Test Report 3407375.

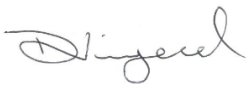
Aanco (UK) Ltd t/a Made For Trade

Introduction.

This report has been prepared by Jack Nicholls and relates to the activity detailed below:

Job/Registration Details		Client Details
Job number:	**3407375**	Aanco (UK) Ltd t/a Made For Trade
Job type:	Testing Samples Submitted	Wellington House
Start Date:	01/05/2021	Wynyard Avenue, Wynyard
Test type:	Direct	Billingham
Sample ID:	10196893	TS22 5TB
Registration:	**NA**	United Kingdom
Protocol:	NA	
Quality system:	NA	
Registration:	**NA**	
Protocol:	NA	
Quality system:	NA	

The report has been approved for issue by David Vinyard – Senior Test Engineer

Approved for Issue	
	Issue Date: 25 May 2021

Objectives.

Direct Test

Product Scope.

Korniche aluminium bi-folding doorset

Report Summary.

The sample was received on 12 April 2021 and the testing was started on 14 April 2021.

The sample submitted complied with the requirements of the test work conducted.

BS4873:2016 Direct Test.

1 off three leaf open out glazed in bi-folding door assembly with full glass infills and standard threshold

(Sample ID No 10196893)

Date sample received: 12 April 2021

Test Results.

1.	Air Permeability	The test sample met the requirements of the Specification, in respect of Clause 6, for Test Pressure Class 2.
2.	Watertightness	The test sample met the requirements of the Specification, in respect of Clause 7, for Test Pressure Class 7A.
3.	Wind Resistance	The test sample met the requirements of the Specification, in respect of BS6375-2:2009, for Exposure Category C2 (1200Pa).

Sample Selection.

The sample submitted for tests was selected using the PCP Scheme Document Specification. The sample was submitted for test mounted in a 75mm x 100mm timber subframe in accordance with the manufacturer's installation requirements. The test sample was manufactured and supplied by the client, and the test results apply only to the sample as received. The results in this report are only valid for the conditions on which the testing was conducted and for the specified products only. Parts list supplied by client but not verified by BSI.

Clause 5 Sequence of Tests.

The sequence of testing the sample followed that detailed in Clause 5 of BS6375-1:2015.

Clause 5 Performance Requirements.

The performance of the sample was assessed against the requirements detailed in Table 1 Exposure Categories and Classifications.

The results contained within this test report are valid only for the conditions under which the tests were conducted and for the specific range of doorsets.

Methods of Test.

1. **Air Permeability**

   The air permeability of the sample was determined by the method given in BS 6375-1:2015 + A1:2016.

2. **Watertightness**

   The watertightness of the sample was determined by the method given in BS 6375-1:2015 + A1:2016.

3. **Wind Resistance**

   The wind resistance of the samples was determined by the methods (P1 and P2) given in BS 6375-1:2015 + A1:2016.

4. **Repeat Tests**

   After testing for resistance to wind loading (P1 and P2) the air permeability test was repeated.

5. **Wind Resistance**

   The wind resistance of the samples was determined by the method (P3) given in BS 6375-1:2015 + A1:2016.

Note – No parts list provided

Description of Sample.

Sample Type - Three leaf open out glaze in bi-fold door assembly with full glass infill and standard threshold

Material - Aluminium

Construction - Cleated

Fittings -

Master leaf
A five-point locking (two hook bolts, two cams and one dead bolt) FUHR espagnolette system, key lockable FUHR handle, 3* Yale cylinder and three Hyde pin hinges

Two sliding leaves
Two Hyde rollers, two FUHR shoot bolts and six Hyde pin hinges

Glass - Double glazed 4-20-4mm toughened glass sealed units

Panel - Not applicable

Glass Retention System - Internal beads and gaskets

Weathersealing - Double-sealed plastic weather strip, Brush & Q-Lon

Sample dimensions -

Overall -	Length: 2520mm	Height: 2050mm
Master Leaf -	Length: 820mm	Height: 1960mm
Slave Leaf -	Length: 820mm	Height: 1960mm
Slave Leaf -	Length: 820mm	Height: 1960mm

Date of test - 14 April 2021

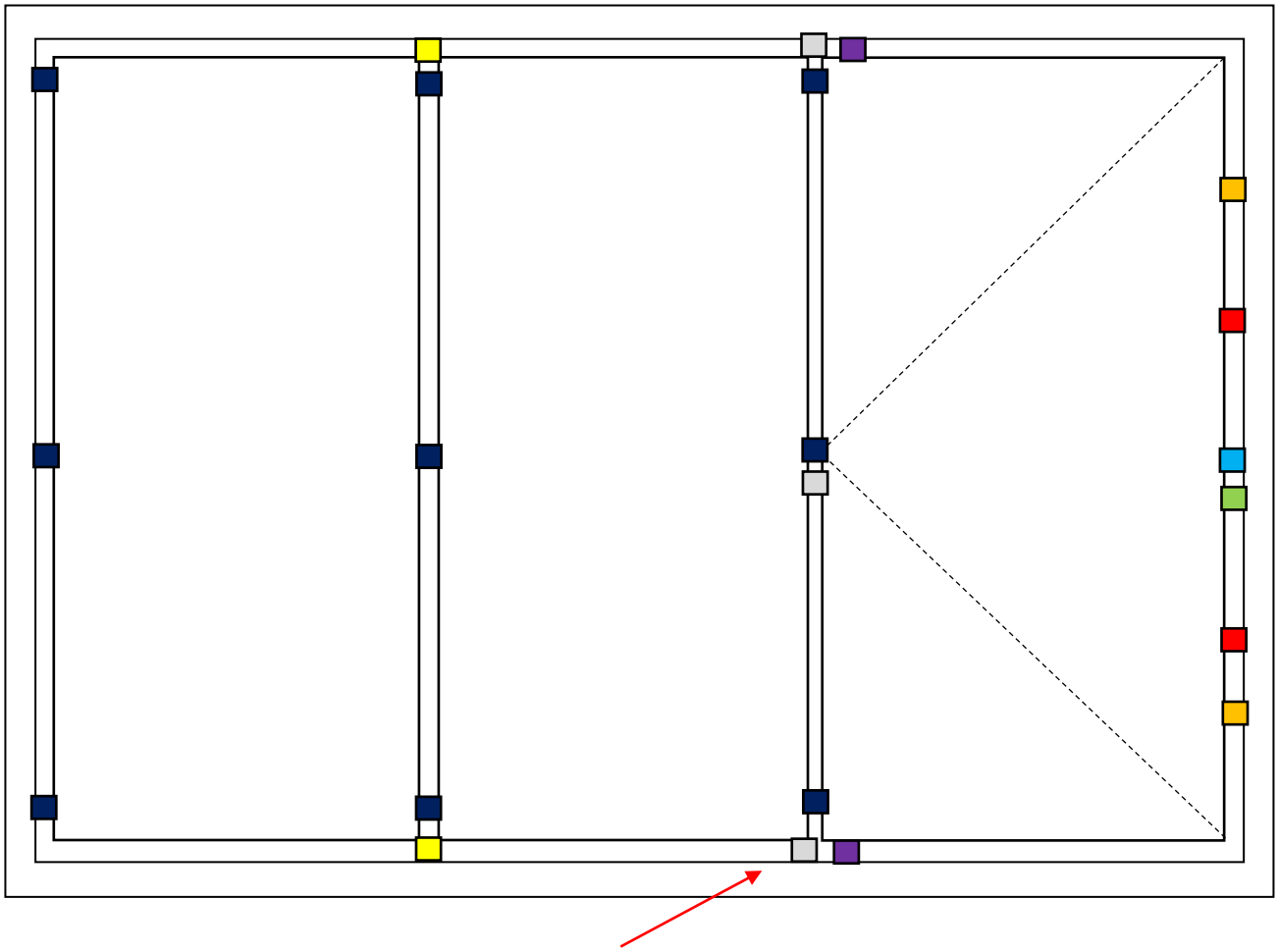
Laboratory temperature - 17.3°C

Laboratory humidity - 28.2%RH

Atmospheric pressure - 101.5kPa

Test engineer(s) - Jack Nicholls

Elevation Drawing Showing Position of Hardware.



Handle:
Hinge:
Roller:
Hook Bolt:
Cam:
Dead Bolt:
Shoot Bolt:
Transducer placement:

Graph of Air Permeability Before Gusting.

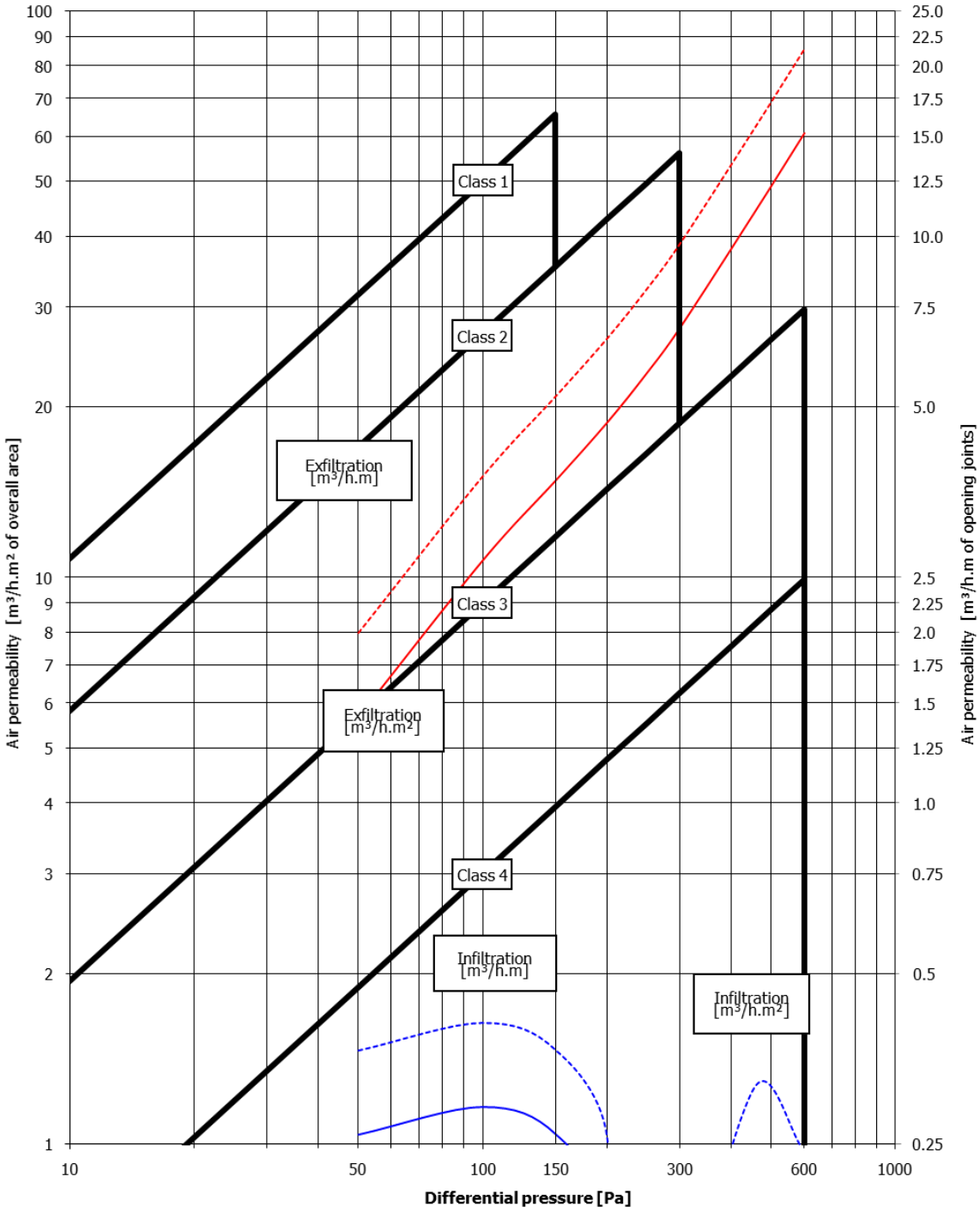


Table of Air Permeability Before Gusting.

AIR PERMEABILITY TEST RESULTS - BS EN 1026:2000 / BS EN 12207:2000

Before resistance to wind tests

Three positive pressure pulses of 660Pa were applied prior to testing

Air Pressure [Pa]	Blank reading [m³/h]	Maximum total air flow [m³/h]	Actual rate of air leakage [m³/h]	Rate of air leakage per meter length of opening joint [m³/h.m]	Rate of air leakage relative to area of sample [m³/h.m²]
50	20.0	25.3	5.4	0.37	1.04
100	29.5	35.5	6.0	0.41	1.16
150	37.9	43.2	5.4	0.37	1.04
200	44.2	47.9	3.7	0.26	0.73
250	49.9	50.1	0.2	0.01	0.04
300	55.1	56.4	1.4	0.09	0.26
450	73.5	78.0	4.6	0.31	0.88
600	92.7	96.2	3.5	0.24	0.69
-50	16.2	45.1	29.2	2.00	5.66
-100	25.6	80.3	55.3	3.77	10.71
-150	33.1	108.7	76.4	5.22	14.81
-200	40.6	136.3	96.8	6.61	18.76
-250	46.8	164.1	118.6	8.10	22.98
-300	52.2	192.9	142.2	9.71	27.56
-450	67.0	289.3	224.8	15.35	43.56
-600	79.9	389.9	313.6	21.42	60.77

Total opening perimeter = 14.64m

Overall area = 5.16m²

BS EN 12207:2000 - Joint class = 2

BS EN 12207:2000 - Area class = 2

BS EN 12207:2000 - Overall class before gusting = 2

Graph of Average Air Permeability Before Gusting.

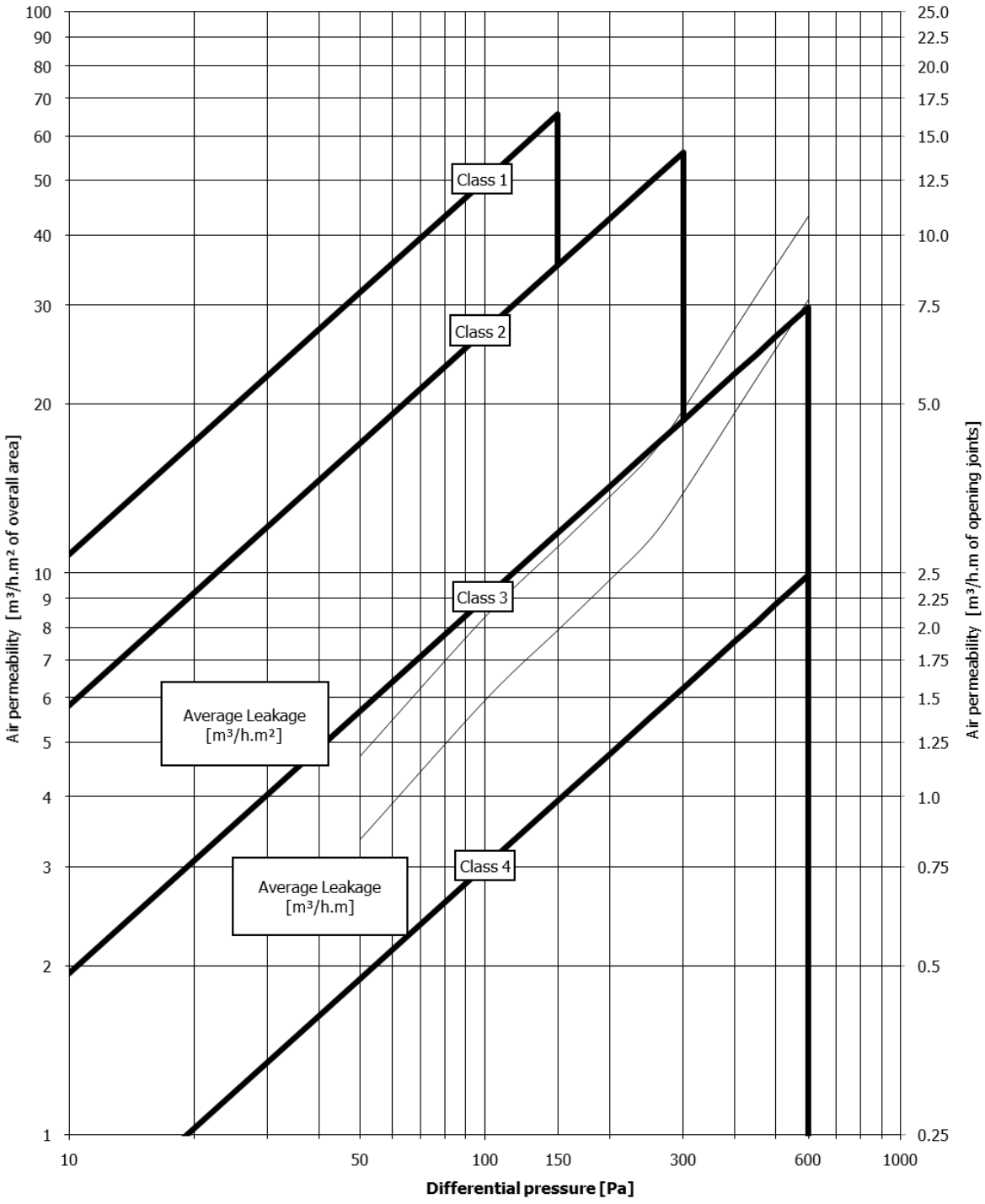


Table of Average Air Permeability Before Gusting.

AIR PERMEABILITY TEST RESULTS - BS 6375-1:2015 / BS EN 1026:2000

Clause 6.3 - Before resistance to wind tests

Three positive pressure pulses of 660Pa were applied prior to testing

Air Pressure [Pa]	Average rate of air leakage [m^3/h]	Average rate of air leakage per meter length of opening joint [$m^3/h.m$]	Average rate of air leakage relative to area of sample [$m^3/h.m^2$]
50	17.3	1.18	3.35
100	30.6	2.09	5.94
150	40.9	2.79	7.93
200	50.3	3.43	9.74
250	59.4	4.06	11.51
300	71.8	4.90	13.91
450	114.7	7.83	22.22
600	158.6	10.83	30.73

Note: The figures in the table above give the leakage as an average of the leakage at positive pressure and the leakage at negative pressure

Total opening perimeter = 14.64m

Overall area = 5.16m^2

BS 6375-1:2015 Clause 6.3 - Joint class = 2

BS 6375-1:2015 Clause 6.3 - Area class = 2

BS 6375-1:2015 Clause 6.3 - Overall class = 2

Watertightness Test Results.

BS EN 1027:2000 Clause 7 watertightness before resistance to wind loads

TABLE 2 – Spraying method 1A

Pressure (Pa)	Point at which water leakage occurred
0	No leakage
50	No leakage
100	No leakage
150	No leakage
200	No leakage
250	No leakage
300	No leakage
450	Water leaked out and over the threshold 1 minute at 30 seconds
600	-
750	-
900	-
1050	-

Wind Load Resistance Test Results.

Clause 8 Resistance to Wind Load

P1 Deflection Test

Three positive pulses of 1320Pa were applied.

No visible failures or functional defects of the test sample were observed after wind loads were applied at a positive air pressure of 1200Pa.

Actual deflection – 3.60mm (maximum deflection allowed 6.26mm)

Deflection/span ratio 1/522 (maximum ratio allowed 1/300)

Three negative pulses of 1320Pa were applied.

No visible failures or functional defects of the test sample were observed after wind loads were applied at a negative air pressure of 1200Pa.

Actual deflection – 3.50mm (maximum deflection allowed 6.26mm)

Deflection/span ratio 1/537 (maximum ratio allowed 1/300)

Wind Load Resistance Test Results. (continued)

Clause 8 Resistance to Wind Load (continued)

P2 Repeated Pressure Test

No visible failures or defects of the test sample were observed after 50 cycles of repeated wind loads were applied at a positive air pressure of 600Pa.

No visible failures or defects of the test sample were observed after 50 cycles of repeated wind loads were applied at a negative air pressure of 600Pa.

In accordance with BS 6375-1:2015 clause 6.5, as the classification after the resistance to wind load tests is the same as the classification before the resistance to wind load tests, the resulting classification for the sample is Class C3.

Date of test – 14 April 2021

Atmospheric pressure – 101.5kPa

Laboratory temperature – 17.3°C

Test engineers - Jack Nicholls

Laboratory humidity – 28.2%RH

Graph of Air Permeability After Gusting.

(including +20% lines for each class)

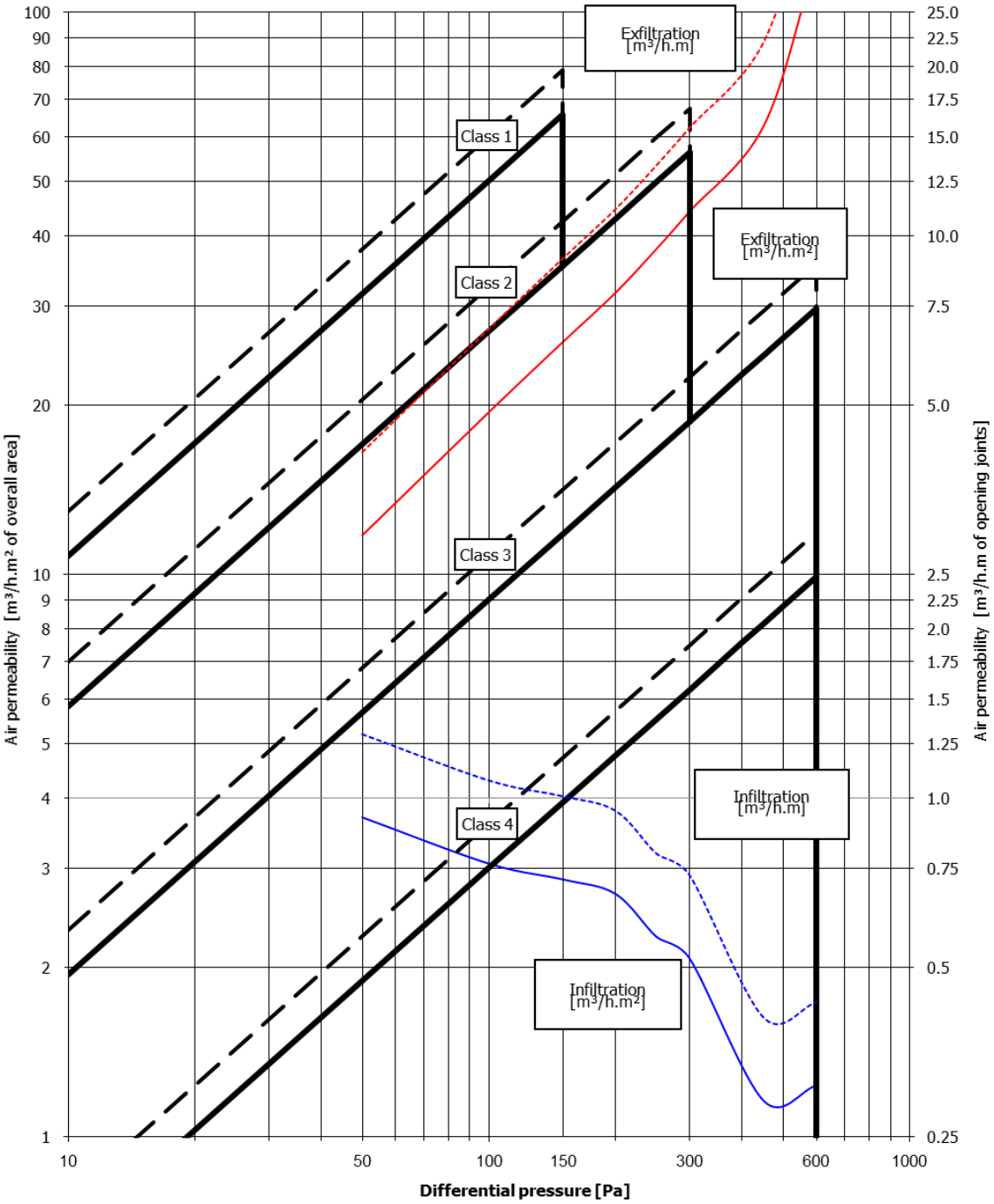


Table of Air Permeability After Gusting.

AIR PERMEABILITY TEST RESULTS - BS EN 1026:2000 / BS EN 12207:2000

After resistance to wind tests

Three positive pressure pulses of 660Pa were applied prior to testing

Air Pressure [Pa]	Blank reading [m³/h]	Maximum total air flow [m³/h]	Actual rate of air leakage [m³/h]	Maximum rate of air leakage per meter length of opening joint [m³/h.m]	Maximum rate of air leakage relative to area of sample [m³/h.m²]
50	7.1	26.0	19.0	1.30	3.69
100	11.8	27.4	15.8	1.08	3.05
150	16.0	30.6	14.8	1.01	2.86
200	20.0	33.7	13.9	0.95	2.70
250	23.7	35.3	11.7	0.80	2.26
300	27.0	37.6	10.7	0.73	2.07
450	39.0	44.9	6.0	0.41	1.16
600	52.3	58.6	6.4	0.43	1.23
-50	8.5	68.2	60.4	4.13	11.71
-100	13.5	112.5	100.1	6.84	19.40
-150	17.5	149.5	133.5	9.12	25.88
-200	20.7	182.2	163.4	11.16	31.66
-250	23.6	216.7	195.3	13.34	37.85
-300	26.2	251.5	227.9	15.57	44.17
-450	33.0	353.1	323.7	22.11	62.74
-600	42.5	678.4	643.0	43.92	124.62

Total opening perimeter = 14.64m

Overall area = 5.16m²

For classification to BS EN 12210:2000 - Section 6.1: Resistance to wind load, the change in air permeability due to the wind pressure and repeated pressure tests HAS exceeded the achieved class (2) by more than 20%.

Graph of Average Air Permeability After Gusting.

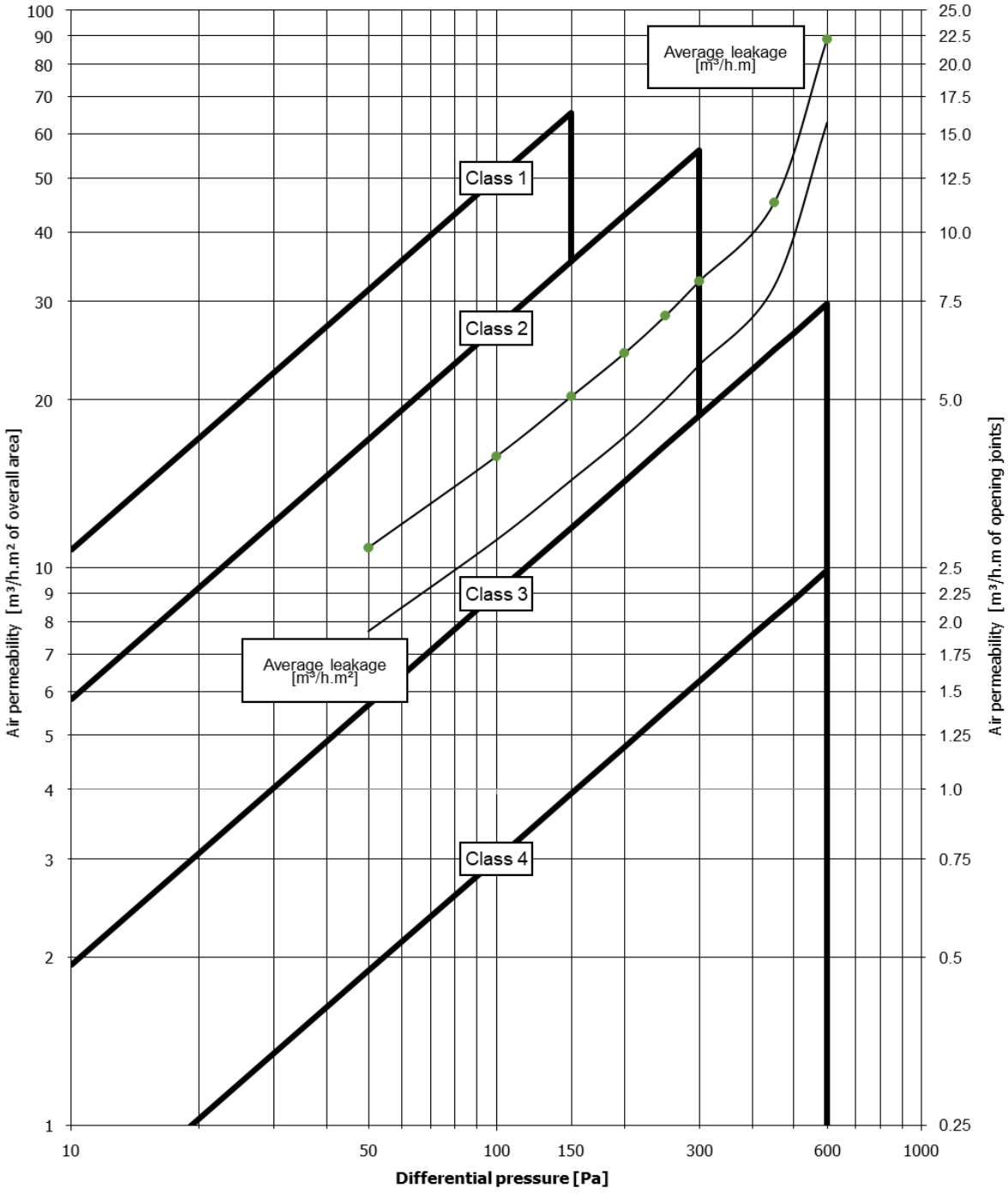


Table of Average Air Permeability After Gusting.

AIR PERMEABILITY TEST RESULTS - BS 6375-1:2015 / BS EN 1026:2000

Clause 6.5 - After resistance to wind tests

Three positive pressure pulses of 660Pa were applied prior to testing

Air Pressure [Pa]	Average rate of air leakage [m^3/h]	Average rate of air leakage per meter length of opening joint [$m^3/h.m$]	Average rate of air leakage relative to area of sample [$m^3/h.m^2$]
50	39.7	2.71	7.70
100	57.9	3.96	11.23
150	74.2	5.07	14.37
200	88.6	6.05	17.18
250	103.5	7.07	20.06
300	119.3	8.15	23.12
450	164.9	11.26	31.95
600	324.7	22.18	62.93

Note: The figures in the table above give the leakage as an average of the leakage at positive pressure and the leakage at negative pressure

Total opening perimeter = 14.64m

Overall area = 5.16m^2

BS 6375-1:2015 Clause 6.5 - Joint class = 2

BS 6375-1:2015 Clause 6.5 - Area class = 2

BS 6375-1:2015 Clause 6.5 - Overall class = 2

In accordance with BS 6375-1:2015 Clause 6.5, as the classification after the resistance to wind load tests is the same as the classification before the resistance to wind load tests, the resulting classification for the sample is Class 2.

Wind Load Resistance Test Results. (continued)

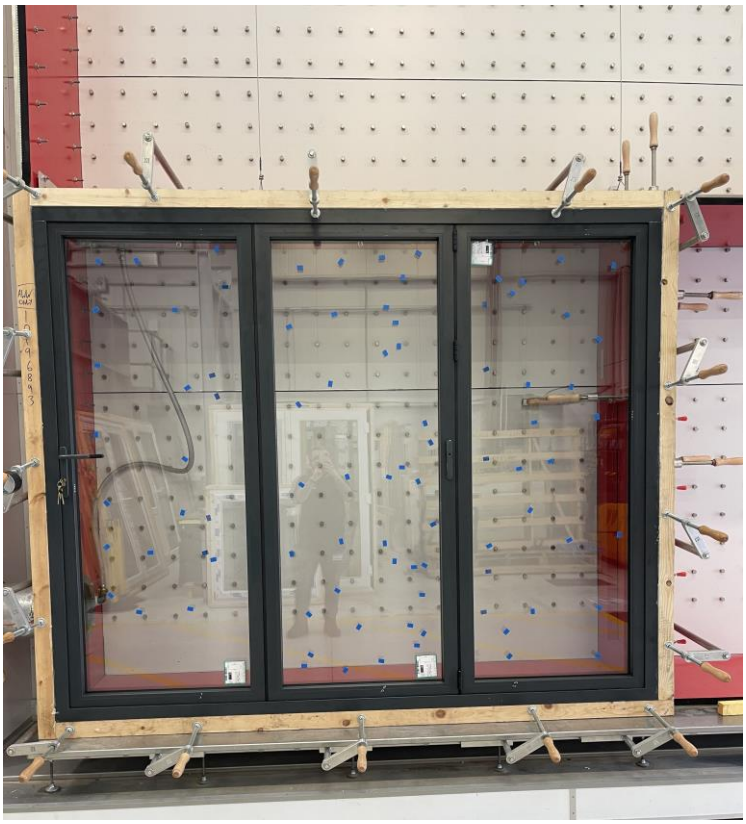
Clause 8 Resistance to Wind Load (continued)

P3 Safety Test

No parts of the test sample became detached and the test sample remained closed after a wind load safety test was applied at a positive air pressure of 1800Pa.

No parts of the test sample became detached and the test sample remained closed after a wind load safety test was applied at a negative air pressure of 1800Pa.

Photographs of the test sample.



Test Sample.

Sample Id	ER Number	Description
1	10196893	Aluminium Bi-Fold Door

Description of Test Sample.

Sample Description
1 off three leaf open out glaze in bi-fold door assembly with full glass infill and standard threshold

Test Requirements.

BS4873 Door Direct Test

Clause	Requirements
Results table	BS4873 Door Direct Test

Glossary of Terms.

PASS: Complies. Tested by BSI engineers at BSI laboratories.

PASS1: Complies. Witnessed by BSI engineers in manufacturers laboratory.

PASS2: Complies. Tests carried out by third party lab; results accepted by BSI.

PASS*: Report resulted in uncertainty and states that Compliance is more probable than non-compliance.

FAIL: Non compliance – Product does not meet the requirements of this clause.

FAIL*: Report resulted in uncertainty and states that Non-compliance is more probable than compliance.

N/A: Not applicable to design under consideration.

N/T: Not tested due to similarity to previously tested item; reference earlier test report.

Conditions of Issue.

This Test Report is issued subject to the conditions stated in current issue of 'BSI Terms of Service'. The results contained herein apply only to the particular sample(s) tested and to the specific tests carried out, as detailed in this Test Report. The issuing of this Test Report does not indicate any measure of Approval, Certification, Supervision, Control or Surveillance by BSI of any product. No extract, abridgement or abstraction from a Test Report may be published or used to advertise a product without the written consent of BSI, who reserve the absolute right to agree or reject all or any of the details of any items or publicity for which consent may be sought.

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