AZUMA
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 :   **AZT0151.14.xls**

NATA Accredited Laboratory No : 15147

AZUMA DESIGN

TESTING LABORATORY REPORT

SIGNATORIES		
Reported by :	Nathan Olsen	
Checked by :	Robert Irwin	

Test Date : 06-Nov-12

Test No: AZT0151.14.xls

NATA WORLD RECOGNISED ACCREDITATION

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

Deflection Ratio $\frac{1}{180}$

Test Sample Data

Unit type	2 x Sliding Window	
Unit code	YYSD100	
Size	H (mm)	1300
	W (mm)	1400
Design Pa:	3000	

Tested For	Y / N	Rating	Units
Structural Deflection ?	Yes	3000	Pa
Air Infiltration ?	Yes	75/150	Pa
Operating Force Initial / constant ?	Yes	110/90	N
Water Penetration ?	Yes	300	Pa
Ultimate Strength ?	Yes	4500	Pa

Test Unit Specifications

Results

	Sizes		H	W	Area sq m	Glass Type	Structural Framing Member	Span (mm)	Allowable Deflection	Deflection Result	Actual Ratio	Test Press (Pa)	Results
Frame			1300	1400	1.82		Interlock P	1070	5.94	1.37	781	3000	P
Sash	Sash 1,2		1130	660	0.75		Interlock N	1070	5.94	2.88	372	3000	P
							Mullion P						
							Mullion N						
Glass	Thickness (mm)		H	W			Transom P						
	Sash 1,2	6-12-10	1017	569	0.58	Clear Float	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 *($^o C$)*	30

Max Pressure *(Pa)*	SEALED		UNSEALED	
	Positive *(Pa)*	**Negative** *(Pa)*	**Positive** *(Pa)*	**Negative** *(Pa)*
75	10	5	154	179
150	20	16	351	454

Test Pressure	Pressure Direction	Building / Window Type	Allowable leakage flow L/s m^2	Test results			
				$ls^{-1}m^{-2}$ Positive	$ls^{-1}m^{-2}$ Negative	Pos +	Neg -
75 Pa	+/-	Air conditioned	1.0	4.69	5.66	*N/A*	*N/A*
75 Pa	+	Non air conditioned	5.0	4.69	5.66	*Passed*	
150 Pa	+/-	Air conditioned	1.6	7.24	8.79	*N/A*	*N/A*
150 Pa	+	Non air conditioned	8.0	7.24	8.79	*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	45	22
Sustaining Movement	Sash 1	6	6
Initiating Movement	Sash 2	45	24
Sustaining Movement	Sash 2	6	6
Initiating Movement	Sash 3		
Sustaining Movement	Sash 3		

A force gauge was attached to the operating handle of the sash to determine the force required to set the sash in motion and thereafter to maintain motion as per AS 4420.3.

Results of test

The test unit satisfied the requirement of AS 2047.

Observations

NIL

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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)

300

Results of test

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

Observations

Silicone added to all framing joints of box section sub frame.
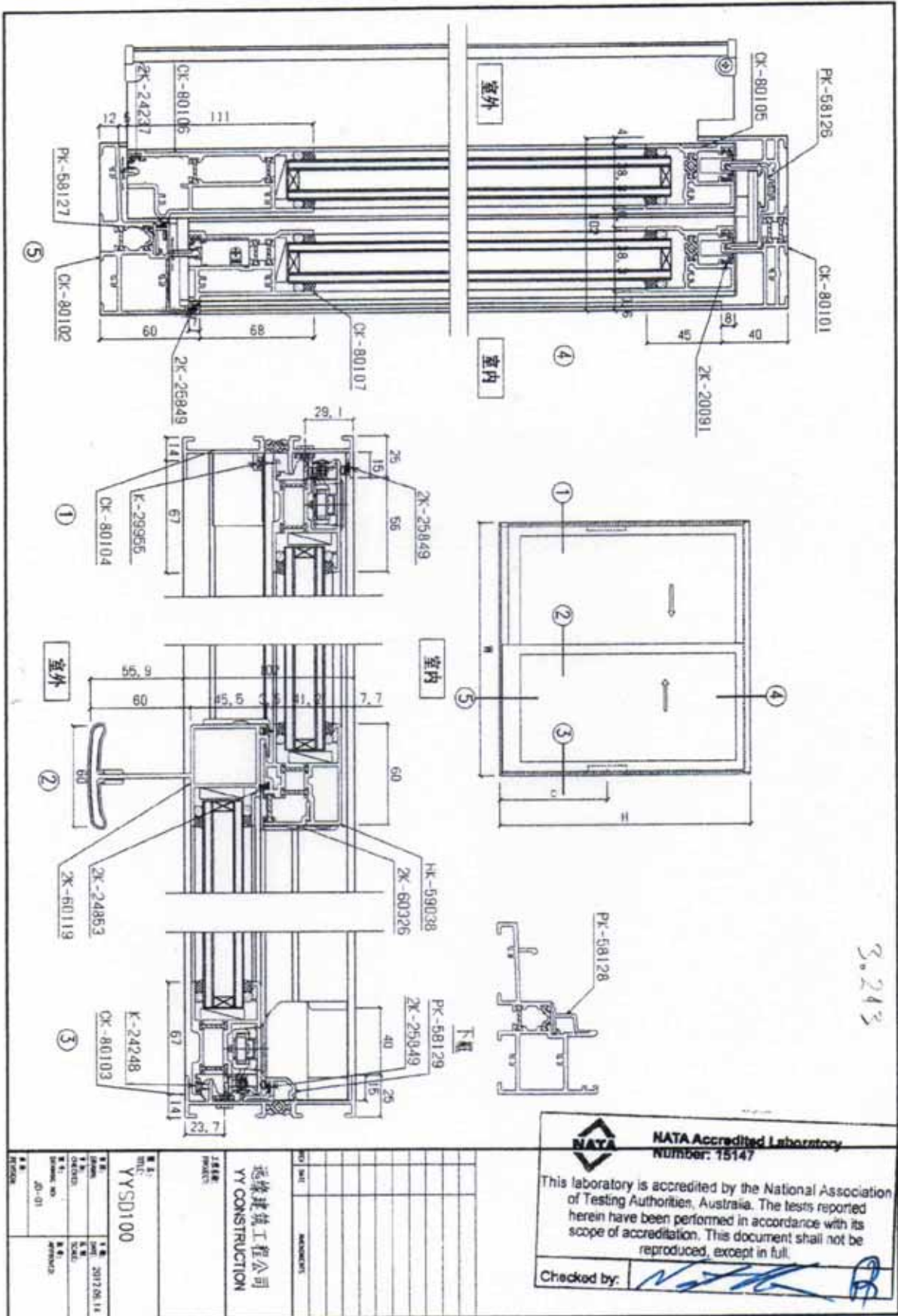
ULTIMATE STRENGTH TEST

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

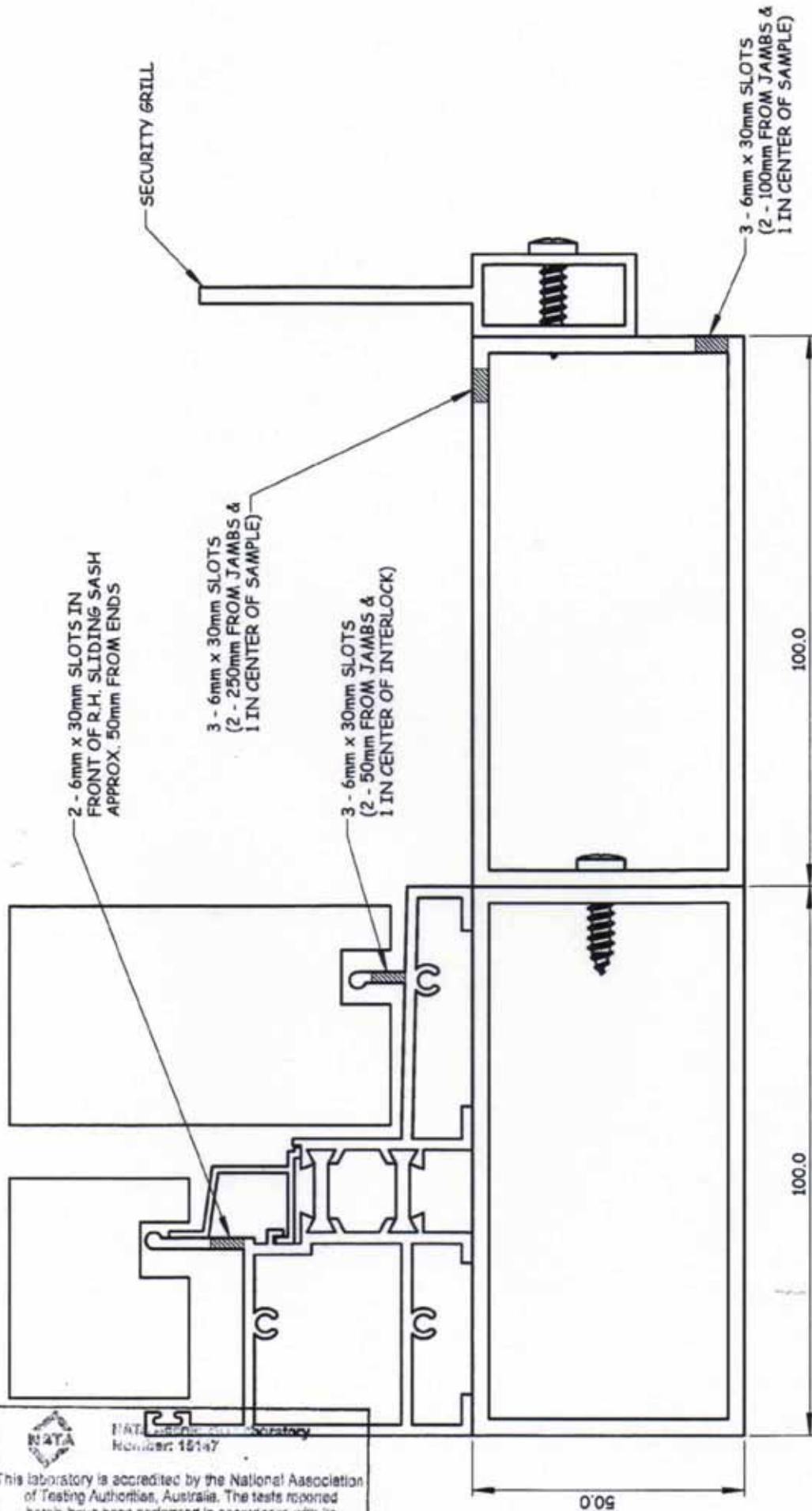| Results of test :	Y or N
Dislodgement of any glass?	No
Dislodgement of a frame or any part of a frame?	No
Removal of alignment with or without its framing sash from a frame?	No
Loss of support of a frame such as when it is unstable in its opening in the building structure?	No
Failure of any sash, locking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

Observations

NIL

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室外

室内

CK-24237
CK-80106
PK-58126
CK-80105
PK-58127
CK-80102
CK-80101
CK-80107
2K-25849
2K-20091

111
12.5
60
68
45
40

K-29955
CK-80104
2K-25849
29.1

室外
室内
55.9
60
2K-60113
2K-24853
2K-60326
HK-59038
PK-58129
2K-25849

K-24248
CK-80103
67
40

下框
PK-58128

TITLE: YSD100
YY CONSTRUCTION
远雄建筑工程公司

DRAWING NO: JD-01
DATE: 2012.06.14

SECURITY GRILL

3 - 6mm x 30mm SLOTS
(2 - 100mm FROM JAMBS &
1 IN CENTER OF SAMPLE)

2 - 6mm x 30mm SLOTS IN
FRONT OF R.H. SLIDING SASH
APPROX. 50mm FROM ENDS

3 - 6mm x 30mm SLOTS
(2 - 250mm FROM JAMBS &
1 IN CENTER OF SAMPLE)

3 - 6mm x 30mm SLOTS
(2 - 50mm FROM JAMBS &
1 IN CENTER OF INTERLOCK)

100.0

100.0

50.0

* SILICONE WINDOW SECTION TO FRAME
* SILICONE ALL FRAMING JOINTS (WINDOW + BOX)