D.C.

Universiteit
Gent

Testcentrum
voor
Gevelelementen

TEST REPORT NR. 828/0044

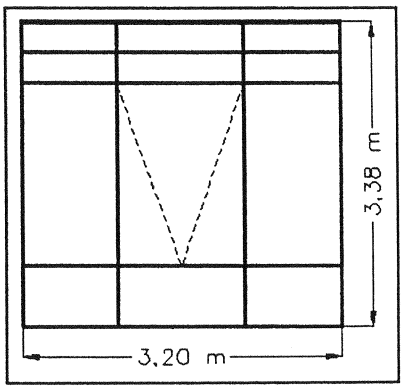
TEST CARRIED OUT IN ACCORDANCE WITH

STS 52.0 EDITION 1985

ON AN ALUMINIUM CURTAIN WALL SERIE MC
WITH THERMAL BREAK.

UNIVERSITEIT GENT
TESTCENTRUM VOOR GEVELELEMENTEN
IENST: PROF. DR. IR. R. SIERENS
.....

9000 GENT, 99-04-27
SINT-PIETERSNIEUWSTRAAT 41
TEL (09) 264 33 59
FAX (09) 264 35 90



TEST REPORT NR: 828/0044

TEST CARRIED OUT ON AN
AN ALUMINIUM CURTAIN WALL SERIE MC
WITH THERMAL BREAK

OF THE COMPANY:
ALIPLAST ALUMINIUM SYSTEMS

APPLICANT:
.....
ALIPLAST ALUMINIUM SYSTEMS

Waaslandlaan 15
9160 LOKEREN

Contact: mr. Coeymans M.
Phone: 09 340 55 55

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2 MANUFACTURER:
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ALIPLAST ALUMINIUM SYSTEMS

Waaslandlaan 15
9160 LOKEREN

Phone: 09 340 55 55

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3 DESTINATION: atg Butgb
.....

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4 MATERIAL SENT FOR TEST:
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4.1.Identification of the test element:

Test element supplied by the applicant on 99-04-27 and in accordance with the included drawing with ref. nr.: 828/0044
Drawing certified with the stamp:

UNIVERSITEIT GENT
TESTCENTRUM VOOR GEVELELEMENTEN
Sint-Pietersnieuwstraat 41
B-9000 GENT (BELGIE)

4.2.Dimensions of the test element:

width : 3.20 m
height : 3.38 m
total surf.: 10.816 m^2
length of the opening joints: 5.20 m
surface of the opening light frame: 1.632 m^2

4.3. Description of the parts of the test element:

Sections:

material : aluminium with thermal break
type : see drawing ref. nr. 828/0044
surface treatment : laquered
type of connection: glued, pressed and screwed

Tightening strips:

material: epdm
type : see drawing ref. nr. 828/0044
place : see drawing ref. nr. 828/0044

Glass:

thickness : double 6+12+6 mm
type : not indicated
way of glazing: pre-fabricated profils

Fittings:

hinges: mark : Rivalu
type : Italinox 7000
number: 2

closing fittings: mark: Rivalu
type: Italinox 7000
closing fittings: mark:
number of locking points: 5

Drainage:
of the glazing : see drawing ref. nr. 828/0044
of the opening joint: see drawing ref. nr. 828/0044

Ventilating of the opening joint: see drawing ref. nr. 828/0044

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5 INSTALLATION IN THE TEST CENTER:
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The element to test is fixed on the test chamber in accordance with the included drawing nr.: 828/0044 and scheme 828/1/1.
Air temperature in the test chamber: 20.0 °C
Air temperature in the test center : 20.0 °C

TESTS CARRIED OUT: see sheme 828/1/2

6.1. Air permeability in accordance withNBN B 25-204:

6.1.1. Positive pressure see fig. 828/0044 /1

Pressure. Pa	Air permeability m^3/h	Per m opening joint m^3/hm	Per m^2 opening surf. m^3/hm^2	Per m^2 tot. surface. m^3/hm^2
50.	2.480	0.477	1.519	0.229
100.	4.607	0.886	2.822	0.426
150.	6.344	1.220	3.885	0.586
200.	7.717	1.484	4.728	0.713
300.	10.228	1.967	6.267	0.946
400.	10.015	1.926	6.136	0.926
500.	8.804	1.693	5.394	0.814
600.	11.741	2.258	7.194	1.085
500.	9.963	1.916	6.103	0.921
400.	9.324	1.793	5.712	0.862
300.	8.382	1.612	5.136	0.775
200.	6.193	1.191	3.793	0.572
150.	5.793	1.114	3.547	0.536
100.	4.488	0.863	2.750	0.415
50.	2.688	0.517	1.648	0.248

6.1.2. Negative pressure see fig. 828/0044 /1

Pressure. Pa	Air permeability m^3/h	Per m opening joint m^3/hm	Per m^2 opening surf. m^3/hm^2	Per m^2 tot. surface. m^3/hm^2
50.	2.454	0.472	1.503	0.227
100.	4.628	0.890	2.836	0.428
150.	6.531	1.256	4.001	0.604
200.	8.403	1.616	5.146	0.777
300.	12.079	2.323	7.401	1.117
400.	15.480	2.977	9.482	1.431
500.	19.630	3.775	12.025	1.815
600.	22.874	4.399	14.012	2.115
500.	18.647	3.586	11.424	1.724
400.	14.913	2.868	9.136	1.378
300.	12.105	2.328	7.414	1.119
200.	8.788	1.690	5.385	0.812
150.	6.911	1.329	4.232	0.639
100.	4.992	0.960	3.060	0.461
50.	2.834	0.545	1.737	0.262

REMARKS: none.

6.2. Testing the wind resistance in accordance with NBN B 25-205:

6.2.1. Deformation test by positive pressure measured over a length of 0.88 m in point B see fig. 828/0044 /2:

Pressure Pa	Deformation point B mm
0.	0.0
100.	0.0
200.	0.1
300.	0.2
400.	0.3
500.	0.3
600.	0.4
750.	0.5
1000.	0.7
1750.	1.3

Permanent deformation: 0.0 mm

RESULT: the element is satisfactory.

6.2.2. Deformation test by negative pressure measured over a lenght of 0.88 m in point B see fig. 828/0044 /2

Pressure Pa	Deformation point B mm
0.	0.0
100.	0.0
200.	0.1
300.	0.2
400.	0.3
500.	0.3
600.	0.4
750.	0.5
1000.	0.7
1750.	1.3

Permanent deformation: 0.0 mm

RESULT: the element is satisfactory.

6.2.3. Repeated positive and negative pressure test from 0 to 1250. Pa (250 cycles positive and 250 cycles negative).

6.2.4. Safety test with a positive pressure of: 3000. Pa
RESULT:
There was no damage or faulty operation after the test.

6.2.5. Safety test with a negative pressure of: 3000. Pa
RESULT:
There was no damage or faulty operation after the test.

6.3. Control of the air permeability in accordance with NBN B 25-204:
(After test 6.2. the wind resistance.)

6.3.1. Positive pressure see fig 828/0044 /1:
Difference in air permeability expressed in percentage and in m^3/hm opening joint in relation to test 6.1.1.

Pressure Pa	Difference air permeability %	per m opening joint m^3/hm
50.	-1.240	-0.006
100.	-0.960	-0.009
150.	1.584	0.019
200.	0.170	0.003
300.	-13.809	-0.271
400.	11.713	0.226
500.	0.261	0.005
600.	0.927	0.021
500.	1.286	0.024
400.	-3.845	-0.069
300.	-2.384	-0.038
200.	-4.050	-0.049
150.	-3.384	-0.038
100.	-1.012	-0.009
50.	-4.298	-0.022

6.3.2. Negative pressure see fig 828/0044 /1:
Difference in air permeability expressed in percentage and in m^3/hm opening joint in relation to test 6.1.2.

Pressure Pa	Difference air permeability %	per m opening joint m^3/hm
50.	4.744	0.022
100.	4.323	0.039
150.	4.267	0.054
200.	4.451	0.071
300.	4.130	0.096
400.	2.481	0.073
500.	7.824	0.295
600.	4.681	0.206
500.	6.965	0.250
400.	10.696	0.307
300.	4.557	0.106
200.	4.241	0.072
150.	5.245	0.069
100.	4.765	0.046
50.	3.307	0.018

6.3.3. Conservation of the qualities:

The air permeability measured after the wind resistance test may not be higher than 20 % (with a minimum of 0.3 m^3/hm opening joint) of the air permeability measured before the wind resistance test.

RESULT: the element is satisfactory.

6.4. Watertightness test in accordance with NBN B 25-209:

6.4.1. Under static air pressure:

Pressure Pa	Duration min.	Remarks
0	15	no infiltration
50	5	no infiltration
100	5	no infiltration
150	5	no infiltration
200	5	no infiltration
300	5	no infiltration
400	5	no infiltration
500	5	no infiltration
600	5	no infiltration
700	5	no infiltration
800	5	no infiltration
900	5	no infiltration
1000	5	no infiltration

6.4.2. Under dynamic air pressure:

50 pulsations are carried out between 0 + 50 Pa and 700 + and - 50 Pa:

no infiltration

6.5. Mechanical tests in accordance with NBN B 25-210:

REMARKS:
TESTS NOT CARRIED OUT.

EVALUATION:

7.1. In accordance with STS 52.0:
results for
- air permeability : PA3
- wind resistance : PV2
- watertightness : PEE 1000 Pa

7.2. In accordance with UEATC:
class for
- air permeability : A3
- wind resistance : V2
- watertightness : E4

8 REMARKS:

8.1. The results are only valid under the conditions as ruling during the test.

8.2. This report is only valid when showing the reference number and stamp on all annexes.

8.3. Partial copy of this report is not allowed without written consent of Prof. Dr. Ir. R. SIERENS, director of the "Testcentrum voor Gevelelementen".

R. HUWEL
Engineer responsible for the tests.

Prof. Dr. Ir. R. SIERENS
Director.

ANNEXES:

with stamp

Drawings nr.
828/1/1
828/1/2

Figures nr.
828/0044/1 - 2

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GEVELELEMENTEN
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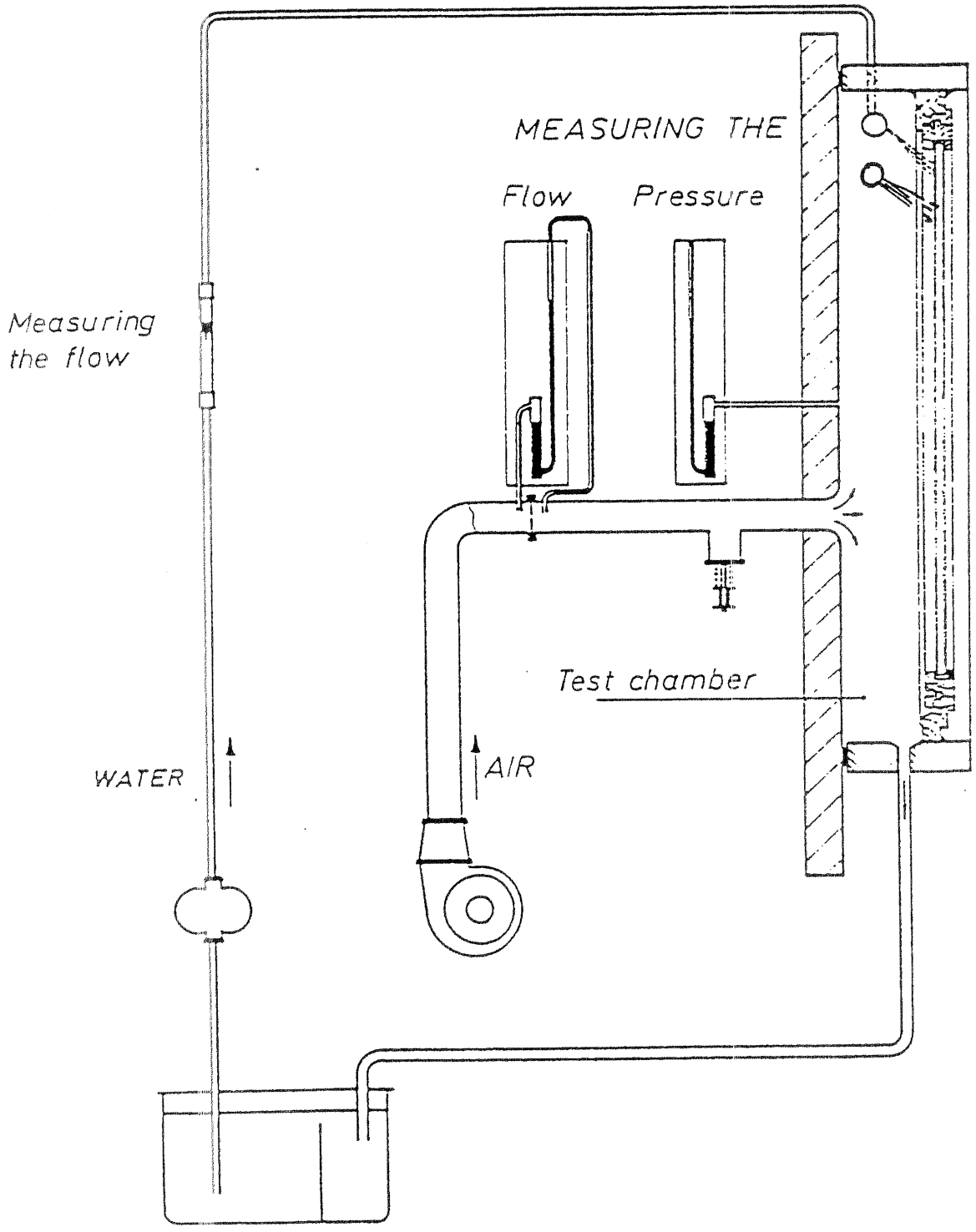
B-9000 GENT (BELGIE)



RIJKSUNIVERSITEIT GENT
TESTCENTRUM VOOR
GEVELELEMENTEN
Sint-Pietersnieuwstraat 41
B-9000 GENT (BELGIË)

SCHEME OF THE
TEST INSTALLATION

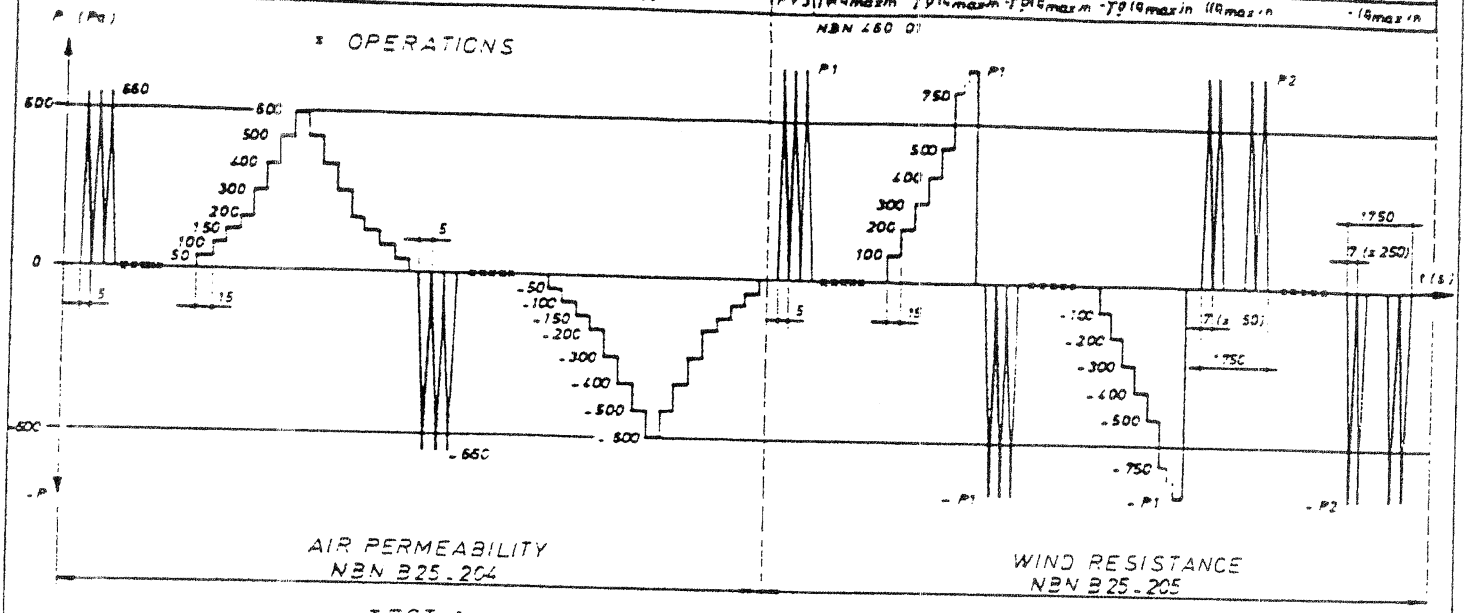
Nr. 828/1/1

STS 52

PRESTATIE NIVEAU				
PA 2	500	300	- 500	- 300
PA 2B	550	500	- 550	- 500
PA 3	660	600	- 660	- 600

PV 1	600	600	- 600	- 600	450	- 450
PV 1B	750	750	- 750	- 750	600	- 600
PV 2	1000	1000	- 1000	- 1000	750	- 750
PV 3	T q1 q max in	T q1 q max in	- T q1 q max in	- T q1 q max in	q max in	- q max in

NBN 460 01



AIR PERMEABILITY
NBN B25.204

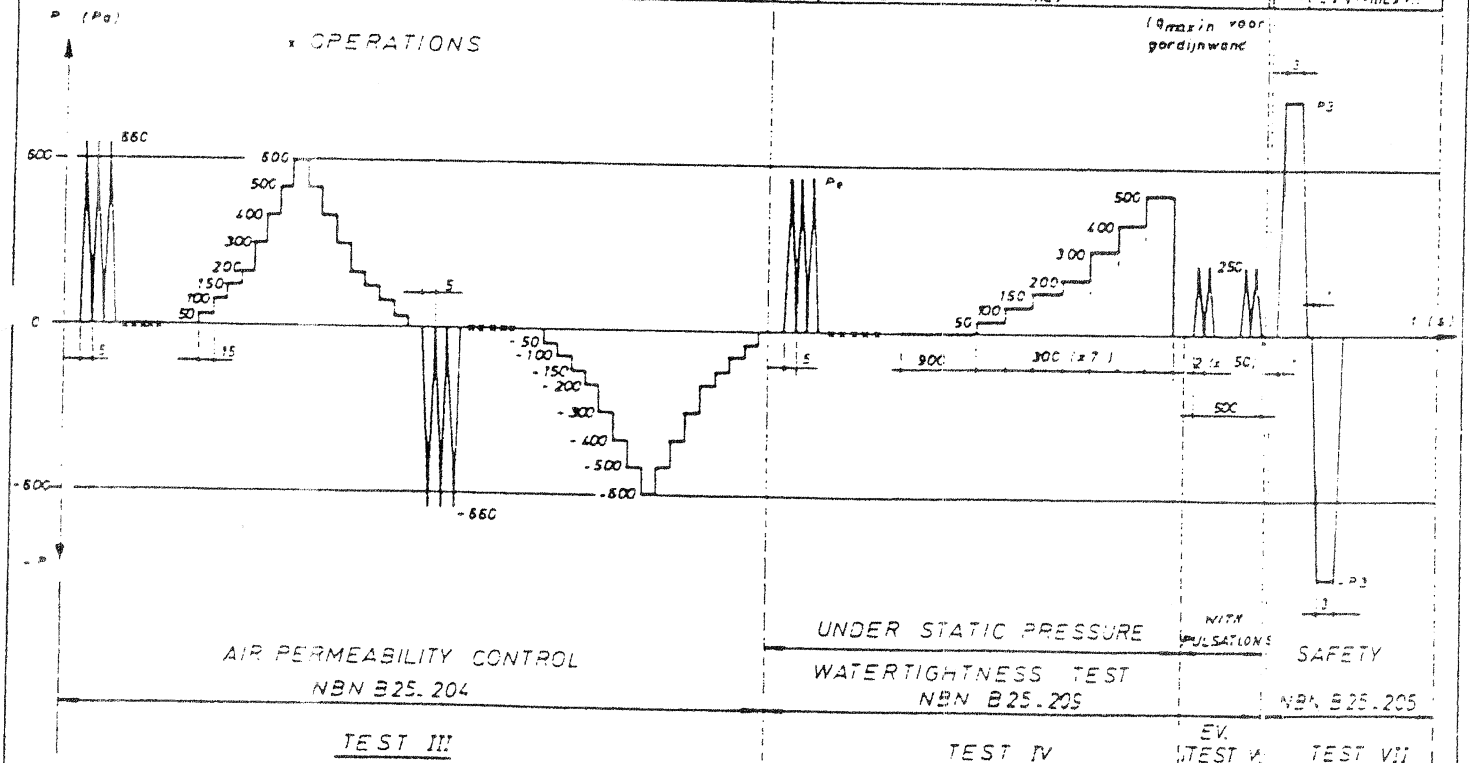
TEST I

WIND RESISTANCE
NBN B25.205

TEST II

PRESTATIE NIVEAU				
PA 2	500	300	- 500	- 300
PA 2B	550	500	- 550	- 500
PA 3	660	600	- 660	- 600

PE 2	500	150	(250)	PV 1 1000 -1000
PE 3	500	300	(250)	PV 2 1500 -1500
PE 4	550	500	(250)	PV 3 2000 -2000
PE E	q max in	q max in	(250)	PV 4 T q1 q max in



AIR PERMEABILITY CONTROL
NBN B25.204

TEST III

UNDER STATIC PRESSURE
WATERTIGHTNESS TEST
NBN B25.205

TEST IV

WITH PULSATIONS

EV. TEST V

SAFETY
NBN B25.205

TEST VII

MECHANICAL TEST
NBN B25.210

TEST V

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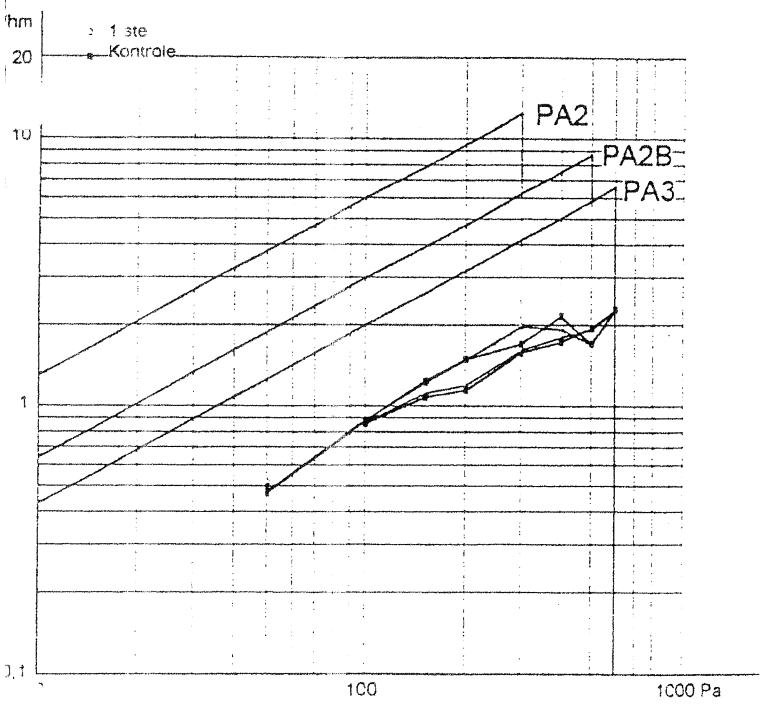
Sint-Pietersnieuwstraat 41

SCHEME OF THE TESTS

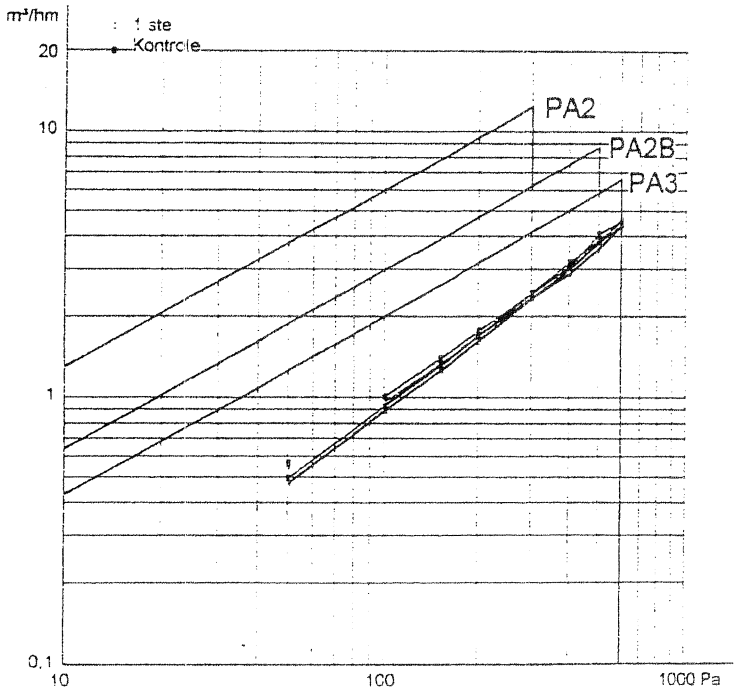
Nr. 828/1/2

AIR PERMEABILITY IN ACCORDANCE WITH NBN B25-204

POSITIVE PRESSURE



NEGATIVE PRESSURE



Ref. nr. 828/0044/1

Date: 99-04-27

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TESTCENTRUM VOOR GEVELELEMENTEN
Sint-Pietersnieuwstraat 41
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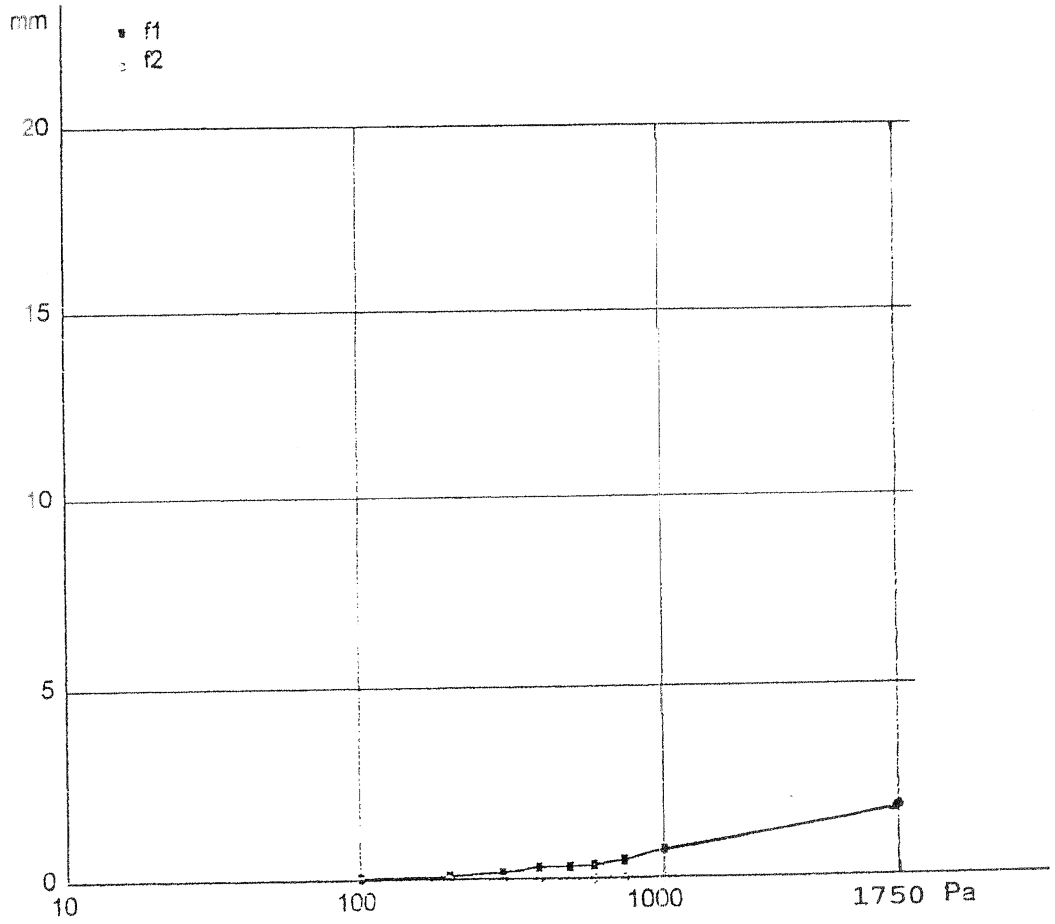
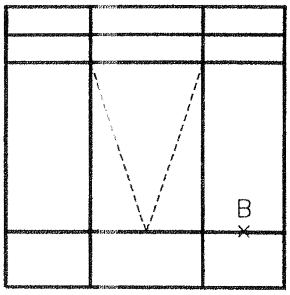
WIND RESISTANCE IN ACCORDANCE WITH

NBN B25-205





Ref. nr. 828/0044/2

Date: 99-04-27

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Sint-Pietersnieuwstraat 41
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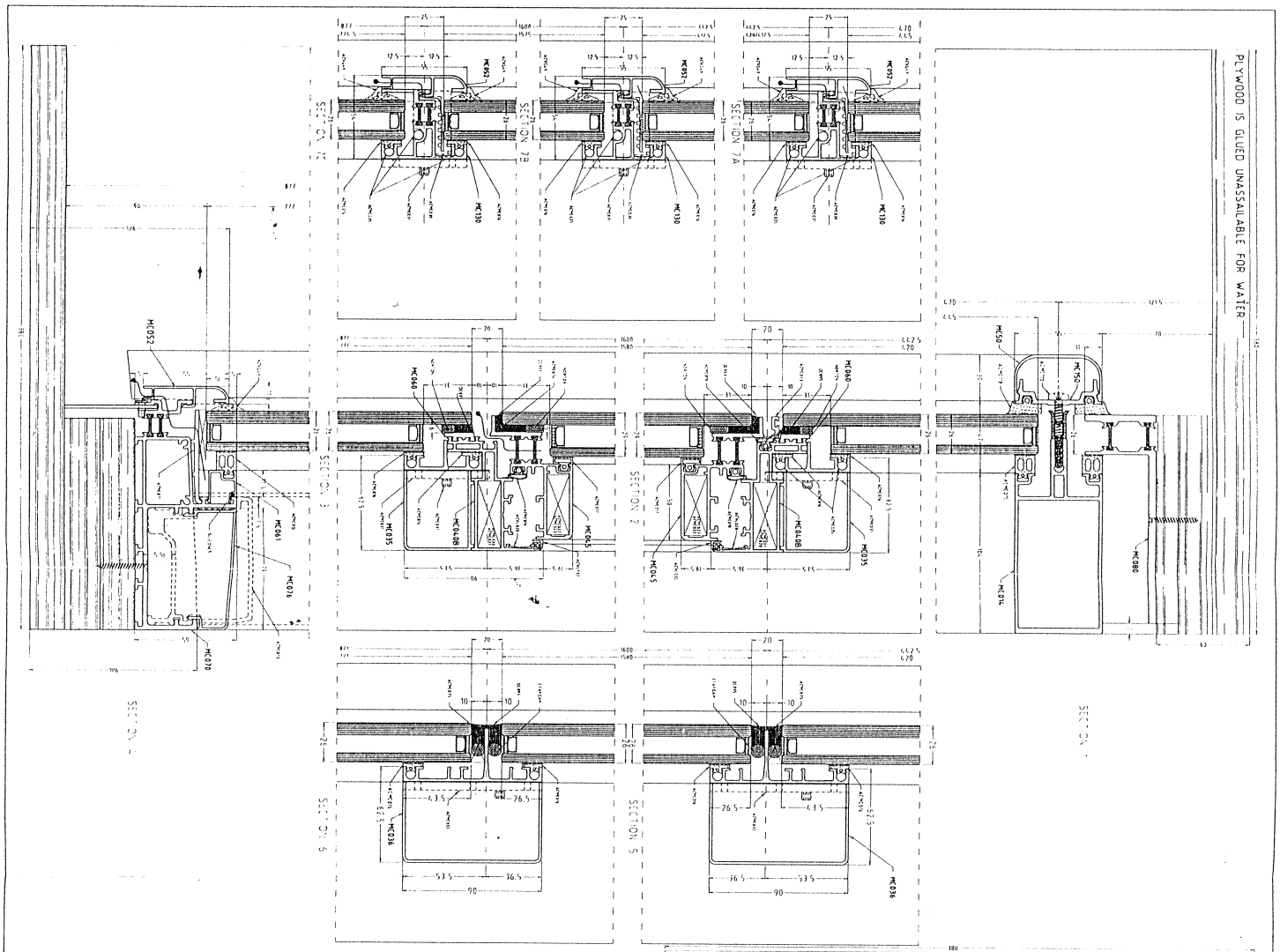
SECTION 1
SECTION 2
SECTION 3
SECTION 4
SECTION 5
SECTION 6
SECTION 7
SECTION 8
SECTION 9
SECTION 10
PLYWOOD IS GLUED UNASSAILABLE FOR WATER
PLYWOOD IS GLUED UNASSAILABLE FOR WATER
DETAIL A
ACMC014
SCALE : 1/20
aliplast