



TEST REPORT Nr. 005 SŠF/08 AVA en

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29 of January 2008

1 (5)

**Windows and doors – Resistance to wind load**

(designation of the test)

Test performed: In accordance to LST EN 12211  
(number of normative document)

Product: HS sliding doors. Wooden doors. Door height -2090 mm, length 1990mm. Karm profile - 40×133mm, sash profile - 66×90 mm. Product fittings - Siegenia HS - 200 Portal, consists of rail, rollers and lock. Silikon sealings - Sipla AS (Sweden); glueable sealing - Trelleborg (Germany). Glazing : 4/18/4 selective.  
(name, description and identification details of a specimen)

Client: “Panorama Nordic“ Ltd, Jugintu vill. Bابتu gen. Kaunas reg.  
(the name and address)

Producer: “Panorama Nordic“ Ltd, Jugintu vill. Bابتu gen. Kaunas reg.  
(the name and address)

Results of test:

Name of the indicator and unit	Test method reference no.	Test result
Frontal deflection $F_p$ , mm	LST EN 12211	Annex 1
Relative frontal deflection $F_{rp}$	LST EN 12211	Annex 1
Resistance to wind load class	LST EN 12210; 12210+AC	C5

Place of test: Laboratory of Building Thermal Physics, IAC KUT  
(name of the test laboratory)

Product delivered: 2008-01-16 Date of test: 2008-01-22

Sample selected: by customer. Order description No 005/08, 2008 01 18

Other information: -  
(other deviations, other tests and any information related to the test)

Annex: 1 – measurement results, 2 – schematical view of the test rig  
(the numbers of the annexes should be pointed out)

Technical manager:  
(approving test results)

J. Ramanauskas  
(n., surname)

(signature)

Test performed by:  
(person responsible for a test)

R. Rauckis  
(n., surname)

(signature)

S.P.



### Installation of the sample

Sample has been installed into test rig „KS 3025/45 ASD SPS Touch“ opening by workers of the laboratory. An opening of the test rig was adjusted that it size would meet the dimensions of the sample

### Methods and equipment

Air permeability has been tested in accordance with requirements of [1], [2].

Test rig „KS 3025/45 ASD SPS Touch“ includes:

1. test wall,
2. Air flow control block,
3. Water sprinkling system,
4. Indication and control equipment,
5. Deflection sensors.

Technical data of test rig:

1. Max size of the sample should be tested: width – 3000 mm, height – 2500 mm,
2. Max developed test pressure:  $\pm 3000$  Pa,
3. Ranges of measurement: I – (0,5...50) m<sup>3</sup>/h II – (0,5...300) m<sup>3</sup>/h,
4. Range of displacement sensors  $\pm 25$  mm.
5. Electronic anemometer for air flow measurement VTS Nr. 00100173, Calibration certificate No EMA04271024139(date of calibration: 27-10-2004)

- Sources**
- [1] *LST EN 12211: 2002 Windows and doors – Resistance to wind load – Test method*
  - [2] *LST EN 12210:2002 Windows and doors – Resistance to wind load – Classification*
  - [3] *LST EN 12210+AC:2004 Windows and doors – Resistance to wind load – Classification*

**Distribution**

Client	Original
Laboratory of Building Thermal Physics, IAC KUT	Original

**Contact person :** Romas Rauckis, tel. +370 37 350779

Validity – the named data and results refer exclusively to the tested and described specimens.  
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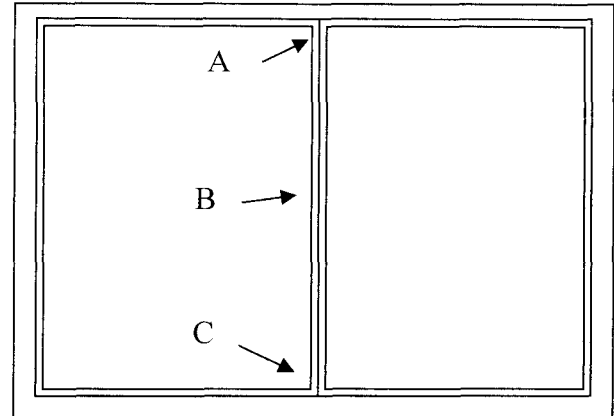


**Designation of the product tested:** HS sliding doors. Wooden doors. Door height -2090 mm, length 1990mm. Karm profile - 40×133mm, sash profile - 66×90 mm. Product fittings - Siegenia HS -200 Portal, consists of rail, rollers and lock. Silikon sealings - Sipla AS (Sweden); glueable sealing - Trelleborg (Germany). Glazing : 4/18/4 selective.

**Test date:** 2008-01-22

**Description of test conditions:**

Size of the sample, 209 m×1,99m  
Air temperature, 19,0 °C  
Relative humidity of the air, 40 %  
Atmospheric pressure, 100,0 Pa  
Declare class of resistance to wind load: **C5**  
Test pressure **P1 2000 Pa**  
Test pressure **P2 1000 Pa**  
Test pressure **P3 3000 Pa**  
**A, B, C** – deflection measuring points (fig 1)  
Length of the members whose frontal deflection is to be measured **L = 1840 mm**



*Fig 1. Picture of window or door*

**1. Deflection test:**

**Positive pressure (+P1)**

**A** = 0,8 mm, **B** = 4,2 mm, **C** = 1,9 mm.

Frontal displacement  $D_p = B = 4,2$  mm; frontal deflection  $F_p = B - [(A+C)/2] = 2,9$  mm; relative frontal deflection  $F_{rp} = F_p/L = 1/634$ , residual frontal displacement, when  $P = 0$ ,  $D_p = 1,0$  mm;

**Negative pressure (-P1)**

**A** = -1,1 mm, **B** = -4,1 mm, **C** = -1,6 mm.

Frontal displacement  $D_p = B = -4,1$  mm; frontal deflection  $F_p = B - [(A+C)/2] = -2,8$  mm; relative frontal deflection  $F_{rp} = F_p/L = 1/657$ , residual frontal displacement, when  $P = 0$  Pa,  $D_p = -0,8$  mm;

**2. Repeated pressure test:** Note damage or functioning defects if any after the test: **No**

**3. Test for air permeability in accordance with EN 1026:**

Air permeability not greater than 20% of the maximum permissible air permeability for the air permeability classification previously obtained (4).

**4. Safety test:** Note damage or functioning defects if any after the test: **No**

**5. Resistance to wind load class C5 according to LST EN 12210.**  
Evaluated in accordance with test results.



**Air permeability after the resistance to wind load testing in accordance with LST EN 1026:**

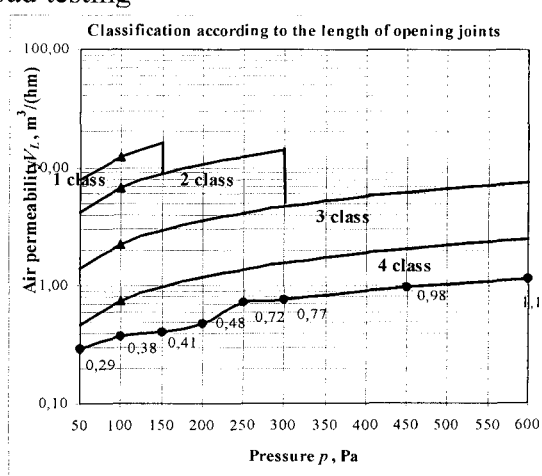
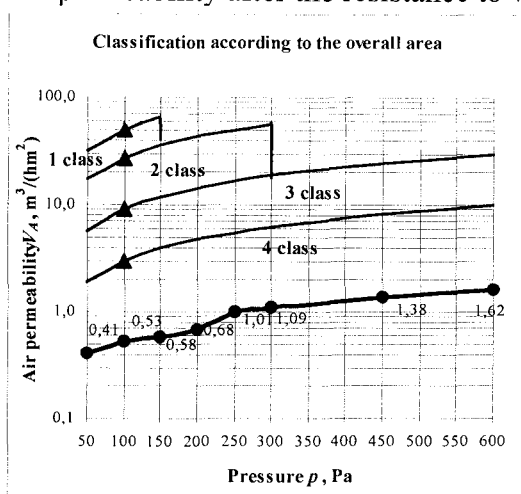
Size of the sample:  $H_T = 2,09$  m;  $B_T = 1,99$  m;  $H_0 = 1,95$  m;  $B_0 = 0,96$  m.

Total area of the sample  $A = H_T \times B_T = 4,14$  m<sup>2</sup>; Opening joints length  $L = 2 H_0 + 2 B_0 = 5,82$  m.

Table 1. Air permeability at the positive test pressure (+P1):  $V_0'$  – air permeability at the conditions  $t = 20$  °C,  $P_{atm} = 101,3$  kPa;  $V_L$  – air permeability to the length of opening joints;  $V_A$  – air permeability to the overall area

+P, Pa	50	100	150	200	250	300	450	600
$V_0'$ , m <sup>3</sup> /h	1,7	2,2	2,4	2,8	4,2	4,5	5,6	6,6
$V_A$ , m <sup>3</sup> /(h·m <sup>2</sup> )	0,41	0,53	0,58	0,68	1,01	1,09	1,38	1,62
$V_L$ , m <sup>3</sup> /(h·m)	0,29	0,38	0,41	0,48	0,72	0,77	0,98	1,15

Air permeability after the resistance to wind load testing



After comparison of  $V_A$  and  $V_L$  result values with the adequate values in table 2 and also in accordance with classification rules in LST EN 12207, air permeability not greater than 20% of the maximum permissible air permeability for the air permeability classification previously obtained (4).

Evaluated in accordance with test results.

Table 2. Reference air permeability values  $V_A$  and  $V_L$ , m<sup>3</sup>/h·m<sup>2</sup>, according to the test pressure range of air permeability classes

Test pressure, Pa	50	100	150	200	250	300	450	600
Class	m <sup>3</sup> /h·m <sup>2</sup>							
1	31,50	50,00	65,52					
2	17,01	27,00	35,38	42,86	49,73	56,16		
3	5,67	9,00	11,79	14,29	16,58	18,72	24,53	29,72
4	1,89	3,00	3,93	4,76	5,53	6,24	8,18	9,91
Class	m <sup>3</sup> /h·m							
1	7,87	12,50	16,38					
2	4,25	6,75	8,85	10,71	12,43	14,04		
3	1,42	2,25	2,95	3,57	4,14	4,68	6,13	7,43
4	0,47	0,75	0,98	1,19	1,38	1,56	2,04	2,48

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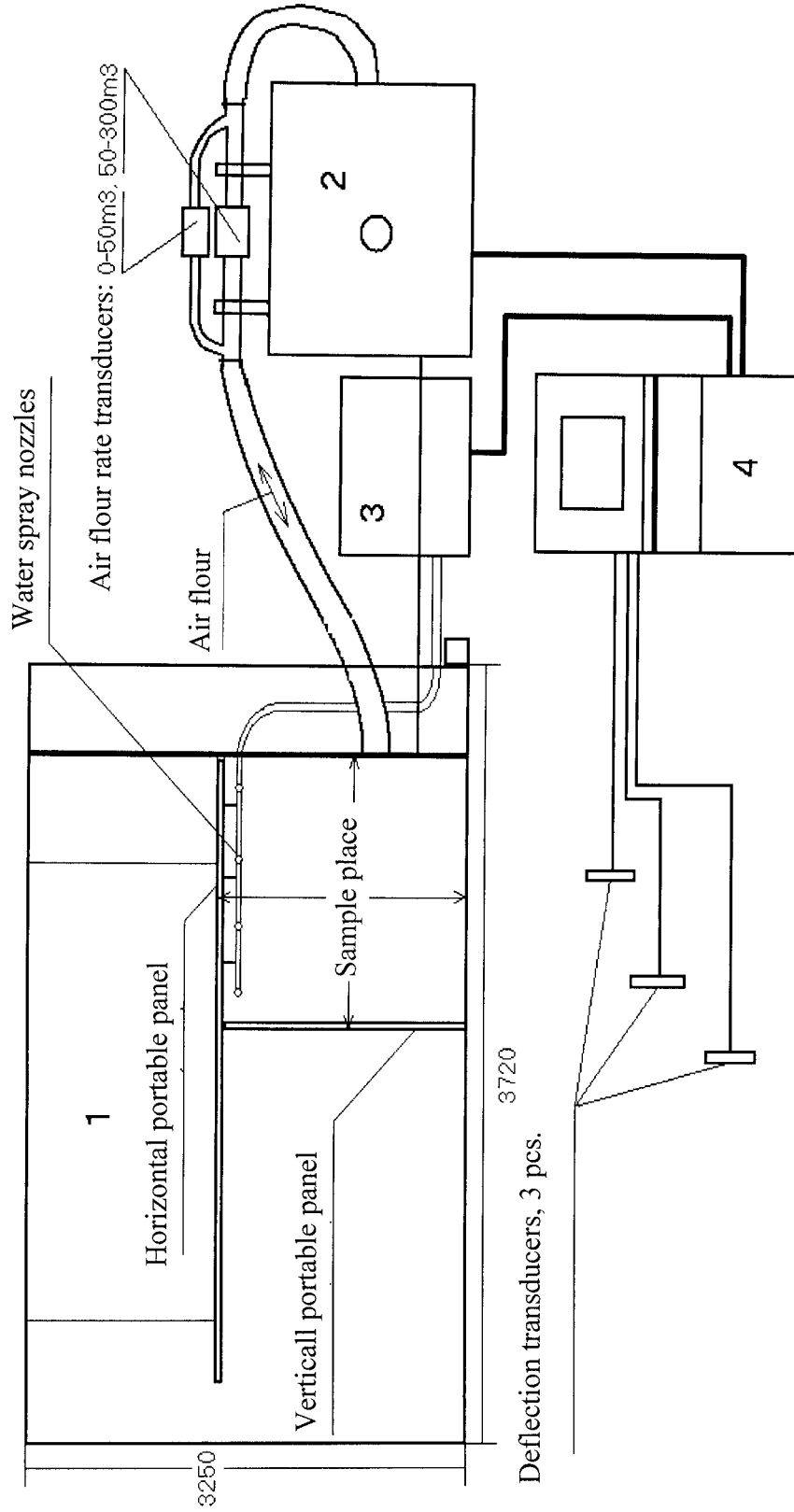


Fig 1. Equipment for window, door, roof window, industrial door and screen wall air permeability, rain water resistance and resistance to wind load measurements scheme: 1 – test measurement wall, 2 – air flow control and regulation block, 3 – water spray device, 4 – indicator and control equipment