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Design

# Laboratory Report

Date

26-June-2014

Customer

Shanghai Superhouse Building Material Co Ltd

10 Hang Fan Road, Pudong New Area, Shanghai, China

Test No :

AZT0152.14.xls



NATA Accredited Laboratory No : 15147

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# AZUMA DESIGN

## TESTING LABORATORY REPORT



SIGNATORIES	Reported Nathan Olsen by:
	Checked Robert Irwin by:

Test Date :	07-Nov-12
Test No:	AZT0152.14.xls

NATA Accredited Laboratory No : 15147

### Wind and Water Penetration Testing

Testing to AS 2047.1 as per test method 4420.0 to .6

Manufacturer / Customer

Shanghai Superhouse Building Material Co Ltd

Test Sample Data

Deflection Ratio

1  
250

Unit type	2 x Fixed Window	
Unit code		
Size	H (mm)	2400
	W (mm)	2750
Design Pa:	2000	

Tested For	Y / N	Rating	Units
Structural Deflection ?	Yes	2000	Pa
Air Infiltration ?	Yes	75/150	Pa
Operating Force Initial / constant ?	No	Tested	N
Water Penetration ?	Yes	450	Pa
Ultimate Strength ?	Yes	4500	Pa

Test Unit Specifications

Results

Frame	Sash	Glass	Sizes			Area sq m	Glass Type	Structural Framing Member	Span (mm)	Allowable Deflection	Deflection Result	Actual Ratio	Test Press (Pa)	Results
			H	W	Thickness (mm)									
	2 x Fixed		2400	2750	6.60		Interlock P							
			2350	1375	3.23		Interlock N							
							Mullion P	2320	9.28	9.02	257	2000	P	
							Mullion N	2320	9.28	8.69	257	2000	P	
							Transom P							
						Laminated	Transom N							
							H/L Trans P							
							H/L Trans N							
							H/L Mullion P							
							H/L Mullion N							
							Meet Style P							
							Meet Style N							
							Spare							
							Spare							

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### Test equipments

The test equipment and methods used in the above test comply with the requirements of AS 4420.1-6.

### Test Specimen

See drawings at the end of this report.

### Test Methods

The test unit was fixed into the rig as outlined in AS 4420.1.

### Deflection Test

The unit was subjected to both positive and Negative pressure as prescribed in AS 4420.2. After the initial settling in of the unit at the 50% of the required test pressure, the differential pressure was then applied slowly until the nominated design pressure was reached in Positive. This process was then repeated for the Negative.

### Results of Test

The test unit satisfied the requirements of AS 2047.1 in both the positive and negative deflection at the nominated design pressure.

### Observations

NIL

### Air Infiltration Test

The test was first completely sealed against air leakage as per AS 4420.4 to determine the air leakage of the test rig. It was then subjected to 75 Pa of both positive and negative pressure, and 150 Pa of both negative and positive pressure. Differential pressures were recorded. The test unit was then unsealed and subjected to 75 Pa of both positive and negative pressure. Differential pressures were recorded and air leakage then calculated. The actual leakage of the test unit was then determined.

Barometric pressure (Pbar): 1010      Air temperature (°C) 26

Max Pressure (Pa)	SEALED		UNSEALED	
	Positive (Pa)	Negative (Pa)	Positive (Pa)	Negative (Pa)
75	6	2	6	4
150	16	6	16	13

Test Pressure	Pressure Direction	Building / Window Type	Allowable leakage flow L/s m <sup>2</sup>	Test results			
				l s <sup>-1</sup> m <sup>-2</sup> Positive	l s <sup>-1</sup> m <sup>-2</sup> Negative	Pos +	Neg -
75 Pa	+/-	Air conditioned	1.0	0.00	0.08	Passed	Passed
75 Pa	+	Non air conditioned	5.0	0.00	0.08	Passed	
150 Pa	+/-	Air conditioned	1.6	0.00	0.16	Passed	Passed
150 Pa	+	Non air conditioned	8.0	0.00	0.16	Passed	

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### Results of test

The test unit satisfied the requirement of AS 2047. The test unit was tested to AS 4420.4. The net flow readings are as follows:

### Observation

NIL

### Operating Force

#### OPERATING FORCE (N)

		Opening Force	Closing Force
Initiating Movement	Sash 1		
Sustaining Movement	Sash 1		
Initiating Movement	Sash 2		
Sustaining Movement	Sash 2		
Initiating Movement	Sash 3		
Sustaining Movement	Sash 3		

### Results of test

The Standard does not require operating force testing for this type of window design.

### Observations

Not Tested

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## TESTING LABORATORY REPORT

### WATER PENETRATION

Water was applied to the exterior of the test unit with no less than 0.05 ls-1m-2 for a period of five minutes at zero pressure. After five minutes, a nominated pressure was applied for fifteen minutes as per AS 4420.5.

Maximum pressure (*Pa*) applied for 15 minutes (Nominated pressure)

450

### Results of test

The test unit satisfied the requirement of AS 2047 in positive pressure at the nominated design pressure.

### Observations

NIL

### ULTIMATE STRENGTH TEST

A pressure nominated on part 1 of this report and determined by AS 2047, table 2.5 was applied to the test unit for a period of 10 seconds as per AS 4420.6.

Max. pressure reached for 10 seconds	
Positive	Negative
4500	4500

Results of test :	Y or N
Dislodgement of any glass?	No
Dislodgement of a frame or any part of a frame?	No
Removal of alignment with or without its framing sash from a frame?	No
Loss of support of a frame such as when it is unstable in its opening in the building structure?	No
Failure of any sash, locking device, fasteners or supporting stay which would allow an opening light to come open?	No
<b>The test unit satisfied the requirement of AS 2047.</b>	

### Observations

NIL

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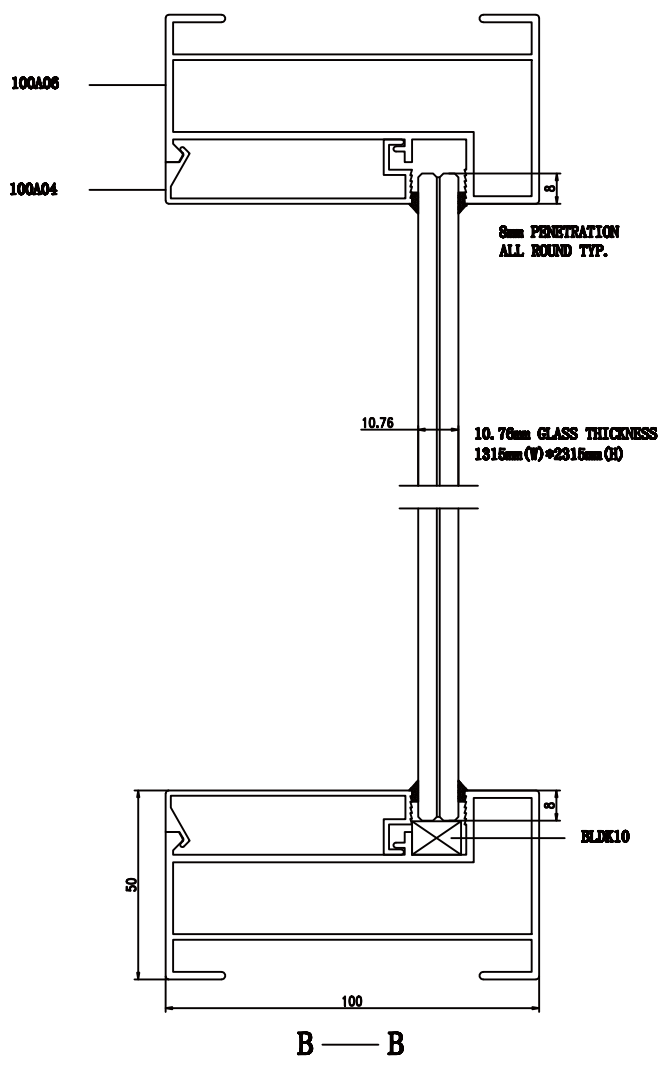
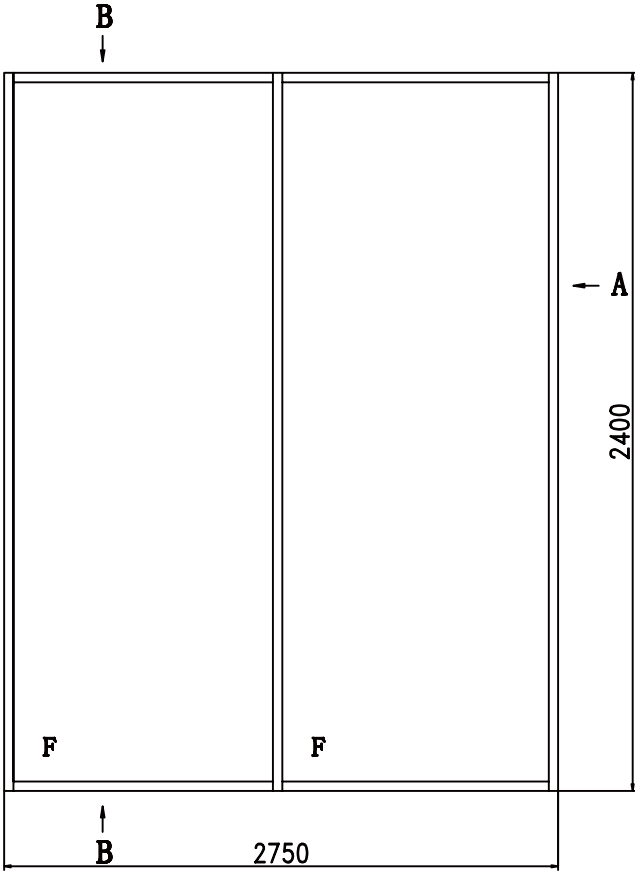
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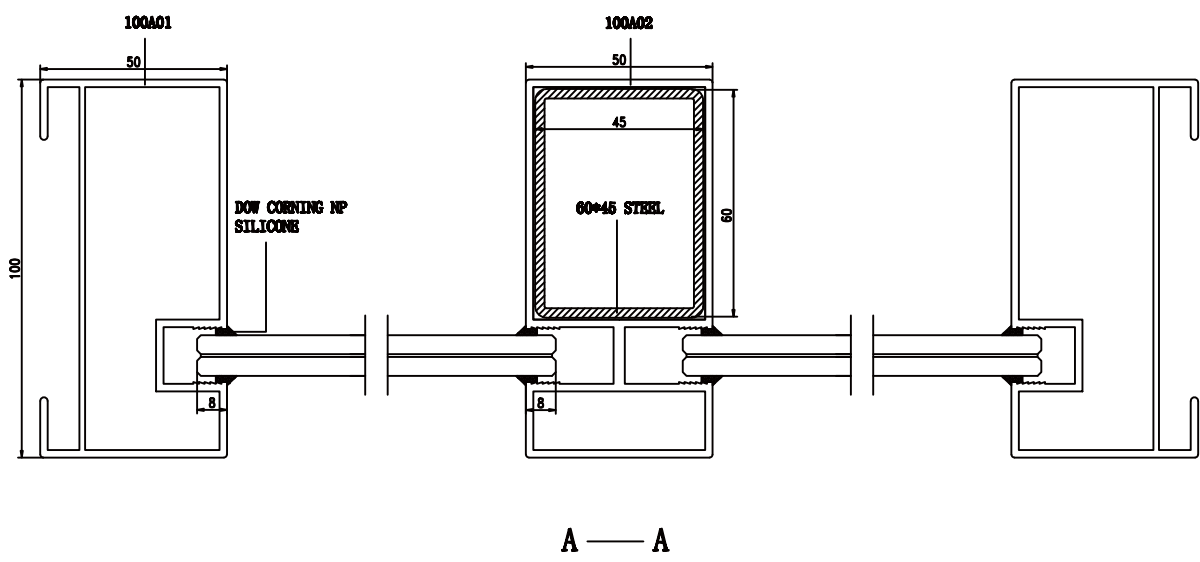


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**SHANGHAI SUPERHOUSE BUILDING MATERIAL CO.,LTD**

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DRW: SH001	DESIGNER: WANG	SP100C FIXED WINDOW IMPACT TEST	
DATE: 2014-7-26	APPROVAL: JIE LI	TOTAL: 1 NO. 1	
SCALE: 1:10	SANCIFIER: SHEN	UNITS: (MM)	

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