

Test Report

- Description: Sash and slide window.
- Sampling: The test sample was forwarded by the client and received at the Danish Technological Institute on 2008.09.04.
- Method: EN 14351-1 (2006): Windows and doors – Product standard, performance characteristics - Part 1: Windows and external pedestrian doorsets without resistance to fire/or smoke leakage characteristics.
EN 1026 (2000): Windows and doors - Air permeability - Test method.
EN 1027 (2000): Windows and doors - Watertightness - Test method.
EN 12211 (2000): Windows and doors - Resistance to wind load - Test method.
- Period: The tests were conducted 08 – 15 September 2008.
- Result: Classification of the test material according to EN 14351-1 4.2, 4.5 and 4.14 and the standards mentioned below:
- Air permeability: **Class 4** at 600 Pa - average based on Class 4 at 600 Pa pressure and Class 4 at -600 Pa pressure.
according to EN 12207 – Windows and doors – Air permeability – Classification.
- Watertightness: **Class 8A.**
according to EN 12208 – Windows and doors – Watertightness – Classification.
- Wind load: **Class C3.**
according to EN 12210 – Windows and doors – Resistance to wind load – Classification.

Test results – Air permeability – Positive air pressure:

Air pressure	Air flow	Air flow	Air flow	Class	Class
[Pa]	Total	Area	Length of joint	Area	Length of joint
[Pa]	[m ³ /h]	[m ³ /h/m ²]	[m ³ /h/m]	[-]	[-]
50	0.00	0.80	0.24	4	4
100	2.73	1.46	0.43	4	4
150	3.70	1.98	0.58	4	4
200	4.43	2.42	0.71	4	4
250	5.30	2.89	0.85	4	4
300	6.03	3.28	0.96	4	4
450	8.10	4.39	1.29	4	4
600	10.10	5.46	1.61	4	4

Test results – Air permeability – Negative air pressure:

Air pressure	Air flow	Air flow	Air flow	Class	Class
	Total	Area	Length of joint	Area	Length of joint
[Pa]	[m ³ /h]	[m ³ /h/m ²]	[m ³ /h/m]	[-]	[-]
50	0.00	0.75	0.22	4	4
100	2.60	1.39	0.40	4	4
150	3.47	1.86	0.55	4	4
200	4.23	2.32	0.68	4	4
250	4.97	2.71	0.80	4	4
300	5.60	3.05	0.90	4	4
450	7.63	4.14	1.22	4	4
600	9.50	5.14	1.51	4	4

Test results – Air permeability – Average air pressure:

Air pressure	Air flow	Air flow	Air flow	Class	Class
	Total	Area	Length of joint	Area	Length of joint
[Pa]	[m ³ /h]	[m ³ /h/m ²]	[m ³ /h/m]	[-]	[-]
50	0.00	0.77	0.23	4	4
100	2.67	1.43	0.42	4	4
150	3.58	1.92	0.56	4	4
200	4.33	2.37	0.70	4	4
250	5.13	2.80	0.82	4	4
300	5.82	3.17	0.93	4	4
450	7.87	4.27	1.25	4	4
600	9.80	5.30	1.56	4	4

Test results – Watertightness:

Air pressure [Pa]	Duration [min]	Observations [-]	Class [-]
0	15	No water penetration	1A
50	5	No water penetration	2A
100	5	No water penetration	3A
150	5	No water penetration	4A
200	5	No water penetration	5A
250	5	No water penetration	6A
300	5	No water penetration	7A
450	5	No water penetration	8A
600	5	Water penetration, more than 3 drops in the lower right and left corner after 220 sec.	9A

Test results – Resistance to wind load:

Deflection test

Air pressure - P1	Displacement		Relative frontal deflection		Class
	Positive pressure	Negative pressure	Positive pressure	Negative pressure	
[Pa]	[mm]	[mm]	[=]	[=]	[=]
1200	0.7	0.6	1/1543	1/1964	C3

The distance between the two outer transducers was 1080 mm.

Pulsating air pressure test

Air pressure - P2 [Pa]	Observations during testing [-]
± 600	The specimen remained closed and no damage or operating defects were observed.

Air permeability test after P1 and P2

Air pressure [Pa]	Classification					
	Positive pressure		Negative pressure		Average	
	Area [-]	Length of joint [-]	Area [-]	Length of joint [-]	Area [-]	Length of joint [-]
50	4	4	4	4	4	4
100	4	4	4	4	4	4
150	4	4	4	4	4	4
200	4	4	4	4	4	4
250	4	4	4	4	4	4
300	4	4	4	4	4	4
450	4	4	4	4	4	4
600	4	3	4	4	4	4

Safety test

Air pressure - P3 [Pa]	Observations during testing [-]
±1800	The specimen remained closed and no damage or operating defects were observed.

Sound Reduction **Test conditions**

Laboratory: EN ISO 140-1:1997

Measuring method: EN ISO 140-3:1995

Evaluation: EN ISO 717-1:1996

Results

Airborne sound insulation measured in the laboratory, weighted sound reduction index according to EN ISO 717-1:1996:

Measurement no.	R_w (C; C_{tr})	Insulating Glass Units
1	34 (-2; -5)	SGG CLIMAPLUS N 1,1 A (4 - 14 - 4 Futur N, Argon-filled)
2	39 (-2; -5)	SGG CLIMAPLUS SILENCE WS 24/41 Kr (6,38 lam. - 12 - 6 Futur N, Krypton-filled)

Graph sheets no. 1 and 2 show the sound reduction index for every one-third octave band together with the shifted reference curve corresponding to the measured weighted sound reduction index.