Sainty Ultra wide folding door (ultra wide series 5m~ 15m)

Full name: Ultra wide heat insulation multiple double sealing folding door

3-channel seal (patent)

Double-sided anti-clamp design (patent)

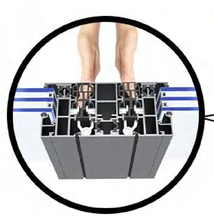
Hurricane resistant design

7 Major Functions make this door Safer, more Convenient and Smoother

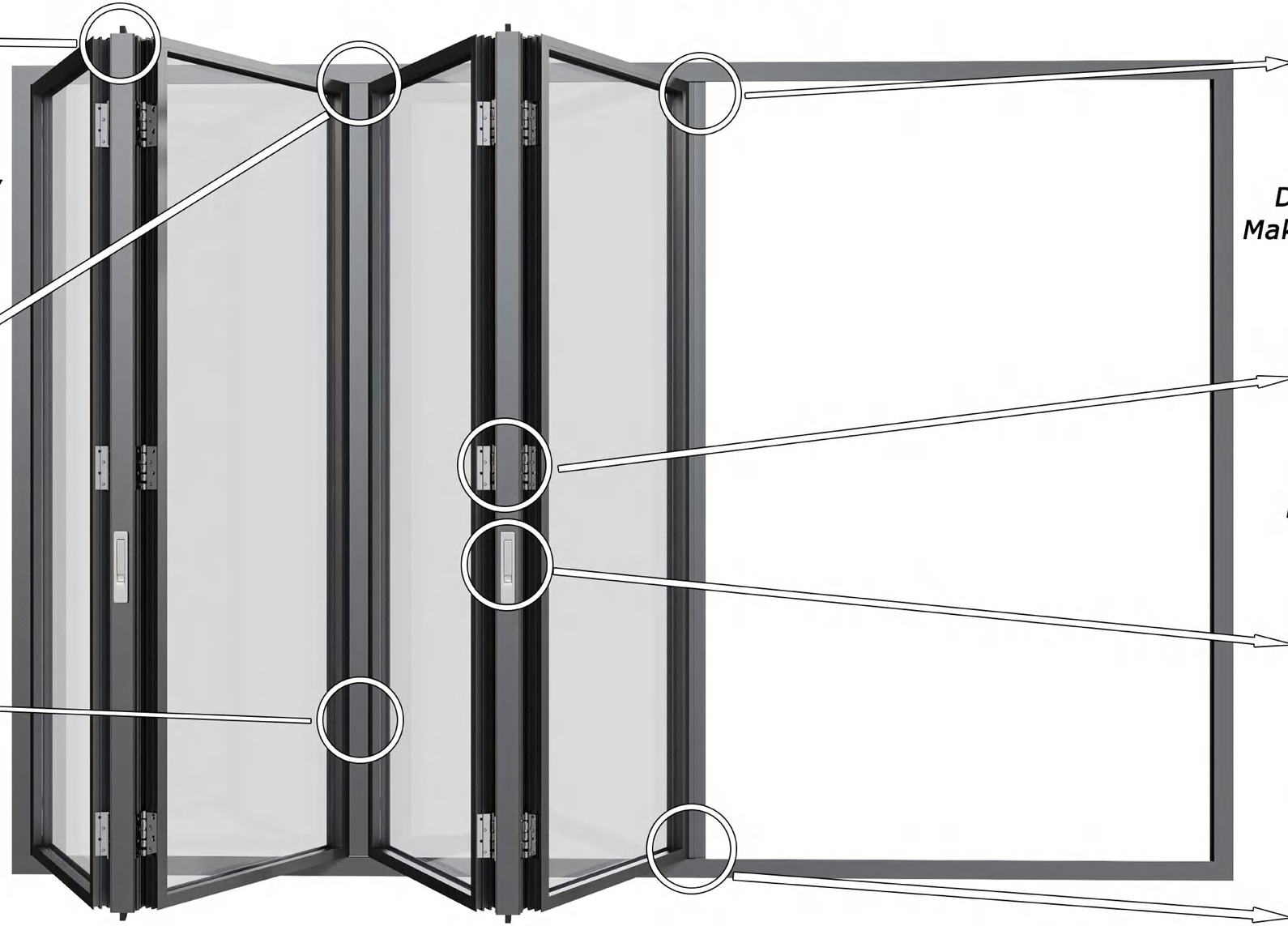
10 Years Product Quality Warranty

1.Safty Lock
Strengthen the Security

2.Safty Bolts
Makes More Secure



3.Soft Clapping
Protect Hands

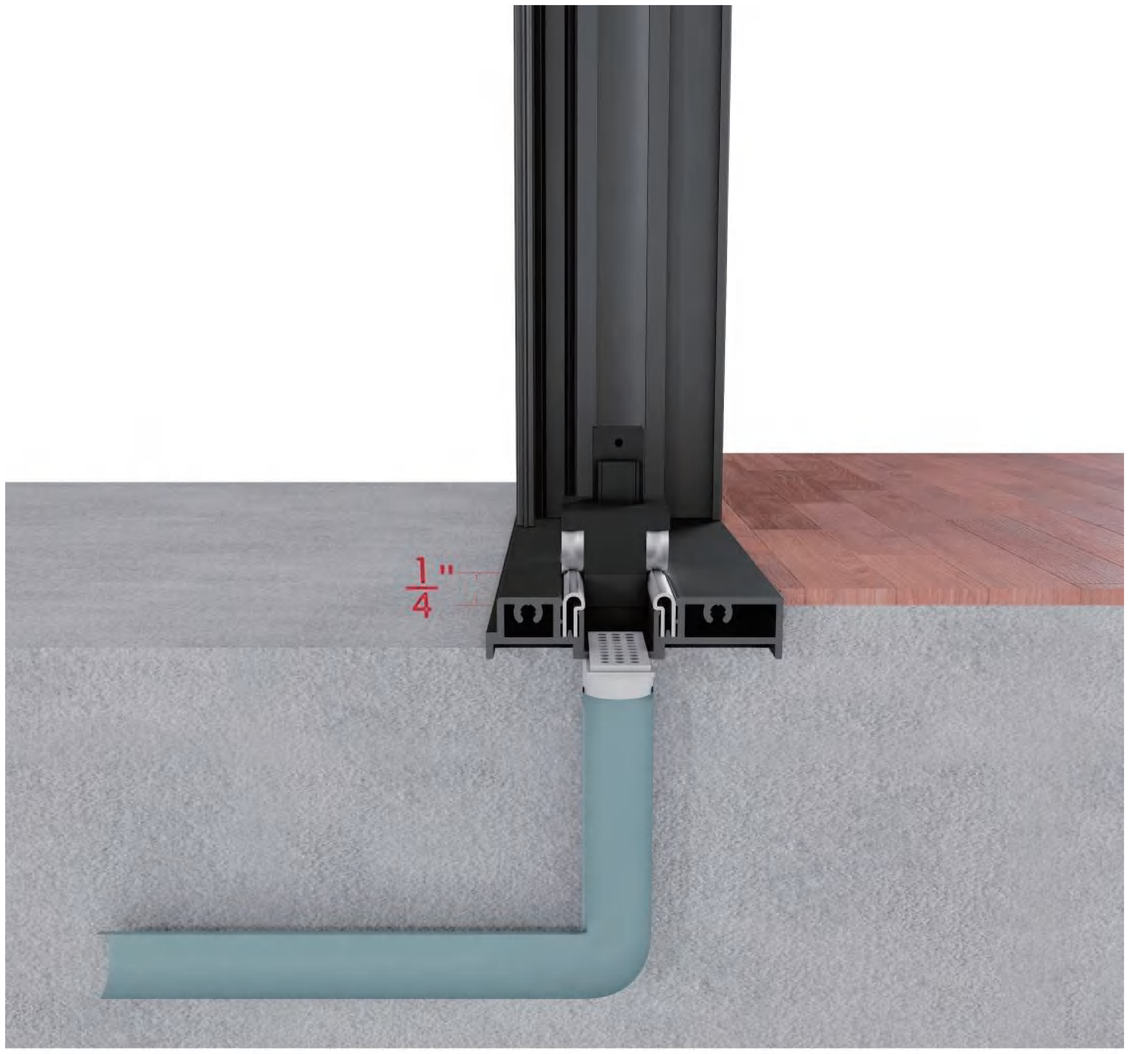


4.Top Hung Wheels
Double Wheels Design
Makes Sliding More Smooth

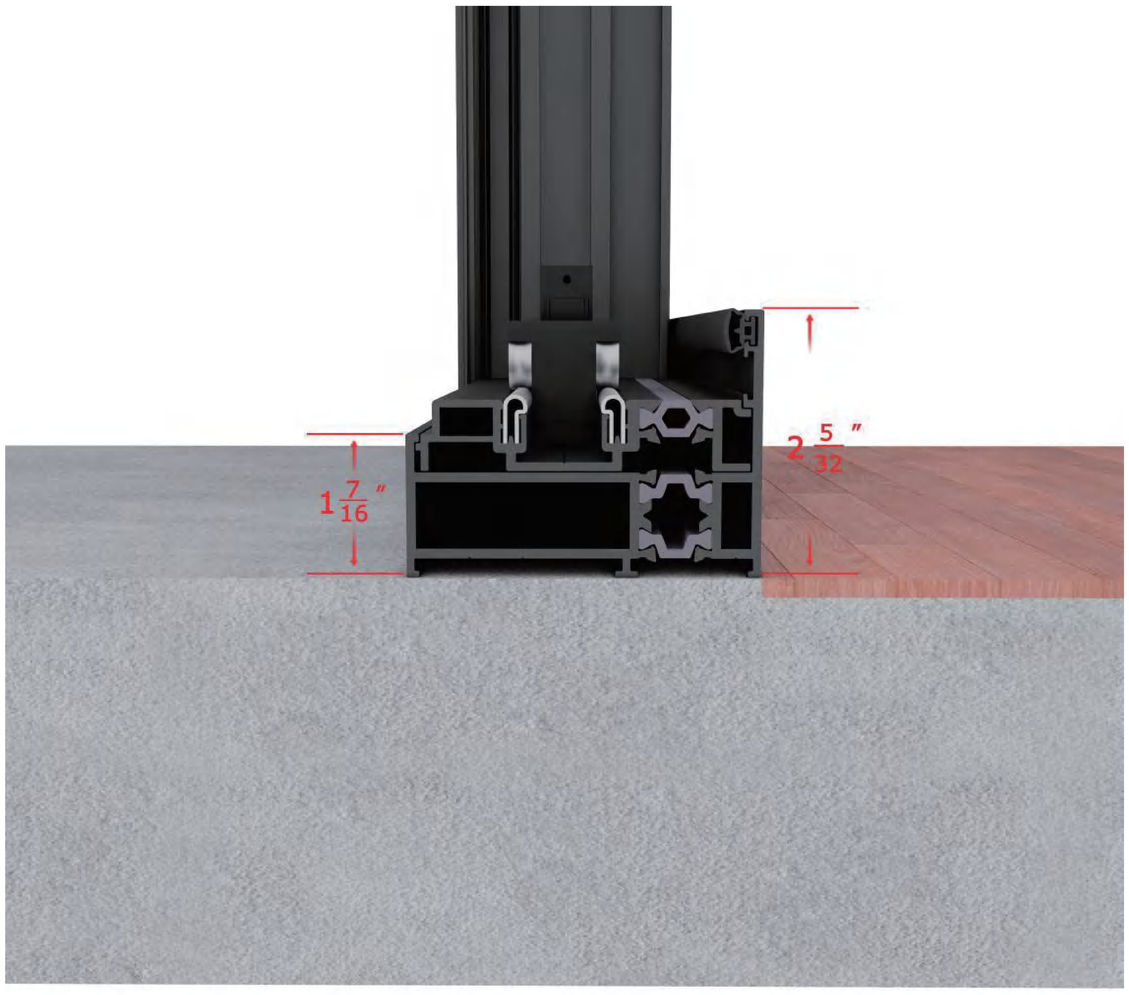
5.Concealed Hinges
Makes Better Insulation

6.Hidden Handle
Makes Flat Surface

7.Bottom Holding Wheels
Double Wheels Design
Makes Sliding More Smooth



Folding Door Low Threshold Option



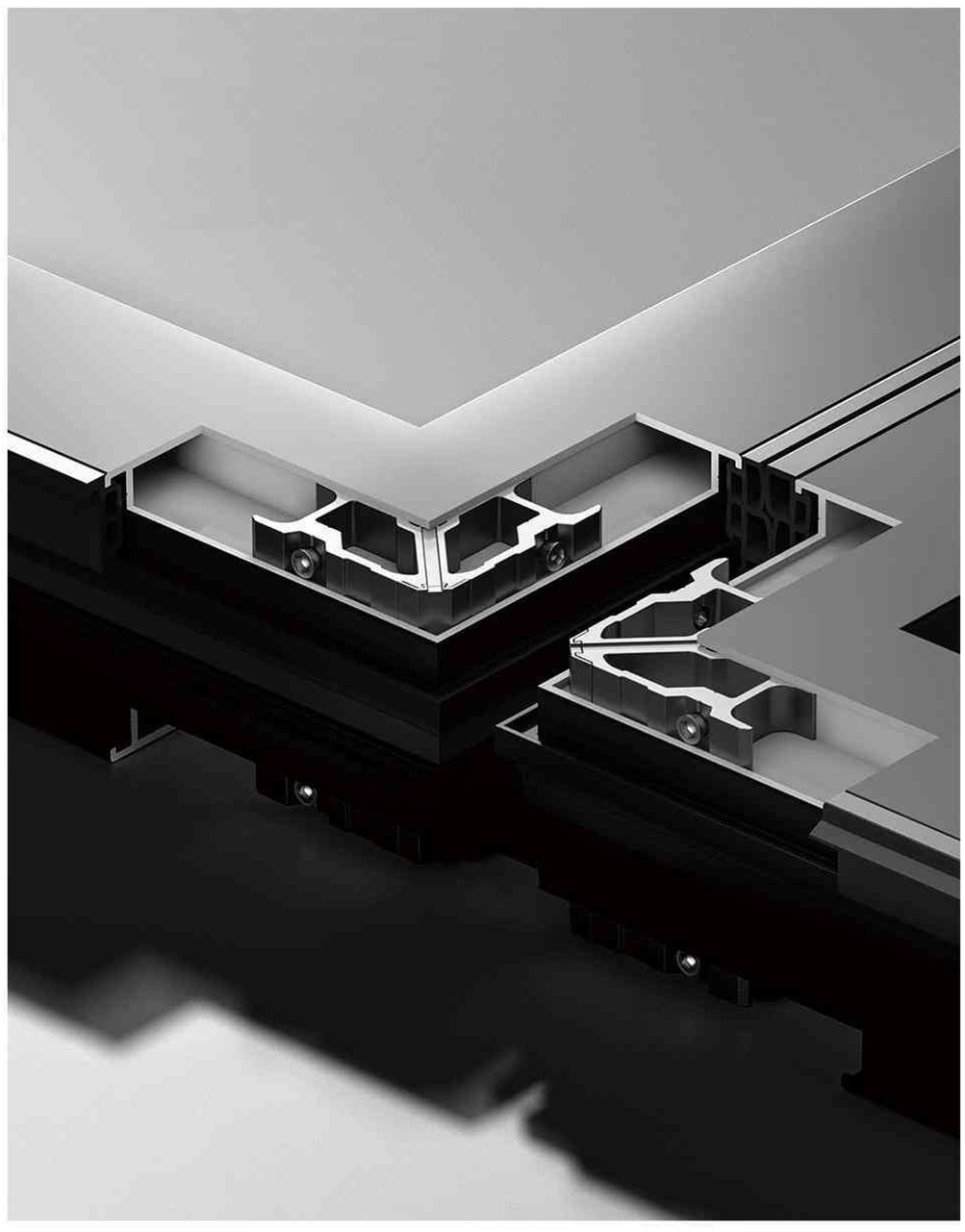
Folding Door High Threshold Option

PRODUCT DISPLAY

LOW THRESHOLD

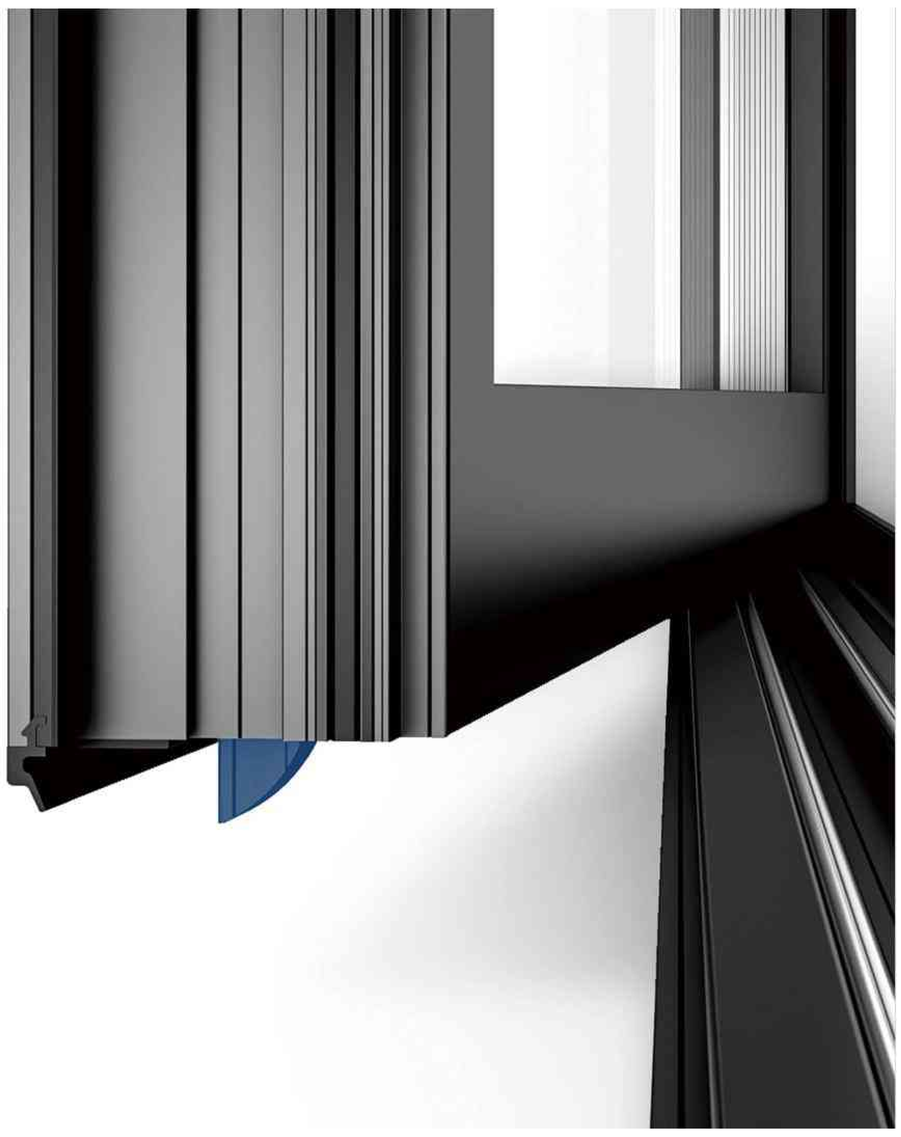
HIGH THRESHOLD

TOP HUNG WHEEL



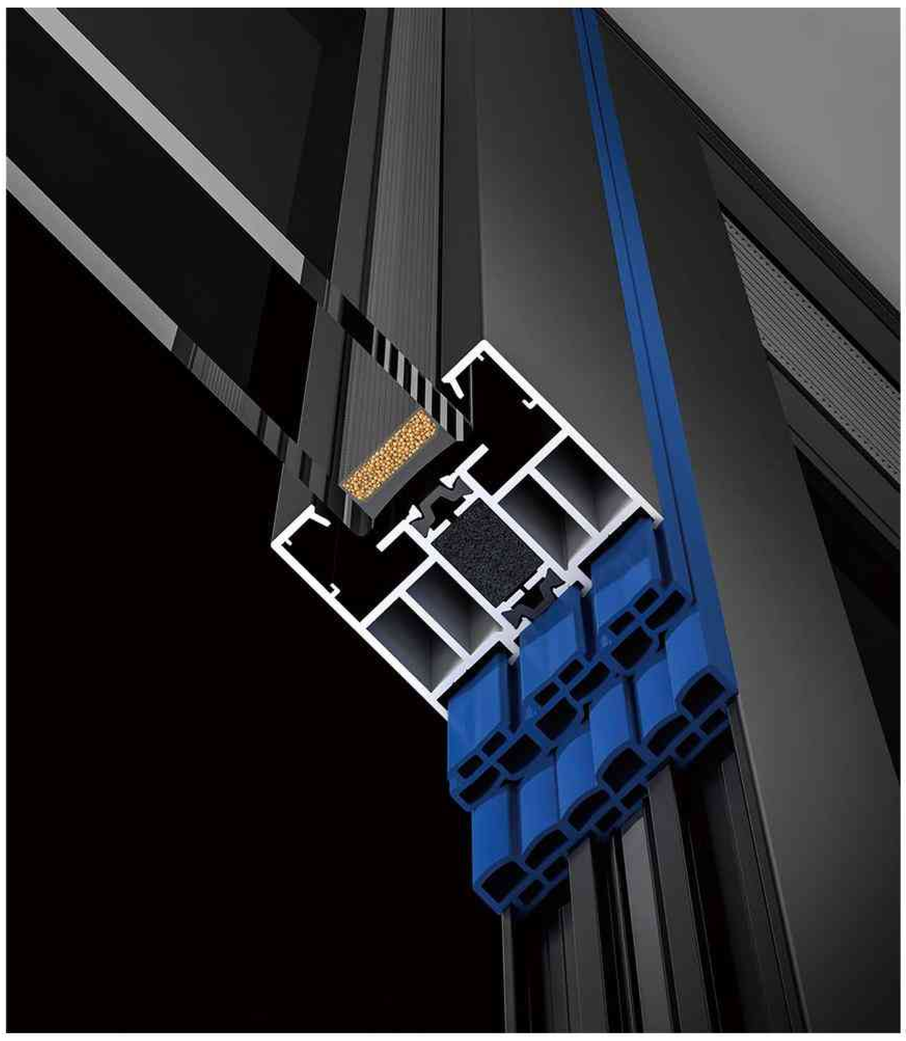
CORNER CODE SPLICNG

PRODUCT DISPLAY



INSERT PIN

CONCEALED HINGES



SEALING DESIGN

HIDDEN HANDLE

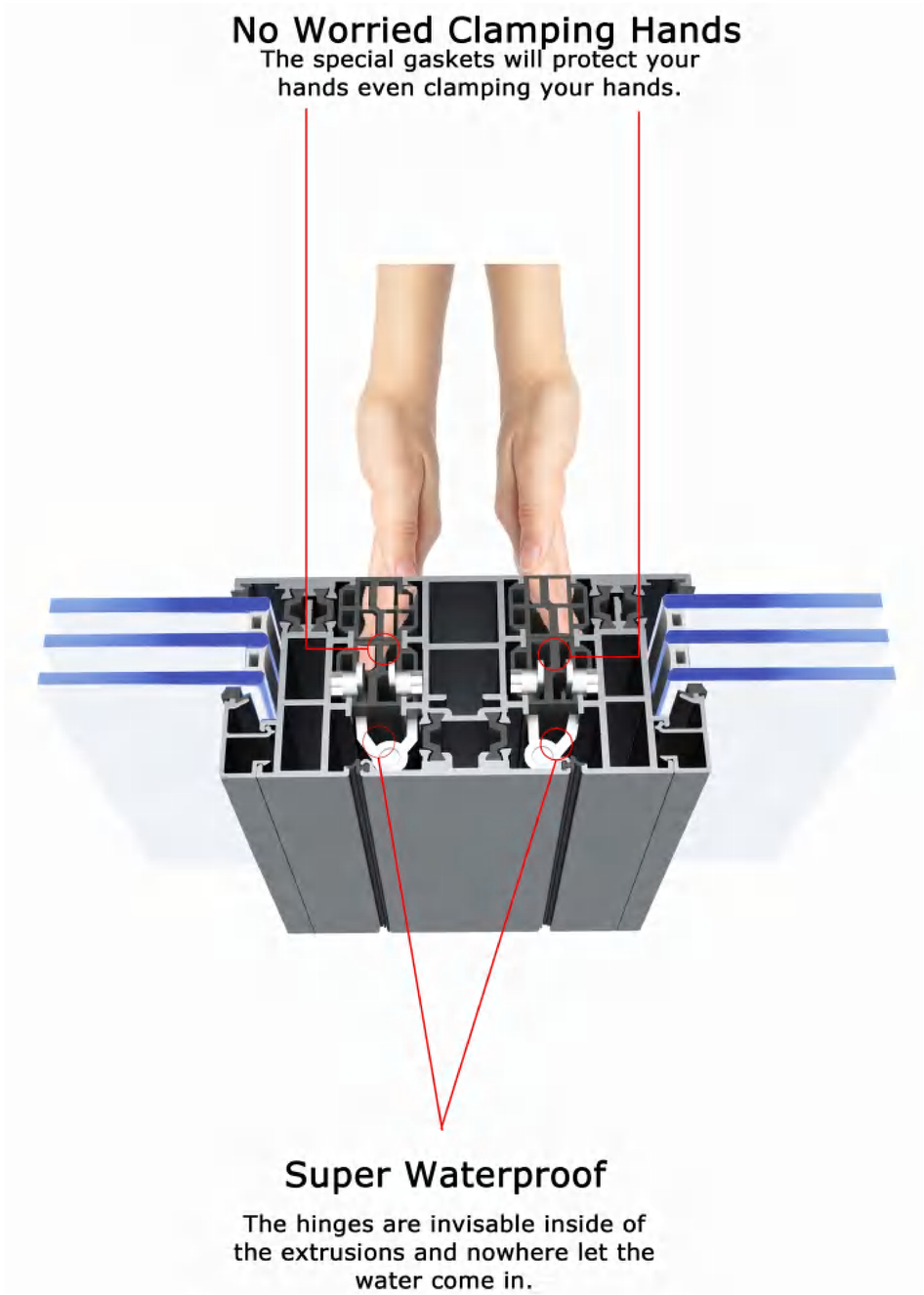
Hidden folding door system solution

隱藏式折疊門系統方案

The folding door series products break through the hidden structure of the existing patent hidden hinged folding door, ingeniously avoid the existing technical barriers, and through the new structural design and semi-automatic locking system, the folding door can be opened and closed easily.

本折疊門系列產品突破現有專利隱藏合頁式折疊門的隱藏結構，巧妙避開現有的技術壁壘，通過全新的結構設計搭配半自動鎖閉系統，使折疊門開關操作輕鬆啓閉。

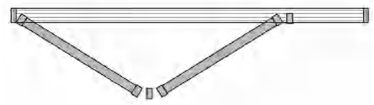
Sainty Patent & Special Designs



2L

INTERIOR

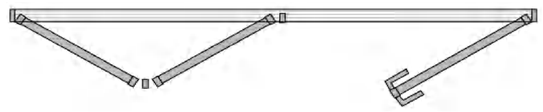
EXTERIOR



3L

INTERIOR

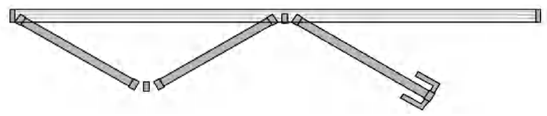
EXTERIOR



2L1R

INTERIOR

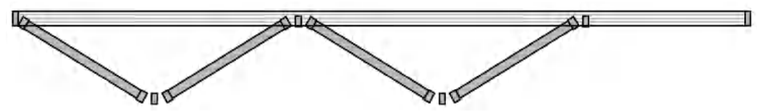
EXTERIOR



4L

INTERIOR

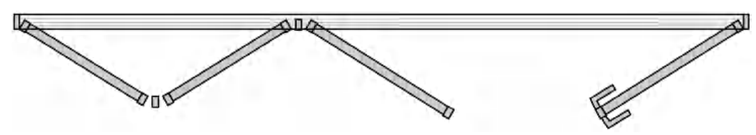
EXTERIOR



3L1R

INTERIOR

EXTERIOR



2L2R

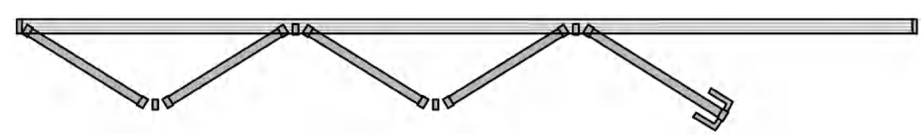
INTERIOR

EXTERIOR

5L

INTERIOR

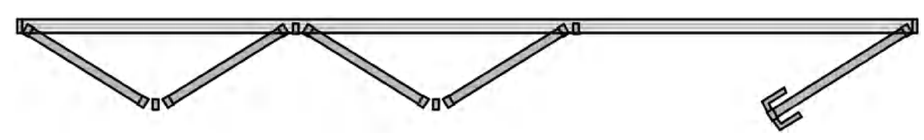
EXTERIOR



4L1R

INTERIOR

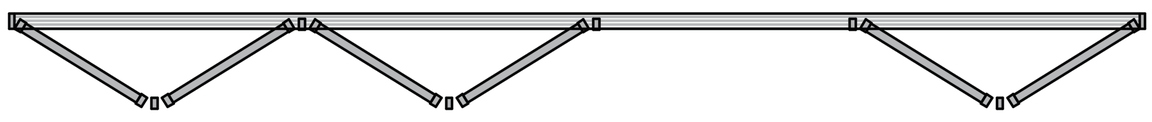
EXTERIOR



4L2R

INTERIOR

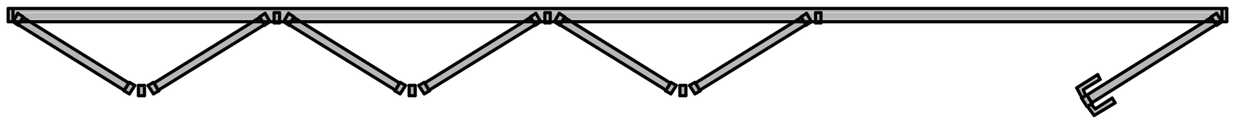
EXTERIOR



6L1R

INTERIOR

EXTERIOR



4L4R

INTERIOR

EXTERIOR

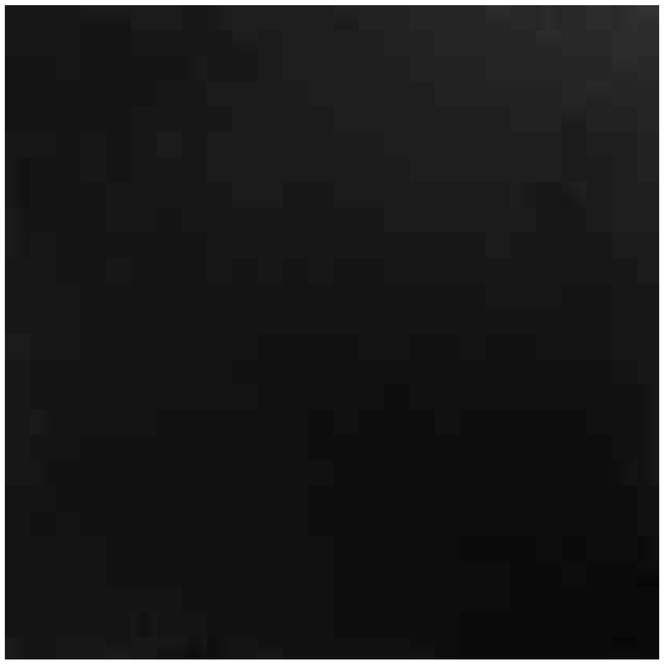
Anodized Colors

AND1

AND2

AND3

Powder Coating Colors



PD1

PD2

PD3

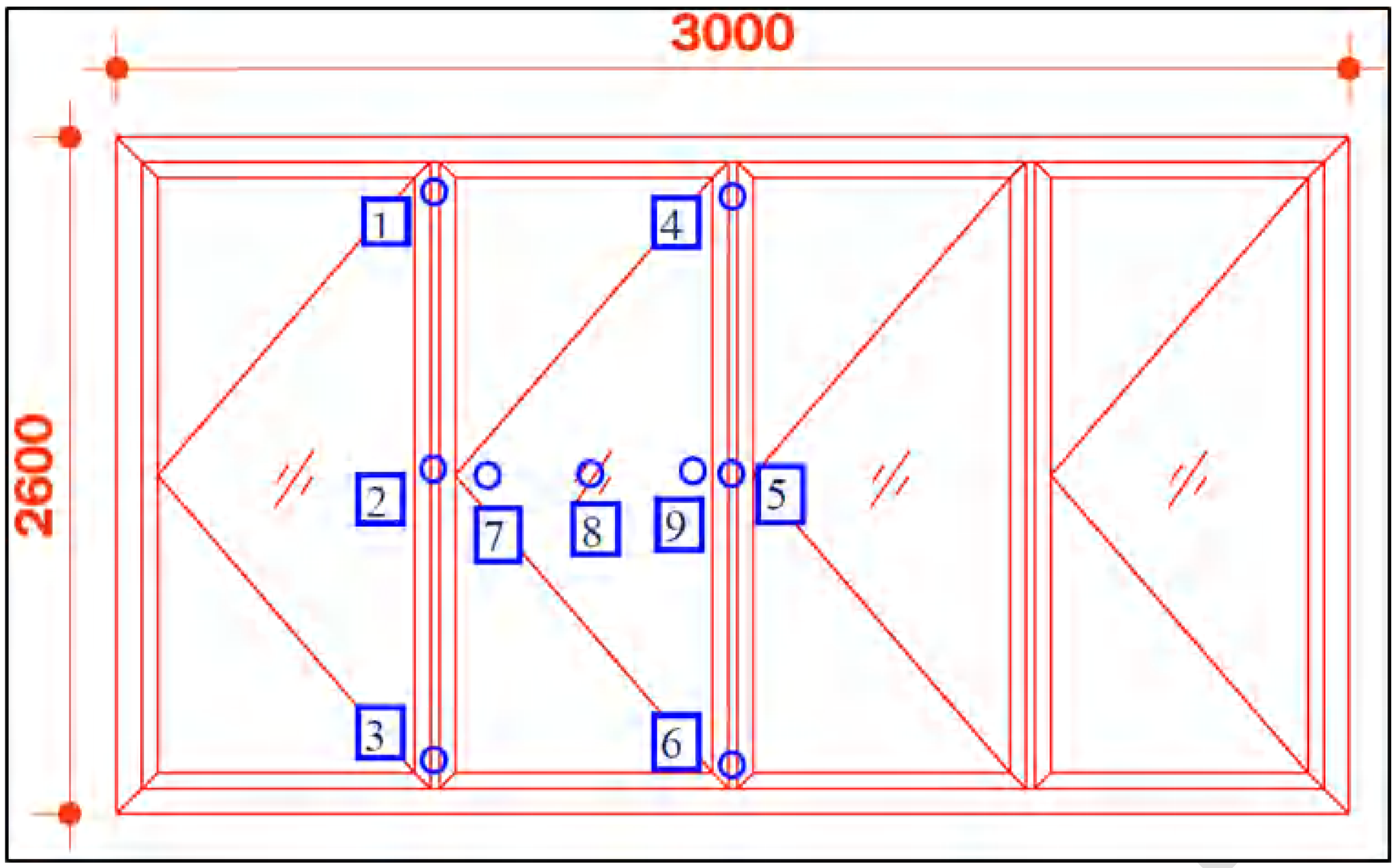


Figure 1: Locations of Displacement Transducers

5.4 Air Infiltration Test (Clause 8.4 of AS/NZS 4284:2008)

Procedure

(a) Without disturbing the seal between the specimen and the test chamber, adjust all ventilators, included in the test specimen so that their operation conforms to the specification requirements, and adjust all hardware for maximum tightness without interfering with their operations.

(b) Adjust the air flow through the test chamber to provide the specified test pressure difference across the test specimen. When the test conditions are stabilized, record the air flow through the flowmeter and the test pressure difference.

(c) Eliminate extraneous chamber leakage, or, if this is impractical, measure the amount of such leakage with the specimen sealed, at the air pressure differences to be exerted during the air leakage tests. The metering equipment for the measurement of air leakage may be used for measuring the extraneous leakage, or it may be necessary to provide additional air metering equipment for this purpose.

(d) Air infiltration & exfiltration rate is to be checked under pressure difference of ±300Pa.

Requirement

Air infiltration rate at **±300Pa** (q_A) ≤ q = 1.6L/(m^2·s) [5.76m^3/(m^2·hr)].

Allowed air infiltration of specimen ($Q_{\pm 300Pa}$) ≤ q×A = 5.76m^3/(m^2·hr) × 7.800m^2

= **44.928m^3/hr**

5.5 Water Penetration Test under Static Pressure (Clause 8.5 of AS/NZS 4284:2008)

Procedure

(a) Without disturbing the seal between the specimen and the test chamber, adjust all ventilators, included in the test specimen so that their operation conforms to the specification requirements, and adjust all hardware for maximum tightness without interfering with their operations.

(b) Adjust the water spray to the specified rate of 0.05L/(m^2·s) [0.18m^3/m^2·hr].
(c) At the start of the test, the water spray operates for 5 minutes with zero pressure. Apply the air pressure difference of +**720Pa** promptly and maintain a pressure along with the specified rate of water spray for 15 minutes.
(d) Remove the air pressure difference and stop the water spray.
(e) After 5 minutes, observe and record the points of water leakage, if any.

Requirement
There shall be no leaks.

5.6 Structural Proof Test at Ultimate Limit State Wind Pressure (W_{ULS})
(Clause 8.8 of AS/NZS 4284:2008)
Procedure
Positive / negative pressure up to W_{ULS} is applied and held for 10 seconds respectively.

Positive

Pressure	**Duration**
0 to +3.00kPa	50s-60s
+3.00kPa	10s

Negative

Pressure	**Duration**
0 to -3.00kPa	50s-60s
-3.00kPa	10s

Requirement
There shall be no collapse of the test sample. Collapse shall mean any one or any combination of the following:
(a) Dislodgment of any framing member, façade panels or any part thereof.
(b) Failure of any fixings that connect the façade to the building structure, such that the test sample is unstable.
(c) Failure of any stop, locking device, fastener or support which would allow an opening light to come open.
(d) Repeated breakage of glass resulting in loss of chamber pressure. Glass may only be replaced once before the sample is deemed to have collapsed.
(e) Repeated cracking of glass which does not result in loss of chamber pressure.
(f) Glass may only be replaced twice before the sample is deemed to have collapsed.
(g) Any permanent distortion of a panel shall be noted and documented in the test report.

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6. Test Procedures and Observations

Actual specimen installed in chamber is shown in **Figure 2**.

Figure 2: Photograph of Test Specimen
(View from outside of Chamber)

6.1 Preloading (Clause 8.2.2 of AS/NZS 4284:2008)

Procedure

The test procedures described in Clause 5.1 were followed.

Observations

No separation, plastic deformations or deleterious was observed.

6.2 Preliminary Water Penetration Test under Static Pressure

(Clause 8.2.3 of AS/NZS 4284:2008)

Procedure

The test procedures described in Clause 5.2 were followed.

Observations

There were no leaks.

6.3 Structural Test at Serviceability Limit State Wind Pressure (W_{SLS})

(Clause 8.3 of AS/NZS 4284:2008)

Procedure

The test procedures described in Clause 5.3 were followed.

Observation

(a) No collapse and permanent deformation were observed.
(b) Deflections of mullion and glass panel were within the allowable deflection limits, as shown in the table below:

Note: Serviceability limit state deflection limits:

- Mullions – Span / 250 or 20mm.
- Glass - Span/60

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Pressure in kPa		Displacement in mm								
		Locations of Transducers								
		Mullion Span = 2400mm			Mullion Span = 2400mm			Glass Panel Span = 540mm		
		1	2	3	4	5	6	7	8	9
Take-up										
At Pressure =	1.20	2.79	11.40	3.71	1.54	10.85	2.87	11.79	11.62	11.23
At Pressure =	0 (Z1)	0.05	0.09	0.19	0.08	0.11	0.11	0.13	0.21	0.12
Zero reference		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mode 1										
At Pressure =	0.24	0.62	2.47	1.12	0.23	2.19	0.76	2.51	2.38	2.27
At Pressure =	0.48	1.38	4.96	2.00	0.52	4.45	1.47	5.08	4.86	4.61
At Pressure =	0.72	1.93	7.24	2.61	0.86	6.63	1.95	7.44	7.16	6.87
At Pressure =	0.96	2.35	9.19	3.12	1.19	8.60	2.35	9.48	9.24	8.90
At Pressure =	1.20	2.74	11.38	3.63	1.46	10.83	2.78	11.76	11.55	11.19
Relative Disp. (mm)		*--*	***8.20***	*--*	*--*	***8.71***	*--*	*--*	***0.08***	*--*
Permitted Relative Disp. #		<	***9.60***	*--*	<	***9.60***	*--*	<	***9.00***	*--*
At Pressure =	0 (Z2)	0.04	0.09	0.09	0.03	0.09	0.09	0.10	0.12	0.09
At Pressure =	1.20	2.73	11.33	3.59	1.46	10.78	2.74	11.69	11.48	11.15
Relative Disp. (mm)		*--*	***8.17***	*--*	*--*	***8.68***	*--*	*--*	***0.06***	*--*
Permitted Relative Disp. #		<	***9.60***	*--*	<	***9.60***	*--*	<	***9.00***	*--*
At Pressure =	0.96	2.44	9.50	3.34	1.29	8.86	2.51	9.80	9.55	9.20
At Pressure =	0.72	2.07	7.51	2.92	1.07	6.81	2.13	7.74	7.45	7.10
At Pressure =	0.48	1.61	5.39	2.41	0.83	4.76	1.74	5.55	5.30	4.99
At Pressure =	0.24	0.86	2.86	1.61	0.56	2.48	1.09	2.95	2.82	2.60
At Pressure =	0 (Z3)	0.05	0.11	0.12	0.05	0.11	0.12	0.12	0.15	0.12
Mode 2										
At Pressure =	-1.10	-2.16	-10.59	-2.40	-1.92	-10.68	-2.51	-10.97	-11.17	-11.05
At Pressure =	0（Z4）	-0.14	-0.32	-0.23	-0.43	-0.38	-0.34	-0.42	-0.51	-0.40
At Pressure =	-0.22	-0.64	-2.45	-0.68	-0.75	-2.47	-0.79	-2.55	-2.64	-2.55
At Pressure =	-0.44	-1.05	-4.48	-1.16	-1.12	-4.52	-1.24	-4.63	-4.76	-4.66
At Pressure =	-0.66	-1.43	-6.58	-1.61	-1.41	-6.64	-1.67	-6.81	-6.98	-6.86
At Pressure =	-0.88	-1.79	-8.52	-2.02	-1.68	-8.60	-2.09	-8.83	-9.03	-8.89
At Pressure =	-1.10	-2.16	-10.54	-2.41	-1.93	-10.60	-2.49	-10.93	-11.15	-10.98
Relative Disp. (mm)		*--*	***8.26***	*--*	*--*	***8.39***	*--*	*--*	***0.20***	*--*
Permitted Relative Disp. #		<	***9.60***	*--*	<	***9.60***	*--*	<	***9.00***	*--*
At Pressure =	0 (Z5)	-0.15	-0.38	-0.25	-0.45	-0.41	-0.35	-0.47	-0.55	-0.43
At Pressure =	-1.10	-2.17	-10.61	-2.45	-1.94	-10.67	-2.51	-11.00	-11.21	-11.05
Relative Disp. (mm)		*--*	***8.30***	*--*	*--*	***8.45***	*--*	*--*	***0.19***	*--*
Permitted Relative Disp. #		<	***9.60***	*--*	<	***9.60***	*--*	<	***9.00***	*--*
At Pressure =	-0.88	-1.91	-8.84	-2.23	-1.76	-8.83	-2.21	-9.17	-9.33	-9.16
At Pressure =	-0.66	-1.52	-6.46	-1.77	-1.50	-6.41	-1.81	-6.72	-6.83	-6.65
At Pressure =	-0.44	-1.23	-4.87	-1.39	-1.30	-4.81	-1.51	-5.08	-5.18	-5.00
At Pressure =	-0.22	-0.77	-2.70	-0.92	-0.93	-2.65	-1.06	-2.83	-2.94	-2.76
At Pressure =	0 (Z6)	-0.15	-0.35	-0.24	-0.46	-0.40	-0.35	-0.44	-0.54	-0.41
Mode 3										
At Pressure =	1.20	2.75	11.38	3.64	1.44	10.83	2.79	11.75	11.53	11.20
Relative Disp. (mm)		*--*	***8.19***	*--*	*--*	***8.72***	*--*	*--*	***0.05***	*--*
Permitted Relative Disp. #		<	***9.60***	*--*	<	***9.60***	*--*	<	***9.00***	*--*
At Pressure =	0 (Z7)	0.04	0.07	0.12	0.01	0.04	0.13	0.09	0.10	0.09

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6.4 Air Infiltration Test (Clause 8.4 of AS/NZS 4284:2008)

Procedure

The test procedures described in Clause 5.4 were followed.

Observations

- The air infiltration of the specimen under ±300Pa was within allowable value, as shown in the below table.

Pressure / Air infiltration value	+300Pa	-300Pa
Test chamber + specimen	38.76m^3/hr	87.14m^3/hr
Test chamber	35.69m^3/hr	74.89m^3/hr
Specimen	3.07m^3/hr < $Q_{\pm300Pa}$	12.25m^3/hr< $Q_{\pm300Pa}$

Note: Value of $Q_{\pm300Pa}$ =44.928m^3/hr (calculated in clause 5.4.)

6.5 Water Penetration Test under Static Pressure (Clause 8.5 of AS/NZS 4284:2008)

Procedure

The test procedures described in Clause 5.5 were followed.

Observations

There were no leaks.

6.6 Structural Proof Test at Ultimate Limit State Wind Pressure (W_{ULS})
(Clause 8.8 of AS/NZS 4284:2008)

Procedure

The test procedures described in Clause 5.6 were followed.

Observation

No collapse of the test specimen was observed under the specified pressure.

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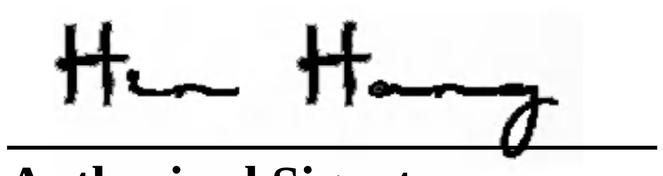
7 Summary of Test Results

Item	Test	Pressure	Observation
7.1	Preloading (Clause 8.2.2 of AS/NZS 4284:2008)	+1.20kPa / -1.10kPa	No separation, plastic deformations or deleterious was observed.
7.2	Preliminary Water Penetration Test under Static Pressure (Clause 8.2.3 of AS/NZS 4284:2008)	+720Pa	There were no leaks.
7.3	Structural Test at Serviceability Limit State Wind Pressure (W_{SLS}) (Clause 8.3 of AS/NZS 4284:2008)	+1.20kPa / -1.10kPa	The deflections of all members were within the allowable values, no collapse and permanent deformation was observed.
7.4	Air Infiltration Test (Clause 8.4 of AS/NZS 4284:2008)	±300Pa	The air infiltration was within allowable values.
7.5	Water Penetration Test under Static Pressure (Clause 8.5 of AS/NZS 4284:2008)	+720Pa	There were no leaks.
7.6	Structural Proof Test at Ultimate Limit State Wind Pressure (W_{ULS}) (Clause 8.8 of AS/NZS 4284:2008)	+3.00kPa / -3.00kPa	No collapse of the test specimen was observed.

I certify that the above test results are the true record for the performance test on the **Vuillon Four-Folding Doors** from **Taixing Sainty Industry Co.,Ltd.**

Leading Edge Construction Materials Testing Company Limited



Authorized Signature
TSANG Hin Hang
Quality Manager

-End of Report-