

FIELD TEST REPORT

(AIR LEAKAGE TEST)



October. 17th. 2011.

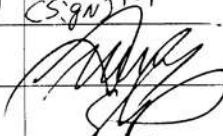

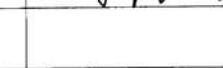
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ATTENDANT LIST OF FIELD TEST

**CUSTOM BLAST & SECURITY DOOR
(EN 1143-1, 3.0BAR BLAST PRESSURE)**

October. 17th, 2001

성명 (NAME)	소속 (Company)	CS:gn 기타
1. Kemal IBAR	NAMISAPE	
2. Moo Jongsan	SAMHOON	
3. Hason Selek	Alternas elevator	
4.		
5.		

GENERAL ENGINEER

SONG, KI SUB (CONSTRUCTION STRUCTURAL ENGINEER)

SENIOR ENGINEER

JUNE LIM.

2. General Subject

2-1 Background and Purpose of Field Test.

The task which sees the possibility of subsisting enough under condition

Of explosive etc. in order to be, plans, production, must be space-time.

The task which sees hereupon there is the goal inspects the **MAIN DOOR AND A PASSAGE DOOR** proof Meaning of a passage public ability which is actual space-time in advance.

2-2 Test Relation Standard.

(1) Air Leakage (ASTM E 783-93)

Standard Test Method for Field Measurement of Air Leakage

Through Installed Exterior Windows and Doors

(2) Reference Standard.

① AAMA 501 - 05 ;

Methods of Tests for Exterior Walls

② AAMA 502 - 08 ;

Voluntary Specification for Field Testing of Newly Installed
Fenestration Products

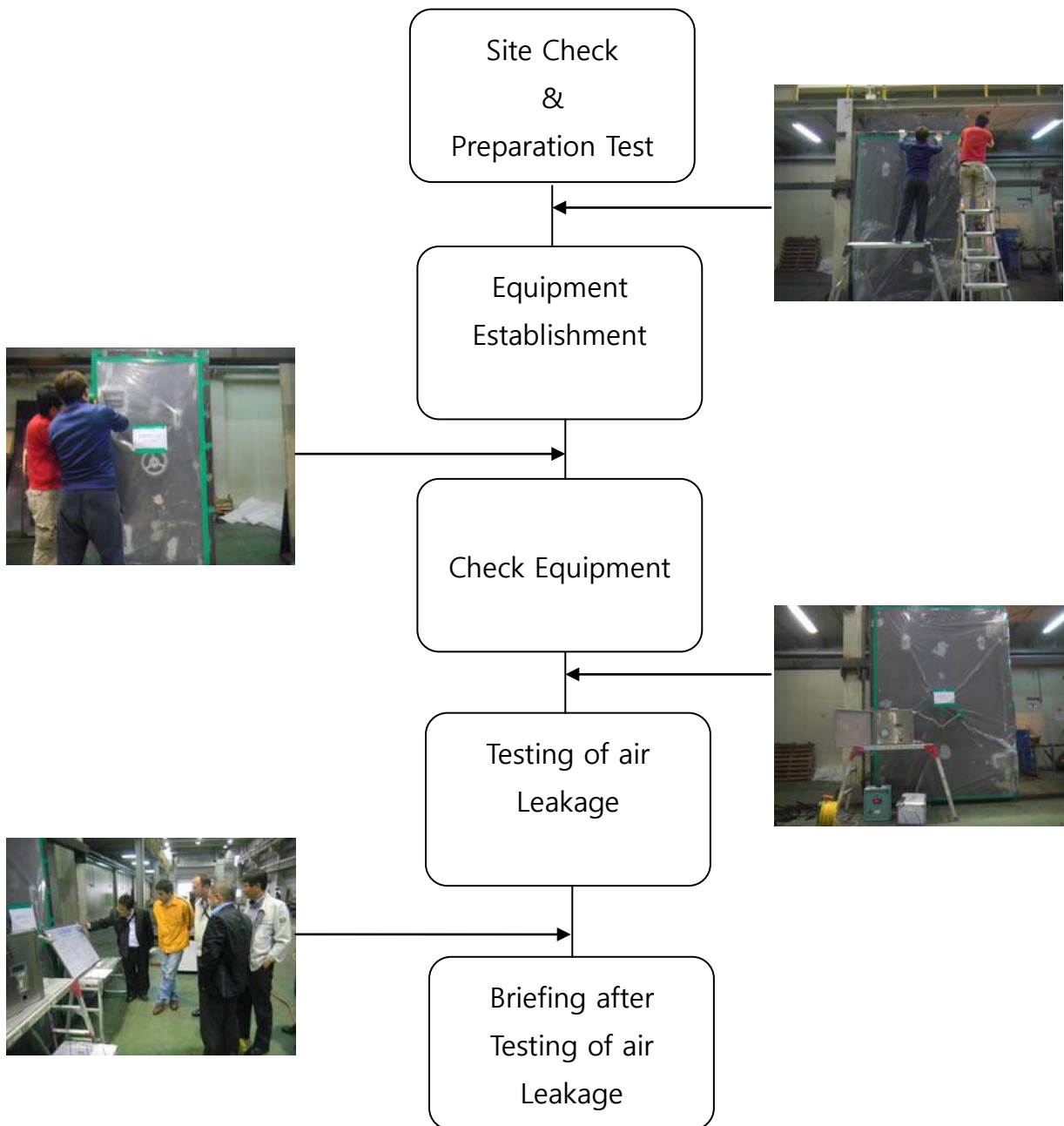
③ AAMA 503 - 08 ;

Voluntary Specification For Field Testing of Newly Installed Storefronts,
Curtain Walls and Sloped Glazing Systems;

2-3 Test Use equipment & Kind

Use equipment	Model Name	Contents	Remark
Lab pack			Air handling equipment
Cadillac blower			" "
Manometer	MAGNEHELIC	Pressure Checking equipment	" "
Digital Camera			" "
Microchronometer			

2-4 Folw Chart of Field Test



2-5 Site Test Progress.

- (1) The vinyl attaches rightly in form and size of the test body, an
Equipment data where is necessary to a site test and prepares.
- (2) The equipment and the manpower which site test are necessary will
Arrive to a site and inspects the region which will be examined.
- (3) Hold an examination site, after inspecting the region which will become
In the region which will be examined on the test body inside air leakage
Simplicity chamber establishes the with the vinyl which is excellent.
- (4) Before site test starting executes the test Briefing which is simple.
- (5) Hold an Performance test for air leakage of the site tentative region.
- (6) The performance test for air leakage that the door which arrives to the pressure
Which provided an efficiency and chamber measures an
air leakage respectively about the and examines.
- (7) Test body air leakage ocean yes or confirmation and result Briefing after test
end do.

2-6 Site test term.

(1) Site Test.

① BLAST AND SECURITY RESISTANCE DOORS (MAIN DOOR)

- D A T E : October 14th, 2011

- Test Contents : Visited a site and the established to advanced a
Equipment and a site test.

② BLAST AND SECURITY RESISTANCE DOORS (PASSAGE DOOR)

- D A T E : October, 14th, 2011

- Test Contents : Visited a site and the established to advanced a
Equipment and a site test

(2) Report Make : October 14th, 2011

(3) Report Submit : October 17th, 2011

3. Product Outline.

- (1) Product Name : BLAST AND SECURITY RESISTANCE DOORS
(MAIN DOOR / PASSAGE DOOR)
- (2) Location : 96-2, Dodang-dong, Wonmi-gu,
Bucheon-si, Gyeonggi-do, 420-803 Korea
- (3) USE : Explosion-proof door.
- (4) Important structure : ASTM A36 Steel plate.
- (5) SIZE : ① MAIN DOOR / 2940(W) , 2890(H)
② PASSAGE DOOR / 900(W), 2000(H)

4. Information

4-1 Site information.

1) 96-2, Dodang-dong, Wonmi-gu, Bucheon-si, Gyeonggi-do,
420-803 (SAMHOON)

(1) Test date and time : October 14th, 2011 (16 : 00 ~ 16 : 30)

(2) Temperature : 16 °C

(3) Humidity : 65 %

(4) Atmospheric : 1080 hPa

(5) Weather : Rain.

4-2 Site test target

1) test target Type

- ① Explosion-proof door

2) test target size

- ① MAIN DOOR

VENT : 1940mm (W) X 2890mm(H)

$$\therefore 2 \times (6.365 \text{ ft} + 9.482 \text{ ft}) = 31.69 \text{ ft}$$

A. DOOR : 0.375 CFM/FT

$$\therefore 31.69 \times 0.375 = 11.18 \text{ CFM}$$

- ② PASSAGE DOOR

VENT : 900mm (W) X 2000mm(H)

$$\therefore 2 \times (2.953 \text{ ft} + 6.562 \text{ ft}) = 19.03 \text{ ft}$$

DOOR : 0.375 CFM/FT

$$\therefore 19.03 \times 0.375 = 7.14 \text{ CFM}$$

4-3 Air leakage test result.

(1) Test Pressure : 7.6kgf/m²

(2) Continuous time : The pressure of +7.6 kgf/m² is stabilized and will be made
To maintain is not taken up.

(3) The air leakage quantity which dawns from the test target :

1) MAIN DOOR

A. VENT test

① The limit

Test Area: 0.375 CFM/FT : 31.69 x 0.375= 11.88CFM

② result :

Test Area: The largest air leakage (6.2 CFM) < limit air leakage (11.88CFM)

2) PASSAGE DOOR

A. VENT test

① The limit

Test Area: 0.375 CFM/FT : 19.03 x 0.375= 7.14CFM

② result :

Test Area: The largest air leakage (3.24 CFM) < limit air leakage (7.14CFM)

4.4 Synthetic opinion.

(1) Air leakage results : 4.3.3.1.2 reference

- Based on the results of 13page, BLAST AND SECURITY RESISTANCE DOORS (MAIN DOOR, PASSAGE DOOR) no air leakage occurs during a test. Therefore, We think that the Air leakage test it is passing.

appendix

1. Site target test photo
2. Authentication relation document.

1. Site target photo



<photo> LAP PACK SETTING



<사진> LAP PACK SETTING FINISH



<사진> air leakage test<MAIN DOOR>

2011. 10. 14	공시명	CUSTOM BRAST & SECURITY DOOR (CEN 1024, 30BAR BRAST PRESSURE)	
날짜	시험명	(MAIN DOOR)	
1. DESIGN WIND LOAD :			
2. CHAMBER SIZE (mm)			
	Vent	1940	2890
3. AIR INFILTRATION TEST (ASTM E 783)			
3.1 TEST PRESSURE : 7.6 kg / m ²			
3.2			
	Test Area	Allowable Air Leakage	Test Result
1) Vept-	91.6P	0.375CFM / FT	11.08
		0.375CFM / FT	6.2 MAX
2) Sliding		0.45CFM / FT	6.2
3) Fix		0.09CFM / FT	
	TOTAL		
4. WATER PENETRATION TEST (ASTM E 1105)			
4.1 TEST PRESSURE :			
4.2 TEST Water-Spray : 204ℓ / hr·m ²		4.3 TEST Time : 15-minute	4.4 Allowable Water Leakage : 15ℓ

<사진> after air leakage test result<MAIN DOOR>



<photo> air leakage test<PASSAGE DOOR>

2011.10.14	공사업	CUSTOM BRAST & SECURITY DOOR (EN11251, 3.0BAR BRAST PRESSURE)		
날씨 Rain		1. DESIGN WIND LOAD : (PASSAGE DOOR) kg / m ²		
		2. CHAMBER SIZE (mm)	X	
		VENT 900	X	2000
3. AIR INFILTRATION TEST (ASTM E 783)				
3.1 TEST PRESSURE : 7.6 kg / m ²				
3.2		Test Area	Allowable Air Leakage	Test Result
1) Vent-	19.07	0.375CFM / FT ²	7.14	CFM 3.24 MAX
		0.375CFM / FT ²		CFM
2) Sliding		0.45CFM / FT ²		CFM
3) Fix		0.09CFM / FT ²		CFM
		TOTAL		CFM
WATER PENETRATION TEST (ASTM E 1105)				
3.1 TEST PRESSURE :				
2 TEST Water-Spray : 204ℓ / hr·m ² 4.3 TEST Time : 15-minute 4.4 Allowable Water Leakage : 15ml				

<photo> after air leakage test result <PASSAGE DOOR>



THE AMERICAN ASSOCIATION FOR
LABORATORY ACCREDITATION

ACCREDITED LABORATORY

A2LA has accredited

HANKUK GLASS INDUSTRIES INC.
Chonbuk, Korea

for technical competence in the field of

Mechanical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General Requirements for the Competence of Testing and Calibration Laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to *joint ISO-ILAC-IAF Communiqué dated 18 June 2005*).

Presented this 25th day of November 2008.

President
For the Accreditation Council
Certificate Number 0183.01
Valid to October 31, 2010



For the tests or types of tests to which this accreditation applies, please refer to the laboratory's Mechanical Scope of Accreditation.



American Association for Laboratory Accreditation

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

HANKUK GLASS INDUSTRIES INC.
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Soo-Choel Chae Phone: 011 82 63 460 4510

MECHANICAL


Valid To: October 31, 2010

Certificate Number: 0183.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following window and door testing:

ASTM E283	Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors
ASTM E330	Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference
ASTM E331	Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference
ASTM E547	Water Penetration of Exterior Windows, Curtain Walls and Doors by Cyclic Static Air Pressure Differential
AAMA 501.5	Test Method for Thermal Cycling of Exterior Walls
AAMA 501.4	Lateral Displacement Test
JIS A1414	Seismic Racking Test
JIS A1517	Water Tightness for Windows and Doors
ASTM E783*	Measurement of Air Leakage Through Installed Exterior Windows and Doors
ASTM E1105*	Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform or Cyclic Static Air Pressure Difference

*Field Test



(A2LA Cert. No. 0183.01) 11/25/08

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