Registered Certificate of Air Permeability Test

Test Credentials

Test Provider:	HRS Services Ltd
Address:	The Maltings, 81 Burton Road, Sheffield, S3 8BZ
Test Engineer:	Paul Patten
Qualification:	Level 2
Tester Registration No:	1200
Unique Certificate No:	10366217

Building and Test Details

Building or Plot No:	Zephyr Building
Tested Building Address:	Eighth Street, Harwell Campus, Didcot, Oxfordshire OX11 0RL

Footprint (GFA, m²):	3684.42
Envelope Area (m²):	10087.56
Date of Test:	2018-03-13

Temporary sealing:

Mechanical Ventilation ()

Deviations:

Test Data and Result

This is to certify that the above named dwelling/building has been tested for air permeability by a registered provider in accordance with ATTMA {ATTMA TSL2 (Method B)}, subject to the above statements regarding temporary sealing and 'test deviations'.
This certificate is a short form report. If a full compliant report is required, please contact the testing company. Enquiries about this certificate should be made to: Scheme Manager, ATTMA, First Floor, Flint House, Flint Barn Court, Church Street, Amersham, Buckinghamshire, HP7 0DB or visit www.attma.org.

The key Leakage characteristics of the building are:

Result (AP_{50}):	2.78 $m^3.h^{-1}.m^{-2}$ @50Pa
The result achieved meets the Design Air Permeability requirement.	

Design air permeability:	5.00 $m^3.h^{-1}.m^{-2}$ @50Pa	Flow Exponent, n:	0.6652
Correlation of results, r^2:	0.9913 $m^3.h^{-1}$ Pa	Air flow coefficient, C_{env}:	0.5694

UKAS TESTING
2587

TEST CONDITIONS & RESULTS			
HRS REF:	126893		
BUILDING:	Zephyr Building Eighth Street Harwell Campus Didcot Oxfordshire OX11 0RL		
BUILDING TYPE:	Commercial		
YEAR OF CONSTRUCTION:	2017		
CLIENT:	Bowmer & Kirkland Ltd		
CLIENT CONTACT:	Richard Hand		
TEST DATE:	13/03/2018		
TIME OF TEST:	10:09		
BUILDING REGULATIONS:	Building Regulations 2010, Part L2A Conservation of Fuel and Power in New Buildings Other Than Dwellings		
DESIGN AIR PERMEABILITY CRITERIA:	5.0 $m^3/(h.m^2)$ @ 50Pa		
TEST RESULT ($m^3/(h.m^2)$ @ 50Pa):	**2.78 $m^3/(h.m^2)$ @ 50Pa**		**PASS**
ENVELOPE AREA (m^2):	10087.56	**FOOTPRINT (m^2):**	3684.42
ENVELOPE AREA CALCULATIONS UNDERTAKEN BY:		HRS	Sebastian Martinez
AREA TESTED:	Entire		
AREA EXCLUDED:	None		
TEST TYPE:	Whole building		
VENTILATION TYPE:	System 3 - Continuous Mechanical extraction		
MASTIC SEALING STATUS:	External and internal walls (exc. sanitary ware)		

TEMPORARY SEALING APPLIED TO INTENTIONAL OPENINGS FOR THE TEST:

ELEMENT	TEMPORARY SEAL?	COMMENT/EXTENT OF SEALING
MECHANICAL VENTILATION	Yes	
TRICKLE VENTS	No	
AIR CONDITIONING	No	
PASSIVE VENTILATION	No	
CHIMNEY FLUES	No	
DRAINAGE TRAPS	No	
OTHER	No	

TEMPORARY SEALING TO MISSING OR BROKEN COMPONENTS APPLIED FOR THE TEST:

NON-COMPLIANT TEMPORARY SEALING APPLIED FOR THE TEST:

TEMPORARY SEALING NOTES:	It should be noted that any temporary seals applied to unintentional openings may, in practice, be more airtight than the element they replace. The complete elements should therefore be of an equal standard of air tightness for the quoted test result to remain unchanged.

The agreed test state of the test area is with all external windows and doors closed, and all internal doors open, with any temporary seals employed to remain intact for the duration of the test.

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Tel: 0114 272 3004 Email: altas@hrsservices.co.uk Web: www.hrsservices.co.uk

METHOD & EQUIPMENT	
TEST STANDARD:	ATTMA TSL2 Oct 2010 Issue - Measuring Air Permeability of Building Envelopes (Non Dwellings)
	BS EN 13829:2001 Thermal performance of buildings - Determination of air permeability of building - Fan pressurisation method
TEST METHOD:	The purpose of the test was method B (building envelope) as stated in BS 13829:2001. This requires that all adjustable openings shall be closed and remaining intentional openings sealed.

EQUIPMENT
All equipment used is calibrated to UKAS standards annually

FAN:	Retrotec 20 Open	**LOCATION:**	Entrance grid A8	**CALIBRATION EXPIRY:**	19/07/2018
FAN:	Retrotec 11 Open	**LOCATION:**	Entrance grid D1	**CALIBRATION EXPIRY:**	13/12/2018
FAN:	Retrotec 16 Ring C8	**LOCATION:**	Entrance grid D1	**CALIBRATION EXPIRY:**	21/04/2018
FAN:	Retrotec 35 Open	**LOCATION:**	Entrance grid D13	**CALIBRATION EXPIRY:**	26/05/2018

The Retrotec system comprises portable fans, designed to supply up to 3.7m<+S3>/second at 70 Pascals static pressure.

MANOMETER:	136: Tempcon (2020P7)	**LOCATION:**	Fan 35	**CALIBRATION EXPIRY:**	19/04/2018
MANOMETER:	174: Tempcon (2020P7)	**LOCATION:**	Internal grid E3	**CALIBRATION EXPIRY:**	08/06/2018
MANOMETER:	153: Tempcon (2020P7)	**LOCATION:**	Fan 16	**CALIBRATION EXPIRY:**	16/05/2018
MANOMETER:	139: Tempcon (2020P7)	**LOCATION:**	Internal grid E11	**CALIBRATION EXPIRY:**	19/04/2018
MANOMETER:	205: Tempcon (2020P7)	**LOCATION:**	Internal grid E9	**CALIBRATION EXPIRY:**	19/07/2018

Pressure differences across the fan system and the test area were measured using digital micro manometers at the start, during and at the end of the test

THERMOMETER:	E11430381: ETI (Thermapen)	**CALIBRATION EXPIRY:**	19/07/2018

Air temperatures were measured at the start and end of the test. The probes were located centrally and external to the test area

BAROMETER:	48: ZD-2028 (Altimeter)	**CALIBRATION EXPIRY:**	19/07/2018

Barometric pressure was measured at the start and end of the test

DETAILS OF RESULTS

API ($m^3/(h.m^2)$ @ 50Pa):	2.78	**(Q_{50}) AIR FLOW RATE AT 50PA (m^3/s):**	7.7774
HRS REF:	126893	**(n) AIR FLOW EXPONENT :**	0.6652
BUILDING:	Zephyr Building	**(r^2) CORRELATION COEFFICIENT:**	0.9913
TEST ENGINEER:	Paul Patten	**(C_{env}) AIR FLOW COEFFICIENT ($m^3/(s.Pa^n)$)**	0.5694
TYPE OF TEST:	Pressurisation	**(C_L) AIR LEAKAGE COEFFICIENT ($m^3/(s.Pa^n)$)**	0.5763

WEATHER:	Dry	Sunny	No wind
ENVELOPE AREA (m^2):	10087.56		

The envelope area for air permeability is defined as the area of the external walls plus the area of the ceiling/roof and the ground floor

ZERO FLOWS (Pa)

$\Delta p_{0,1+}$	0.00	**$\Delta p_{0,1-}$**	0.00	**$\Delta p_{0,2+}$**	0.00	**$\Delta p_{0,2-}$**	0.00
$\Delta p_{0,1}$,	0.00			**$\Delta p_{0,2}$,**		0.00	

PARAMETERS	**START OF TEST**	**END OF TEST**
EXTERNAL TEMP (deg C)	4.2	6.2
INTERNAL TEMP (deg C)	9.3	8.4
BAROMETRIC PRESSURE (Pa)	100800	100800
FAN OFF PRESSURE DIFF. (Pa)	0.00	0.00

INDUCED PRESSURE DIFFERENCES & AIR FLOW RATES

(Pa)	35.0	41.0	45.0	50.0	55.0	60.0	67.0								
(m^3/s):	6.17	6.96	7.57	8.04	8.55	8.96	9.51								

FOR THE FULL SET OF CALCULATIONS USED TO CALCULATE THE AIR PERMEABILITY RATE:
http://www.hrsservices.co.uk/wp-content/uploads/2015/11/air_permeability_calculations.pdf

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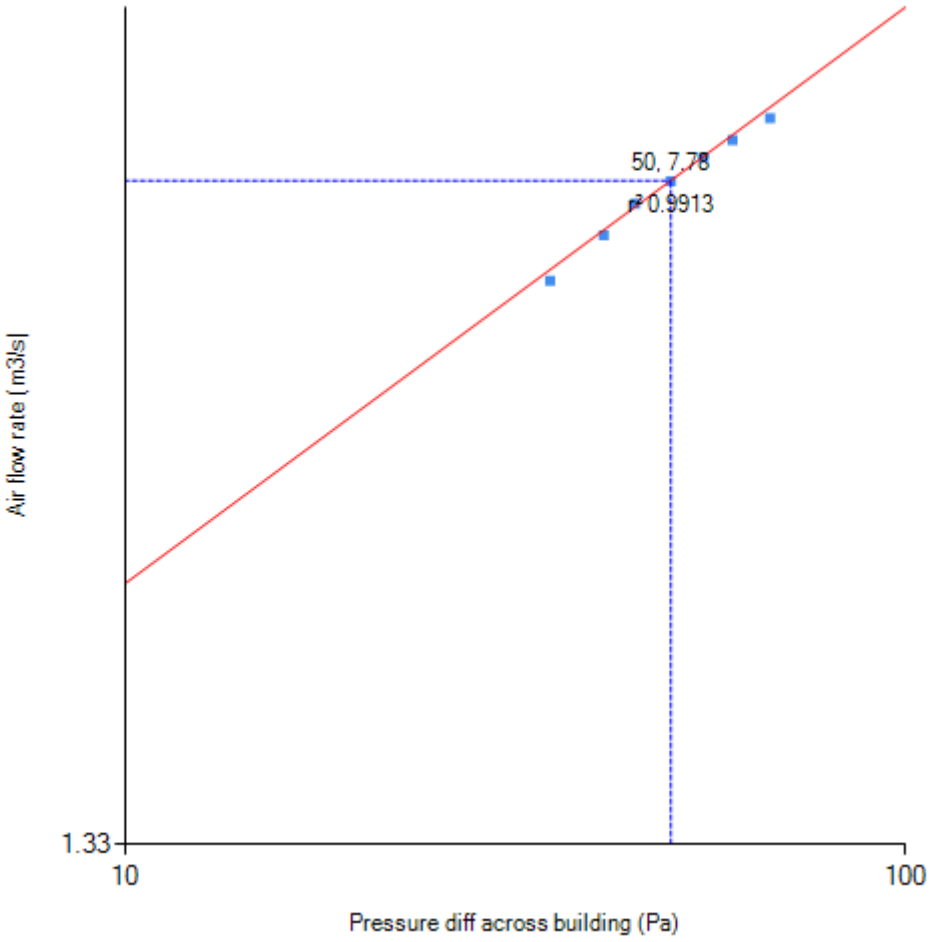
AIR FLOW LOG GRAPH



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