



PERFORMANCE TEST REPORT

Air Permeability, Water Tightness, Under Static Pressure and
Resistance to Wind Load

Test Report No: 010.001.1 / 2010



Rendered to	: Burak Alüminyum	Norms Applied	: EN 1026
			: EN 1027
			: EN 12211
Product	: RY Thermally Broken Window syst. (Y58)		:
		Classification Norms	: EN 12207
Sample Size	: 3300 mm x 2200 mm		: EN 12208
			: EN 12210
Sample Description	: Tilt & Turn spandrel (900x1400 mm)		:
	: 6/15/4 Double Glass		:
	:	Test Comp. Date	: 20/04/2010
Test Performed	: Air Permeability - Static	Report Date	: 23/04/2010
	: Water Tightness - Static	Record Retention Date	: 23/04/2013
	: Wind Resistance - Static	Number of Pages	: 10
		Number of Annex Pages	: 5+3

Test Results : The Test sample performed in accordance of to following classifications

Air Penetration	: EN 12207 Class 4
Water Tightness	: EN 12208 9A (600Pa)
Wind Resistance	: EN 12210 B5

* Calibration of the test equipments certified by CEBTP / France referenced to report
BEB1-9-2024-1/2

**This Test Report includes specific test data, results, photographic documentation and as build
drawings of the sample submitted for testing and at tests only the characteristics of the test
sample and does not prejudice the characteristic products

Murat Seyhan
General Manager

Oktay Usta
Testing Manager

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ANNEXES

Sample Drawings and Details

Certification of the Calibration

During the Test Pictures

1. PREFACE

This report comprises of tests which were asked by FTI Facade Testing Institute at the address Çakıl Village Bağlar Region, Çatalca - Istanbul and accomplished by FTI Facade Testing Institute. Tests carried out in April 2010 and indicated for the determination of the air leakproof, water leakproof, resistance to wind for the strengthness to weather conditions of Façade Coating systems.

The above mentioned tests have been carried out as per the test methods provided in project specifications and based on the standards indicated below.

STS 52	* Menuiseries Exterieures 52.0 Generalites
EN 14351-1	* Windows and doors - Product standard, performance characteristics
EN 1026	* Windows and doors - Air Permeability - Test Method
EN 12207	* Windows and doors - Air Permeability - Classification
EN 1027	* Windows and doors - Watertightness - Test Method
EN 12208	* Windows and doors - Watertightness - Classification
EN 12211	* Windows and doors - Wind Load - Test Method
EN 12210	* Windows and doors - Wind Load – Classification

Test sample, comprises a part of coated façade which have been constructed for the Project Y58 YALITIMLI SERİ by BURAK ALUMINIUM San. ve Tic. Ltd. Şti.

This test reports, pictures and details given in the appendix covers the test sample.

2. PARTICIPANTS TO TESTS

Tests were particularly conducted by

Mr. Oktay USTA	FTI	Testing Manager
----------------	-----	-----------------

and partially by

Mr. Zeki AKBULUT	Burak Aluminium	
Mr. Hasan	Burak Aluminium	
Mr. Serdar	Burak Aluminium	
Mr. Mehmet GÜLMEZOĞLU	Metal Yapı	Production Manager
Mr. Seydi CERİT	Metal Yapı	Formen

3. DESCRIPTION OF TEST SAMPLE

* Type of Sample	Window
* System	BRK YLTMLI 58 1,4 LÜK
* Dimensions of Sample (LxH)	3300mm x 2200mm
* Surface area of Sample	7,26 m ²
* Fixed Panel Length	4,60 m
* Wings	900mm x 1400mm
* Surface area of wings	1,26 m ²
* Glass Type	6 / 15 / 4 Double Glass

Utilized Materials

* Y5821-20	Aluminium Profile
* Y5825-18	Aluminium Profile
* Y5835-20	Aluminium Profile
* 5642-14	Aluminium Profile
* -	Epdm Gasket
* -	Epdm Gasket
* -	Epdm Gasket
* -	Epdm Gasket
* -	Epdm Gasket
* -	Aluminium Profile (Corner)

Codes and types of materials used are provided in attachments.

4. TEST RESULTS

4.1. Characteristics

	POSITIVE PRESSURE (Pa)	NEGATIVE PRESSURE (Pa)
P1= 25%PN	150	150
P2= PN	600	600
P3= 50%PN	300	300
PE = 150%PN	900	900

Site Conditions

Building Height : -
 Site Region : -

Classification

Air Permeability **4** 600 Pa
 Watertightness **9A** 600 Pa
 Wind Load **B5** Class 5 Class B
 P1 = 2000 Pa L / 200
 P2 = 1000 Pa
 P3 = 3000 Pa

4.2. Test Conditions

Local Temperature : 17 °C
 Atmospheric Pressure : 1005 mbar
 Ambient Humidity : 75 %
 Test Stand : Stand 2
 Flow Calculation while $DQ < 9.5 \text{ m}^3/\text{h}$: $14,781 \times DQ + 0,85 / 10,644 \times DQ + 1,16$
 Flow Calculation while $DQ > 9.5 \text{ m}^3/\text{h}$: $62,828 \times DQ - 6,93 / 90,686 \times DQ - 39,82$

4.3. Air Permeability

Before starting the test, 3 impacts under 500 Pa applied to the sample.

During the tests the pressure at the following values is applied for 10 secs.

Air permeability from the overall area ;

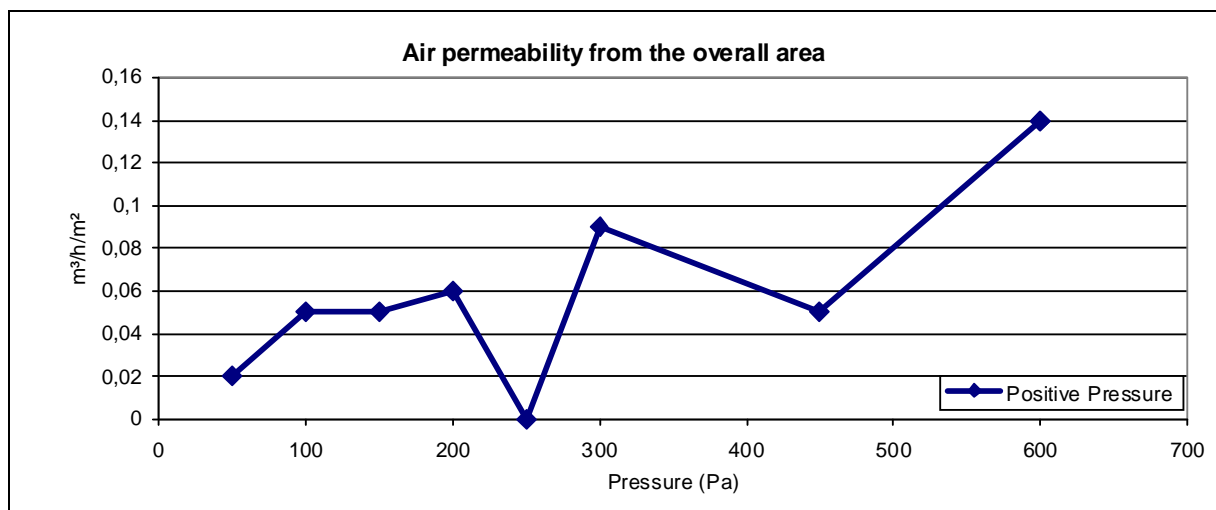
POSITIVE PRESSURE			
ϕ	Test Pressure	Air Flow m ³ /h	Air Flow m ³ /h/m ²
1	50	0,14	0,02
1	100	0,37	0,05
1	150	0,36	0,05
1	200	0,40	0,06
1	250	-0,02	0,00
1	300	0,68	0,09
1	450	0,36	0,05
1	600	1,02	0,14
1	600	1,02	0,14

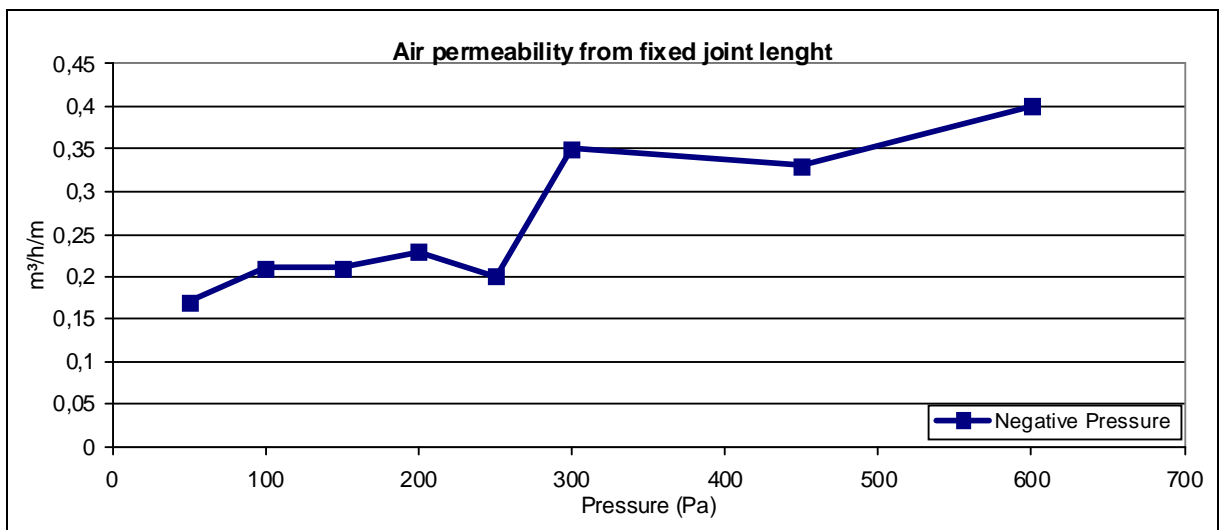
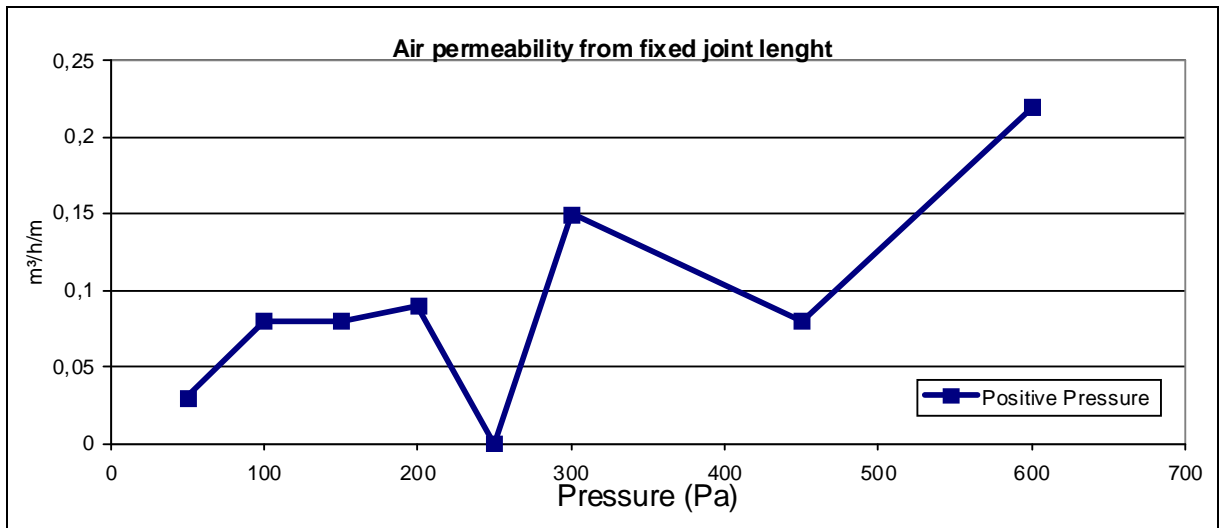
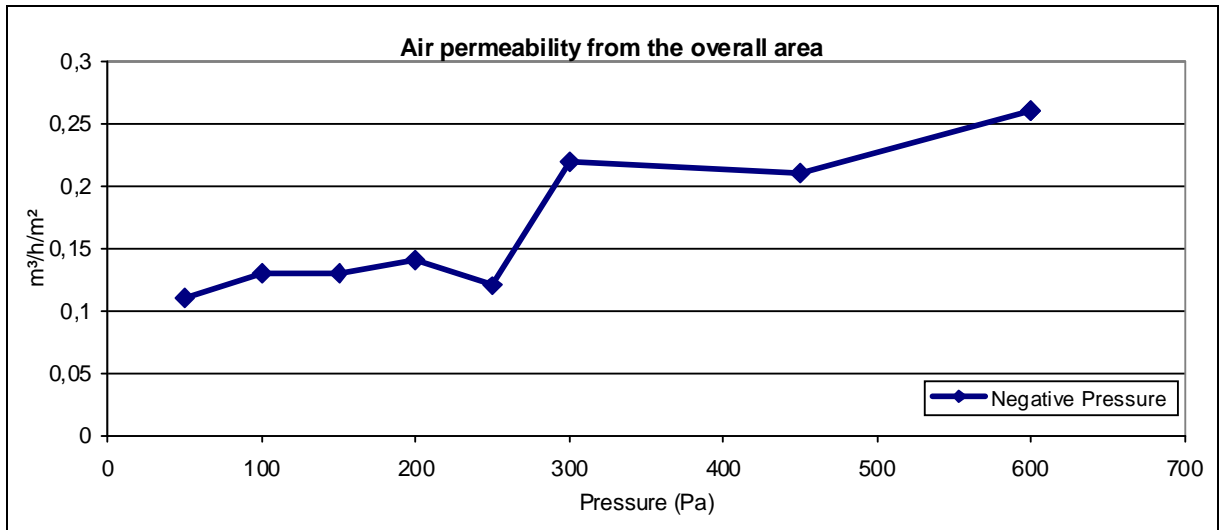
NEGATIVE PRESSURE			
ϕ	Test Pressure	Air Flow m ³ /h	Air Flow m ³ /h/m ²
1	50	0,77	0,11
1	100	0,98	0,13
1	150	0,95	0,13
1	200	1,05	0,14
1	250	0,90	0,12
1	300	1,61	0,22
1	450	1,54	0,21
1	600	1,86	0,26
1	600	1,86	0,26

Air permeability from fixed joint lenght ;

POSITIVE PRESSURE			
ϕ	Test Pressure	Air Flow m ³ /h	Air Flow m ³ /h/m
1	50	0,14	0,03
1	100	0,37	0,08
1	150	0,36	0,08
1	200	0,40	0,09
1	250	-0,02	0,00
1	300	0,68	0,15
1	450	0,36	0,08
1	600	1,02	0,22
1	600	1,02	0,22

NEGATIVE PRESSURE			
ϕ	Test Pressure	Air Flow m ³ /h	Air Flow m ³ /h/m
1	50	0,77	0,17
1	100	0,98	0,21
1	150	0,95	0,21
1	200	1,05	0,23
1	250	0,90	0,20
1	300	1,61	0,35
1	450	1,54	0,33
1	600	1,86	0,40
1	600	1,86	0,40





4.4. Watertightness

Before starting the test, 3 impacts under 500 Pa applied to the sample.

At each pressure impact waited for 3 seconds

Water eject nozzles are arranged in 1 rows, such that the first nozzle is apart 250 mm. from the side and there is a gap of 1500mm between the rows of 2 nozzles

The number of nozzles at each row is 8 nozzles.

The water amount applied to the Façade = (2 l/min x 8) = 16 l/min. = 960 l/h

Observations

Test No : 5387.2010.079.08

Pressure Value Pa	Time Period min	Observations
0	15	None of any Water Leakage inside the window.
50	5	None of any Water Leakage inside the window.
100	5	None of any Water Leakage inside the window.
150	5	None of any Water Leakage inside the window.
200	5	None of any Water Leakage inside the window.
300	5	None of any Water Leakage inside the window.
450	5	None of any Water Leakage inside the window.
600	5	None of any Water Leakage inside the window.

4.5. Resistance to Wind Load

Before starting the test, 3 impacts under 500 Pa applied to the sample.

At each pressure impact waited for 3 seconds

During the tests the following pressure values have been applied for 10 seconds of period

Acceptable proportion at resistant to wind load:

Position: Vertical distance for mullion at middle axe

Scale: **Vertical 2200 mm**

The proportion measured under the positive and negative design loads should not excess the **1/200** of the gap of framing element measured between the constructional support points.

Vertical 11,00 mm

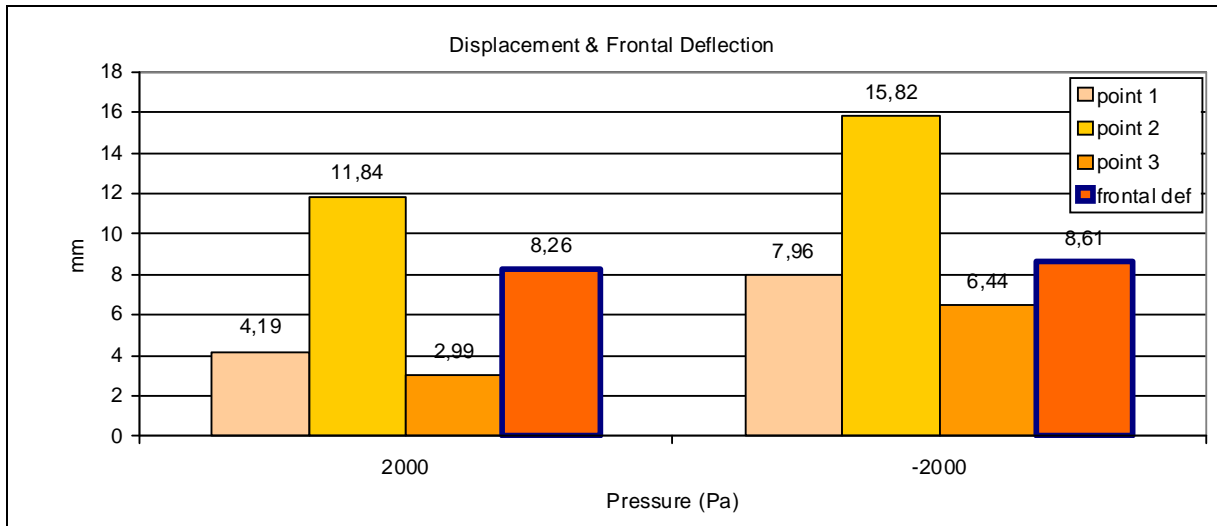
Positions of the points on which measurements have been carried out on Test Samples



Test results for samples on which the measurement have been carried out on Vertical Column ;

Positive Pressure Pa	Point 1	Point 2	Point 3	Frontal Deflection
0	0,00	0,00	0,00	0,00
200	0,00	0,00	0,00	0,00
400	0,00	0,00	0,00	0,00
600	0,00	0,00	0,00	0,00
2000	4,19	11,84	2,99	8,26
0	0,41	0,45	0,44	0,03

Negative Pressure Pa	Point 1	Point 2	Point 3	Frontal Deflection
0	0,00	0,00	0,00	0,00
200	0,00	0,00	0,00	0,00
400	0,00	0,00	0,00	0,00
600	0,00	0,00	0,00	0,00
2000	7,96	15,82	6,44	8,61
0	1,18	0,71	0,65	0,20



4.6. Repeated Pressure Test (performance measurement hasn't been made)

Test samples positive and negative pressure was applied to 50 cycles at + 1000 Pa

4.7. Increased Load (Safety Test) (Secure Load)

The load stated as Pascal by multiplying 1.5 times the design wind load.

Test Pressure	Observations
PE = + 3000 Pa	Any damage was observed.
PE = - 3000 Pa	Any damage was observed.

5. REVISIONS MADE ACCORDING TO TEST RESULTS

5.1. There was no need for any revision at the test sample.

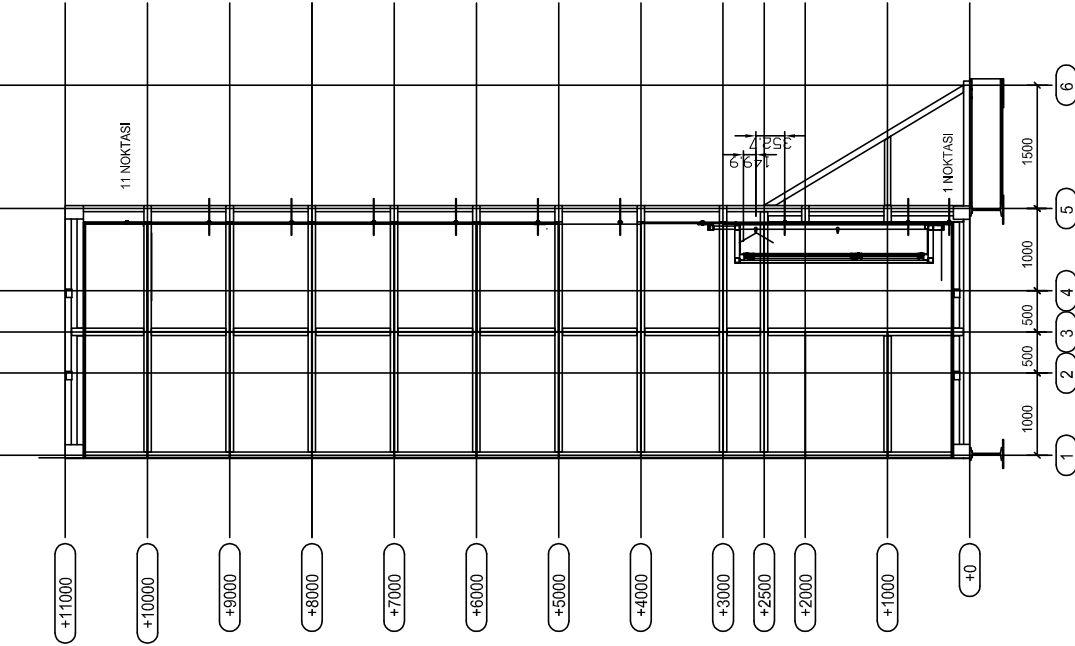
6. RESULT

6.1. Results

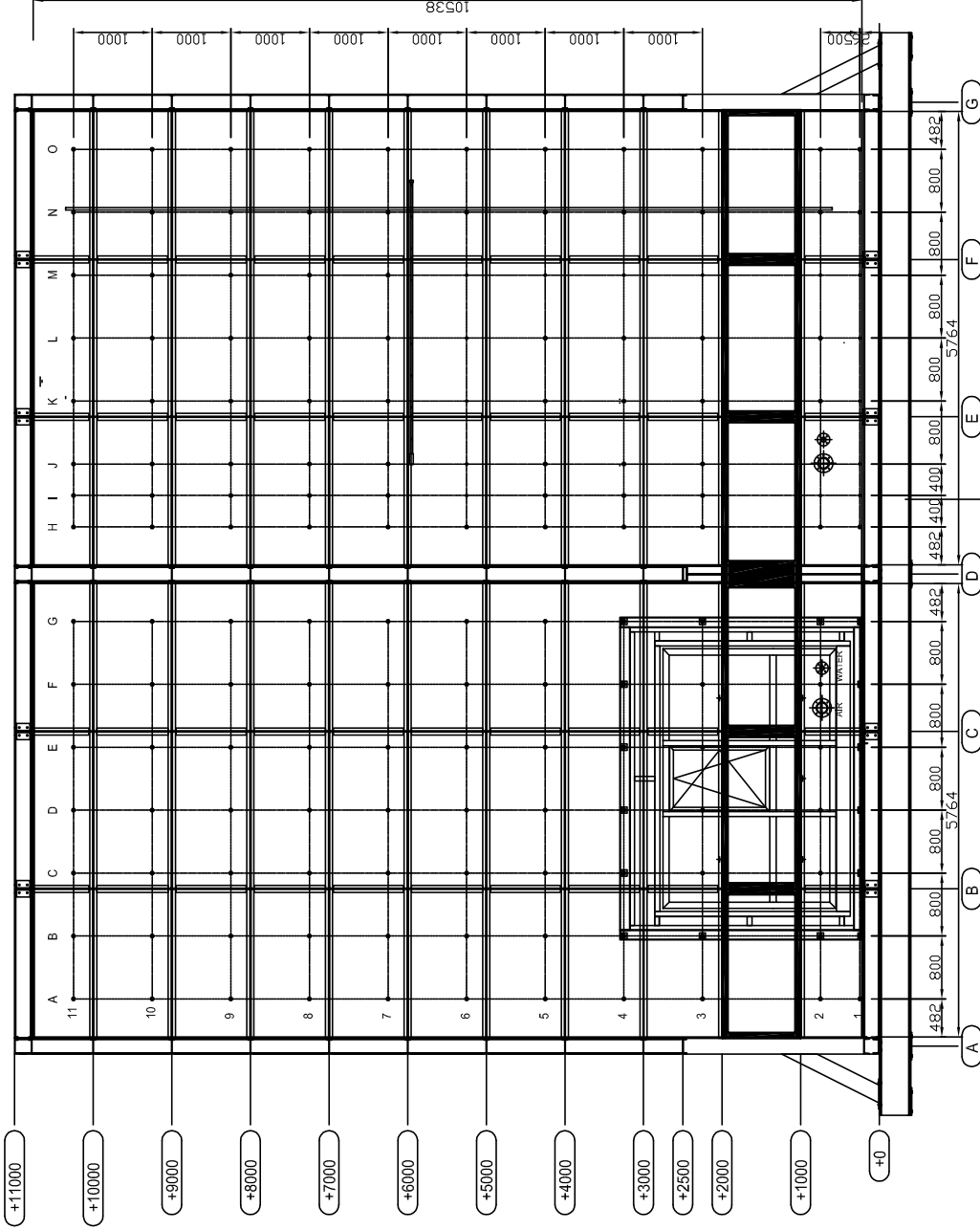
	CONDITIONS	RESULTS		CLASSIFICATION
AIR PERMEABILITY EN 12207	600 Pa < 3,0 m ³ /h,m ²	Positive Pressure	0,14	4
	600 Pa < 3,0 m ³ /h,m ²	Negative Pressure	0,22	4
AIR PERMEABILITY EN 12207	600 Pa < 0,75 m ³ /h,m	Positive Pressure	0,26	4
	600 Pa < 0,75 m ³ /h,m	Negative Pressure	0,40	4
WATER-TIGHTNESS EN 12208	There will be no water leakage at 600 Pa	None of water leakage observed at 600 Pa.		9A
RESISTANCE TO WIND LOAD EN 12210	Proportion < 11,0 mm	OK (max. 8,61 mm)		B5
	There will not be any damage at secure load	None of any damage has been observed at positive or negative pressure		

DOSYA NO:	
SAYFA NO:	

PART 1



PART 2



KESIT

GORUNUS



TEL: (0212) 776.40.50 (8 HAT)
FAX: (0212) 776.40.58 -59

PROJE ADI:

BURAK ALUMINIUM

PAFTA ADI:

GORUNUS - KESIT

NO

1

ACIKLAMA

TARİH

SCORUM

NO

4

3

2

1

NO

1

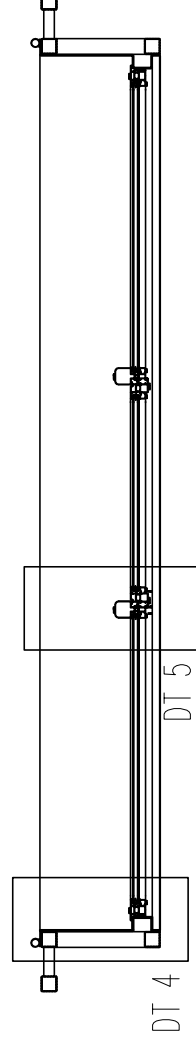
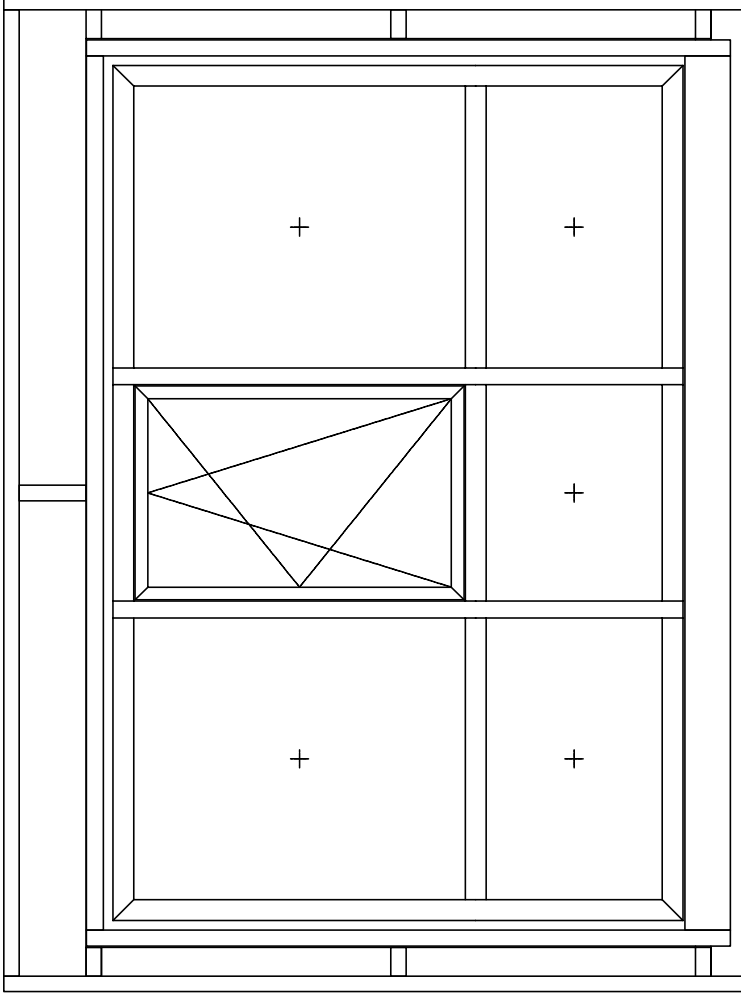
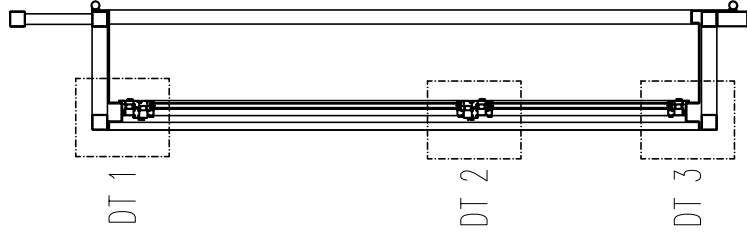
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NO

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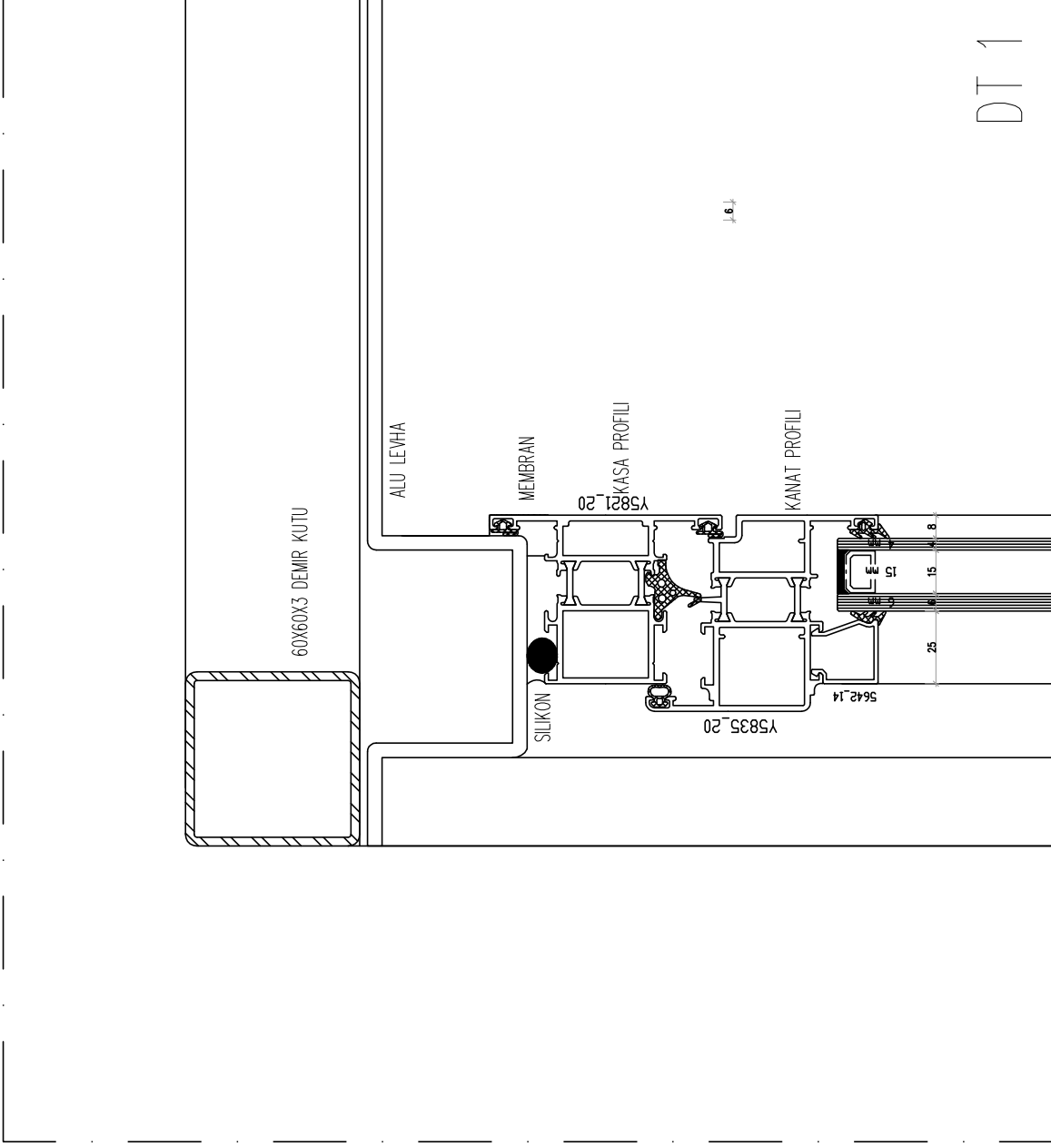
DOSYA NO:	
SAYFA NO:	

SISTEM ADI	PROJE ADI:			PAFTA ADI:	
SISTEM KODU	BURAK ALUMINYUM			TEST CEPHESİ İMALATI	
2	PROJE KODU:	KONTROL:	CİZEN:	GÜREL SAZLI	
1	TARİH:	TARİH:	TARİH:	TARİH:	
NO	ACIKLAMA	SORUM.	ADRES:	T/GÜREL/TESTLER/BURAK AL.	

Metal Yapı
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e-posta: satilca@metalyapi.com
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F.04.06 REV.NO: C SUBAT 2010

DOSYA NO:	
SAYFA NO:	

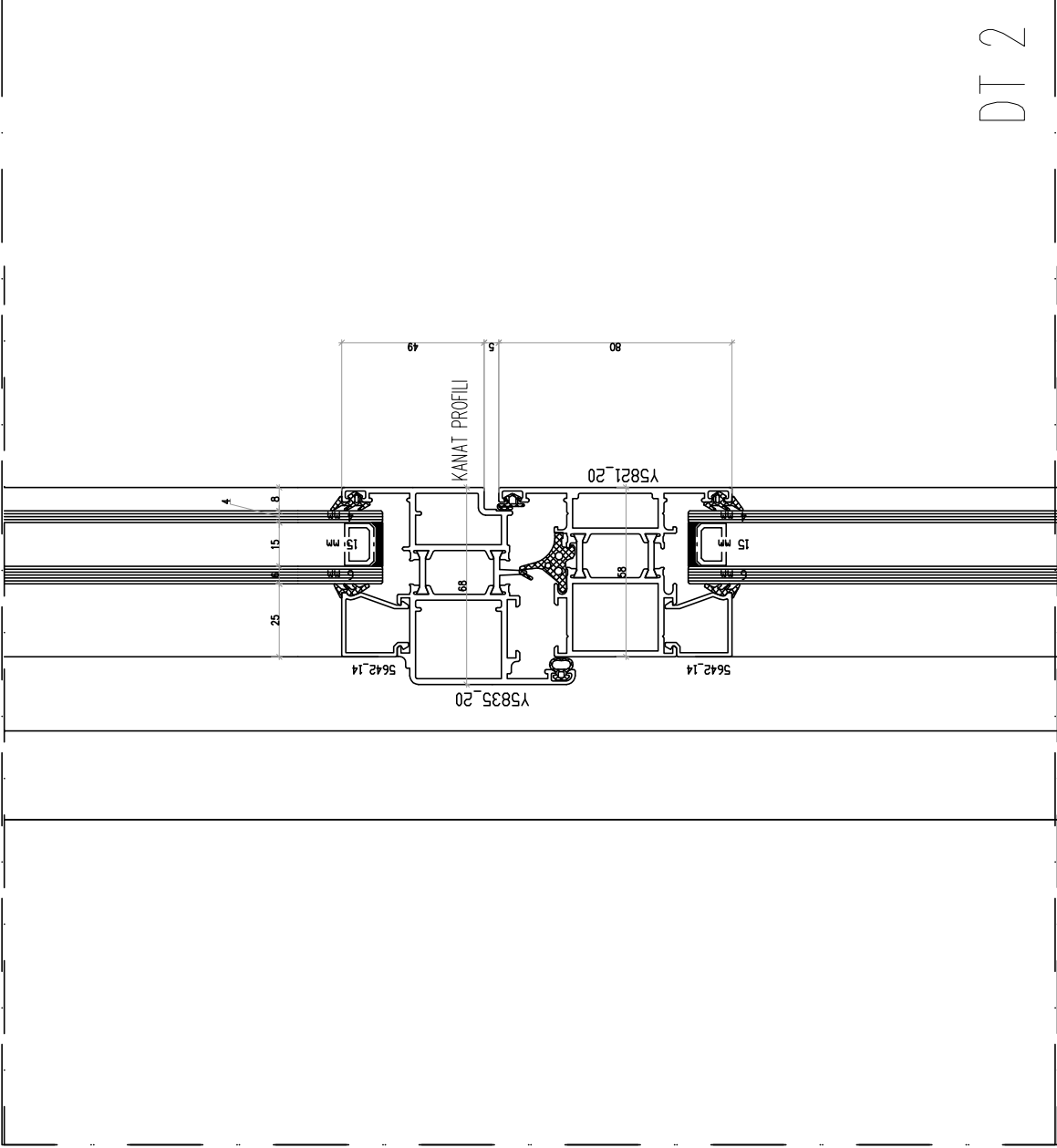


SİSTEM ADI	PROJE ADI:		
SİSTEM KODU	BURAK ALUMİNYUM		
2	KONTROL:	CİZEN: GÜREL SAZLI	
1	PROJE KODU:	ADRES: T/GÜREL/TESTLER/BURAK AL.	
NO	ACIKLAMA	TARİH	SORUM.

PAFTA ADI:	
TEST CEPHESİ İMALATI	

Metal Yapi
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DOSYA NO:	
SAYFA NO:	

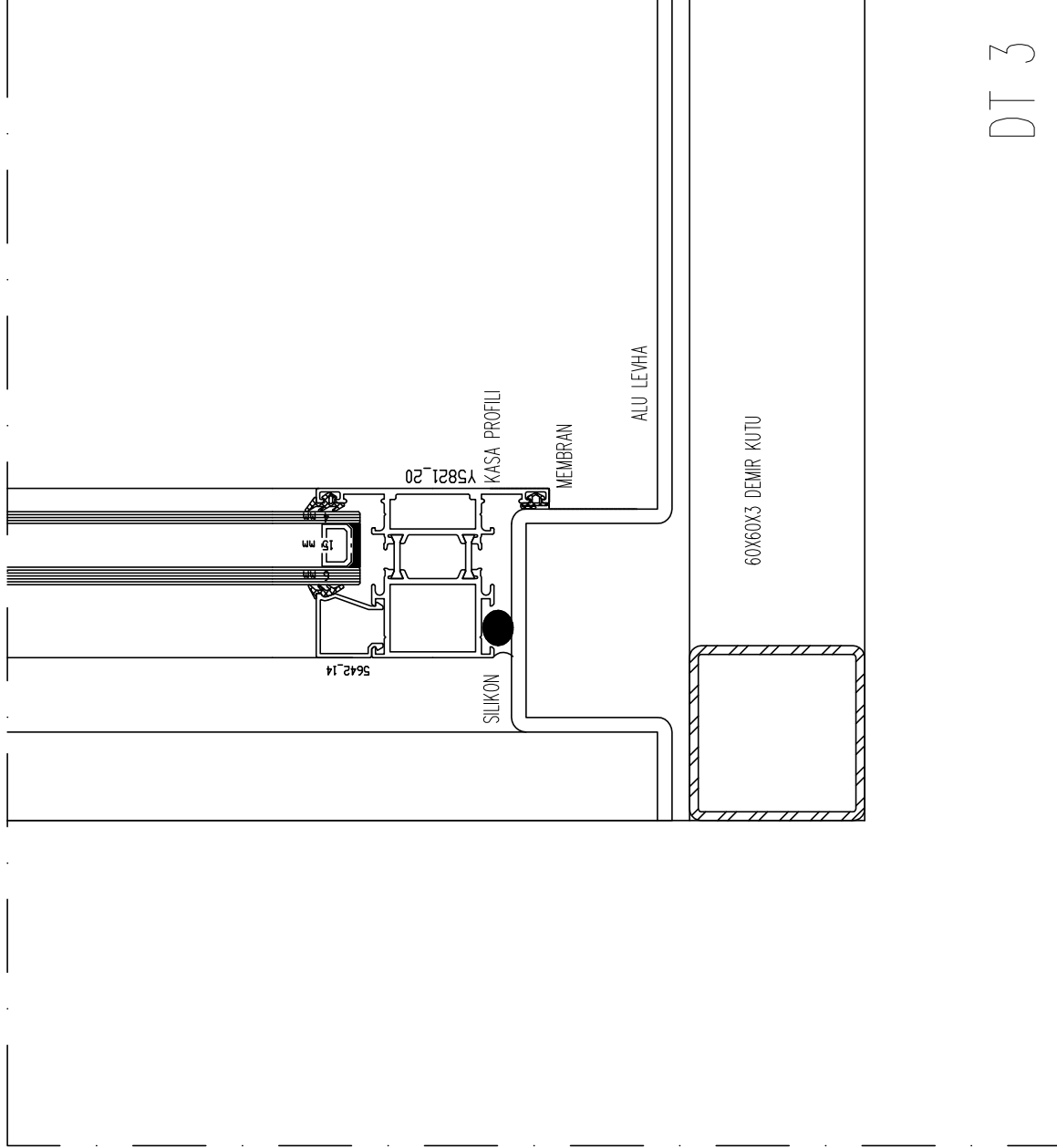


DT 2

SISTEM ADI	PROJE ADI:			PAFTA ADI:	
SISTEM KODU	BURAK ALUMINYUM			TEST CEPHESI İMALATI	
2	PROJE KODU:	KONTROL:	CİZEN:	GÜREL SAZL	
1	TARİH:	6 4 - 2010	ADRES:	T/GÜREL/TESTLER/BURAK AL.	
NO	ACIKLAMA	TARİH	SORUM.		

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DOSYA NO:	
SAYFA NO:	



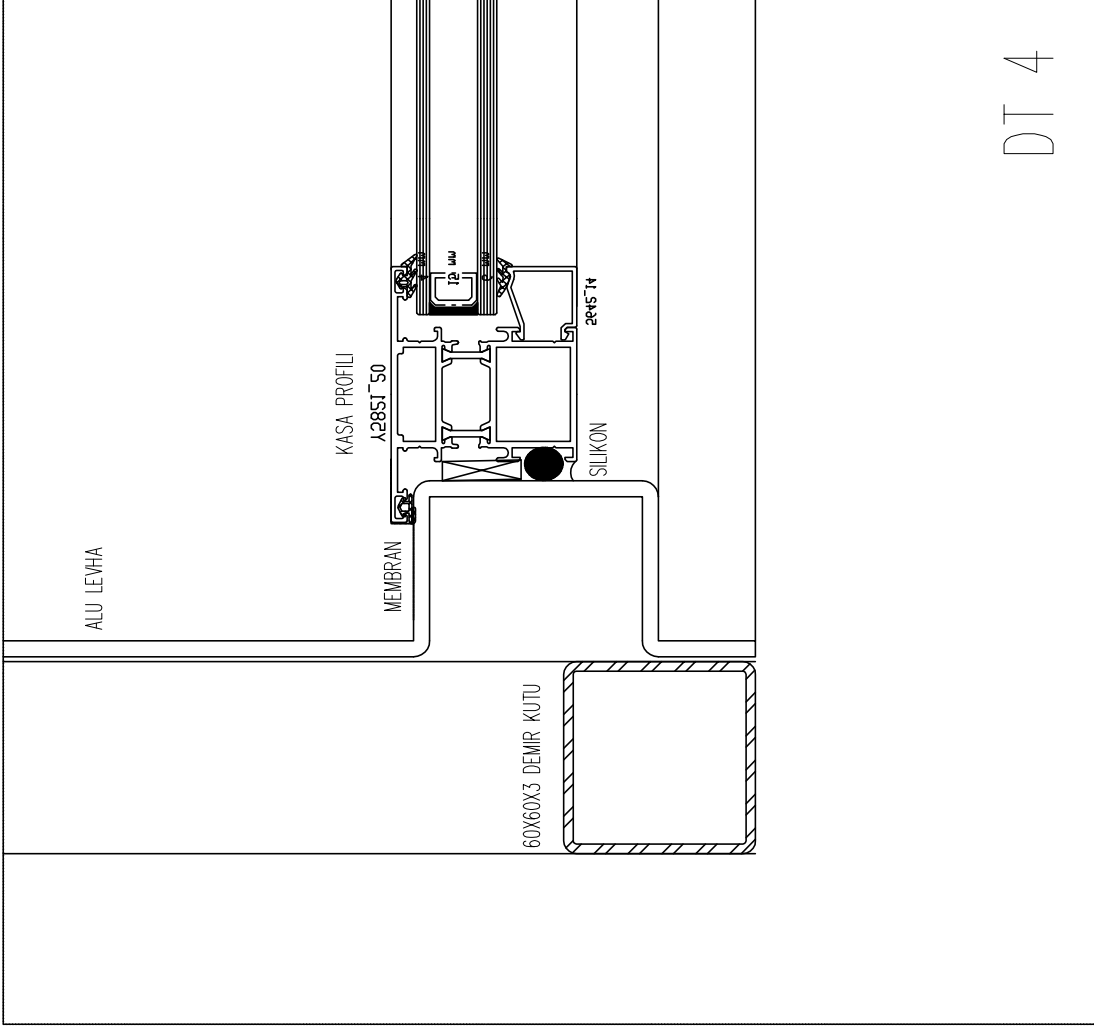
SISTEM ADI			
SISTEM KODU			
2			
1			
NO	ACIKLAMA	TARİH	SORUM.

PROJE ADI:	BURAK ALUMINYUM		
PROJE KODU:	KONTROL:	CIZEN:	GUREL SAZLI
TARİH: 6 4 - 2010	ADRES: T/GUREL/TESTLER/BURAK AL.		

PAFTA ADI:	TEST CEPHESİ İMALATI		
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DOSYA NO:	
SAYFA NO:	



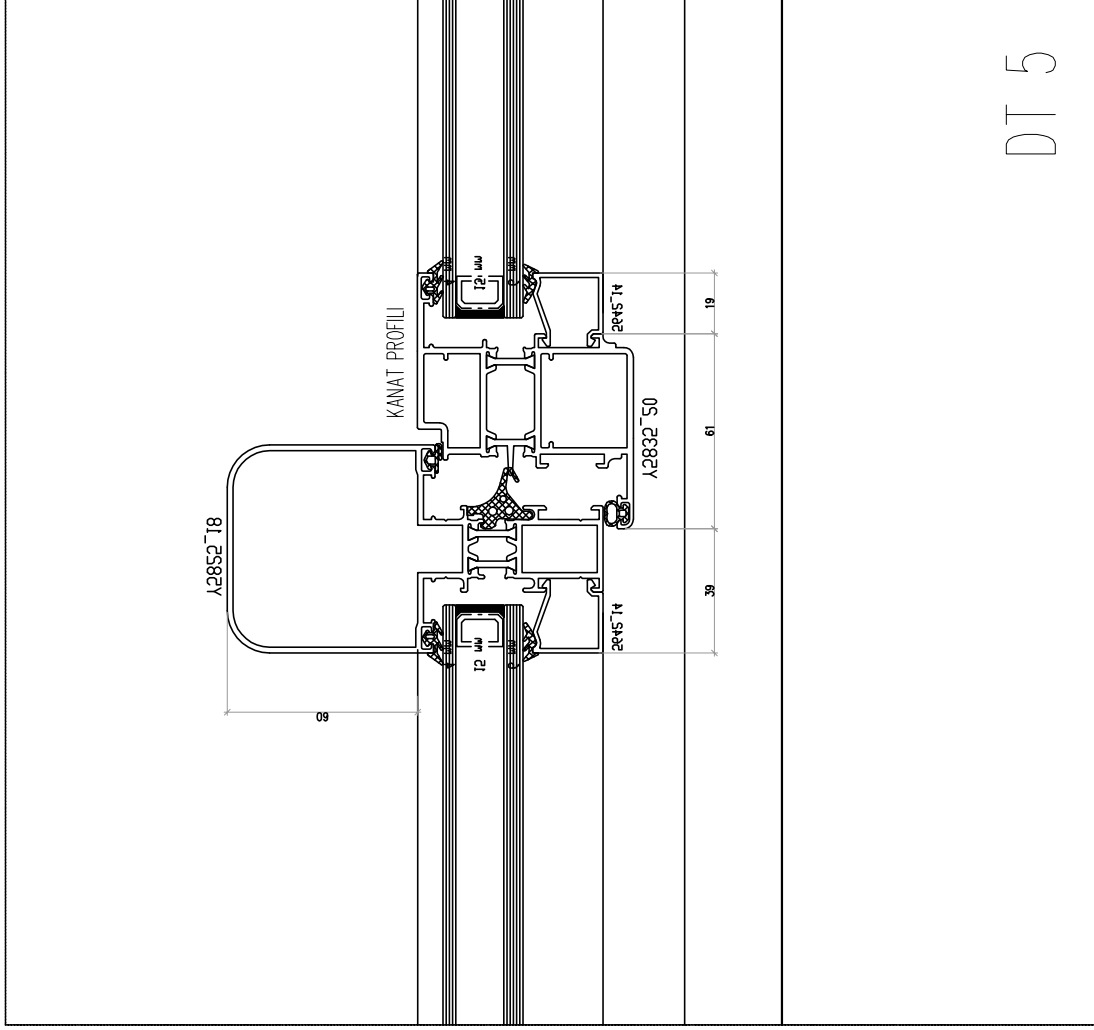
SISTEM ADI			
SISTEM KODU			
NO	ACIKLAMA	TARİH	SORUM.
1			
2			

PROJE ADI:	BURAK ALUMINYUM		
PROJE KODU:	KONTROL:	CİZEN:	GÜREL SAZLI
TARİH:	6 4 - 2010	ADRES:	T/GÜREL/TESTLER/BURAK AL.

PAFTA ADI:	TEST CEPHESİ İMALATI
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DOSYA NO:	
SAYFA NO:	



SISTEM ADI	PROJE ADI:			PAFTA ADI:	
SISTEM KODU	BURAK ALUMINYUM			TEST CEPHESİ İMALATI	
2	PROJE KODU:	KONTROL:	CİZEN:	GÜREL SAZL	
1	TARİH:	6 4 - 2010	ADRES:	T/GÜREL/TESTLER/BURAK AL.	
NO	ACIKLAMA	TARİH	SORUM.		

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F.04.06 REV.NO: C SUBAT 2010



Division Enveloppe du bâtiment

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Entreprise:

FTI Fasad Testing Institute - FTI Fasad Teknoloji

Merkezi Ltd. Sti.

Rüzgarlıbahçe Mah.Plaza K Kat.5

34805 Kavacık / Istanbul

TURQUIE

à l'attention de M :

EMRE BENGISU

RAPPORT DE VERIFICATION

N° : BEB1.9.2024-1/2

RECAPITULATIF des CONTRÔLES EFFECTUES PAR LE CEBTP

L'étalonnage doit être renouvelé tous les 3 ans. L'Autocontrôle doit être effectué tous les 6 mois par l'entreprise, sous sa responsabilité, afin de vérifier les dérives éventuelles du banc.

Date du Contrôle **juin-09**Prochain contrôle à faire pour **juin/2012**

CONDITIONS DE MESURES (au début des vérifications)

TEMPÉRATURE **29.5** °CHYGROMÉTRIE **28.0** %PRESSION ATMOSPHÉRIQUE **986.0** Hpa

Les résultats des calculs sont à corriger en fonction des conditions réelles.

FORMULES POUR LE CALCUL DES DEBITS D'AIR

MESURES EFFECTUEES EN PRESSION						MESURES EFFECTUEES EN DEPRESSION					
N°	plage	FORMULE			formule simplifiée	N°	Diam	FORMULE			formule simplifiée
1	1 à 9,5 m3/h	14.781	x V +	0.85	17.608	1	1 à 9,5 m3/h	10.644	x V +	1.16	13.509
1	9,5 à 120 m3/h	62.828	x V +	-6.93	57.252	1	9,5 à 120 m3/h	90.686	x V +	-39.82	57.679

V est la vitesse en m/s lue directement sur le banc d'essais

Les formules sont rapportées à T° = 20° et Patm = 101325 Pa

Planification: Auto Contrôles

L'entreprise doit avoir réalisé son auto-contrôle interne aux dates suivantes

Date	juin-09	A
Date	nov-09	B
Date	mai-10	C
Date	nov-10	D
Date	mai-11	E
Date	nov-11	F

Si la dérive est > 10%, refaire le contrôle par le CEBTP, sans attendre les 3 ans

CORRECTION DES DÉBITS D'EAU

N° 1	1200 à 12000	l / h
AFFICHE	RÉEL	CORRECT
l/h	l/h	E %
1900.0	1890	1%
2800.0	2685	4%
4000.0	3888	3%

Le vérificateur
Yanisse Naït-Bouda

Le chef de service
Aurélien Gaudron



Elancourt, le 13 avril 2010

Direction régionale Ile de France
Z.A.C. La Clef de Saint Pierre
12 avenue Gay Lussac
F-78990 ELANCOURT

FTI Fasad Testing Institute
Fasad Teknoloji Merkezi Ltd.Sti.
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TURQUIE

DIVISION ENVELOPPE DU BATIMENT
Laboratoire Produits de l'Enveloppe

**ATTESTATION ETABLIE
AUX VUS DU RAPPORT D'ESSAIS BEB1-9-2024-1/2 du 13/04/2010**

La station d'essais AEV installée sur le site de CATALCA (à l'extérieur) à Istanbul (Turquie) étalonnée le 3/06/2009 par nos soins, permet de réaliser des essais AEV sur fenêtres et portes conformément aux normes européennes en vigueur : NF EN 12207, NF EN1026, NF EN12208, NF EN1027, NF EN12210 et NF EN 12211 ainsi que les AEV sur façades rideaux selon : NF EN 12152, NF EN 12153, NF EN 12154, NF EN 12155, NF EN 13116 et NF EN 12179.

Cette attestation est valable sous conditions que :

- les autocontrôles sont bien réalisés tous les 6 mois
- Que le matériel d'essai de cycle est conforme à la NF EN 12210
- qu'aucune modification du banc n'est effectuée.

Cette attestation est valable jusqu'au 03/06/2012.

CETTE ATTESTATION NE PREJUGE PAS DE L'ATTRIBUTION D'UNE MARQUE DE QUALITE

Le chef du service
Produits de L'Enveloppe

Aurélien GAUDRON

Le chef de division
Enveloppe du bâtiment

Philippe EXCOFFIER

