING REPORT

RJ Ashton Group have attended site to carry out the required commissioning works under instruction from Hensall.

The AHU & test point are located on the roof.

The system serves the upper & lower gym areas.

The fan was set at 80% to achieve these results.

Instruments Used			
Instrument	Anemometer	**Serial №**	126432
Instrument	Micromamnometer	**Serial №**	pvm 12019007
Instrument	Balometer	**Serial №**	90504028

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 08 - upper & lower gym extract
Client	Hensall



PLANT INFORMATION & TEST DATA: DIRECT DRIVEN

Plant Reference	AHU 08 - upper & lower gym extract

Fan Data			
Manufacturer	Trane	**Serial №**	8246607
Fan Type	Wheel - EC 355	**Model №**	EC 355
Fan Size	355	**Pitch Angle**	n/a

Motor Data			
Manufacturer	Trane	**Serial №**	8246607
Motor Type	355	**Model №**	EC 355
Motor Rating	3.4 KW	**Frame №**	EC 355
Voltage/~/Hz	415 / 3 / 50	**Full Load Amps**	5.00 Amps

Design Specifications			
Design Volume	2.392 m³/s	**Static Pressure**	250 Pa
		Motor Speed	3100 Max RPM

AHU Pressure Profile

Units: Pa

Test Results		
Inverter Setting	80.0	~~%~~
Tested Volume	2.304	m³/s
% of Design	100	%
Fan Suction	80	Pa
Fan Discharge	56	Pa
Static Pressure	136	Pa
Running Current	Others	Amps

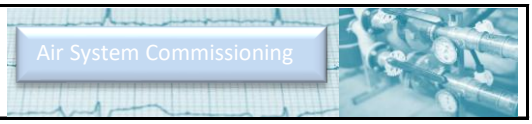
Running Current taken by others unless shown on inverter display

Comments

None.

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 08 - upper & lower gym extract
Client	Hensall



RECTANGULAR DUCT TRAVERSE

Test Point Reference
TP 1

Test Point Location
Roof

Duct Dimensions (mm)
850 x 800

Tested Area
0.680 m²

Design Volume
2.300 m³/s

Design Velocity
3.38 m/s

	1	2	3	4	5	6	7	8	9	10	11	12
1	1.0	0.7	0.4	0.8	1.0							
2	1.4	1.0	1.0	1.3	1.5							
3	4.4	3.2	3.1	4.0	4.2							
4	5.0	4.8	4.9	5.4	6.0							
5	6.0	5.6	5.9	6.0	6.1							
6												

Units: m/s

Total
84.7

Average Velocity
3.39 m/s

Tested Volume
2.304 m³/s

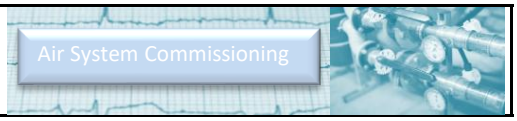
Percentage of Design
100 %

Static Pressure
82 pa

Comments

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 08 - upper & lower gym extract
Client	Hensall



AIR TERMINAL BALANCE

Design						Tested					
Terminal Reference	**Grille/Hood Size mm**		**Area m²**	**Volume m³/s**	**Velocity m/s**	**Velocity m/s**	**Volume m³/s**	**Factor**	**Factored Volume**	**% of Design**	**Comments**
eg oe 01	1400	400	0.560	1.101	1.97	2.3	1.288	0.92	1.185	108%	lower
eg oe 02	1400	400	0.560	1.101	1.97	2.2	1.232	0.92	1.133	103%	lower
eg 1.03	600	380	0.228	0.425	1.86	2.1	0.479	0.92	0.440	104%	upper
eg 1.04	600	380	0.228	0.425	1.86	2.1	0.467	0.92	0.430	101%	upper

Comments

None.

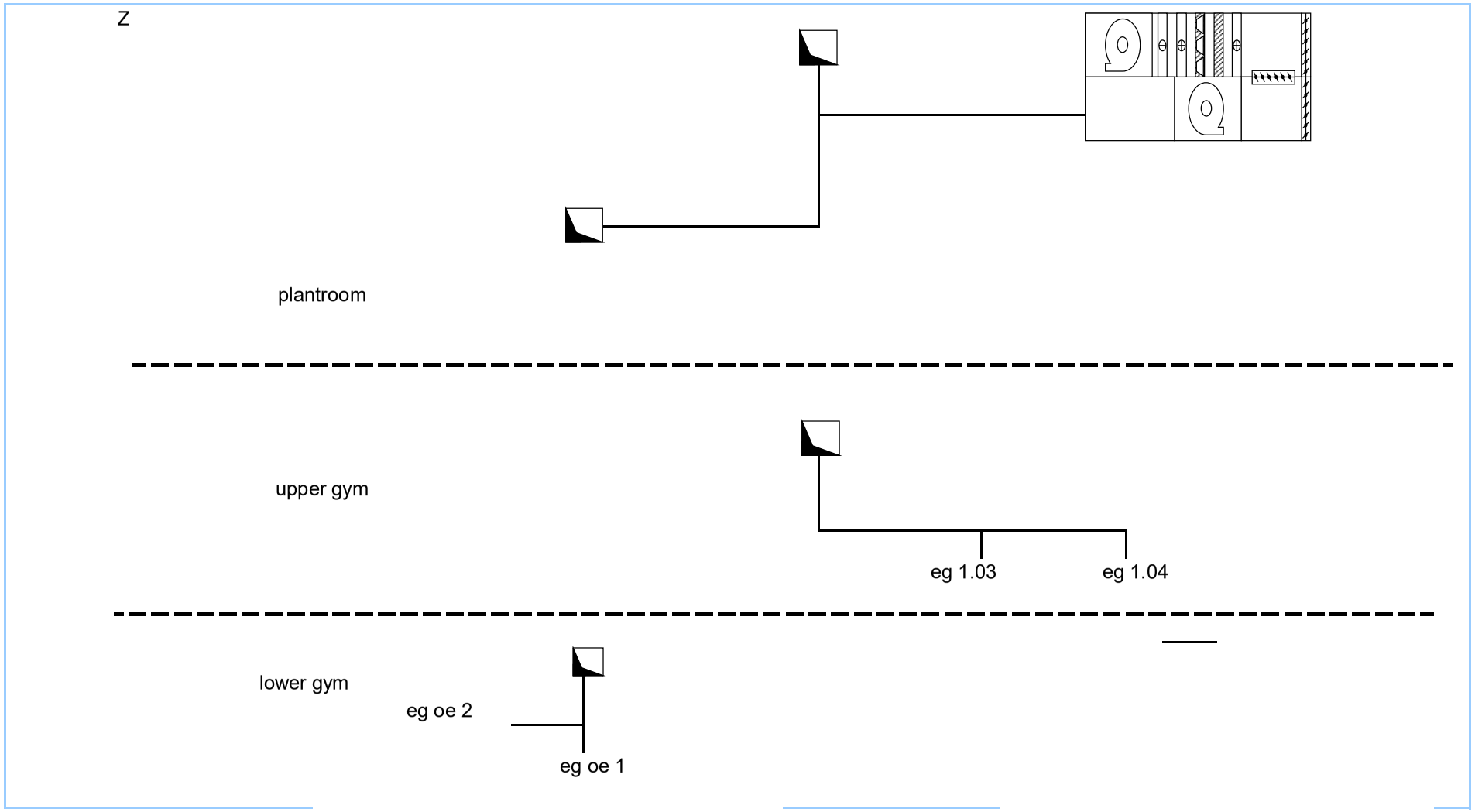
Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 08 - upper & lower gym extract
Client	Hensall

ASHTON

Air System Commissioning

SYSTEM SCHEMATIC



Engineer	Glyn Whitcombe	**Date**	06/05/2026			**Revision**	1

7.52

AHU R.08 commissioning certificate

The following 6 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	HEN0203-AHUR08-CC
Asset	AHU R.08
Provided by	Trane UK Ltd
Source file	Ashton air flow record AHU R.08 upper & lower gym supply.pdf
Pages	6

RJ Ashton Commissioning Ltd
Unit 7, Ashton Business Park • Mill Lane
Elmwood • EL6 2RA
Tel: 01632 960 418 • Fax: 01632 960 419
e-mail: commissioning@rjashton.com

COMMISSIONING & TESTING DOCUMENTATION

System Reference	AHU 08 - upper & lower gym supply
Contract Name	Elmwood Leisure Centre - Elmwood
Job №	250571
Client	Hensall
Consultant	TBC

System Balance Acceptance (Client)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Witness Authority)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Engineer)

Signed: **Glyn Whitcombe** **For:** RJA **Date:** 06/05/2026

This is to certify that the above system has been commissioned and demonstrated in accordance with all relevant guidelines.

Project	Elmwood Leisure Centre - Elmwood
System	AHU 08 - upper & lower gym supply
Client	Hensall



COMMISSIONING REPORT

RJ Ashton Group have attended site to carry out the required commissioning works under instruction from Hensall.

The AHU & test point is located on the roof plantroom.

The system serves the upper & lower gym.

The fan is set @ 80% to acheive these results.

A correction factor of 1.000 has been applied to this system.

Instruments Used			
Instrument	Anemometer	**Serial №**	126432
Instrument	Micromamnometer	**Serial №**	pvm 12019007
Instrument	Balometer	**Serial №**	90504028

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 08 - upper & lower gym supply
Client	Hensall



PLANT INFORMATION & TEST DATA: DIRECT DRIVEN

Plant Reference	AHU 08 - upper & lower gym supply

Fan Data

Manufacturer	Trane	**Serial №**	3246607
Fan Type	Wheel - EC 355	**Model №**	EC 355
Fan Size	355	**Pitch Angle**	n/a

Motor Data

Manufacturer	Trane	**Serial №**	3246607
Motor Type	355	**Model №**	EC 355
Motor Rating	4.6 KW	**Frame №**	EC 355
Voltage/~/Hz	415 / 3 / 50	**Full Load Amps**	5.80 Amps

Design Specifications

Design Volume	2.392 m³/s	**Static Pressure**	250 Pa
		Motor Speed	1780 RPM

AHU Pressure Profile

Units: Pa

Test Results

Inverter Setting	80.0	%
Tested Volume	2.563	m³/s
% of Design	107	%
Fan Suction	55	Pa
Fan Discharge	170	Pa
Static Pressure	225	Pa
Running Current	Others	Amps

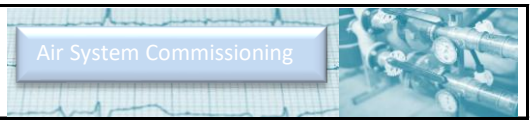
Running Current taken by others unless shown on inverter display

Comments

None.

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 08 - upper & lower gym supply
Client	Hensall



RECTANGULAR DUCT TRAVERSE

Test Point Reference
TP 1

Test Point Location
roof plantroom

Duct Dimensions (mm)
900 x 900

Tested Area
0.810 m²

Design Volume
2.392 m³/s

Design Velocity
2.95 m/s

	1	2	3	4	5	6	7	8	9	10	11	12
1	4.2	3.8	4.0	3.8	2.2							
2	3.8	4.0	3.9	3.9	2.0							
3	3.6	3.9	4.0	4.0	1.9							
4	3.1	3.3	3.2	3.4	2.0							
5	2.2	2.1	2.7	2.1	2.0							
6												

Units: m/s

Total
79.1

Average Velocity
3.16 m/s

Tested Volume
2.563 m³/s

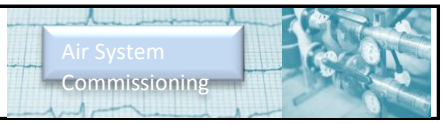
Percentage of Design
107 %

Static Pressure
50 pa

Comments
None.

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 08 - upper & lower gym supply
Client	Hensall



FCU BALOMETER TERMINAL BALANCE

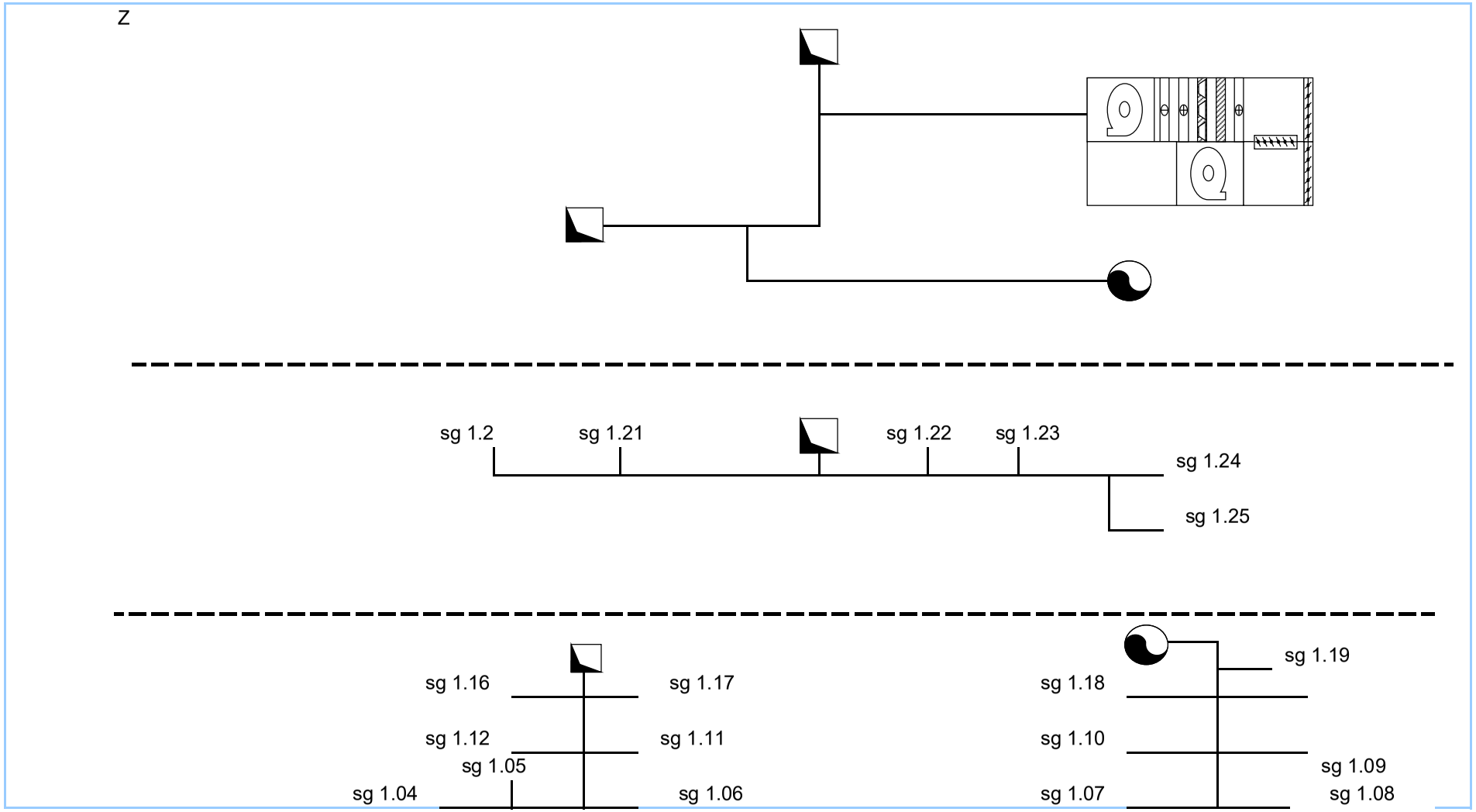
Design		Tested				
Terminal Reference	**Design Volume l/s**	**Tested Volume l/s**	**Factor**	**Factored Volume l\s**	**% of Design**	**Comments**
sg 1.20	147	151	1	151	103	upper gym
sg 1.21	147	156	1	156	106	upper gym
sg 1.22	147	158	1	158	107	upper gym
sg 1.23	147	157	1	157	107	upper gym
sg 1.24	147	160	1	160	109	upper gym
sg 1.25	20	154	1	154	770	consult 1
sg 1.26	20	152	1	152	760	consult 2
sg 1.04	147	149	1	149	101	lower gym
sg 1.05	147	147	1	147	100	lower gym
sg 1.06	147	152	1	152	103	lower gym
sg 1.11	147	152	1	152	103	lower gym
sg 1.12	147	153	1	153	104	lower gym
sg 1.07	147	154	1	154	105	lower gym
sg 1.08	147	161	1	161	110	lower gym
sg 1.09	147	152	1	152	103	lower gym
sg 1.10	147	148	1	148	101	lower gym
sg 1.18	147	158	1	158	107	lower gym
sg 1.19	147	155	1	155	105	lower gym

Comments
None.

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood	ASHTON	Air System Commissioning
System	AHU 08 - upper & lower gym supply		
Client	Hensall		

SYSTEM SCHEMATIC



Engineer	Glyn Whitcombe	**Date**	06/05/2026		**Revision**	1

7.53

Ashton air flow record AHU R.09 squash courts extract

The following 6 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	
Asset	General
Provided by	Not recorded
Source file	`Ashton air flow record AHU R.09 squash courts extract.pdf`
Pages	6

RJ Ashton Commissioning Ltd
Unit 7, Ashton Business Park • Mill Lane
Elmwood • EL6 2RA
Tel: 01632 960 418 • Fax: 01632 960 419
e-mail: commissioning@rjashton.com

COMMISSIONING & TESTING DOCUMENTATION

System Reference	AHU 09 - squash courts supply
Contract Name	Elmwood Leisure Centre - Elmwood
Job №	250571
Client	Hensall
Consultant	TBC

System Balance Acceptance (Client)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Witness Authority)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Engineer)

Signed: **Glyn Whitcombe** **For:** RJA **Date:** 06/05/2026

This is to certify that the above system has been commissioned and demonstrated in accordance with all relevant guidelines.

Project	Elmwood Leisure Centre - Elmwood
System	AHU 09 - squash courts supply
Client	Hensall



COMMISSIONING REPORT

RJ Ashton Group have attended site to carry out the required commissioning works under instruction from Hensall.

The AHU & test points are located on the roof.

The system serves the squash court & viewing areas.

The fan is set at 70 % to achieve these results.

Due to access restrictions and configuration of ductwork we were unable to measure the flow rates into the squash courts. however we deducted viewing area & staff room diffuser volumes from the main traverse volume, which gave us design volumes for the squash courts.

There was no way of regulating thw squash court diffusers.

Thus:
Main volume = 1.695 m3/s

viewing/staff volumes = 0.111 m3/s

Therefore a deducted air volume = 1.543 m3/s @ 103 %.

Instruments Used			
Instrument	Anemometer	**Serial №**	126432
Instrument	Micromamnometer	**Serial №**	pvm 12019007
Instrument	Balometer	**Serial №**	90504028

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 09 - squash courts supply
Client	Hensall



PLANT INFORMATION & TEST DATA: DIRECT DRIVEN

Plant Reference	AHU 09 - squash courts supply

Fan Data

Manufacturer	Trane	**Serial №**	
Fan Type	Wheel - EC 450	**Model №**	EC 450
Fan Size	450	**Pitch Angle**	

Motor Data

Manufacturer	Trane	**Serial №**	0
Motor Type	450	**Model №**	EC 450
Motor Rating	KW	**Frame №**	EC 450
Voltage/~/Hz	415 / 3 / 50	**Full Load Amps**	Amps

Design Specifications

Design Volume	1.661 m³/s	**Static Pressure**	400 Pa
		Motor Speed	2040 RPM

AHU Pressure Profile

Units: Pa

Test Results

Inverter Setting	70.0	%
Tested Volume	1.696	m³/s
% of Design	103	%
Fan Suction	132	Pa
Fan Discharge	12	Pa
Static Pressure	144	Pa
Running Current	Others	Amps

Running Current taken by others unless shown on inverter display

Comments

None.

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 09 - squash courts supply
Client	Hensall



RECTANGULAR DUCT TRAVERSE

Test Point Reference
TP 1

Test Point Location
Roof

Duct Dimensions (mm)
650 x 600

Tested Area
0.390 m²

Design Volume
1.661 m³/s

Design Velocity
4.26 m/s

	1	2	3	4	5	6	7	8	9	10	11	12
1	8.0	6.0	8.4	8.3	8.6							
2	6.3	3.8	5.4	5.0	4.8							
3	5.4	3.2	2.2	2.0	1.6							
4	3.3	3.3	0.0	0.9	0.4							
5												
6												

Units: m/s

Total
86.9

Average Velocity
4.35 m/s

Tested Volume
1.695 m³/s

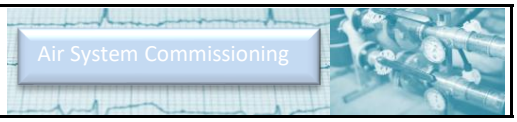
Percentage of Design
102 %

Static Pressure
85 pa

Comments
None.

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 09 - squash courts supply
Client	Hensall



AIR TERMINAL BALANCE

Design					Tested					
Terminal Reference	**Grille/Hood Size mm**	**Area m²**	**Volume m³/s**	**Velocity m/s**	**Velocity m/s**	**Volume m³/s**	**Factor**	**Factored Volume**	**% of Design**	**Comments**
eg viewing	300	0.071	0.06	0.85	1.1	0.078	0.78	0.061	102%	viewing
eg 2.04	300	0.071	0.05	0.70	0.9	0.064	0.78	0.050	100%	staff

Comments

None.

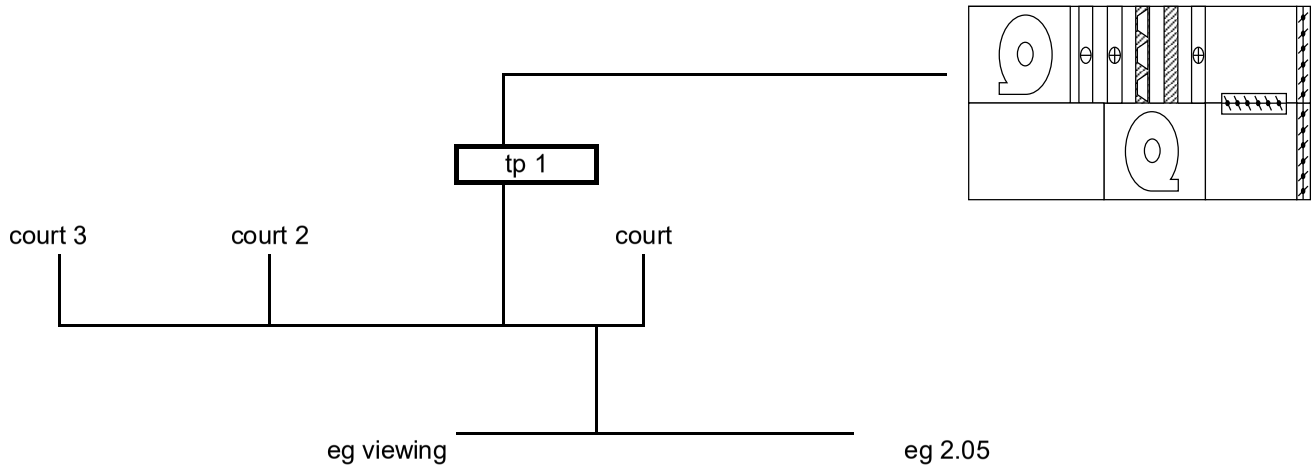
Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 09 - squash courts supply
Client	Hensall

ASHTON

Air System Commissioning

SYSTEM SCHEMATIC



Engineer	Glyn Whitcombe	**Date**	06/05/2026			**Revision**	1

7.54

AHU R.09 commissioning certificate

The following 6 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	HEN0203-AHUR09-CC
Asset	AHU R.09
Provided by	Trane UK Ltd
Source file	Ashton air flow record AHU R.09 squash courts supply.pdf
Pages	6

RJ Ashton Commissioning Ltd
Unit 7, Ashton Business Park • Mill Lane
Elmwood • EL6 2RA
Tel: 01632 960 418 • Fax: 01632 960 419
e-mail: commissioning@rjashton.com

COMMISSIONING & TESTING DOCUMENTATION

System Reference	AHU 09 - squash courts supply
Contract Name	Elmwood Leisure Centre - Elmwood
Job №	250571
Client	Hensall
Consultant	TBC

System Balance Acceptance (Client)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Witness Authority)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Engineer)

Signed: **Glyn Whitcombe** **For:** RJA **Date:** 06/05/2026

This is to certify that the above system has been commissioned and demonstrated in accordance with all relevant guidelines.

Project	Elmwood Leisure Centre - Elmwood
System	AHU 09 - squash courts supply
Client	Hensall



COMMISSIONING REPORT

RJ Ashton Group have attended site to carry out the required commissioning works under instruction from Hensall.

The AHU & test points are located on the roof.

The system serves the new squash court and viewing areas.

The fan is set at 70 % to achieve these results.

There is no way to regulate squash court diffusers.

Due to access restrictions and configuration of ductwork we were unable to measure the flow rates into the squash courts. however we deducted viewing area & staff room diffuser volumes from the main traverse volume, which gave us design volumes for the squash courts.

Thus:

Main volume = 1.654 m3/s
viewing/staff volumes = 0.118 m3/s
Therefore a deducted air volume = 1.536 m3/s @ 102 %.

Instruments Used			
Instrument	Anemometer	**Serial №**	126432
Instrument	Micromamnometer	**Serial №**	pvm 12019007
Instrument	Balometer	**Serial №**	90504028

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 09 - squash courts supply
Client	Hensall



PLANT INFORMATION & TEST DATA: DIRECT DRIVEN

Plant Reference	AHU 09 - squash courts supply

Fan Data			
Manufacturer	Trane	**Serial №**	
Fan Type	Wheel - EC 450	**Model №**	EC 450
Fan Size	450	**Pitch Angle**	

Motor Data			
Manufacturer	Trane	**Serial №**	0
Motor Type	450	**Model №**	EC 450
Motor Rating	KW	**Frame №**	EC 450
Voltage/~/Hz	415 / 3 / 50	**Full Load Amps**	Amps

Design Specifications			
Design Volume	1.661 m³/s	**Static Pressure**	400 Pa
		Motor Speed	2040 RPM

AHU Pressure Profile

Units: Pa

Test Results		
Inverter Setting	70.0	%
Tested Volume	1.654	m³/s
% of Design	104	%
Fan Suction	15	Pa
Fan Discharge	306	Pa
Static Pressure	321	Pa
Running Current	Others	Amps

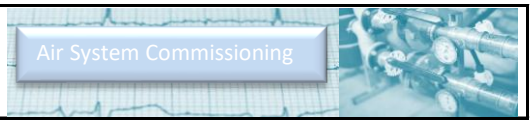
Running Current taken by others unless shown on inverter display

Comments

None.

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 09 - squash courts supply
Client	Hensall



RECTANGULAR DUCT TRAVERSE

Test Point Reference
TP 1

Test Point Location
Roof

Duct Dimensions (mm)
600 x 600

Tested Area
0.360 m²

Design Volume
1.661 m³/s

Design Velocity
4.61 m/s

	1	2	3	4	5	6	7	8	9	10	11	12
1	0.5	5.0	6.2	6.3								
2	0.7	5.0	6.0	6.4								
3	1.0	5.1	6.2	6.0								
4	1.5	5.6	5.8	6.2								
5												
6												

Units: m/s

Total
73.5

Average Velocity
4.59 m/s

Tested Volume
1.654 m³/s

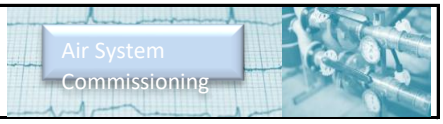
Percentage of Design
100 %

Static Pressure
135 pa

Comments
None.

Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood		
System	#VALUE!	ASHTON	
Client	Hensall		



FCU BALOMETER TERMINAL BALANCE

Design		Tested				
Terminal Reference	**Design Volume l/s**	**Tested Volume l/s**	**Factor**	**Factored Volume l\s**	**% of Design**	**Comments**
sg 2.04	**60**	**66**	**1**	**66**	**110**	**viewing**
sg 2.07	**50**	**52**	**1**	**52**	**104**	**staff**

Comments
None.

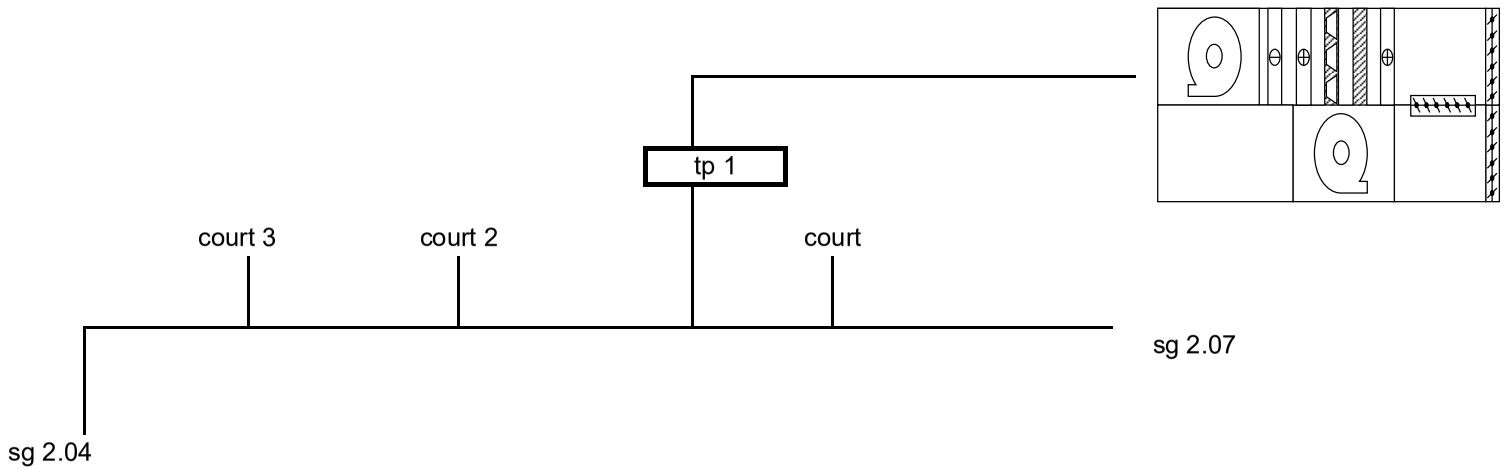
Engineer	Glyn Whitcombe	**Date**	06/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 09 - squash courts supply
Client	Hensall

ASHTON

Air System Commissioning

SYSTEM SCHEMATIC



Engineer	Glyn Whitcombe	**Date**	06/05/2026		**Revision**	1

7.55

Ashton air flow record AHU R.01 pool extract

The following 4 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	
Asset	General
Provided by	Not recorded
Source file	`Ashton air flow record AHU R.01 pool extract.pdf`
Pages	4

RJ Ashton Commissioning Ltd
Unit 7, Ashton Business Park • Mill Lane
Elmwood • EL6 2RA
Tel: 01632 960 418 • Fax: 01632 960 419
e-mail: commissioning@rjashton.com

COMMISSIONING & TESTING DOCUMENTATION

System Reference	AHU 01 - Pool extract
Contract Name	Elmwood Leisure Centre - Elmwood
Job №	250571
Client	Hensall
Consultant	TBC

System Balance Acceptance (Client)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Witness Authority)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Engineer)

Signed: **Glyn Whitcombe** **For:** RJA **Date:** 11/05/2026

This is to certify that the above system has been commissioned and demonstrated in accordance with all relevant guidelines.

Project	Elmwood Leisure Centre - Elmwood
System	AHU 01 - Pool extract
Client	Hensall



COMMISSIONING REPORT

RJ Ashton Group have attended site to carry out the required commissioning works under instruction from Hensall.

The AHU is located on the roof.

The system serves the air sock around the main pools.

The fan is set @ 100 % to achieve these results.

Instruments Used			
Instrument	Anemometer	**Serial №**	126432
Instrument	Micromamnometer	**Serial №**	pvm 12019007
Instrument	Balometer	**Serial №**	90504028

Engineer	Glyn Whitcombe	**Date**	11/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 01 - Pool extract
Client	Hensall



PLANT INFORMATION & TEST DATA: DIRECT DRIVEN

Plant Reference	AHU 01 - Pool extract

Fan Data			
Manufacturer	Trane	**Serial №**	3246607
Fan Type	Wheel - EC 500	**Model №**	ec400
Fan Size	500	**Pitch Angle**	n/a

Motor Data			
Manufacturer	Trane	**Serial №**	3246607
Motor Type	500	**Model №**	ec400
Motor Rating	4.45 KW	**Frame №**	ec400
Voltage/~/Hz	415 / 3 / 50	**Full Load Amps**	23.00 Amps

Design Specifications			
Design Volume	7.898 m³/s	**Static Pressure**	400 Pa
		Motor Speed	3100 Max RPM

AHU Pressure Profile

Units: Pa

Test Results		
Inverter Setting	100.0	%
Tested Volume	7.365	m³/s
% of Design	93%	%
Fan Suction	280	Pa
Fan Discharge	140	Pa
Static Pressure	420	Pa
Running Current	others	Amps

Running Current taken by others unless shown on inverter display

Comments

None.

Engineer	Glyn Whitcombe	**Date**	11/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 01 - Pool extract
Client	Hensall



RECTANGULAR DUCT TRAVERSE

Test Point Reference
TP 1

Test Point Location
plantdeck

Duct Dimensions (mm)
1400 x 1500

Tested Area
2.100 m^2

Design Volume
7.898 m^3/s

Design Velocity
3.76 m/s

	1	2	3	4	5	6	7	8	9	10	11	12
1	3.8	3.1	3.7	4.0	3.4	3.4	3.3					
2	3.7	3.4	3.4	4.1	3.7	3.7	3.5					
3	3.8	3.6	3.3	4.1	3.3	3.8	3.4					
4	3.0	3.7	3.3	4.5	3.4	3.7	3.4					
5	3.2	3.8	3.0	4.5	2.9	3.2	3.0					
6	2.7	3.6	3.1	4.0	3.1	3.3	3.4					

Units: m/s

Total
147.3

Average Velocity
3.51 m/s

Tested Volume
7.365 m^3/s

Percentage of Design
93 %

Static Pressure
147 pa

Comments
None.

Engineer	Glyn Whitcombe	**Date**	11/05/2026	**Revision**	1

7.56

AHU R.01 commissioning certificate

The following 4 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	HEN0203-AHUR01-CC
Asset	AHU R.01
Provided by	Trane UK Ltd
Source file	Ashton air flow record AHU R.01 pool supply.pdf
Pages	4

RJ Ashton Commissioning Ltd
Unit 7, Ashton Business Park • Mill Lane
Elmwood • EL6 2RA
Tel: 01632 960 418 • Fax: 01632 960 419
e-mail: commissioning@rjashton.com

COMMISSIONING & TESTING DOCUMENTATION

System Reference	AHU 01 - Pool supply
Contract Name	Elmwood Leisure Centre - Elmwood
Job №	250571
Client	Hensall
Consultant	TBC

System Balance Acceptance (Client)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Witness Authority)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Engineer)

Signed: **Glyn Whitcombe** **For:** RJA **Date:** 11/05/206

This is to certify that the above system has been commissioned and demonstrated in accordance with all relevant guidelines.

Engineer	Glyn Whitcombe	**Date**	11/05/206	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 01 - Pool supply
Client	Hensall



COMMISSIONING REPORT

RJ Ashton Group have attended site to carry out the required commissioning works under instruction from Hensall.

The AHU is located on the roof.

The system serves the air sock around the main pools.

The fan is set @ 70 % to achieve these results.

Instruments Used			
Instrument	Anemometer	**Serial №**	126432
Instrument	Micromamnometer	**Serial №**	pvm 12019007
Instrument	Balometer	**Serial №**	90504028

Engineer	Glyn Whitcombe	**Date**	11/05/206	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 01 - Pool supply
Client	Hensall



PLANT INFORMATION & TEST DATA: DIRECT DRIVEN

Plant Reference	AHU 01 - Pool supply

Fan Data			
Manufacturer	Trane	**Serial №**	3246607
Fan Type	Wheel - EC 500	**Model №**	ec400
Fan Size	500	**Pitch Angle**	n/a

Motor Data			
Manufacturer	Trane	**Serial №**	3246607
Motor Type	500	**Model №**	ec400
Motor Rating	4.45 KW	**Frame №**	ec400
Voltage/~/Hz	415 / 3 / 50	**Full Load Amps**	23.00 Amps

Design Specifications			
Design Volume	7.669 m³/s	**Static Pressure**	400 Pa
		Motor Speed	3100 Max RPM

AHU Pressure Profile

Units: Pa

Test Results		
Inverter Setting	70.0	%
Tested Volume	8.368	m³/s
% of Design	109%	%
Fan Suction	55	Pa
Fan Discharge	360	Pa
Static Pressure	415	Pa
Running Current	others	Amps

Running Current taken by others unless shown on inverter display

Comments

None.

Engineer	Glyn Whitcombe	**Date**	11/05/206	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 01 - Pool supply
Client	Hensall



RECTANGULAR DUCT TRAVERSE

Test Point Reference
TP 1

Test Point Location
plantdeck

Duct Dimensions (mm)
1400 x 1400

Tested Area
1.960 m^2

Design Volume
7.669 m^3/s

Design Velocity
3.91 m/s

	1	2	3	4	5	6	7	8	9	10	11	12
1	3.0	3.2	4.3	4.6	5.0	5.0	5.4					
2	3.0	3.6	4.0	4.7	5.0	5.1	5.5					
3	2.6	3.6	3.7	4.6	4.7	5.1	5.6					
4	2.5	4.0	3.2	4.2	4.4	5.2	5.7					
5	3.1	3.0	3.6	4.6	4.0	5.5	6.0					
6	3.0	2.8	3.6	4.6	4.6	5.4	5.4					

Units: m/s

Total
179.7

Average Velocity
4.28 m/s

Tested Volume
8.386 m^3/s

Percentage of Design
109 %

Static Pressure
305 pa

Comments
None.

Engineer	Glyn Whitcombe	**Date**	11/05/206	**Revision**	1

7.57

Ashton air flow record AHU R.07 sports hall extract

The following 4 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	
Asset	General
Provided by	Not recorded
Source file	`Ashton air flow record AHU R.07 sports hall extract.pdf`
Pages	4

RJ Ashton Commissioning Ltd
Unit 7, Ashton Business Park • Mill Lane
Elmwood • EL6 2RA
Tel: 01632 960 418 • Fax: 01632 960 419
e-mail: commissioning@rjashton.com

COMMISSIONING & TESTING DOCUMENTATION

System Reference	AHU 07 - sportshall extract
Contract Name	Elmwood Leisure Centre - Elmwood
Job №	250571
Client	Hensall
Consultant	TBC

System Balance Acceptance (Client)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Witness Authority)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Engineer)

Signed: **Glyn Whitcombe** **For:** RJA **Date:** 13/05/2026

This is to certify that the above system has been commissioned and demonstrated in accordance with all relevant guidelines.

Project	Elmwood Leisure Centre - Elmwood
System	AHU 07 - sportshall extract
Client	Hensall



COMMISSIONING REPORT

RJ Ashton Group have attended site to carry out the required commissioning works under instruction from Hensall.

The AHU & test point are located in the plantroom.

The system serves the main sportshall.

The fan is set at 70% to achieve these results.

Instruments Used			
Instrument	Anemometer	**Serial №**	126432
Instrument	Micromamnometer	**Serial №**	pvm 12019007
Instrument	Balometer	**Serial №**	90504028

Engineer	Glyn Whitcombe	**Date**	13/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 07 - sportshall extract
Client	Hensall



PLANT INFORMATION & TEST DATA: DIRECT DRIVEN

Plant Reference	AHU 07 - sportshall extract

Fan Data

Manufacturer	Trane	**Serial №**	3246607
Fan Type	Wheel - EC 355	**Model №**	ec400
Fan Size	400	**Pitch Angle**	n/a

Motor Data

Manufacturer	Trane	**Serial №**	3246607
Motor Type	400	**Model №**	ec400
Motor Rating	6.5 KW	**Frame №**	ec400
Voltage/~/Hz	415 / 3 / 50	**Full Load Amps**	10.00 Amps

Design Specifications

Design Volume	3.611 m³/s	**Static Pressure**	250 Pa
		Motor Speed	3100 Max RPM

AHU Pressure Profile

Units: Pa

Test Results

Inverter Setting	70.0	%
Tested Volume	3.745	m³/s
% of Design	104%	%
Fan Suction	75	Pa
Fan Discharge	34	Pa
Static Pressure	109	Pa
Running Current	others	Amps

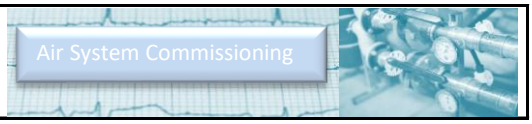
Running Current taken by others unless shown on inverter display

Comments

None.

Engineer	Glyn Whitcombe	**Date**	13/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 07 - sportshall extract
Client	Hensall



RECTANGULAR DUCT TRAVERSE

Test Point Reference
TP 1

Test Point Location
plantroom

Duct Dimensions (mm)
1300 x 1200

Tested Area
1.560 m²

Design Volume
3.661 m³/s

Design Velocity
2.35 m/s

	1	2	3	4	5	6	7	8	9	10	11	12
1	3.2	2.1	2.4	2.4	2.7	3.1						
2	2.2	2.5	1.2	2.6	2.8	3.3						
3	2.6	2.7	1.6	2.5	2.8	3.4						
4	2.3	2.5	1.2	2.5	3.0	2.9						
5	3.1	2.3	1.4	2.7	2.0	2.5						
6	1.9	2.4	1.3	2.4	2.4	2.7						

Units: m/s

Total
87.6

Average Velocity
2.43 m/s

Tested Volume
3.796 m³/s

Percentage of Design
104 %

Static Pressure
58 pa

Comments
None.

Engineer	Glyn Whitcombe	**Date**	13/05/2026	**Revision**	1

7.58

AHU R.07 commissioning certificate

The following 4 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	HEN0203-AHUR07-CC
Asset	AHU R.07
Provided by	Trane UK Ltd
Source file	Ashton air flow record AHU R.07 sports hall supply.pdf
Pages	4

RJ Ashton Commissioning Ltd
Unit 7, Ashton Business Park • Mill Lane
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e-mail: commissioning@rjashton.com

COMMISSIONING & TESTING DOCUMENTATION

System Reference	AHU 07 - sportshall supply
Contract Name	Elmwood Leisure Centre - Elmwood
Job №	250571
Client	Hensall
Consultant	TBC

System Balance Acceptance (Client)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Witness Authority)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Engineer)

Signed: **Glyn Whitcombe** **For:** RJA **Date:** 13/05/2026

This is to certify that the above system has been commissioned and demonstrated in accordance with all relevant guidelines.

Engineer	Glyn Whitcombe	**Date**	13/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 07 - sportshall supply
Client	Hensall



COMMISSIONING REPORT

RJ Ashton Group have attended site to carry out the required commissioning works under instruction from Hensall.

The AHU & test point are located in the plantroom.

The system serves the main sports hall.

The fan is set at 80% to achieve these results.

Instruments Used			
Instrument	Anemometer	**Serial №**	126432
Instrument	Micromamnometer	**Serial №**	pvm 12019007
Instrument	Balometer	**Serial №**	90504028

Engineer	Glyn Whitcombe	**Date**	13/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 07 - sportshall supply
Client	Hensall



PLANT INFORMATION & TEST DATA: DIRECT DRIVEN

Plant Reference	AHU 07 - sportshall supply

Fan Data

Manufacturer	Trane	**Serial №**	3246607
Fan Type	Wheel - EC 355	**Model №**	ec400
Fan Size	400	**Pitch Angle**	n/a

Motor Data

Manufacturer	Trane	**Serial №**	3246607
Motor Type	400	**Model №**	ec400
Motor Rating	6.5 KW	**Frame №**	ec400
Voltage/~/Hz	415 / 3 / 50	**Full Load Amps**	10.00 Amps

Design Specifications

Design Volume	3.611 m³/s	**Static Pressure**	250 Pa
		Motor Speed	3100 Max RPM

AHU Pressure Profile

Units: Pa

Test Results

Inverter Setting	80.0	%
Tested Volume	3.692	m³/s
% of Design	102%	%
Fan Suction	4	Pa
Fan Discharge	59	Pa
Static Pressure	63	Pa
Running Current	others	Amps

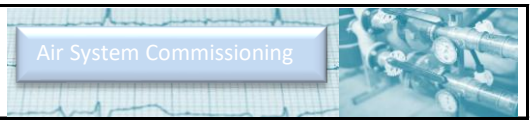
Running Current taken by others unless shown on inverter display

Comments

None.

Engineer	Glyn Whitcombe	**Date**	13/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 07 - sportshall supply
Client	Hensall



RECTANGULAR DUCT TRAVERSE

Test Point Reference
TP 1

Test Point Location
plantroom

Duct Dimensions (mm)
1300 x 1200

Tested Area
1.560 m²

Design Volume
3.661 m³/s

Design Velocity
2.35 m/s

	1	2	3	4	5	6	7	8	9	10	11	12
1	4.8	5.0	5.4	5.4	4.8	5.0	4.9					
2	4.6	4.7	4.7	5.0	4.7	4.6	4.7					
3	3.7	3.5	2.5	2.0	2.1	2.0	2.9					
4	2.0	1.4	1.0	1.8	1.1	0.9	1.6					
5	0.4	0.0	0.8	0.0	0.2	0.0	0.6					
6	0.0	0.0	0.0	0.0	0.0	0.2	0.4					

Units: m/s

Total
99.4

Average Velocity
2.37 m/s

Tested Volume
3.692 m³/s

Percentage of Design
101 %

Static Pressure
26 pa

Comments
None.

Engineer	Glyn Whitcombe	**Date**	13/05/2026	**Revision**	1

7.59

Ashton air flow record AHU R.03 general extract

The following 7 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	
Asset	General
Provided by	Not recorded
Source file	`Ashton air flow record AHU R.03 general extract.pdf`
Pages	7

RJ Ashton Commissioning Ltd
Unit 7, Ashton Business Park • Mill Lane
Elmwood • EL6 2RA
Tel: 01632 960 418 • Fax: 01632 960 419
e-mail: commissioning@rjashton.com

COMMISSIONING & TESTING DOCUMENTATION

System Reference	AHU 03 - FOH & ancillary areas extract
Contract Name	Elmwood Leisure Centre - Elmwood
Job №	250571
Client	Hensall
Consultant	TBC

System Balance Acceptance (Client)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Witness Authority)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Engineer)

Signed: **Glyn Whitcombe** **For:** RJA **Date:** 14/05/2026

This is to certify that the above system has been commissioned and demonstrated in accordance with all relevant guidelines.

Project	Elmwood Leisure Centre - Elmwood
System	AHU 03 - FOH & ancillary areas extract
Client	Hensall



COMMISSIONING REPORT

RJ Ashton Group have attended site to carry out the required commissioning works under instruction from Hensall.

The AHU is located on the roof.

The system serves the FOH & ancillary area on level 1 & ground floors.

The fan is set @ 100 % to achieve these results.

Due to ductwork configuration we were unable to acheive a total pitot traverse on this system, however a calibrated balometer was used and a summation of the total grille volumes was utilised to acheive the total fan volume.

A correction factor of 0.91 was applied to the anemometer & hood.

A correction factor of 1.21 was applied the balometer.

Instruments Used			
Instrument	Anemometer	**Serial №**	126432
Instrument	Micromamnometer	**Serial №**	pvm 12019007
Instrument	Balometer	**Serial №**	90504028

Engineer	Glyn Whitcombe	**Date**	14/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 03 - FOH & ancillary areas extract
Client	Hensall



PLANT INFORMATION & TEST DATA: DIRECT DRIVEN

Plant Reference	AHU 03 - FOH & ancillary areas extract

Fan Data			
Manufacturer	Trane	**Serial №**	3246607
Fan Type	Wheel - EC 355	**Model №**	ec400
Fan Size	400	**Pitch Angle**	n/a

Motor Data			
Manufacturer	Trane	**Serial №**	3246607
Motor Type	400	**Model №**	ec400
Motor Rating	4.6 KW	**Frame №**	ec400
Voltage/~/Hz	415 / 3 / 50	**Full Load Amps**	7.00 Amps

Design Specifications			
Design Volume	2.706 m³/s	**Static Pressure**	450 Pa
		Motor Speed	3100 Max RPM

AHU Pressure Profile

Units: Pa

Test Results		
Inverter Setting	100.0	%
Tested Volume	2.950	m³/s
% of Design	104	%
Fan Suction	584	Pa
Fan Discharge	17	Pa
Static Pressure	468	Pa
Running Current	others	Amps

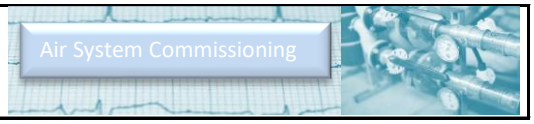
Running Current taken by others unless shown on inverter display

Comments

None.

Engineer	Glyn Whitcombe	**Date**	14/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 03 - FOH & ancillary areas extract
Client	Hensall



CORRECTION FACTOR

Correction Factor for: Balometer

Air Flow Measurement Volumes

1	**Volume from Pitot Traverse(s)**	**=**	0.104	m^3/s
	Traversed volume Test Point reference:			
2	**Volume from Anemometer / Balometer Reading(s)**	**=**	0.085	m^3/s

Calculation for Correction Factor to be applied to diffuser/spigot/hood readings

$$\text{Correction Factor} = \frac{\text{Volume from traverse}}{\text{Volume from Anemometer / Balometer}}$$

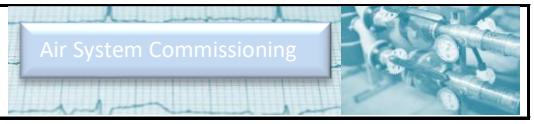
3	**Obtained Correction Factor**	=	**1.22**

Comments

None.

Engineer	Glyn Whitcombe	**Date**	14/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 03 - FOH & ancillary areas extract
Client	Hensall



CORRECTION FACTOR

Correction Factor for: Hood & anemometer

Air Flow Measurement Volumes

1	**Volume from Pitot Traverse(s)**	**=**	0.058	m^3/s
	Traversed volume Test Point reference:			
2	**Volume from Anemometer / Balometer Reading(s)**	**=**	0.065	m^3/s

Calculation for Correction Factor to be applied to diffuser/spigot/hood readings

$$\text{Correction Factor} = \frac{\text{Volume from traverse}}{\text{Volume from Anemometer / Balometer}}$$

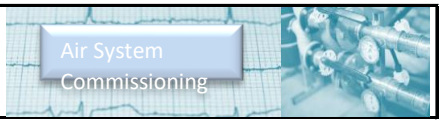
3	**Obtained Correction Factor**	=	**0.89**

Comments

None.

Engineer	Glyn Whitcombe	**Date**	14/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	N/A
Client	Hensall



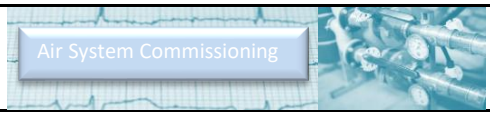
FCU BALOMETER TERMINAL BALANCE

Design		Tested				
Terminal Reference	**Design Volume l/s**	**Tested Volume l/s**	**Factor**	**Factored Volume l\s**	**% of Design**	**Comments**
eg 09	**30**	**26**	**1.22**	**31.72**	**106**	**office**
eg 0 11	**205**	**168**	**1.22**	**204.96**	**100**	**kitchen**
eg 0 10	**205**	**170**	**1.22**	**207.4**	**101**	**kitchen**
eg 0 07	**66**	**54**	**1.22**	**65.88**	**100**	**wc**
eg 0 08	**68**	**59**	**1.22**	**71.98**	**106**	**wc**

Comments
None.

Engineer	Glyn Whitcombe	**Date**	14/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 03 - FOH & ancillary areas extract
Client	Hensall



AIR TERMINAL BALANCE

Design					Tested					
Terminal Reference	**Grille/Hood Size mm**	**Area m²**	**Volume m³/s**	**Velocity m/s**	**Velocity m/s**	**Volume m³/s**	**Factor**	**Factored Volume**	**% of Design**	**Comments**
OE 01	250	0.049	0.13	2.65	3.0	0.147	0.91	0.134	103%	male dry
OE 2	250	0.049	0.13	2.65	3.0	0.147	0.91	0.134	103%	male dry shower
OE 2	300	0.071	0.26	3.66	4.1	0.291	0.91	0.265	102%	female dry
EV 08	100	0.008	0.015	1.88	2.1	0.017	0.91	0.015	102%	male wc
EV 09	100	0.008	0.015	1.88	2.2	0.018	0.91	0.016	107%	male wc
EV 10	100	0.008	0.03	3.75	4.2	0.034	0.91	0.031	102%	female wc
EV 11	100	0.008	0.03	3.75	4.2	0.034	0.91	0.031	102%	female wc
EV 12	100	0.008	0.03	3.75	4.3	0.034	0.91	0.031	104%	female wc
EV 0 01	100	0.008	0.023	2.88	3.3	0.026	0.91	0.024	104%	wc 02
EV 0 02	100	0.008	0.023	2.88	3.3	0.026	0.91	0.024	104%	wc 03
OE 03	800 300	0.240	0.65	2.71	3.2	0.768	0.91	0.699	108%	community & party
EV 0 03	100	0.008	0.021	2.63	3.0	0.024	0.91	0.022	104%	wc
EV 0 04	100	0.008	0.028	3.50	3.9	0.031	0.91	0.028	101%	wc
OE 03	450 150	0.060	0.3	5.00	5.8	0.345	0.91	0.314	105%	seating
OE 04	450 200	0.090	0.15	1.67	2.0	0.180	0.91	0.164	109%	inerva
OE 05	450 200	0.090	0.15	1.67	1.9	0.171	0.91	0.156	104%	inerva
EV 1 01	100	0.008	0.05	6.25	7.0	0.056	0.9	0.050	101%	access wc
EV 1 02	100	0.008	0.03	3.75	4.2	0.034	0.9	0.030	101%	wc
EV 1 03	100	0.008	0.03	3.75	4.3	0.034	0.9	0.031	103%	wc
OE 06	125	0.015	0.05	3.33	3.8	0.057	0.9	0.051	103%	admin training

Comments
None.

Engineer	Glyn Whitcombe	**Date**	14/05/2026	**Revision**	1

7.60

AHU R.03 commissioning certificate

The following 5 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	HEN0203-AHUR03-CC
Asset	AHU R.03
Provided by	Trane UK Ltd
Source file	Ashton air flow record AHU R.03 general supply.pdf
Pages	5

RJ Ashton Commissioning Ltd
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Elmwood • EL6 2RA
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COMMISSIONING & TESTING DOCUMENTATION

System Reference	AHU 03 - General supply
Contract Name	Elmwood Leisure Centre - Elmwood
Job №	250571
Client	Hensall
Consultant	TBC

System Balance Acceptance (Client)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Witness Authority)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Engineer)

Signed: **Glyn Whitcombe** **For:** RJA **Date:** 14/05/2026

This is to certify that the above system has been commissioned and demonstrated in accordance with all relevant guidelines.

Project	Elmwood Leisure Centre - Elmwood
System	AHU 03 - General supply
Client	Hensall



COMMISSIONING REPORT

RJ Ashton Group have attended site to carry out the required commissioning works under instruction from Hensall.

The AHU is located on the roof.

The system serves the FOH & ancillary areas on the 1st & ground floors..

The fan is set @ 80% to achieve these results.

Due to ductwork configuration we were unable to acheive a total pitot traverse on this system, however a calibrated balometer was used and a summation of the total grille volumes was utilised to acheive the total fan volume.

A factor was obtained of 1.21 and has been applied to the final readings.

Instruments Used			
Instrument	Anemometer	**Serial №**	126432
Instrument	Micromamnometer	**Serial №**	pvm 12019007
Instrument	Balometer	**Serial №**	90504028

Engineer	Glyn Whitcombe	**Date**	14/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 03 - General supply
Client	Hensall



PLANT INFORMATION & TEST DATA: DIRECT DRIVEN

Plant Reference	AHU 03 - General supply

Fan Data

Manufacturer	Trane	**Serial №**	3246607
Fan Type	Wheel - EC 355	**Model №**	ec400
Fan Size	400	**Pitch Angle**	n/a

Motor Data

Manufacturer	Trane	**Serial №**	3246607
Motor Type	400	**Model №**	ec400
Motor Rating	4.6 KW	**Frame №**	ec400
Voltage/~/Hz	415 / 3 / 50	**Full Load Amps**	7.00 Amps

Design Specifications

Design Volume	2.548 m³/s	**Static Pressure**	450 Pa
		Motor Speed	3100 Max RPM

AHU Pressure Profile

Units: Pa

Test Results

Inverter Setting	80.0	%
Tested Volume	2.797	m³/s
% of Design	110%	%
Fan Suction	26	Pa
Fan Discharge	390	Pa
Static Pressure	416	Pa
Running Current	others	Amps

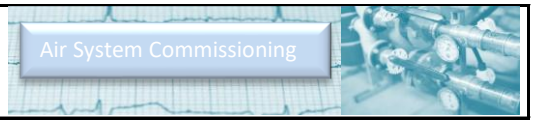
Running Current taken by others unless shown on inverter display

Comments

None.

Engineer	Glyn Whitcombe	**Date**	14/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 03 - General supply
Client	Hensall



CORRECTION FACTOR

Correction Factor for: Balometer

Air Flow Measurement Volumes

1	**Volume from Pitot Traverse(s)**	**=**	212	m^3/s
	Traversed volume Test Point reference:			
2	**Volume from Anemometer / Balometer Reading(s)**	**=**	175	m^3/s

Calculation for Correction Factor to be applied to diffuser/spigot/hood readings

$$\text{Correction Factor} = \frac{\text{Volume from traverse}}{\text{Volume from Anemometer / Balometer}}$$

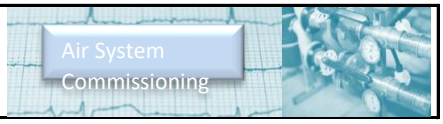
3	**Obtained Correction Factor**	=	**1.21**	

Comments

None.

Engineer	Glyn Whitcombe	**Date**	14/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 03 - General supply
Client	Hensall



FCU BALOMETER TERMINAL BALANCE

Design		Tested				
Terminal Reference	**Design Volume**	**Tested Volume**	**Factor**	**Factored Volume**	**% of Design**	**Comments**
	l/s	**l/s**		**l\s**		
sg 0 19	**190**	**190**	**1**	**190**	**100**	**male dry change**
sg 0 20	**190**	**195**	**1**	**195**	**103**	**male dry change**
sg 0 21	**190**	**208**	**1**	**208**	**109**	**female dry chage**
sg 0 22	**190**	**208**	**1**	**208**	**109**	**female dry chage**
sg 0 07	**30**	**33**	**1**	**33**	**110**	**office**
sg 0 08	**30**	**33**	**1**	**33**	**110**	**reception**
sg 0 09	**200**	**330**	**1**	**330**	**165**	**café seating**
sg 0 11	**160**	**174**	**1**	**174**	**109**	**café seating**
sg 0 12	**160**	**174**	**1**	**174**	**109**	**café seating**
sg 0 18	**192**	**200**	**1**	**200**	**104**	**servery**
sg 0 16	**33**	**35**	**1**	**35**	**106**	**kitchen**
sg 0 03	**81**	**88**	**1**	**88**	**109**	**community**
sg 0 04	**81**	**84**	**1**	**84**	**104**	**community**
sg 0 05	**81**	**86**	**1**	**86**	**106**	**community**
sg 0 06	**81**	**88**	**1**	**88**	**109**	**community**
sg 0 01	**85**	**90**	**1**	**90**	**106**	**party**
sg 0 02	**85**	**89**	**1**	**89**	**105**	**party**
sg 0 010	**30**	**32**	**1**	**32**	**107**	**first aid**
sg 0 013	**133**	**142**	**1**	**142**	**107**	**inerva**
sg 0 014	**133**	**141**	**1**	**141**	**106**	**inerva**
sg 0 015	**133**	**140**	**1**	**140**	**105**	**inerva**
sg 1 01	**30**	**5**	**1**	**5**	**17**	**admin/training**
sg 1 02	**30**	**32**	**1**	**32**	**107**	**corridor**

Comments
None.

Engineer	Glyn Whitcombe	**Date**	14/05/2026	**Revision**	1

7.61

Ashton air flow record AHU R.02 wet change extract

The following 8 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	
Asset	General
Provided by	Not recorded
Source file	`Ashton air flow record AHU R.02 wet change extract.pdf`
Pages	8

RJ Ashton Commissioning Ltd
Unit 7, Ashton Business Park • Mill Lane
Elmwood • EL6 2RA
Tel: 01632 960 418 • Fax: 01632 960 419
e-mail: commissioning@rjashton.com

COMMISSIONING & TESTING DOCUMENTATION

System Reference	AHU 02 - Wet change extract
Contract Name	Elmwood Leisure Centre - Elmwood
Job №	250571
Client	Hensall
Consultant	TBC

System Balance Acceptance (Client)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Witness Authority)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Engineer)

Signed: **Glyn Whitcombe** **For:** RJA **Date:** 15/05/2026

This is to certify that the above system has been commissioned and demonstrated in accordance with all relevant guidelines.

Project	Elmwood Leisure Centre - Elmwood
System	AHU 02 - Wet change extract
Client	Hensall



COMMISSIONING REPORT

Remit

RJ Ashton Group have attended, Elmwood Leisure Centre, Elmwood, to test and commission AHU 02 extract.

Methodology

AHU 02 is located in the roof plantroom. The AHU serves extract to the wet change area on the ground floor.

The pitot traverse was obtained in the plantroom.

Balancing of the square grilles was carried out using a balometer and square hood attachment. Balancing of the punker louvres was carried out using a anemometer and a air flow hood.

Results

TP1 - A total volume of 1.640 m^3/s or 106% of design has been achieved.

A system factor of 1.0 has been applied to all volumes.

Fan was set at 80% to achieve these results.

Instruments Used			
Instrument	Anemometer	**Serial №**	126432
Instrument	Micromanometer	**Serial №**	pvm 12019007
Instrument	Balometer	**Serial №**	90504028

Engineer	Glyn Whitcombe	**Date**	15/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 02 - Wet change extract
Client	Hensall



PLANT INFORMATION & TEST DATA: DIRECT DRIVEN

Plant Reference	AHU 02 - Wet change extract

Fan Data

Manufacturer	AL-KO	**Type**	AT4-F 20X12/20X12
Fan Type	Wheel - EC 355	**Model №**	3246607
Fan Size	400	**Pitch Angle**	n/a

Motor Data

Manufacturer	AL-KO	**Serial №**	AT4-F 20X12/20X12
Motor Type	400	**Model №**	3246607
Motor Rating	3,50 KW	**Frame №**	3246607
Voltage/~/Hz	400 / 3 / 50	**Full Load Amps**	5.36 Amps

Design Specifications

Design Volume	1.551 m³/s	**Static Pressure**	576 Pa
		Motor Speed	1950 Max RPM

AHU Pressure Profile

Units: Pa

Test Results

Inverter Setting	80.0	%
Tested Volume	1.640	m³/s
% of Design	106%	%
Fan Suction	354	Pa
Fan Discharge	50	Pa
Static Pressure	153	Pa
Running Current	others	Amps

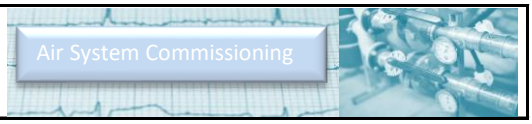
Running Current taken by others unless shown on inverter display

Comments

None.

Engineer	Glyn Whitcombe	**Date**	15/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 02 - Wet change extract
Client	Hensall



RECTANGULAR DUCT TRAVERSE

Test Point Reference
TP 1 main volume

Test Point Location
plantroom

Duct Dimensions (mm)
800 x 400

Tested Area
0.320 m²

Design Volume
1.551 m³/s

Design Velocity
4.85 m/s

	1	2	3	4	5	6	7	8	9	10	11	12
1	3.3	4.8	4.4	4.7	4.6							
2	4.9	5.4	4.8	4.9	6.1							
3	4.7	5.3	5.5	6.0	6.0							
4	4.3	5.0	5.4	6.2	6.2							
5												
6												

Units: m/s

Total
102.5

Average Velocity
5.13 m/s

Tested Volume
1.640 m³/s

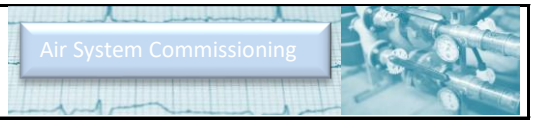
Percentage of Design
106 %

Static Pressure
153 pa

Comments
None.

Engineer	Glyn Whitcombe	**Date**	15/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 02 - Wet change extract
Client	Hensall



CORRECTION FACTOR

Correction Factor for: Balometer

Air Flow Measurement Volumes

1	**Volume from Pitot Traverse(s)**	**=**	1.640	m^3/s
	Traversed volume Test Point reference:			
2	**Volume from Anemometer / Balometer Reading(s)**	**=**	1.637	m^3/s

Calculation for Correction Factor to be applied to diffuser/spigot/hood readings

$$\text{Correction Factor} = \frac{\text{Volume from traverse}}{\text{Volume from Anemometer / Balometer}}$$

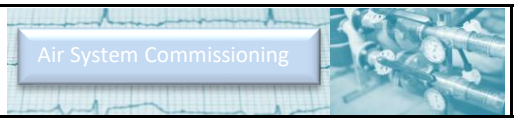
3	**Obtained Correction Factor**	=	**1.00**

Comments

None.

Engineer	Glyn Whitcombe	**Date**	15/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 02 - Wet change extract
Client	Hensall



AIR TERMINAL BALANCE

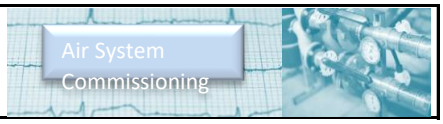
Design					Tested					
Terminal Reference	**Grille/Hood Size mm**	**Area m²**	**Volume m³/s**	**Velocity m/s**	**Velocity m/s**	**Volume m³/s**	**Factor**	**Factored Volume**	**% of Design**	**Comments**
EG 0 30	110	0.018	0.036	2.00	2.1	0.038	1	0.038	105	
EG 0 29	110	0.018	0.036	2.00	2.1	0.038	1	0.038	105	
EG 0 28	110	0.018	0.036	2.00	2.1	0.038	1	0.038	105	
EG 0 32	110	0.018	0.025	1.39	1.5	0.027	1	0.027	108	
EG 0 36	110	0.018	0.025	1.39	1.5	0.027	1	0.027	108	
EG 0 33	110	0.018	0.048	2.67	2.85	0.051	1	0.051	107	
EG 0 34	110	0.018	0.048	2.67	2.8	0.050	1	0.050	105	
EG 0 35	110	0.018	0.048	2.67	2.8	0.050	1	0.050	105	
EG 0 37	110	0.018	0.020	1.11	1.2	0.022	1	0.022	108	
EG 0 31	110	0.018	0.036	2.00	2.1	0.038	1	0.038	105	

Comments

None.

Engineer	Glyn Whitcombe	**Date**	15/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 02 - Wet change extract
Client	Hensall



FCU BALOMETER TERMINAL BALANCE

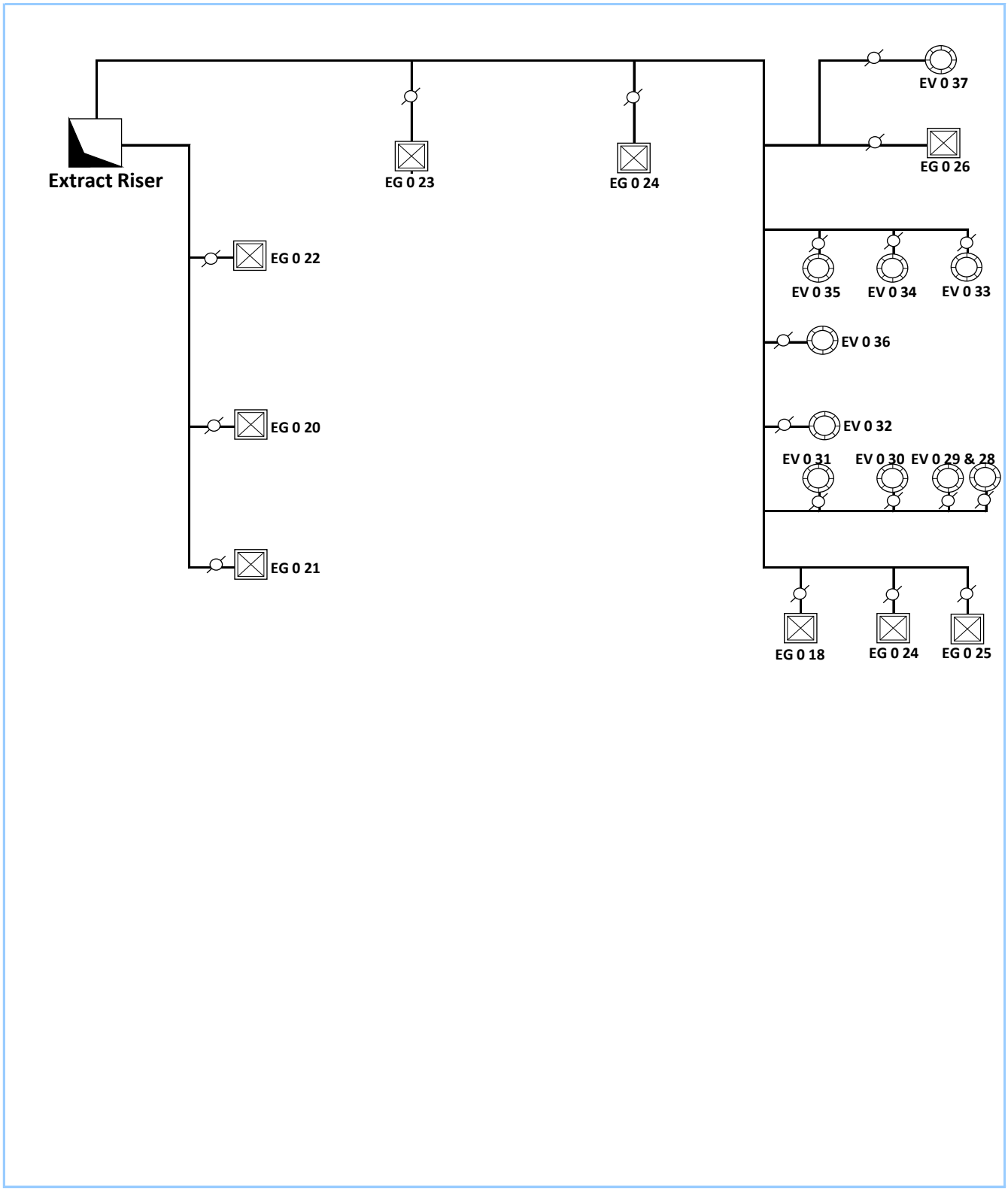
Design		Tested				
Terminal Reference	**Design Volume l/s**	**Tested Volume l/s**	**Factor**	**Factored Volume l\s**	**% of Design**	**Comments**
eg 0 18	**153**	**165**	**1**	**165**	**108**	**post swim showers**
eg 0 25	**153**	**164**	**1**	**164**	**107**	**post swim showers**
eg 0 24	**153**	**165**	**1**	**165**	**108**	**post swim showers**
eg 0 26	**51**	**54**	**1**	**54**	**106**	**acc change**
eg 0 21	**160**	**164**	**1**	**164**	**103**	**group change**
eg 0 20	**160**	**169**	**1**	**169**	**106**	**group change 1**
eg 0 22	**160**	**169**	**1**	**169**	**106**	**group change 2**
eg 0 23	**118**	**118**	**1**	**118**	**100**	**group change 3**
eg 0 24	**85**	**90**	**1**	**90**	**106**	**corridor**

Comments
None.

Engineer	Glyn Whitcombe	**Date**	15/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 02 - Wet change extract
Client	Hensall

SYSTEM SCHEMATIC



Engineer	Glyn Whitcombe	**Date**	15/05/2026	**Revision**	1

7.62

AHU R.02 commissioning certificate

The following 7 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	HEN0203-AHUR02-CC
Asset	AHU R.02
Provided by	Trane UK Ltd
Source file	Ashton air flow record AHU R.02 wet change supply.pdf
Pages	7

RJ Ashton Commissioning Ltd
Unit 7, Ashton Business Park • Mill Lane
Elmwood • EL6 2RA
Tel: 01632 960 418 • Fax: 01632 960 419
e-mail: commissioning@rjashton.com

COMMISSIONING & TESTING DOCUMENTATION

System Reference	AHU 02 - Wet change Primary Air
Contract Name	Elmwood Leisure Centre - Elmwood
Job №	250571
Client	Hensall
Consultant	TBC

System Balance Acceptance (Client)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Witness Authority)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Engineer)

Signed: **Glyn Whitcombe** **For:** RJA **Date:** 15/05/2026

This is to certify that the above system has been commissioned and demonstrated in accordance with all relevant guidelines.

Project	Elmwood Leisure Centre - Elmwood
System	AHU 02 - Wet change Primary Air
Client	Hensall



COMMISSIONING REPORT

Remit

RJ Ashton Group have attended, Elmwood Leisure Centre, Elmwood, to test and commission AHU 02 Primary air.

Methodology

AHU 02 is located in the roof plantroom. The AHU serves primary air to the wet change area on the ground floor. The main riser serving the wet change area can be found above the ceiling void in the adjacent corridor.

Pitot traverse located the plantroom.

Main Branches and terminals have been balanced by utilising the VCDs installed at each spigot and branches where possible.

Results

TP1 - A total volume of 2.223 m^3/s or 100% of design has been achieved.

A system factor of 1.04 has been applied to all volumes.

Fan was set at 80% to achieve these results.

Instruments Used			
Instrument	Anemometer	**Serial №**	126432
Instrument	Micromanometer	**Serial №**	pvm 12019007
Instrument	Balometer	**Serial №**	90504028

Engineer	Glyn Whitcombe	**Date**	15/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 02 - Wet change Primary Air
Client	Hensall



PLANT INFORMATION & TEST DATA: DIRECT DRIVEN

Plant Reference	AHU 02 - Wet change Primary Air

Fan Data

Manufacturer	AL-KO	**Type**	AT4-F 20X12/20X12
Fan Type	Wheel - EC 355	**Model №**	3246607
Fan Size	400	**Pitch Angle**	n/a

Motor Data

Manufacturer	AL-KO	**Serial №**	AT4-F 20X12/20X12
Motor Type	400	**Model №**	3246607
Motor Rating	4.6 KW	**Frame №**	3246607
Voltage/~/Hz	400 / 3 / 50	**Full Load Amps**	7.12 Amps

Design Specifications

Design Volume	2.225 m³/s	**Static Pressure**	980 Pa
		Motor Speed	2.150 Max RPM

AHU Pressure Profile

Units: Pa

Test Results

Inverter Setting	80.0	%
Tested Volume	2.223	m³/s
% of Design	100%	%
Fan Suction	45	Pa
Fan Discharge	187	Pa
Static Pressure	125	Pa
Running Current	others	Amps

Running Current taken by others unless shown on inverter display

Comments

None.

Engineer	Glyn Whitcombe	**Date**	15/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 02 - Wet change Primary Air
Client	Hensall



RECTANGULAR DUCT TRAVERSE

Test Point Reference
TP 1 Primary Air

Test Point Location
Plantroom

Duct Dimensions (mm)
1000 x 450

Tested Area
0.450 m^2

Design Volume
2.225 m^3/s

Design Velocity
4.94 m/s

	1	2	3	4	5	6	7	8	9	10	11	12
1	6.7	6.5	6.4	6.5	6.8							
2	5.0	4.7	5.6	6.5	7.0							
3	2.8	1.9	4.0	4.5	6.9							
4	1.3	2.4	3.2	5.4	7.1							
5	1.7	2.6	4.7	6.4	6.9							
6												

Units: m/s

Total
123.5

Average Velocity
4.94 m/s

Tested Volume
2.223 m^3/s

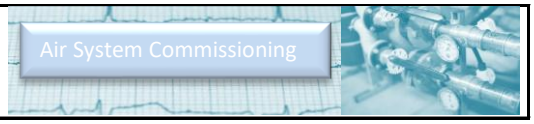
Percentage of Design
100 %

Static Pressure
125 pa

Comments
None.

Engineer	Glyn Whitcombe	**Date**	15/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 02 - Wet change Primary Air
Client	Hensall



CORRECTION FACTOR

Correction Factor for: Balometer

Air Flow Measurement Volumes

1	**Volume from Pitot Traverse(s)**	**=**	2.223	m^3/s
	Traversed volume Test Point reference:			
2	**Volume from Anemometer / Balometer Reading(s)**	**=**	2.142	m^3/s

Calculation for Correction Factor to be applied to diffuser/spigot/hood readings

$$\text{Correction Factor} = \frac{\text{Volume from traverse}}{\text{Volume from Anemometer / Balometer}}$$

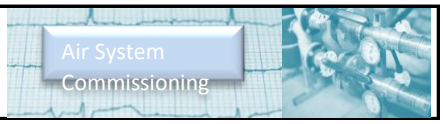
3	**Obtained Correction Factor**	=	**1.04**

Comments

None.

Engineer	Glyn Whitcombe	**Date**	15/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 02 - Wet Change Primary Air
Client	Hensall



FCU BALOMETER TERMINAL BALANCE

Design		Tested				
Terminal Reference	**Design Volume**	**Tested Volume**	**Factor**	**Factored Volume**	**% of Design**	**Comments**
	l/s	**l/s**		**l\s**		
sg 0 24	**118**	**113**	**1.04**	**117.52**	**100**	**changing places**
sg 0 34	**160**	**155**	**1.04**	**161.2**	**101**	**group change**
sg 0 35	**160**	**154**	**1.04**	**160.16**	**100**	**change**
sg 0 36	**160**	**154**	**1.04**	**160.16**	**100**	**group change**
sg 0 26	**197**	**191**	**1.04**	**198.64**	**101**	**change village**
sg 0 25	**197**	**189**	**1.04**	**196.56**	**100**	**change village**
sg 0 27	**197**	**190**	**1.04**	**197.6**	**100**	**change village**
sg 0 30	**197**	**189**	**1.04**	**196.56**	**100**	**change village**
sg 0 31	**197**	**189**	**1.04**	**196.56**	**100**	**change village**
sg 0 33	**197**	**189**	**1.04**	**196.56**	**100**	**change village**
sg 0 29	**51**	**50**	**1.04**	**52**	**102**	**access change**
sg 0 28	**197**	**190**	**1.04**	**197.6**	**100**	**vanity**
sg 0 32	**197**	**189**	**1.04**	**196.56**	**100**	**vanity**

Comments

None.

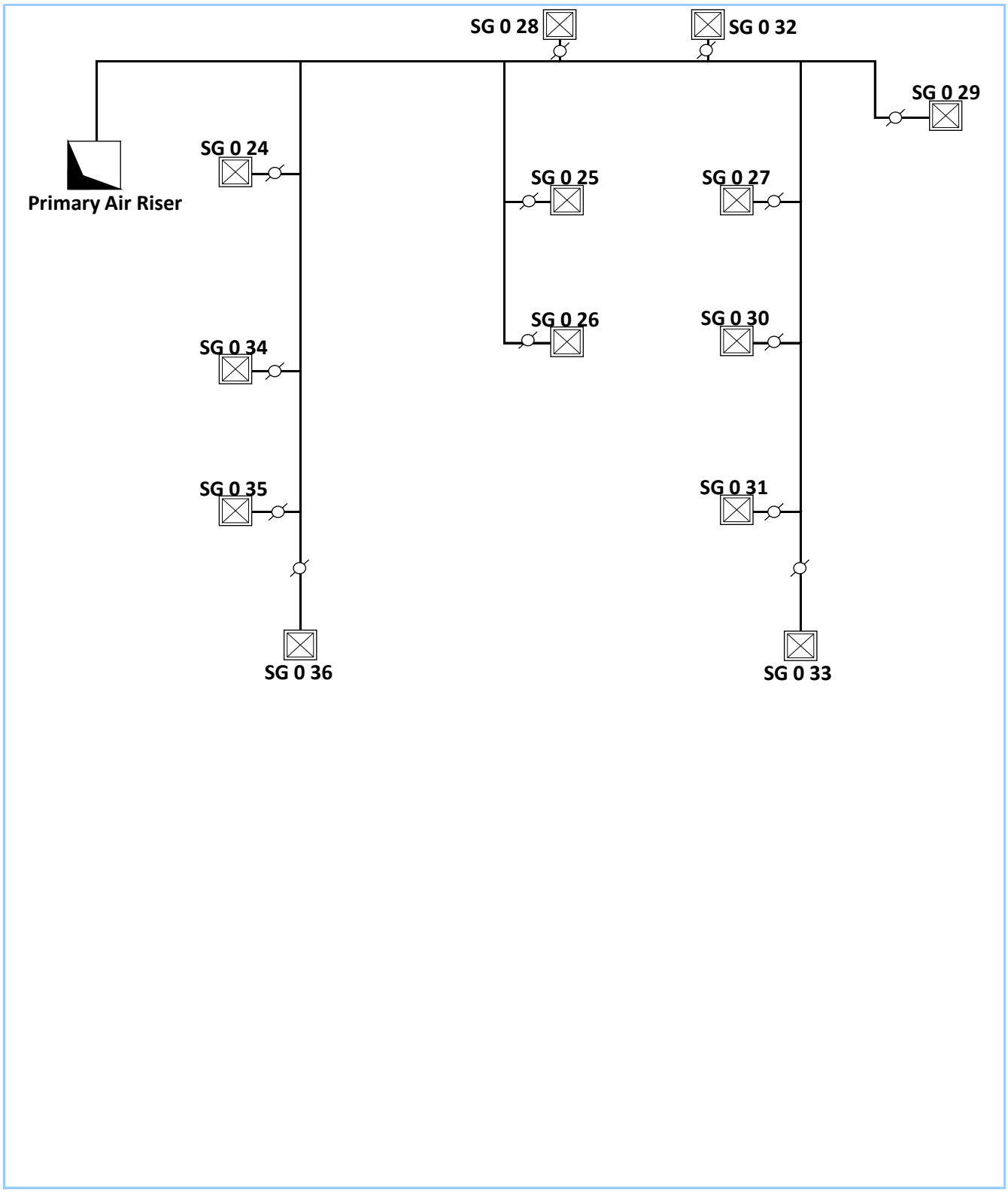
Engineer	Glyn Whitcombe	**Date**	15/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 02 - Wet change Primary Air
Client	Hensall

RJ URMSON GROUP

Air System Commissioning

SYSTEM SCHEMATIC



Engineer	Glyn Whitcombe	**Date**	15/05/2026	**Revision**	1

7.63

Ashton air flow record AHU R.06 spin studio extract

The following 5 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	
Asset	General
Provided by	Not recorded
Source file	`Ashton air flow record AHU R.06 spin studio extract.pdf`
Pages	5

RJ Ashton Commissioning Ltd
Unit 7, Ashton Business Park • Mill Lane
Elmwood • EL6 2RA
Tel: 01632 960 418 • Fax: 01632 960 419
e-mail: commissioning@rjashton.com

COMMISSIONING & TESTING DOCUMENTATION

System Reference	AHU 06 - spin class supply
Contract Name	Elmwood Leisure Centre - Elmwood
Job №	250571
Client	Hensall
Consultant	TBC

System Balance Acceptance (Client)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Witness Authority)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Engineer)

Signed: **Glyn Whitcombe** **For:** RJA **Date:** 15/05/2026

This is to certify that the above system has been commissioned and demonstrated in accordance with all relevant guidelines.

Project	Elmwood Leisure Centre - Elmwood
System	AHU 06 - spin class supply
Client	Hensall



COMMISSIONING REPORT

RJ Ashton Group have attended site to carry out the required commissioning works under instruction from Hensall.

The AHU is located on the roof.

The system serves the new dance are.

The fan is set at 90% to achieve these results.

Due to access restrictions we were unable to perform a pitot traverse on this system. However we used a calibrated balometre and a total summation of the grilles was utilised to achieve the results.

Instruments Used			
Instrument	Anemometer	**Serial №**	126432
Instrument	Micromamnometer	**Serial №**	pvm 12019007
Instrument	Balometer	**Serial №**	90504028

Engineer	Glyn Whitcombe	**Date**	15/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 06 - spin class supply
Client	Hensall



PLANT INFORMATION & TEST DATA: DIRECT DRIVEN

Plant Reference	AHU 06 - spin class supply

Fan Data			
Manufacturer	Trane	**Serial №**	324667
Fan Type	Wheel - EC 355	**Model №**	EC 355
Fan Size	355	**Pitch Angle**	n/a

Motor Data			
Manufacturer	Trane	**Serial №**	324667
Motor Type	355	**Model №**	EC 355
Motor Rating	3 KW	**Frame №**	EC 355
Voltage/~/Hz	415 / 3 / 50	**Full Load Amps**	4.60 Amps

Design Specifications			
Design Volume	0.800 m³/s	**Static Pressure**	250 Pa
		Motor Speed	4020 max RPM

AHU Pressure Profile

Units: Pa

Test Results		
Inverter Setting	90.0	%
Tested Volume	0.811	m³/s
% of Design	102	%
Fan Suction		Pa
Fan Discharge		Pa
Static Pressure		Pa
Running Current	Others	Amps

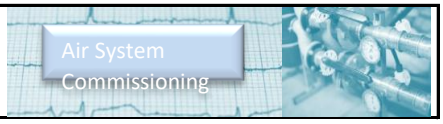
Running Current taken by others unless shown on inverter display

Comments

None.

Engineer	Glyn Whitcombe	**Date**	15/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 06 - spin class supply
Client	Hensall



FCU BALOMETER TERMINAL BALANCE

Design		Tested				
Terminal Reference	**Design Volume l/s**	**Tested Volume l/s**	**Factor**	**Factored Volume l\s**	**% of Design**	**Comments**
eg 2 05/06	**400**	**401**	**1**	**401**	**100**	**spin studio**
eg 2 07/08	**400**	**410**	**1**	**410**	**103**	**spin studio**

Comments
None.

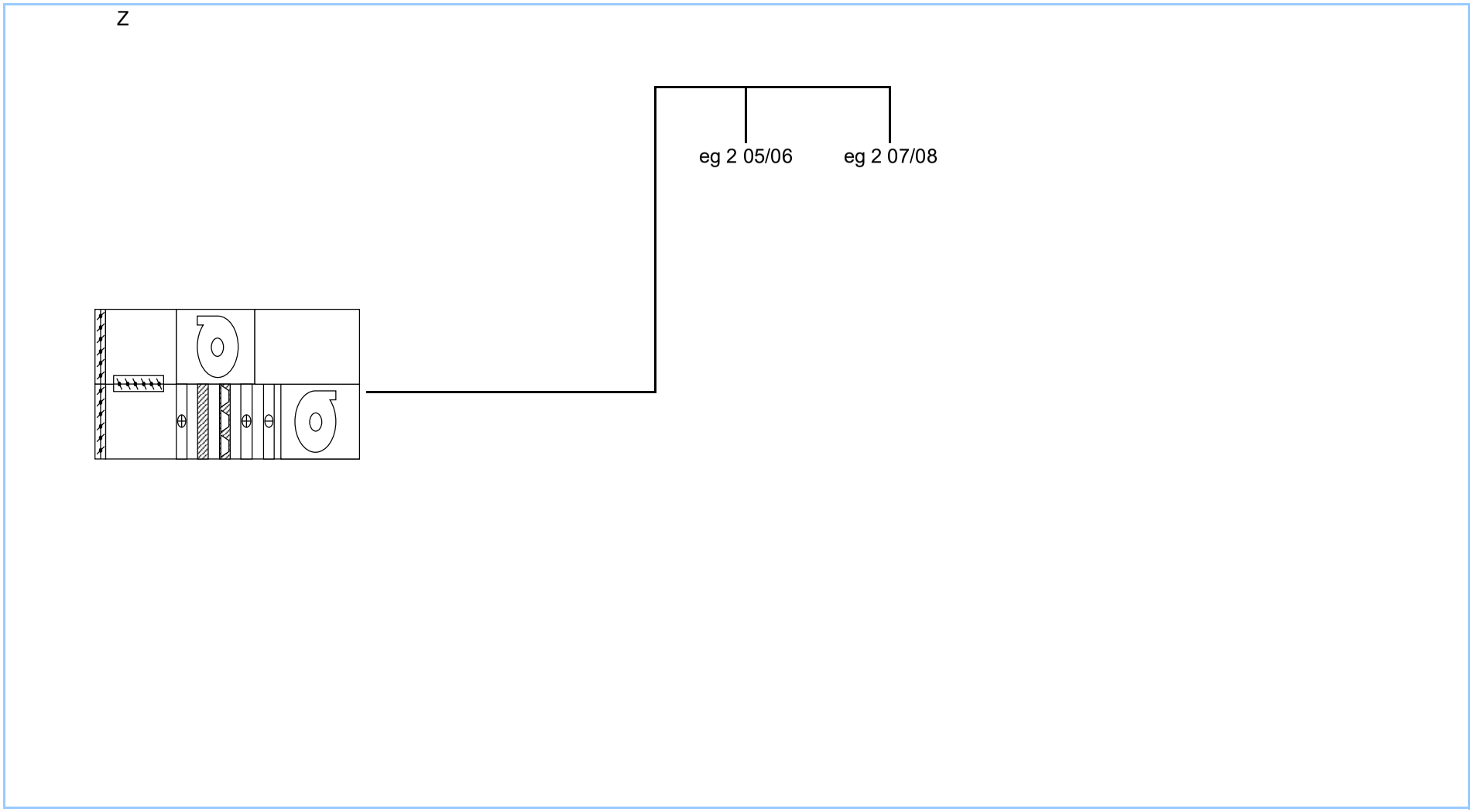
Engineer	Glyn Whitcombe	**Date**	15/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 06 - spin class supply
Client	Hensall

ASHTON

Air System Commissioning

SYSTEM SCHEMATIC



Engineer	Glyn Whitcombe	**Date**	15/05/2026		**Revision**	1

7.64

AHU R.06 commissioning certificate

The following 5 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	HEN0203-AHUR06-CC
Asset	AHU R.06
Provided by	Trane UK Ltd
Source file	Ashton air flow record AHU R.06 spin studio supply.pdf
Pages	5

RJ Ashton Commissioning Ltd
Unit 7, Ashton Business Park • Mill Lane
Elmwood • EL6 2RA
Tel: 01632 960 418 • Fax: 01632 960 419
e-mail: commissioning@rjashton.com

COMMISSIONING & TESTING DOCUMENTATION

System Reference	AHU 06 - spin class supply
Contract Name	Elmwood Leisure Centre - Elmwood
Job №	250571
Client	Hensall
Consultant	TBC

System Balance Acceptance (Client)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Witness Authority)

Signed: _____ **For:** _____ **Date:** _____

System Balance Acceptance (Engineer)

Signed: **Glyn Whitcombe** **For:** RJA **Date:** 15/05/2026

This is to certify that the above system has been commissioned and demonstrated in accordance with all relevant guidelines.

Project	Elmwood Leisure Centre - Elmwood
System	AHU 06 - spin class supply
Client	Hensall



COMMISSIONING REPORT

RJ Ashton Group have attended site to carry out the required commissioning works under instruction from Hensall.

The AHU & is located on the roof.

The system serves the new dance are.

The fan is set at 80% to achieve these results.

Due to access restrictions we were unable to perform a pitot traverse on this system. However we used a calibrated balometre and a total summation of the grilles was utilised to achieve the results.

Instruments Used			
Instrument	Anemometer	**Serial №**	126432
Instrument	Micromamnometer	**Serial №**	pvm 12019007
Instrument	Balometer	**Serial №**	90504028

Engineer	Glyn Whitcombe	**Date**	15/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 06 - spin class supply
Client	Hensall



PLANT INFORMATION & TEST DATA: DIRECT DRIVEN

Plant Reference	AHU 06 - spin class supply

Fan Data			
Manufacturer	Trane	**Serial №**	324667
Fan Type	Wheel - EC 355	**Model №**	EC 355
Fan Size	355	**Pitch Angle**	n/a

Motor Data			
Manufacturer	Trane	**Serial №**	324667
Motor Type	355	**Model №**	EC 355
Motor Rating	3 KW	**Frame №**	EC 355
Voltage/~/Hz	415 / 3 / 50	**Full Load Amps**	4.60 Amps

Design Specifications			
Design Volume	0.800 m³/s	**Static Pressure**	250 Pa
		Motor Speed	4020 max RPM

AHU Pressure Profile

Units: Pa

Test Results		
Inverter Setting	80.0	%
Tested Volume	0.855	m³/s
% of Design	108	%
Fan Suction	15	Pa
Fan Discharge	86	Pa
Static Pressure	101	Pa
Running Current	Others	Amps

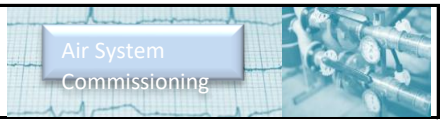
Running Current taken by others unless shown on inverter display

Comments

None.

Engineer	Glyn Whitcombe	**Date**	15/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 06 - spin class supply
Client	Hensall



FCU BALOMETER TERMINAL BALANCE

Design		Tested				
Terminal Reference	**Design Volume l/s**	**Tested Volume l/s**	**Factor**	**Factored Volume l\s**	**% of Design**	**Comments**
sg 2 06	**200**	**205**	**1**	**205**	**103**	**spin studio**
sg 2 07	**200**	**210**	**1**	**210**	**105**	**spin studio**
sg 2 08	**200**	**220**	**1**	**220**	**110**	**spin studio**
sg 2 09	**200**	**220**	**1**	**220**	**110**	**spin studio**

Comments
None.

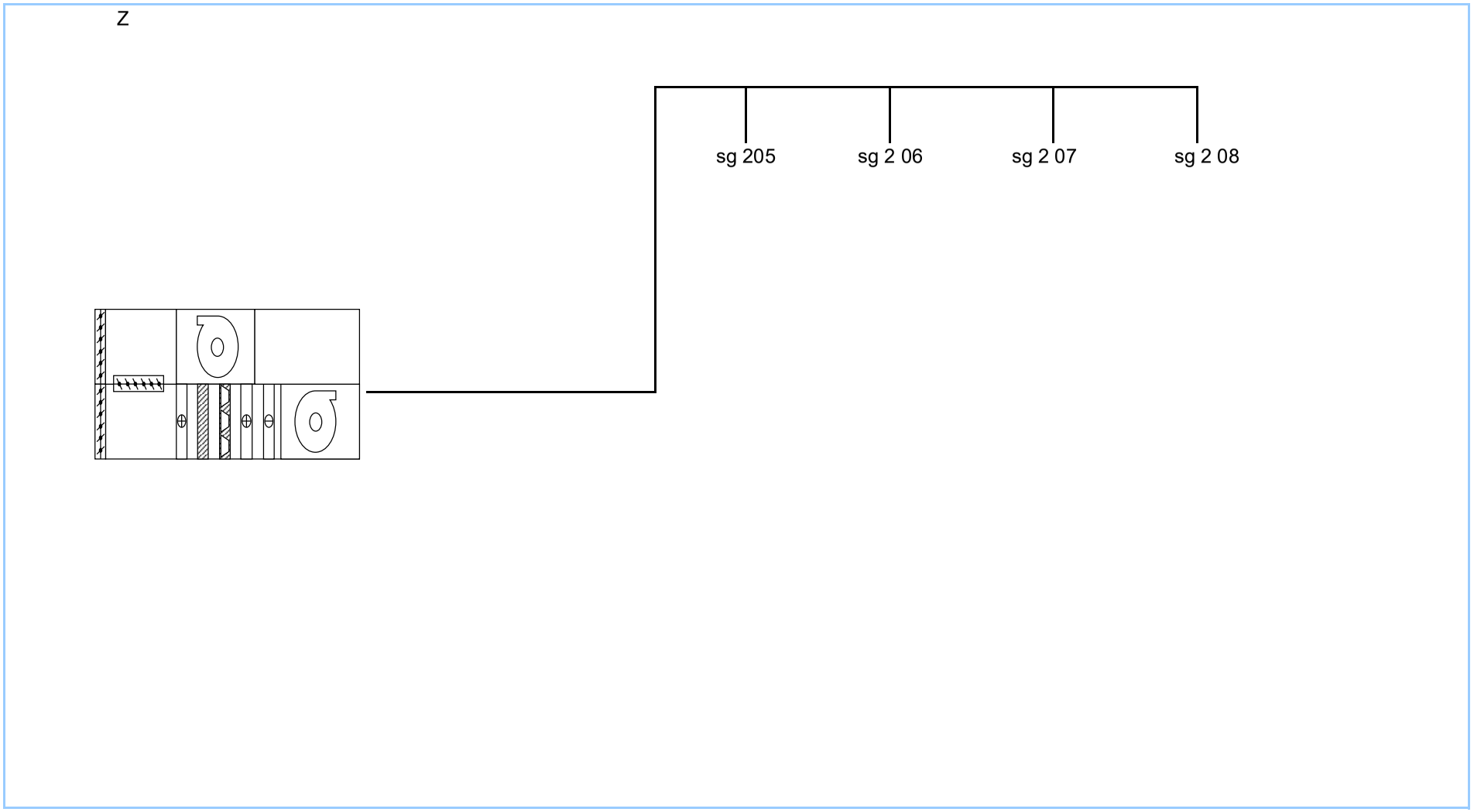
Engineer	Glyn Whitcombe	**Date**	15/05/2026	**Revision**	1

Project	Elmwood Leisure Centre - Elmwood
System	AHU 06 - spin class supply
Client	Hensall

ASHTON

Air System Commissioning

SYSTEM SCHEMATIC



Engineer	Glyn Whitcombe	**Date**	15/05/2026			**Revision**	1

7.65

KVT BMS commissioning checklist, 14th of May 2026

The following 20 pages are the document exactly as received and checked. It is bookmarked in the PDF.

Reference	
Asset	General
Provided by	Not recorded
Source file	`KVT BMS commissioning checklist, 14th of May 2026.pdf`
Pages	20

KVT
CONTROLS

Project: Elmwood LC Engineer: C Braaten Date: 14/5/26

				Checked	Notes
Preliminary			BMS panel power up	CB	
			Controller commission/license	CB	
			HMI setup	CB	
			Roof AHUs comms check	CB	
Primary Plant	ASHP System		Bacnet IP Config	CB	
			Pull in Points	CB	
			Check sensor readings	CB	
			Graphic Maps	CB	
	Primary Pumpset	Pump 1	Check Power On	CB	
			Test Enable	CB	
			Test Fault Output	CB	
			Test HOA	CB	
			Test Fail-over	CB	
		Pump 2	Check Power On	CB	
			Test Enable	CB	
			Test Fault Output	CB	
			Test HOA	CB	
			Test Fail-over	CB	
			Set DP Switch dial	CB	
			Test DPS Operation	CB	
	AHU LTHW Pumpset	Pump 1	Check Power On	CB	
			Test Enable	CB	
			Test Fault Output	CB	
			Test HOA	CB	
			Test Fail-over	CB	
		Pump 2	Check Power On	CB	
			Test Enable	CB	
			Test Fault Output	CB	
			Test HOA	CB	
			Test Fail-over	CB	
			Set DP Switch dial	CB	
			Test DPS Operation	CB	
			Flow Temp	CB	
			Return Temp	CB	
	DHW LTHW Pumpset	Pump 1	Check Power On	CB	
			Test Enable	CB	
			Test Fault Output	CB	
			Test HOA	CB	
			Test Fail-over	CB	
		Pump 2	Check Power On	CB	
			Test Enable	CB	
			Test Fault Output	CB	
			Test HOA	CB	
			Test Fail-over	CB	
			Set DP Switch dial	CB	
			Test DPS Operation	CB	
			Flow Temps	CB	33.7C, 31.9C
			Return Temps	CB	34.0C, 38.1C
	Pool LTHW Pumpset	Pump 1	Check Power On	CB	
			Test Enable	CB	
			Test Fault Output	CB	
			Test HOA	CB	
			Test Fail-over	CB	
		Pump 2	Check Power On	CB	
			Test Enable	CB	
			Test Fault Output	CB	
			Test HOA	CB	
			Test Fail-over	CB	
			Set DP Switch dial	CB	
			Test DPS Operation	CB	
			Flow Temp	CB	33.7C
			Return Temp	CB	33.6C
			FA Input - Test shutdown	CB	

		CW Booster	Common Fault	CB	
		Pool Wash	Common Fault	CB	
			High Level	X	N/A
			Low Level	X	N/A
	DHW		DHW Common Sec Flow Temp	CB	62.5C
			DHW Common Sec Ret Temp	CB	62.1C
		DHW Tank 1	Tank Temp	CB	59.1C
			High Temp Trip	CB	
			Immersion Enable	CB	
			Valve Control	CB	
		DHW Tank 2	Tank Temp	CB	58.4C
			High Temp Trip	CB	
			Immersion Enable	CB	
			Valve Control	CB	
		DHW Sec Pump	Enable	CB	
			Fault	CB	
	Pressurisation Unit		Fault	CB	
			Test fault shutdown	CB	
	EF B.01	Chemical Extract	DPS	CB	
			Enable	CB	
	EF B.02	Hypo Extract	DPS	CB	
			Enable	CB	
	Main Pool	PHX	Valve Control (Drive 0/100)	CB	unable to test fully as no pool water
			Pool Water Temp	CB	
			HL Stat, HL Shutdown	CB	
	Learner Pool	PHX	Valve Control (Drive 0/100)	CB	
			Pool Water Temp	CB	
			HL Stat, HL Shutdown	CB	
	Main Pool	Water Meter	Test pulse, calibrate read	x	unable to calibrate as no usage
	Learner Pool	Water Meter	Test pulse, calibrate read	x	unable to calibrate as no usage
	Pool Plant Ctrl Panel		Common Alarm	x	Pool plant not yet commissioned
	Main Pool		Booster Enable	x	Pool plant not yet commissioned
	Learner pool		Booster Enable	x	Pool plant not yet commissioned
VRF			BlackPear bacnet config	x	
			BlackPear Pull points	x	
			Graphic Maps	x	
			Wall controller test vs BMS	x	
Electric Meters			Address all meters	CB	
			Check comms	CB	
	Address 1	BasementPlant Met	Cross ref KWhr value	CB	
	Address 2	MechPlant Meter	Cross ref KWhr value	CB	
	Address 3	PoolPlant Meter	Cross ref KWhr value	CB	
	Address 4	ASHP1 Meter	Cross ref KWhr value	CB	
	Address 5	ASHP2 Meter	Cross ref KWhr value	CB	
	Address 6	ASHP3 Meter	Cross ref KWhr value	CB	
	Address 7	DB/01/IT	Cross ref KWhr value	CB	
	Address 8	DB/02/PLANT	Cross ref KWhr value	CB	
	Address 9	LIFT	Cross ref KWhr value	CB	
	Address 10	SPARE	Cross ref KWhr value	CB	
	Address 11	DB/00/K	Cross ref KWhr value	CB	
	Address 12	DB/00/L&P	Cross ref KWhr value	CB	

KVT
CONTROLS

Project: Elmwood LC

		Checked
AHU1	Input Fire Alarm	CB
	LTHW 3PV Control	CB
	Supply Fan Enable	CB
	Supply Fan Fault	CB
	Supply Fan Speed	CB
	Extract Fan Enable	CB
	Extract Fan Fault	CB
	Extract Fan Speed	CB
	Inlet Temp	CB
	Supply Temp	CB
	Return Temp	CB
	Return Humidity	CB
	Panel Filter DPS	CB
	Bag Filter DPS	CB
	Extract Filter DPS	CB
	Supply DPS	CB
	Extract DPS	CB
	Inlet Damper	CB
	Inlet E/S	CB
	Extract Damper	CB
	Extract E/S	CB
	Recirc Damper	CB
	Supply Fan Power	CB
	Extract Fan Power	CB
	Frost Stat	CB
	Frost Shutdown	CB
	Remote Enable	CB
	Manual Mode	CB

Notes
LINKED OUT
70%
100%
17.2C
30.9C
22.3C
35.3 RH

KVT
CONTROLS

Project: Elmwood LC

		Checked
AHU2	Input Fire Alarm	CB
	LTHW 3PV Control	CB
	Supply Fan Enable	CB
	Supply Fan Fault	CB
	Supply Fan Speed	CB
	Extract Fan Enable	CB
	Extract Fan Fault	CB
	Extract Fan Speed	CB
	Inlet Temp	CB
	Supply Temp	CB
	Return Temp	CB
	Return Humidity	CB
	Panel Filter DPS	CB
	Bag Filter DPS	CB
	Extract Filter DPS	CB
	Supply DPS	CB
	Extract DPS	CB
	Inlet Damper	CB
	Inlet E/S	CB
	Extract Damper	CB
	Extract E/S	CB
	Recirc Damper	CB
	Bypass Damper	CB
	Supply Fan Power	CB
	Extract Fan Power	CB
	Frost Stat	CB
	Frost Shutdown	CB
	Remote Enable	CB
	Manual Mode	CB

Notes
LINKED OUT
80%
80%
12.7C
24.8C
21.1C
36.6RH

KVT
CONTROLS

Project: Elmwood LC

		Checked
AHU3	Input Fire Alarm	CB
	LTHW 3PV Control	CB
	Supply Fan Enable	CB
	Supply Fan Fault	CB
	Supply Fan Speed	CB
	Extract Fan Enable	CB
	Extract Fan Fault	CB
	Extract Fan Speed	CB
	Inlet Temp	CB
	Supply Temp	CB
	Return Temp	CB
	Return CO2	CB
	Panel Filter DPS	CB
	Bag Filter DPS	CB
	Extract Filter DPS	CB
	Supply DPS	CB
	Extract DPS	CB
	Inlet Damper	CB
	Inlet E/S	CB
	Extract Damper	CB
	Extract E/S	CB
	Thermal Wheel Power	CB
	Thermal Wheel Speed	CB
	Thermal Wheel Fault	CB
	Thermal Wheel Enable	CB
	Supply Fan Power	CB
	Extract Fan Power	CB
	Frost Stat	CB
	Frost Shutdown	CB
	Remote Enable	CB
	Manual Mode	CB

Notes
LINKED OUT
80%
80%
11.0C
15.2C
16.38C
407.4PPM

KVT
CONTROLS

Project: Elmwood LC

		Checked
AHU4	Input Fire Alarm	CB
	LTHW 3PV Control	CB
	Supply Fan Enable	CB
	Supply Fan Fault	CB
	Supply Fan Speed	CB
	Extract Fan Enable	CB
	Extract Fan Fault	CB
	Extract Fan Speed	CB
	Inlet Temp	CB
	Supply Temp	CB
	Return Temp	CB
	Return CO2	CB
	Panel Filter DPS	CB
	Bag Filter DPS	CB
	Extract Filter DPS	CB
	Supply DPS	CB
	Extract DPS	CB
	Inlet Damper	CB
	Inlet E/S	CB
	Extract Damper	CB
	Extract E/S	CB
	Thermal Wheel Power	CB
	Thermal Wheel Speed	CB
	Thermal Wheel Fault	CB
	Thermal Wheel Enable	CB
	Supply Fan Power	CB
	Extract Fan Power	CB
	Frost Stat	CB
	Frost Shutdown	CB
	Remote Enable	CB
	Manual Mode	CB

Notes
LINKED OUT
44%
44%
9.5C
19.1C
19.2C
419.4PPM

KVT
CONTROLS

Project: Elmwood LC

		Checked
AHU5	Input Fire Alarm	CB
	LTHW 3PV Control	CB
	Supply Fan Enable	CB
	Supply Fan Fault	CB
	Supply Fan Speed	CB
	Extract Fan Enable	CB
	Extract Fan Fault	CB
	Extract Fan Speed	CB
	Inlet Temp	CB
	Supply Temp	CB
	Return Temp	CB
	Return CO2	CB
	Panel Filter DPS	CB
	Bag Filter DPS	CB
	Extract Filter DPS	CB
	Supply DPS	CB
	Extract DPS	CB
	Inlet Damper	CB
	Inlet E/S	CB
	Extract Damper	CB
	Extract E/S	CB
	Thermal Wheel Power	CB
	Thermal Wheel Speed	CB
	Thermal Wheel Fault	CB
	Thermal Wheel Enable	CB
	Supply Fan Power	CB
	Extract Fan Power	CB
	Frost Stat	CB
	Frost Shutdown	CB
	Remote Enable	CB
	Manual Mode	CB

Notes
LINKED OUT
80%
80%
9.7C
16.4C
18.9C
403.0 PPM

KVT
CONTROLS

Project: Elmwood LC

		Checked
AHU6	Input Fire Alarm	CB
	LTHW 3PV Control	CB
	Supply Fan Enable	CB
	Supply Fan Fault	CB
	Supply Fan Speed	CB
	Extract Fan Enable	CB
	Extract Fan Fault	CB
	Extract Fan Speed	CB
	Inlet Temp	CB
	Supply Temp	CB
	Return Temp	CB
	Return CO2	CB
	Panel Filter DPS	CB
	Bag Filter DPS	CB
	Extract Filter DPS	CB
	Supply DPS	CB
	Extract DPS	CB
	Inlet Damper	CB
	Inlet E/S	CB
	Extract Damper	CB
	Extract E/S	CB
	Thermal Wheel Power	CB
	Thermal Wheel Speed	CB
	Thermal Wheel Fault	CB
	Thermal Wheel Enable	CB
	Supply Fan Power	CB
	Extract Fan Power	CB
	Frost Stat	CB
	Frost Shutdown	CB
	Remote Enable	CB
	Manual Mode	CB

Notes
LINKED OUT
50%
50%
8.7C
17.4C
17.3C

KVT
CONTROLS

Project: Elmwood LC

		Checked
AHU7	Input Fire Alarm	CB
	LTHW 3PV Control	CB
	Supply Fan Enable	CB
	Supply Fan Fault	CB
	Supply Fan Speed	CB
	Extract Fan Enable	CB
	Extract Fan Fault	CB
	Extract Fan Speed	CB
	Inlet Temp	CB
	Supply Temp	CB
	Return Temp	CB
	Return CO2	CB
	Panel Filter DPS	CB
	Bag Filter DPS	CB
	Extract Filter DPS	CB
	Supply DPS	CB
	Extract DPS	CB
	Inlet Damper	CB
	Inlet E/S	CB
	Extract Damper	CB
	Extract E/S	CB
	Thermal Wheel Power	CB
	Thermal Wheel Speed	CB
	Thermal Wheel Fault	CB
	Thermal Wheel Enable	CB
	Supply Fan Power	CB
	Extract Fan Power	CB
	Frost Stat	CB
	Frost Shutdown	CB
	Remote Enable	CB
	Manual Mode	CB

Notes
LINKED OUT
50%
50%
12.9C
21.1C
20.7C
395.2 PPM

KVT
CONTROLS

Project: Elmwood LC

		Checked
AHU8	Input Fire Alarm	CB
	LTHW 3PV Control	CB
	Supply Fan Enable	CB
	Supply Fan Fault	CB
	Supply Fan Speed	CB
	Extract Fan Enable	CB
	Extract Fan Fault	CB
	Extract Fan Speed	CB
	Inlet Temp	CB
	Supply Temp	CB
	Return Temp	CB
	Return CO2	CB
	Panel Filter DPS	CB
	Bag Filter DPS	CB
	Extract Filter DPS	CB
	Supply DPS	CB
	Extract DPS	CB
	Inlet Damper	CB
	Inlet E/S	CB
	Extract Damper	CB
	Extract E/S	CB
	Thermal Wheel Power	CB
	Thermal Wheel Speed	CB
	Thermal Wheel Fault	CB
	Thermal Wheel Enable	CB
	Supply Fan Power	CB
	Extract Fan Power	CB
	Frost Stat	CB
	Frost Shutdown	CB
	Remote Enable	CB
	Manual Mode	CB

Notes
LINKED OUT
80%
80%
9.4C
16.0C
17.6C
410.4 PPM

KVT
CONTROLS

Project: Elmwood LC

		Checked
AHU9	Input Fire Alarm	CB
	LTHW 3PV Control	CB
	Supply Fan Enable	CB
	Supply Fan Fault	CB
	Supply Fan Speed	CB
	Extract Fan Enable	CB
	Extract Fan Fault	CB
	Extract Fan Speed	CB
	Inlet Temp	CB
	Supply Temp	CB
	Return Temp	CB
	Return CO2	CB
	Panel Filter DPS	CB
	Bag Filter DPS	CB
	Extract Filter DPS	CB
	Supply DPS	CB
	Extract DPS	CB
	Inlet Damper	CB
	Inlet E/S	CB
	Extract Damper	CB
	Extract E/S	CB
	Thermal Wheel Power	CB
	Thermal Wheel Speed	CB
	Thermal Wheel Fault	CB
	Thermal Wheel Enable	CB
	Supply Fan Power	CB
	Extract Fan Power	CB
	Frost Stat	CB
	Frost Shutdown	CB
	Remote Enable	CB
	Manual Mode	CB

Notes
LINKED OUT
70%
70%
9.2C
18.7C
16.3C
389.0PPM