In Compliance with ATTMA TSL1 and TSL2

Portally Cove
Dunmore East
Co Waterford

Client

John Carney

25 May 13

Building Details

Building Address:
Portally Cove
Dunmore East
Co Waterford

Test technician: **Jeff O Toole**

Test company: **Passive House Solutions**

Fan Model: **Retrotec 2000**	Fan SN: **n**	Gauge Model: **DM-2**	Gauge SN: **99236**

Passive House Solutions/ Energy Consultants/ BER Assessors/Air-tightness Engineers
6 Castle Terrace, Castle Street, Waterford
Phone: 087 2404051 *Email: Passivehousesolutions@hotmail.com*

Depressurize set

Date: **2013-05-25** Time: **16:29** to **16:55**

Environmental and Building Conditions:

Barometric Pressure:**101.3**KPa from **TRANS ERR: DirectEntry en-GB**.
Wind speed: **3.5m/s**
Temperature: Initial: indoors **16 °C** outdoors **12 °C**.
Final: indoors **20 °C**outdoors **20 °C**.

Envelope Area (A_T): **521.8 m²**– defined as the area of external walls plus the area of the roof and ground floor.
Net Floor Area (A_f): **133.3 m²**
Building Volume: **621.5 m³**
Heating/Ventilation System:

Test Data:

10baseline pressures taken for 10 sec each.
10induced pressures taken for 20 sec each.

Baseline, initial [Pa]	**0.79**	**0.62**	**0.23**	**0.65**	**0.60**	**0.20**	**0.53**	**0.96**	**0.41**	**0.70**		
Induced Pressure [Pa]	**-16.4**	**-19.7**	**-25.4**	**-30.8**	**-35.6**	**-40.8**	**-45.1**	**-51.2**	**-55.2**	**-60.5**		
Baseline, final[Pa]	**-0.25**	**0.06**	**0.20**	**0.05**	**0.05**	**-0.19**	**-0.06**	**-0.17**	**-0.20**	**-0.09**		
Door Fan pressure, [Pa]	**15.7**	**19.2**	**26.1**	**35**	**43.3**	**56.1**	**65.4**	**82.3**	**92.2**	**112.8**		
Total flow, Q_r[m³/h]	**82.9**	**92.5**	**109.0**	**128.4**	**144.9**	**168.0**	**183.0**	**207.8**	**221.6**	**247.6**		
Corrected flow, Q_{env}[m³/h]	**81.74**	**91.14**	**107.4**	**126.6**	**142.8**	**165.5**	**180.4**	**204.8**	**218.3**	**243.9**		
Error [%]	**5.8%**	**1.0%**	**-3.9%**	**-3.7%**	**-4.0%**	**-0.8%**	**-0.7%**	**1.2%**	**1.2%**	**4.6%**		

Static Pressure Averages: initial [Pa] ΔP_{01} **0.57**, ΔP_{01-} 0.00, ΔP_{01+} **0.57**
final [Pa] ΔP_{01} **-0.06**, ΔP_{01-} **-0.16**, ΔP_{01+} **0.09**

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Openings and Temporary Sealing

Test Method

Carried out in accordance with the following standards:

- ATTMA TS1 Issue 2 – Measuring Air Permeability of Building Envelopes
- BS EN13829:2001 Thermal Performance of Buildings
- BINDT – Quality Procedures and Explanatory Notes for Air Tightness Testing

Test was carried out under (method A, B or C)

The building was tested using a **Retrotec 2000** fan.

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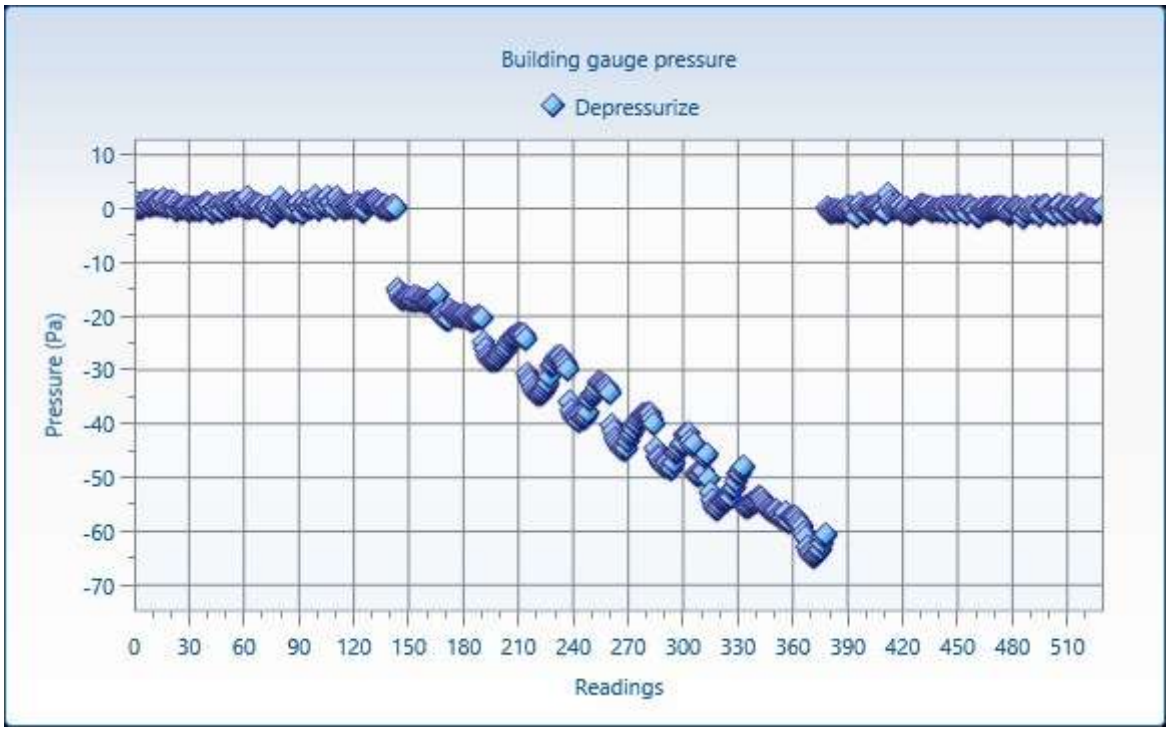
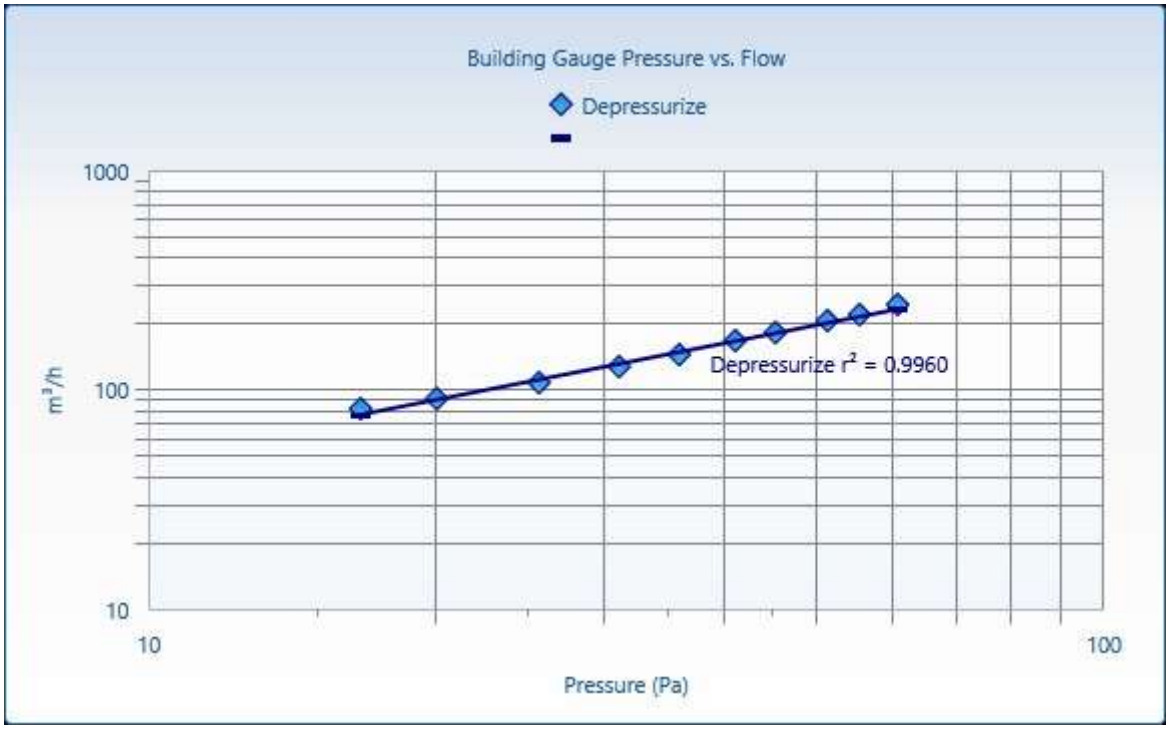
Building Gauge Pressure



Building Gauge Pressure vs. Flow



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DepressurizeTest Results

	Results		
Correlation, r^2	**0.9960**	95% confidence limits	
Intercept, C_{env} [$m^3/h.Pa^n$]	**7.010**	**5.595**	**8.775**
Slope, n	**0.8535**	**0.7908**	**0.9162**

	Results	Uncertainty
Air flow at 50 Pa, Q_{50} [m^3/h]	**198.0**	**+/-3.4%**
Permeability at 50 Pa, AP_{50} [$m^3/h.m^2$]	**0.379**	**+/-6.0%**
Equivalent leakage area at50Pa[m^2]	**0.009880**	**+/-3.4%**
Air changes, n_{50}	**0.3185**	**+/-6.0%**

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Pressurize set

Date: **2013-05-25** Time: **16:00** to **16:20**

Environmental and Building Conditions:

Barometric Pressure:**101.3**KPa from **TRANS ERR: DirectEntry en-GB**.
Wind speed: **3.5m/s**
Temperature: Initial: indoors **16 °C** outdoors **12 °C**.
Final: indoors **20 °C**outdoors **20 °C**.

Envelope Area (A_T): **521.8 m²**– defined as the area of external walls plus the area of the roof and ground floor.
Net Floor Area (A_f): **133.3 m²**
Building Volume: **621.5 m³**
Heating/Ventilation System:

Test Data:

10baseline pressures taken for 10 sec each.
10induced pressures taken for 20 sec each.

Baseline, initial [Pa]	**0.30**	**0.47**	**0.47**	**0.21**	**0.28**	**0.06**	**0.06**	**0.14**	**0.21**	**0.36**		
Induced Pressure [Pa]	**14.9**	**20.4**	**25.6**	**29.8**	**35.9**	**40.3**	**42.9**	**51.7**	**55.9**	**60.8**		
Baseline, final[Pa]	**1.01**	**0.84**	**0.34**	**0.42**	**0.24**	**0.97**	**0.23**	**0.40**	**0.54**	**0.87**		
Door Fan pressure, [Pa]	**17.2**	**23.7**	**30.2**	**35.2**	**42.3**	**47.8**	**50.9**	**61.1**	**66.8**	**72.7**		
Total flow, Q_r[m³/h]	**105.5**	**124.3**	**150.6**	**163.6**	**175.4**	**193.0**	**197.2**	**213.6**	**231.3**	**239.5**		
Corrected flow, Q_{env}[m³/h]	**104.7**	**123.4**	**149.5**	**162.4**	**174.1**	**191.5**	**195.8**	**212.0**	**229.6**	**237.7**		
Error [%]	**-0.8%**	**-2.8%**	**3.3%**	**2.5%**	**-1.4%**	**1.6%**	**0.2%**	**-2.6%**	**0.8%**	**-0.6%**		

Static Pressure Averages: initial [Pa] ΔP_{01} **0.26**, ΔP_{01-} 0.00, ΔP_{01+} **0.26**
final [Pa] ΔP_{01} **0.58**, ΔP_{01-} **0.00**, ΔP_{01+} **0.58**

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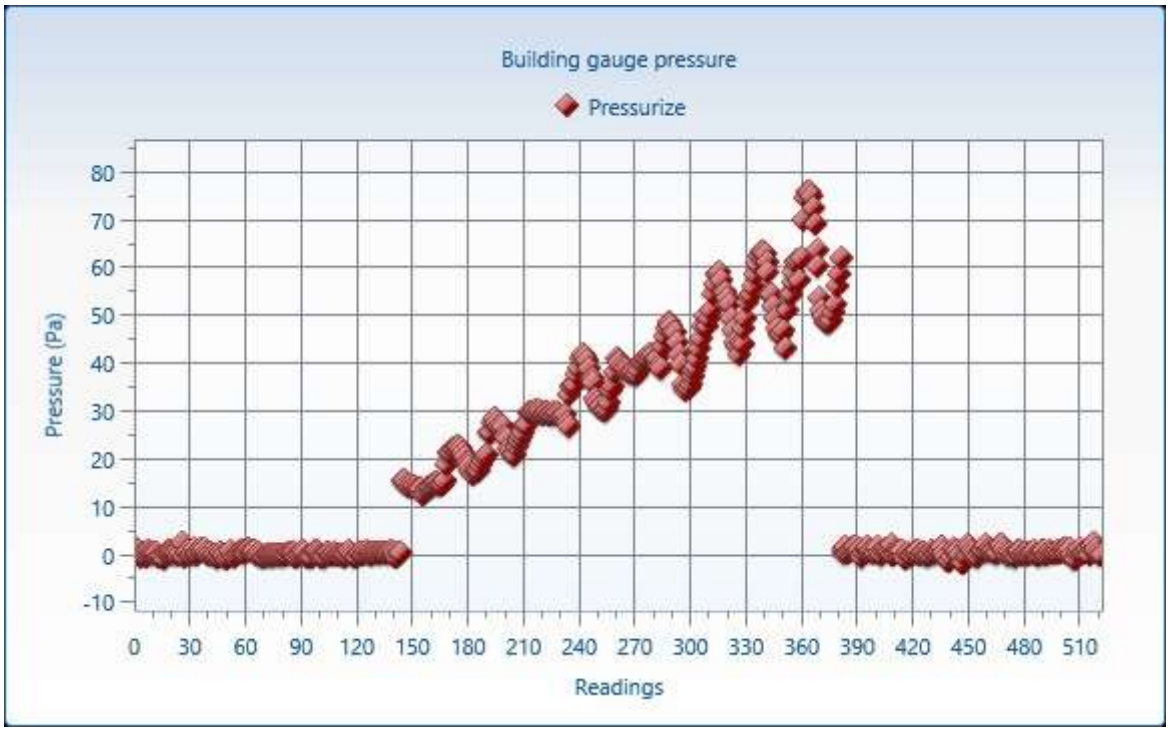
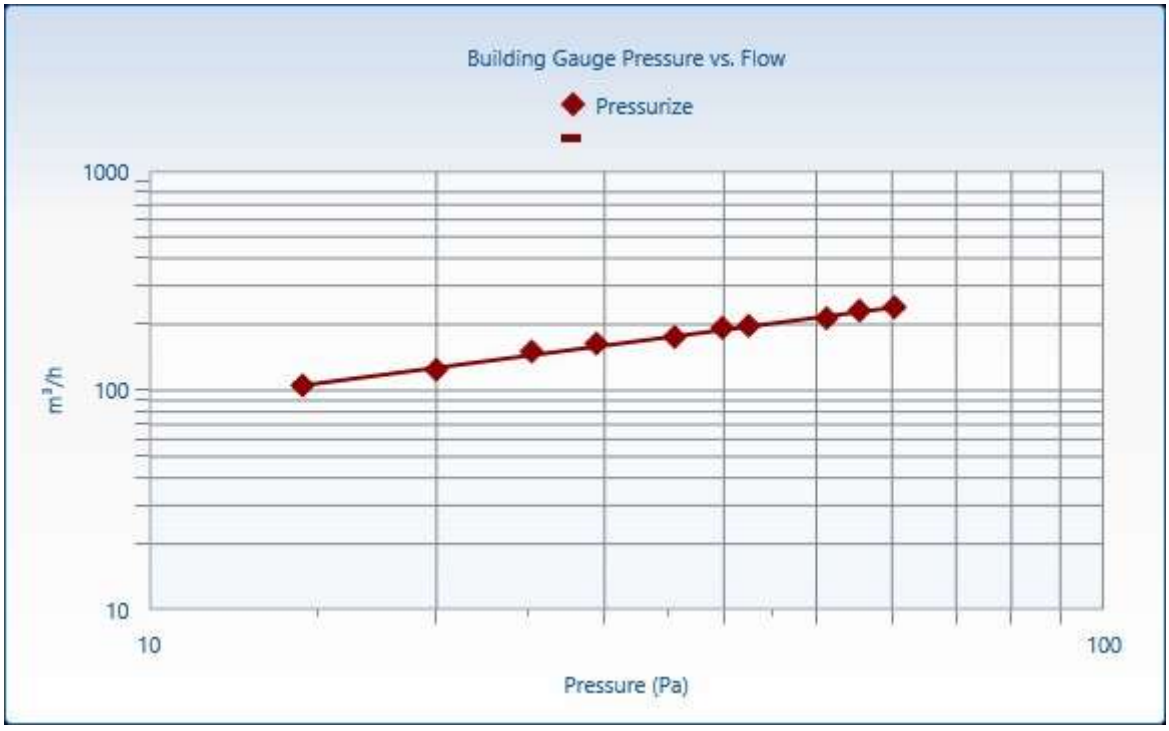
Building Gauge Pressure



Building Gauge Pressure vs. Flow



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CERTIFIED PASSIVE HOUSE DESIGNER

PressurizeTest Results

	Results		
Correlation, r^2	**0.9971**	95% confidence limits	
Intercept, C_{env} [$m^3/h.Pa^n$]	**22.80**	**20.05**	**25.90**
Slope, n	**0.5733**	**0.5373**	**0.6093**

	Results	Uncertainty
Air flow at 50 Pa, Q_{50} [m^3/h]	**215.0**	**+/-2.1%**
Permeability at 50 Pa, AP_{50} [$m^3/h.m^2$]	**0.412**	**+/-5.4%**
Equivalent leakage area at50Pa[m^2]	**0.01075**	**+/-2.1%**
Air changes, n_{50}	**0.3461**	**+/-5.4%**

DepressurizeTest Results

	Results		
Correlation, r^2	**0.9960**	95% confidence limits	
Intercept, C_{env} [$m^3/h.Pa^n$]	**7.010**	**5.595**	**8.775**
Slope, n	**0.8535**	**0.7908**	**0.9162**

	Results	Uncertainty
Air flow at 50 Pa, Q_{50} [m^3/h]	**198.0**	**+/-3.4%**
Permeability at 50 Pa, AP_{50} [$m^3/h.m^2$]	**0.379**	**+/-6.0%**
Equivalent leakage area at50Pa[m^2]	**0.009880**	**+/-3.4%**
Air changes, n_{50}	**0.3185**	**+/-6.0%**

Combined Test Data

	Results	Uncertainty
Air flow at 50 Pa, V_{50} [m^3/h]	**198.0**	**+/-2.7%**
Permeability at 50 Pa, Q_{50} [$m^3/h.m^2$]	**0.396**	**+/-5.7%**
Equivalent leakage area at50Pa [m^2]	**0.010315**	**+/-2.7%**
Air changes, n_{50}	**0.3323**	**+/-5.7%**

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Calibration Certificate

Retrotec 2000n. Calibrated on 19.05.2012						
Range	N	K	K1	K2	K3	K4
Open(22)	**0.5214**	**519.618**	**-0.07**	**0.8**	**-0.115**	**1**
A	**0.503**	**264.996**	**-0.075**	**1**	**0**	**1**
B	**0.5**	**174.8824**	**0**	**0.3**	**0**	**1**
C8	**0.5**	**78.5**	**-0.02**	**0.5**	**0.016**	**1**
C6	**0.505**	**61.3**	**0.054**	**0.5**	**0.004**	**1**
C4	**0.5077**	**42**	**0.009**	**0.5**	**0.0009**	**1**
C2	**0.52**	**22**	**0.11**	**0.5**	**-0.001**	**1**
C1	**0.541**	**11.9239**	**0.13**	**0.4**	**-0.0014**	**1**
L4	**0.48**	**4.0995**	**0.003**	**1**	**0.0004**	**1**
L2	**0.502**	**2.0678**	**0**	**0.5**	**0.0001**	**1**
L1	**0.4925**	**1.1614**	**0.1**	**0.5**	**0.0001**	**1**

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