

BUILDING LEAKAGE TEST

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Date of Test: 12/06/2019 Test File: 17DenehurstP

Technician: Nick Gaites
 Project Number: 002

Customer: Building Address: Residential standalone
 17 Denehurst Drive
 Waimauku
 Auckland, Auckland 0812

Test Results at 50 Pascals:	Depressurization	Pressurization	Average
q ₅₀ : m ³ /h (Airflow)	2052 (+/- 0.8 %)	2222 (+/- 0.6 %)	2137
n ₅₀ : 1/h (Air Change Rate)	4.08	4.41	4.24
q _{F50} : m ³ /(h·m ² Floor Area)	9.37	10.15	9.76
q _{E50} : m ³ /(h·m ² Envelope Area)	4.78	5.18	4.98

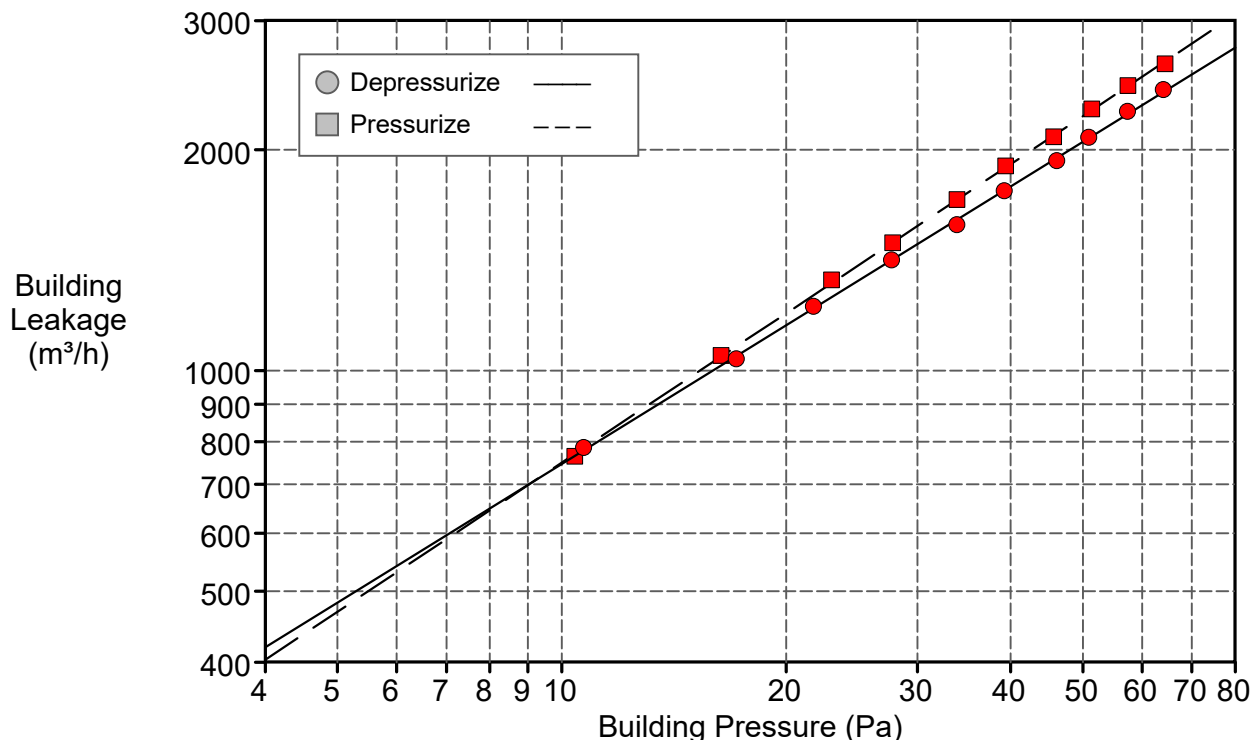
Leakage Areas:

ELA ₅₀ : m ²	0.0625 (+/- 0.6 %)	0.0677 (+/- 0.6 %)	0.0651
ELA _{F50} : m ² /m ²	0.0002856	0.0003093	0.0002974
ELA _{E50} : m ² /m ²	0.0001457	0.0001578	0.0001518

Building Leakage Curve:

Air Flow Coefficient (C _{env}) m ³ /(h·Pa ⁿ)	174.8 (+/- 4.3 %)	158.2 (+/- 2.8 %)
Air Leakage Coefficient (C _L) m ³ /(h·Pa ⁿ)	175.5 (+/- 4.3 %)	158.2 (+/- 2.8 %)
Exponent (n)	0.629 (+/- 0.012)	0.675 (+/- 0.008)
Coefficient of Determination (r ²)	0.99944	0.99979

Test Standard: ISO 9972
 Test Mode: Depressurization and Pressurization
 Type of Test Method: Method 1 - Test of Building in use
 Purpose of Test: ATTMA accreditation test



BUILDING LEAKAGE TEST Page 2 of 5Date of Test: 12/06/2019 Test File: 17DenehurstP

Building Information

Internal Volume, V (m³) (according to ISO)	503.5
Net Floor Area, A_F (m²) (according to ISO)	219
Envelope Area, A_E (m²) (according to ISO)	429.2
Height (m)	6
Uncertainty of Dimensions (%)	2
Year of Construction	2009
Type of Heating	Heat pump
Type of Air Conditioning	Heat pump
Type of Ventilation	None
Building Wind Exposure	Highly Protected Building
Wind Class	Light Air

Equipment Information

Type	Manufacturer	Model	Serial Number	Custom Calibration Date
Fan	Energy Conservatory	Model 4 (230V)	CE5980	-
Micromanometer	Energy Conservatory	DG1000	3660	29/04/2019

BUILDING LEAKAGE TEST Page 3 of 5

Date of Test: 12/06/2019 Test File: 17DenehurstP

Depressurization Test 1:

Environmental Data

Indoor Temperature (°C)	Outdoor Temperature (°C)	Barometric Pressure (Pa)
24.0	17.0	101325.0

Baseline Pressure Data

Pre-Test			Post-Test		
$\Delta p_{0,1-}$	$\Delta p_{0,1+}$	$\Delta p_{0,1}$	$\Delta p_{0,2-}$	$\Delta p_{0,2+}$	$\Delta p_{0,2}$
-0.9	0.0	-0.9	-0.6	0.0	-0.6

Data Points - Automated Test (TTE 5.0.8.4)

Nominal Building Pressure (Pa)	Baseline adjusted Building Pressure (Pa)	Fan Pressure (Pa)	Nominal Flow q_r (m³/h)	Adjusted Flow q_{env} (m³/h)	Adjusted Flow q_L (m³/h)	% Error	Fan Configuration
-0.9	n/a	n/a					
-64.8	-64.1	84.0	2449	2407	2416	0.8	Ring A
-58.1	-57.4	73.2	2287	2248	2256	0.9	Ring A
-51.6	-50.9	62.1	2107	2071	2079	0.2	Ring A
-46.8	-46.1	53.8	1959	1926	1933	-0.9	Ring A
-39.9	-39.2	44.5	1783	1752	1759	-0.1	Ring A
-34.6	-33.9	36.1	1603	1575	1582	-1.5	Ring A
-28.4	-27.7	28.9	1434	1409	1415	0.0	Ring A
-22.5	-21.7	238.5	1239	1218	1223	0.6	Ring B
-17.9	-17.1	171.2	1051	1033	1037	-0.9	Ring B
-11.4	-10.7	98.0	796	783	786	1.0	Ring B
-0.6	n/a	n/a					

Deviations from Standard ISO 9972 - Test Parameters

None

BUILDING LEAKAGE TEST Page 4 of 5

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Pressurization Test 1:

Environmental Data

Indoor Temperature (°C)	Outdoor Temperature (°C)	Barometric Pressure (Pa)
20.0	14.0	101325.0

Baseline Pressure Data

Pre-Test			Post-Test		
$\Delta p_{0,1-}$	$\Delta p_{0,1+}$	$\Delta p_{0,1}$	$\Delta p_{0,2-}$	$\Delta p_{0,2+}$	$\Delta p_{0,2}$
-0.9	0.0	-0.9	-0.8	0.0	-0.8

Data Points - Automated Test (TTE 5.0.8.4)

Nominal Building Pressure (Pa)	Baseline adjusted Building Pressure (Pa)	Fan Pressure (Pa)	Nominal Flow q_r (m³/h)	Adjusted Flow q_{env} (m³/h)	Adjusted Flow q_L (m³/h)	% Error	Fan Configuration
-0.9	n/a	n/a					
63.6	64.5	94.0	2591	2618	2618	-0.8	Ring A
56.6	57.5	81.8	2419	2444	2444	0.1	Ring A
50.6	51.4	70.5	2248	2271	2271	0.3	Ring A
44.9	45.7	59.2	2061	2083	2083	-0.4	Ring A
38.6	39.4	49.2	1880	1899	1899	0.4	Ring A
33.1	33.9	39.7	1692	1709	1709	-0.0	Ring A
26.9	27.8	30.2	1478	1493	1493	-0.1	Ring A
22.1	23.0	268.5	1315	1328	1328	1.0	Ring B
15.5	16.4	166.8	1038	1049	1049	0.4	Ring B
9.6	10.4	88.0	756	763	763	-0.9	Ring B
-0.8	n/a	n/a					

Deviations from Standard ISO 9972 - Test Parameters

None

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Comments

Pressurisation test has large spread of measurement points.

Depressurisation test possible via USB and pressure tolerance of 5Pa.

Calm outside conditions, <6Km/hr breeze, sheltered building.

96% humidity.

Air leaks due to:

Laps in wall underlay (breeze through midfloor light fittings),

Sliding joinery units,

Joinery unit condensation drains,

Kitchen range hood,

Bathroom ventilators.
