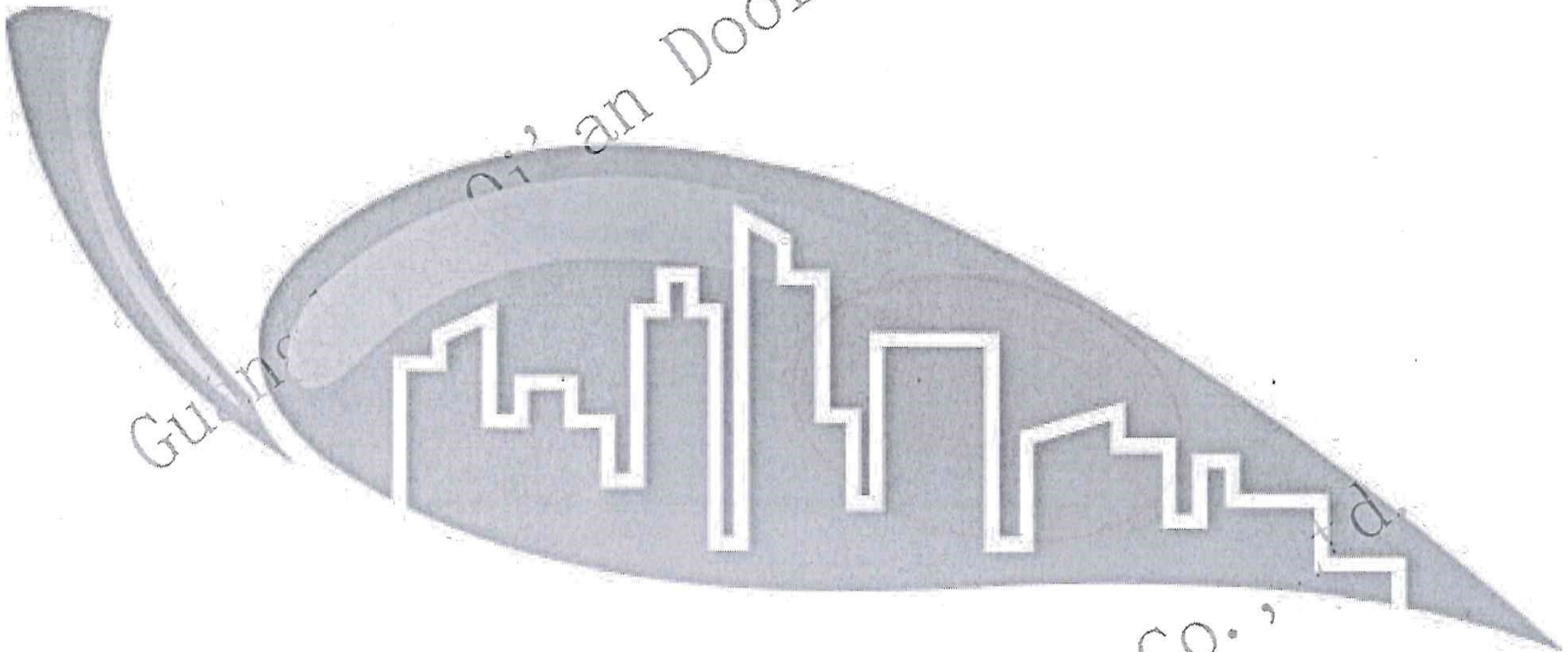


Report Number: J250226001-3R2

Supersede Report No. J250226001-3R1 dated Sep 10, 2025

BS EN 1634-3: 2004/AC: 2007



Smoke Control Test for Timber Doorset

A report to:
Guangdong Qian Door Industry Co., Ltd.

Issue Date:	Mar 5, 2025
Revised Date:	Nov 21, 2025
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1. SUMMARY

Product: Wooden triple leaf fireproof door with glass
 Manufactured by Guangdong Qi'an Door Industry Co., Ltd.
 Model: MFM-2823-bd5 A1.00-3 (50 mm):
 Door Frame: 2320 mm(H) x 2800 mm(W) x 100 mm(T);
 Doorset A Door Leaf: 2270 mm(H) x 663 mm(W) x 50 mm(T)
 Doorset B Active leaf: 2270 mm(H) x 1100 mm(W) x 50 mm(T)
 Doorset B Inactive leaf: 2270 mm(H) x 900 mm(W) x 50 mm(T).

The performance of the specimen was judged against the criteria for the smoke leakage, as required by BS EN 1634-3: 2004/AC: 2007, and the results obtained were as follows:

Single leaf doorset A:

No. of Test	Face exposed to pressure	Temperature	Leakage rate Q_{spec} (m ³ /h) at pressure difference of			S_{200} Criteria (m ³ /h)	Linear Leakage rate Q_l (m ³ /h/m) at pressure difference of		S_{a3} Criteria (m ³ /h/m)
			10 Pa	25 Pa	50 Pa		10 Pa	25 Pa	
1	Swing Outwards	Ambient	2.67	5.14	8.39	≤ 20	0.51	0.98	≤ 3
2	Swing Inwards	Ambient	2.12	2.69	1.83	≤ 20	0.41	0.52	≤ 3

Double leaf doorset B:

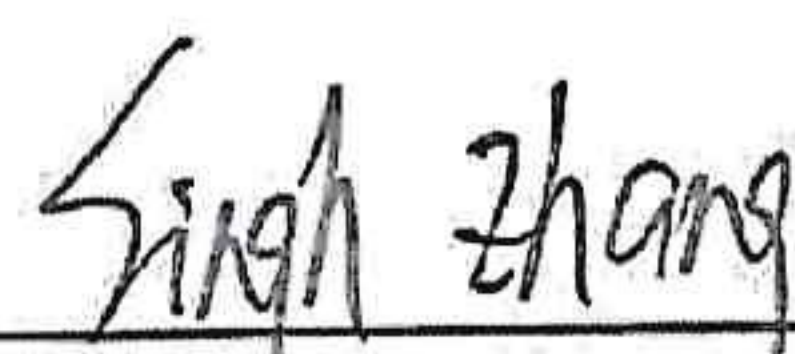
No. of Test	Face exposed to pressure	Temperature	Leakage rate Q_{spec} (m ³ /h) at pressure difference of			S_{200} Criteria (m ³ /h)	Linear Leakage rate Q_l (m ³ /h/m) at pressure difference of		S_{a3} Criteria (m ³ /h/m)
			10 Pa	25 Pa	50 Pa		10 Pa	25 Pa	
3	Swing Outwards	Ambient	0.29	0.44	2.07	≤ 30	0.03	0.04	≤ 3
4	Swing Inwards	Ambient	0.22	0.49	1.11	≤ 30	0.02	0.06	≤ 3

Notes:

1. The requirement of smoke leakage rate S_{200} and S_a refer to 7.5.5.3.4 of EN 13501-2:2023.
2. The S_{a3} classification indicate the doorset was tested with seals on 3 sides (vertical sides of the door leaf/leaves and head).

2. SIGNATURES

Test performed by:


Name: Singh Zhang Jiancheng
Date: Nov 21, 2025
Title: Project Engineer
KAS Quality Service

Report authorised by:


Name: Credy Chen Ziwen
Date: Nov 21, 2025
Title: Technical Manager
KAS Quality Service

Information is for reference only,
not as a basis for engineering acceptance

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Attention is for reference only,
as a basis for engineering acceptance

Guangdong Qi'an Door Industry Co., Ltd.



KAS QUALITY SERVICE

Test Report

Report Number: J250226001-3R2

4. TEST DETAILS

Applicant Information

Applicant Name: Guangdong Qi'an Door Industry Co., Ltd.

Applicant Address: No.13, Ronger Road, Wuzhuang Community, Shishan Town, Nanhai District, Foshan City, Guangdong Province, China

Sample Information

Product: Wooden triple leaf fireproof door with glass

Trade Mark: /

Model and/or type reference: MFM-2823-bd5-A1.00-3 (50 mm):
Door Frame: 2320 mm(H) x 2800 mm(W) x 100 mm(T);
Doorset A Door Leaf: 2270 mm(H) x 663 mm(W) x 50 mm(T)
Doorset B Active leaf: 2270 mm(H) x 1100 mm(W) x 50 mm(T)
Doorset B Inactive leaf: 2270 mm(H) x 900 mm(W) x 50 mm(T).

Manufacturer: Guangdong Qi'an Door Industry Co., Ltd.

Manufacturer Address: No.13, Ronger Road, Wuzhuang Community, Shishan Town, Nanhai District, Foshan City, Guangdong Province, China

Sample ID: S250226001-04

Date of receipt of test samples: Feb 26, 2025

Situation of receipt samples: Good

Testing Information

Standard: BS EN 1634-3: 2004/AC: 2007

Non-standard method or requirement: /

Testing Laboratory name: KAS Quality Service (Guangzhou) Co., Ltd.

Address: Chenziwei, Xinsha Village Committee, Muzhou Town, Xinhui District, Jiangmen, Guangdong 529143, China.

Date (s) of performance of tests: Mar 3, 2025

Other reports to be used in conjunction with this report: /

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5. TEST OBJECTIVE

The test was conducted in accordance with BS EN 1634-3: 2004/AC: 2007 Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware Part 3: Smoke control test for door and shutter assemblies, to determine smoke leakage separating function of one set of triple leaf fireproof doorset, which incorporated various items of building hardware.

6. TEST SPECIMEN

The test specimen was comprised of one no. of single-acting, single leaf door and one no. of single-acting, double leaf door. There was a shared mullion timber frame between the single leaf door and double leaf door. The single-acting, single leaf door namely doorset A and the single-acting, double leaf door namely doorset B.

6.1 Door Frame

The door frame had overall size of 2800 mm (W) x 2320 mm (H) and overall sectional dimensions of 55 mm wide x 100 mm thick with 15 mm deep rebate (head and side jambs) and 70 mm wide x 100 mm thick with 15 mm deep rebate (shared mullion timber frame). The door frame comprised of flame retardant plywood and fireproof board. The jambs to head were joined by screws. The frame was fixed to the supporting construction by M8 x 100 mm anchor bolts.

The gap between the door frame and the supporting construction was filled with fire sealant.

6.2 Door Leaves

6.2.1 Door leaf – Doorset A

The single door leaf size of 663 mm (W) x 2270 mm (H) x 50 mm (T).

The top and bottom rails of door leaf were made of 1 no. of 80 mm (W) x 31 mm (T) flame retardant plywood respectively and the interior rails were made of 2 nos. of 40 mm (W) x 31 mm (T) flame retardant plywood. The stiles on lock edge and hinge edge of door leaf were made of 1 no. of 40 mm (W) x 31 (T) mm flame retardant plywood respectively.

The door leaf had a core construction of 31 mm (T) perlite and sandwiched by 5 mm (T) fireproof board, 3 mm (T) plywood and 1 mm (T) veneer board on both sides. The edges of each door leaf had 1 mm (T) PVC as lipping.

6.2.2 Door leaves – Doorset B

The active door leaf size of 1100 mm (W) x 2270 mm (H) x 50 mm (T) and the inactive door leaf size of 900 mm (W) x 2270 mm (H) x 50 mm (T).

The construction of the inactive door leaf was the same as that of the active door leaf.

The top and bottom rails of door leaf were made of 1 no. of 80 mm (W) x 31 mm (T) flame retardant plywood respectively and the interior rails were made of 2 nos. of 40 mm (W) x 31 mm (T) flame retardant plywood. The stile on the hinge edge was made of 1 no. of 40 mm (W) x 31 (T) flame retardant plywood and the stile on the lock edge was made of 1 no. of 134 mm (24+15+55+40 mm) (W) x 31 mm (T) flame retardant plywood. The interior stile at the position next the glass panels was made of 1 no. of 40 mm (W) x 31 mm (T) flame retardant plywood.

The door leaf had a core construction of 31 mm (T) perlite and sandwiched by 5 mm (T) fireproof board, 3 mm (T) plywood and 1 mm (T) veneer board on both sides. The edges of each door leaf had 1 mm (T) PVC as lipping (excluded meeting edge of door leaf).

6.3 Door Hardware

6.3.1 Doorset A

The door leaf was hung within the door frame by 4 nos. 'LIKCOO / SS002' stainless steel hinges with a size of 4" x 4" x 3 mm. The top hinge was 150 mm positioned the top edge of the door leaf and other three hinges were spaced 400 mm, 800 mm, and 1920 mm away from the top hinge respectively. The doorset

was equipped with a surface mounted door closer 'TBN / DC0750' installed on the exposed side. The doorset was provided with a lockset 'Qi'an / 72-60A' which combined with a set of lever handle 'Qi'an / QA10101' and a cylinder 'Qi'an / QA70-D01', installed 1000 mm above the bottom edge of the door leaf. The locksets were latched but unlocked during the whole fire test period. Drop seal 'Fan Qiu / FQ-E-006' were installed at the bottom of the door leaf.

6.3.2 Doorset B

The 8 nos. of hinges, 2 set of door closers, lockset, cylinder, lever handle and drop seals on doorset B were of the same model and position as those on doorset A. The lockset was latched but unlocked during the whole fire test period. Flush bolt 'Glowing / BA006' was installed at top of the meeting edge of the inactive door leaf. The flush bolt was bolted during the whole fire test period. A coordinator 'KIN LONG / SSW12601' was installed at the top of the door frame.

6.4 Seal

6.4.1 Doorset A

1 no. of 20 mm (W) x 4 mm (T) intumescent seal installed at each jamb and head of the door frame and discontinued at all ironmongeries.

1 no. of 15 mm (W) x 5 mm (T) smoke proof seal installed at the door stop of each jamb and head of the door frame.

6.4.2 Doorset B

1 no. of 20 mm (W) x 4 mm (T) intumescent seal installed at each jamb and head of the door frame and discontinued at all ironmongeries.

1 no. of 20 mm (W) x 4 mm (T) intumescent seal installed at meeting edge of each door leaf and discontinued at all ironmongeries.

1 no. of 15 mm (W) x 2 mm (T) intumescent seal installed at the rebate of the meeting edge of the inactive door leaf.

1 no. of 15 mm (W) x 2 mm (T) intumescent seal installed at both sides of glass panels between the glass beads.

1 no. of 15 mm (W) x 5 mm (T) smoke proof seal installed at the door stop of each jamb and head of the door frame.

1 no. of 12 mm (W) x 12 mm (T) smoke proof seal installed at the rebate of the meeting edge of the active door leaf.

6.5 Glazed Panels – Doorset B

The doorset was comprised of two pieces of glazed panel on each door leaf. The upper glazed panel had visual size of 224 mm (W) x 1224 mm (H) and the lower glazed panel had visual size of 224 mm (W) x 574 mm (H). The glazed panels consisted of a piece of 25 mm (T) composite fire-resistant glass. The glass panels edges were clamped by 15.5 mm x 20 mm woodiness as glazed beads on the both sides. The glazed beads were fixed onto the door leaf by straight nails.

Table 1 Specimen description

Refer to Figure A.1, unless stated otherwise, all values are nominal, and all information in Table 1 is supplied by the client.

Item	Description
1. Door Frame	
Supplier	: Guangdong Qi'an Door Industry Co., Ltd.
Material	: Flame retardant Plywood + Fireproof Board
Overall size	: 2800 mm x 2320 mm x 100 mm *
Sectional dimension	: 100 mm x 55 mm / 100 mm x 70 mm

Item	Description
Rebate	: 15 mm *
Density	: Flame retardant Plywood: 650-700 kg/m ³ Fireproof Board: 950 kg/m ³
Jointing method of jamb to head	: Screw fixation
Fixing method to drywall support frame	: M8 x 100 anchor bolts
Gap insulation between door frame and drywall	: Fire sealant *
2. Door Leaf	
Door leaf sizes	: Doorset A: Single door leaf: 663 mm x 2270 mm x 50 mm * Doorset B: Active door leaf: 1100 mm x 2270 mm x 50 mm; Inactive door leaf: 900 mm x 2270 mm x 50 mm *
Thickness	: 50 mm *
Construction	: 1 mm veneer + 3 mm Plywood + 5 mm Fireproof Board + 31 mm Perlite core board + 5 mm Fireproof Board + 3 mm Plywood + 1 mm veneer
Fixing method	: Glued
3. Door Leaf Core	
Supplier	: Heshan Changsheng Environmental Protection Material Technology Co., Ltd.
Material	: Perlite
Thickness	: 31 mm *
Density	: 400 ± 40 kg/m ³
Location	: Door leaf internal filling
4. Stiles and Rails	
Supplier	: Guangdong Hengli New Material Co., Ltd.
Material	: Flame retardant Plywood
Thickness	: 40 / 80 / 134 mm (W) x 31 mm (T) *
Density	: 650~700 kg/m ³
Fixing method	: Pneumatic code nail
5. Lipping	
Material	: PVC
Thickness	: 1 mm *
Location	: Edges around the door leaf
6. Facing	
Supplier	: Guangdong Hengli New Material Co., Ltd.
Material	: Veneer board
Thickness	: 1 mm *
Fixing method	: Glued
Applied location	: Door leaf surface

Item	Description
7. Sub-facing a	
Supplier	: Guangdong Hengli New Material Co., Ltd.
Material	: Plywood
Thickness	: 3 mm *
Density	: 650 ~ 700 kg/m ³
Applied location	: Surface base layer of door leaf
8. Sub-facing b	
Supplier	: Heshan Changsheng Environmental Protection Material Technology Co., Ltd.
Material	: Calcium Silicate Board
Thickness	: 5 mm *
Density	: 950 kg/m ³
Applied location	: Bottom surface of door leaf base layer
9. Hinges	
Supplier	: Jiangmen Jinligao lock industry Co., Ltd
Brand	: Likcoo *
Model	: SS002
Material	: 304 stainless steel
Size	: 4" x 4" x 3 mm
Numbers	: 4 pcs of doorset A, 8 pcs of doorset B *
Fixing method	: Screw *
10. Door Closer	
Supplier	: Guangzhou TeBoNeng Door Control Co., Ltd
Brand	: TBN *
Model	: DC0750
Size	: Aluminium alloy
Material	: 184 mm x 56 mm x 40 mm
Applied Location	: Exposed side of each door leaf *
Fixing method	: Screw *
11. Lockset	
Supplier	: Guangdong Qi'an Door Industry Co., Ltd.
Brand	: Qi'an *
Model	: 72-60A
Size	: 235 mm (H) x 24 mm (T) x 90 mm (W)
Material	: 304 stainless steel
Applied location	: Installed 1000 mm above the bottom edge of door leaf
Status during the test	: Latched but unlocked during fire test *
12. Lever handle	
Supplier	: Guangdong Qi'an Door Industry Co., Ltd.
Brand	: Qi'an *
Model	: QA10101
Size	: Ø19 mm x 60 mm x 135 mm
Material	: Stainless Steel

Item	Description	
Fixing method	:	Screw *
13. Cylinder		
Supplier	:	Guangdong Qi'an Door Industry Co., Ltd.
Brand	:	Qi'an *
Model	:	QA70-D01
Size	:	17 mm x 32 mm x 70 mm
Material	:	Copper
Fixing method	:	Screw *
14. Drop Seal		
Supplier	:	Foshan Nanhai Chongtai Fireproof Material CO.LTD
Brand	:	Fan Qiu
Model	:	FQ-E-006
Size	:	14 mm x 34 mm
Location	:	At the bottom edge of each door leaf *
15. Intumescent Seal - Doorset A		
Supplier	:	Foshan Nanhai Chongtai Fireproof Material CO.LTD
Brand	:	Fan Qiu
Model	:	FQ-C5-2004
Size	:	4 mm x 20 mm *
Location	:	1 no. at each jamb and head of door frame.
16. Smoking Proof Seal - Doorset A		
Supplier	:	Foshan Nanhai Chongtai Fireproof Material CO.LTD
Brand	:	Fan Qiu
Model	:	FQ-B043-15
Size	:	5 mm x 15 mm
Location	:	1 no. at the door stop of each jamb and head of the door frame. *
17. Intumescent Seal - Doorset B		
Supplier	:	Foshan Nanhai Chongtai Fireproof Material CO.LTD
Brand	:	Fan Qiu
Model	:	FQ-C2-1502
Size	:	15 mm x 2 mm *
Location	:	1 no. at the rebate of the meeting edge of the inactive door leaf. 1 no. at both sides of glass panels between the glazed beads.
	:	1 no. at each jamb and head of door frame. 1 no. at meeting edge of each door leaf. *
18. Smoking Proof Seal - Doorset B		
Supplier	:	Foshan Nanhai Chongtai Fireproof Material CO.LTD
Brand	:	Fan Qiu
Model	:	FQ-VA002
Size	:	12 mm x 12 mm
Location	:	1 no. of seal at rebate of
	:	1 no. at the door stop of

Item	Description	
	meeting edge of active door leaf	each jamb and head of the door frame. *
19. Glazed Panel - Doorset B		
Brand	:	Dongguan Jinzhong Glass Technology Co., Ltd
Materials	:	Silica nano
Thickness	:	25 mm *
Construction	:	5 mm glass + 5 mm fireproof adhesive + 5 mm glass + 5 mm fireproof adhesive + 5 mm glass
Aperture sizes	:	256 mm (W) x 1256 mm (H) 256 mm (W) x 606 mm (H)
Vision sizes	:	224 mm (W) x 1224 mm (H) 224 mm (W) x 574 mm (H) *
Fixing method	:	15.5 x 20 mm wooden bead around *
Glazing gasket	:	Intumescent Seal: 2 mm x 10 mm (FQ-C2-1002)
20. Glazed beads - Doorset B		
Material	:	Woodiness
Sizes	:	15.5 mm x 20 mm *
Fixing method	:	Fixed with straight nails
21. Flush bolt - Doorset B		
Supplier	:	Glowing Hardware Manufacture Co., Ltd
Brand	:	Glowing
Model	:	BA006
Material	:	304 stainless steel
Size	:	20 mm x 17 mm x 200 mm
Applied location	:	At top of inactive door leaf.
22. Door coordinator - Doorset B		
Supplier	:	Guangdong Kin long Hardware Products Co., Ltd.
Brand	:	KIN LONG
Model	:	SSW12601
Material	:	304 stainless steel
Size	:	89 mm x 29 mm x 15 mm
Applied location	:	At the top of the door frame, near the upper edges of door leaves
23. Glue		
Supplier	:	Dongguan Zhuoxin Fire Equipment Co., Ltd
Brand	:	Zhuoxin
Material	:	BA01

* Verified by the laboratory before the test;

Measured by the test laboratory.

6.6 Selection of the Specimens

Specimen was submitted to KAS directly from the sponsor. KAS did not involve in the selection of the specimen. Specimen was received at KAS on Feb 26, 2025.

6.7 Verification of the Specimens

In Table 1 of this report, items which had been verified by KAS were identified and distinguished from those relying on sponsor's declaration.

6.8 Supporting Construction

The specimen was fixed into a structural opening sized 3000 mm (w) x 3000 mm (h) made of steel hollow section. The space between specimen and the test frame was sealed by a drywall partition.

The 100 mm thick drywall partition was constructed by wooden studs with single layer gypsum board fixed on both sides.

6.9 Installation of Specimens

The specimen was installed by the sponsor in according to manufacturer's instruction.

6.10 Specimens Conditioning

After installation, the specimens were stored in the test laboratory. Throughout this period of the storage, both the temperature and relative humidity of laboratory were measured and recorded as being within a range of from 24°C to 25°C and 70% to 75% respectively.

The same specimen was used by reversing the specimen to carry out the both sides leakage tests respectively.

First test: the doorset A outward the chamber, Second test: the doorset A inward the chamber.

Third test: the doorset B outward the chamber, Fourth test: the doorset B inward the chamber.

7. TEST EQUIPMENT AND PROCEDURE

7.1 Pre-test Conditioning

Prior to the smoke control test, the doorset was opened to an angle of 30° and closed 10 times to ensure the assembly operates normally as specified in Clause 10.1.1 of BS EN 1634-3: 2004/AC: 2007.

Gaps, retention force were measured as specified in Clause 6.4 and Clause 10.1.2 of BS EN 1634-3: 2004/AC: 2007.

7.2 Sequence of test

The tests were carried out in the following sequence:

- determine the leakage rate through the test chamber and any supporting or associated construction at ambient temperature i.e. $Q_{app}^{(20)} + Q_{sup/assoc}^{(20)}$;
- determine the total leakage rate at ambient temperature i.e. $Q_t^{(20)}$;
- determine the leakage rate through the apparatus and any supporting or associated construction at medium temperature 200 °C, i.e. $Q_{app}^{(200)} + Q_{sup/assoc}^{(200)}$.

7.3 Procedure for ambient temperature only testing to satisfy S_a classification

The leakage rate through the test specimens were measured at pressure differences of 10 Pa and 25 Pa, or for special purposes at the pressure difference specified by the sponsor. During measurement of the leakage rate the pressure difference shall be maintained for 2 min and the value of Q_t established at the end of this period using:

$$Q_{spec}^{(20)} = Q_t^{(20)} - (Q_{app}^{(20)} + Q_{sup/assoc}^{(20)})$$

$$Q_l^{(20)} = Q_{spec}^{(20)} / \text{"Length of gap"}$$

The length of the gap between the fixed and moving components of the doorset (e.g. between the door leaf and frame as well as, where appropriate, between the moveable elements) but excluding the length of the threshold gap shall be measured and recorded.

7.4 Procedure for ambient temperature only testing to satisfy S₂₀₀ classification

The average air temperature close to the face of the specimen was raised from ambient temperature to the required stabilization temperature of (200 ± 20) °C in (30 ± 5) min. The temperature distribution over the face of the specimen was monitored by 9 nos. of type K thermocouples positioned (100 ± 50) mm from the exposed face of the test specimen. The temperature was controlled to (200 ± 40) °C as measured by each thermocouple. During the heating up period, neutral pressure shall be maintained in the test chamber.

The leakage rate through the test specimen shall be measured at pressure differences of 10 Pa,

25 Pa and 50 Pa or for special purposes at the pressure difference specified by the sponsor. These measurements shall be taken within 10 min of achieving the test temperature. During measurement of the leakage rate, the pressure difference shall be maintained for 2 min and the value of Q_t established at the end of this period using:

$$Q_{spec}^{(200)} = Q_t^{(200)} - (Q_{app}^{(200)} + Q_{sup/assoc}^{(200)})$$

7.5 Deflection Measurement

Measurements of the deflection of the test specimen were taken with a steel rule from cross line lasers across the top, mid-height and bottom of the specimen during the medium temperature smoke leakage test.

The positions of deflection measurement points are shown in Figure 2.

8. TEST RESULT

8.1 Pre-test examination and preparation

8.1.1 Gap measurements

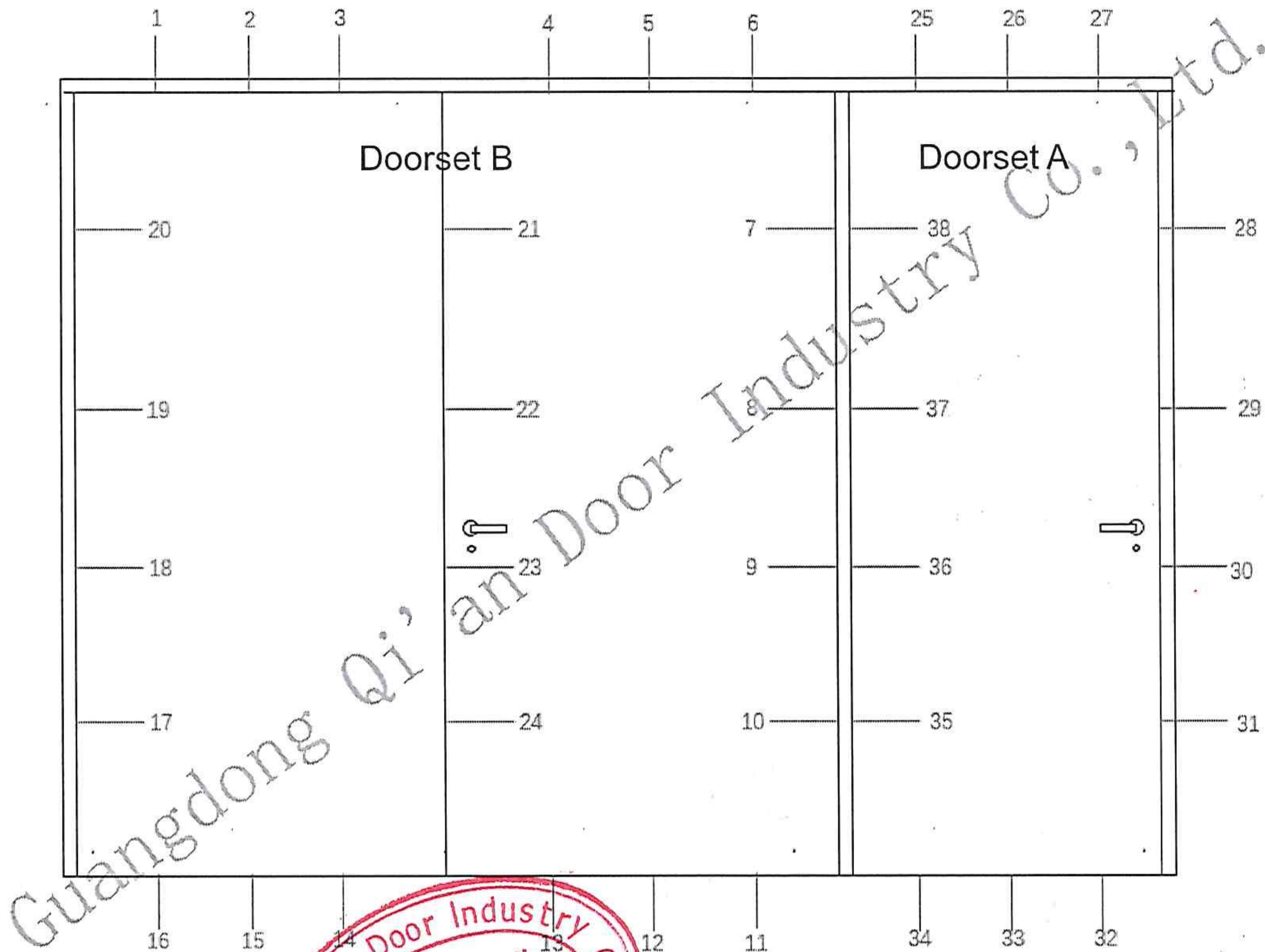


Figure 1 Initial Clearance Measurement Positions (View from pull side)

Table 2 Result of gaps at positions
Initial Clearances at positions

Pull side	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	2.0	1.3	0.8	1.8	1.2	1.3	2.7	2.8	2.6	2.3	1.8	1.8	2.0	4.0
	15	16	17	18	19	20	21	22	23	24	25	26	27	28
	3.5	3.1	3.0	3.3	3.0	3.3	3.3	3.5	3.0	3.1	2.0	1.9	2.3	2.8
	29	30	31	32	33	34	35	36	37	38				
	2.5	2.5	2.7	1.7	1.8	1.5	2.0	1.9	2.0	2.0				

Initial Clearances at positions														
Push side	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	2.8	3.5	4.0	2.8	3.3	4.0	3.5	3.5	3.5	2.5	2.7	2.8	3.0	1.4
	15	16	17	18	19	20	21	22	23	24	25	26	27	28
	1.0	0.2	2.8	3.0	4.0	4.0	3.0	3.0	2.5	2.3	3.5	3.3	3.3	3.1
	29	30	31	32	33	34	35	36	37	38				
	2.8	3.6	3.0	1.5	1.8	1.4	4.0	3.5	4.0	4.0				

Table 3 Average values of gaps

Doorset A		Top of door leaf	Bottom of door leaf	Hinge side of door leaf	Meeting side of door leaf	Total Length of gaps (Excluding threshold gap)
Design		3.00	7.00	3.00	4.00	5216
Pull side	Actual	2.07	1.67	1.98	2.63	
Push side	Actual	3.37	1.57	3.88	3.13	

Doorset B		Top of door leaf	Bottom of door leaf	Hinge side of door leaf	Meeting side of door leaf	Total Length of gaps (Excluding threshold gap)
Design		3.00	7.00	3.00	4.00	8829
Pull side	Actual	1.40	2.70	2.88	3.23	
Push side	Actual	3.40	1.85	3.35	2.70	

All dimensions are in mm.

8.2 Lateral Deflection

The horizontal deflection at recommended positions of the specimen was measured during the test. Recommended positions for measuring deflection were shown in Figure 2. And the test data was shown in below tables.

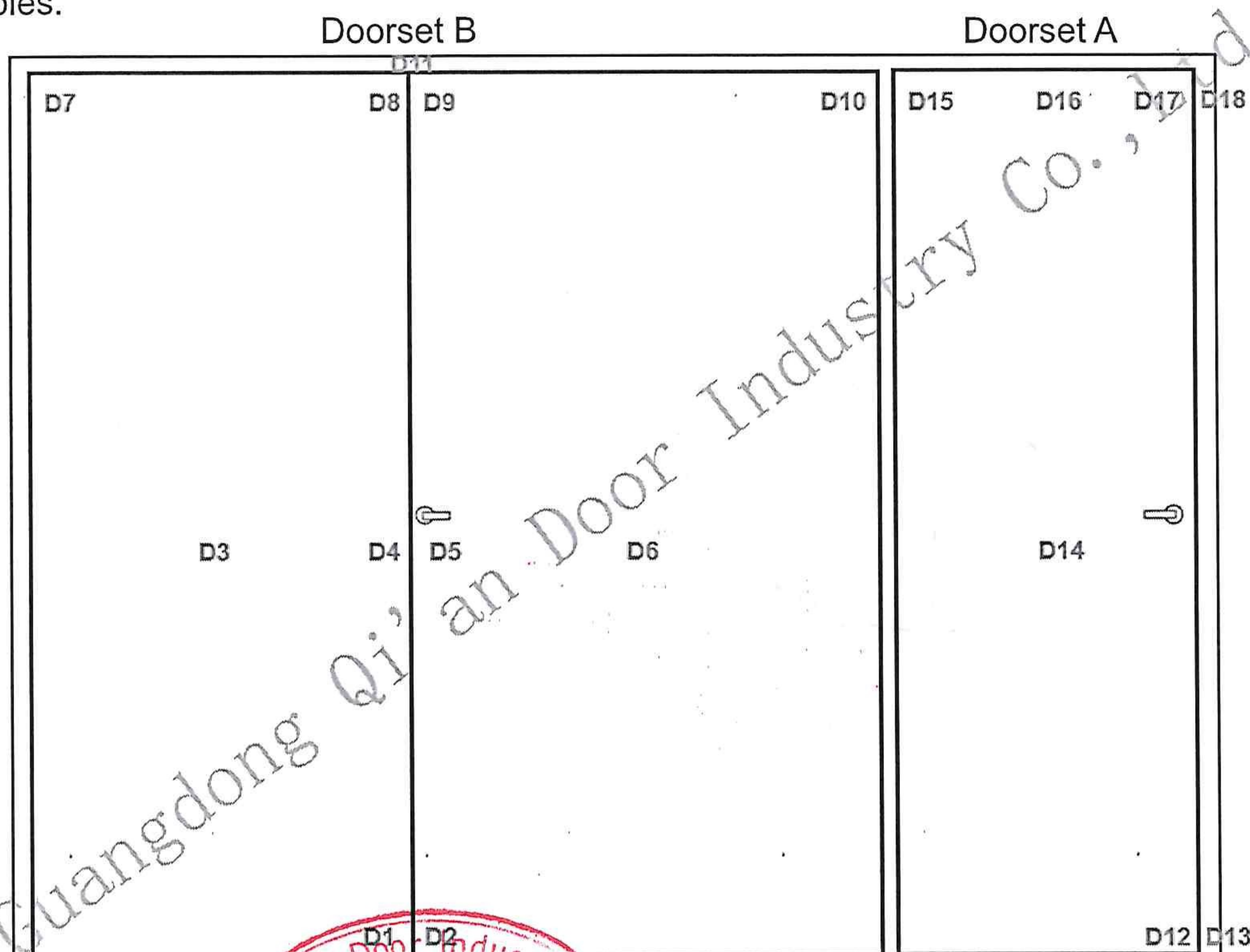


Figure 2 Positions for measuring horizontal deflection (View from pull side)

Doorset A - Deflection at positions (mm)		Swing Outwards						
Test Condition		D12	D13	D14	D15	D16	D17	D18
Ambient	0 Pa	0	0	0	0	0	0	0
	10 Pa	0	0	0	0	-1	0	0
	25 Pa	0	0	0	0	-1	1	1
	50 Pa	0	0	0	0	-1	1	0
Test Condition		Swing Inwards						
		D12	D13	D14	D15	D16	D17	D18
Ambient	0 Pa	0	0	0	0	0	0	0
	10 Pa	1	1	1	0	-1	0	0
	25 Pa	1	1	1	0	-1	0	0
	50 Pa	2	2	1	0	-1	0	0

Positive deflections indicate movement towards the chamber

Doorset B - Deflection at positions (mm)												
Test Condition		Swing Outwards										
		D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11
Ambient	0 Pa	0	0	0	0	0	0	0	0	0	0	0
	10 Pa	0	0	-2	0	0	0	-3	0	0	-1	0
	25 Pa	0	0	-2	0	0	-1	-2	0	0	-1	-1
	50 Pa	-1	-2	-2	0	-3	-1	-2	-2	0	0	-1
Test Condition		Swing Inwards										
		D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11
Ambient	0 Pa	0	0	0	0	0	0	0	0	0	0	0
	10 Pa	0	1	1	1	1	1	1	0	1	0	0
	25 Pa	1	1	2	1	1	1	0	0	1	0	0
	50 Pa	1	1	2	1	1	1	1	0	1	0	0

Positive deflections indicate movement towards the chamber

This information is for reference only,
not as a basis for engineering acceptance

8.3 Observations

Observations made during the test are given in Table 4&5 and unless stated were the unexposed face.

Table 4 Observations (Doorset A)

Swing Outwards	
a) Ambient temperature test	
No significant change of the specimen was observed.	
b) After the test	
Damages on specimen	No significant change was visible to the smoke seal.
Operability	The door leaf was able to be opened manually.
Swing Inwards	
a) Ambient temperature test	
No significant change of the specimen was observed.	
b) After the test	
Damages on specimen	No significant change was visible to the smoke seal.
Operability	The door leaf was able to be opened manually.

Table 5 Observations (Doorset B)

Swing Outwards	
a) Ambient temperature test	
No significant change of the specimen was observed.	
b) After the test	
Damages on specimen	No significant change was visible to the smoke seal.
Operability	The door leaf was able to be opened manually.
Swing Inwards	
a) Ambient temperature test	
No significant change of the specimen was observed.	
b) After the test	
Damages on specimen	No significant change was visible to the smoke seal.
Operability	The door leaf was able to be opened manually.

9. PERFORMANCE CRITERIA

9.1 Definitions of smoke leakage S_a and S_{200} are given in BS EN 1634-3:2004/AC:2007

Smoke Leakage S_a

Ambient temperature smoke leakage classification as defined in 7.5.5.3.4 of EN 13501-2:2023.

Smoke Leakage S_{200}

Ambient plus medium temperature (200°C) smoke leakage classification as defined in 7.5.5.3.4 of EN 13501-2:2023.

9.2 Performance Criteria of in 7.5.5.3.4 of EN 13501-2:2023

This is the ability of the element to reduce or eliminate the passage of smoke from one side of the door to the other. The following performance levels are defined:

a) Smoke leakage S_{200} - when the maximum leakage rate measured at both ambient temperature and 200 °C and up to a pressure of 50 Pa does not exceed 20 m³/h for a single leaf doorset, or 30 m³/h for a double leaf doorset;

a) Smoke leakage S_a - when the maximum leakage rate measured at ambient temperature, and at a pressure of up to 25 Pa only, does not exceed 3 m³/h per metre length of gap between the fixed and moveable components of the doorset (e.g. between the door leaf and door frame) and shall be completed with information as to whether or not the leakage from the bottom of the door leaf (leaves) has been included in the test.

The S_a classification shall be completed by "3" and "4" to indicate whether the doorset has been tested with seals on 3 sides (vertical sides of the door leaf/leaves and head) or on 4 sides (i.e. additionally including threshold).

10. TEST CONCLUSIONS

Product: Wooden triple leaf fireproof door with glass
 Manufactured by Guangdong Qi'an Door Industry Co., Ltd.
 Model: MFM-2823-bd5 A1.00-3 (50 mm):
 Door Frame: 2320 mm(H) x 2800 mm(W) x 100 mm(T);
 Doorset A Door Leaf: 2270 mm(H) x 663 mm(W) x 50 mm(T)
 Doorset B Active leaf: 2270 mm(H) x 1100 mm(W) x 50 mm(T)
 Doorset B Inactive leaf: 2270 mm(H) x 900 mm(W) x 50 mm(T).

Had been tested in accordance with:

BS EN 1634-3: 2004/AC: 2007 Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware Part 3: Smoke control test for door and shutter assemblies.

by KAS Quality Service (Guangzhou) Co., Ltd. which is a HKAS accredited Testing Laboratory (NO. HOKLAS 308).

at Chenziwei, Xinsha Village Committee, Muzhou Town, Xinhui District, Jiangmen, Guangdong 529143, China.

Conclusion:

The performance of the specimen was judged against the criteria for the smoke leakage, as required by BS EN 1634-3: 2004/AC: 2007, and the results obtained were as follows:

Single leaf doorset A:

No. of Test	Face exposed to pressure	Temperature	Leakage rate Q_{spec} (m ³ /h) at pressure difference of			S_{200} Criteria (m ³ /h)	Linear Leakage rate Q_l (m ³ /h/m) at pressure difference of		S_{a3} Criteria (m ³ /h/m)
			10 Pa	25 Pa	50 Pa		10 Pa	25 Pa	
1	Swing Outwards	Ambient	2.67	5.14	8.39	≤ 20	0.51	0.98	≤ 3
2	Swing Inwards	Ambient	2.12	2.69	1.83	≤ 20	0.41	0.52	≤ 3

Double leaf doorset B:

No. of Test	Face exposed to pressure	Temperature	Leakage rate Q_{spec} (m ³ /h) at pressure difference of			S_{200} Criteria (m ³ /h)	Linear Leakage rate Q_l (m ³ /h/m) at pressure difference of		S_{a3} Criteria (m ³ /h/m)
			10 Pa	25 Pa	50 Pa		10 Pa	25 Pa	
3	Swing Outwards	Ambient	0.29	0.44	2.07	≤ 30	0.03	0.04	≤ 3
4	Swing Inwards	Ambient	0.22	0.49	1.11	≤ 30	0.02	0.06	≤ 3

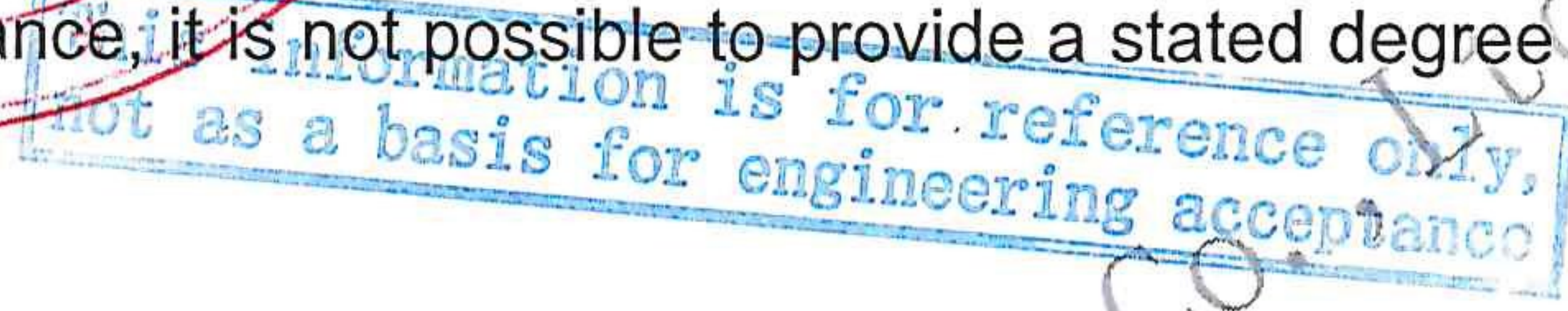
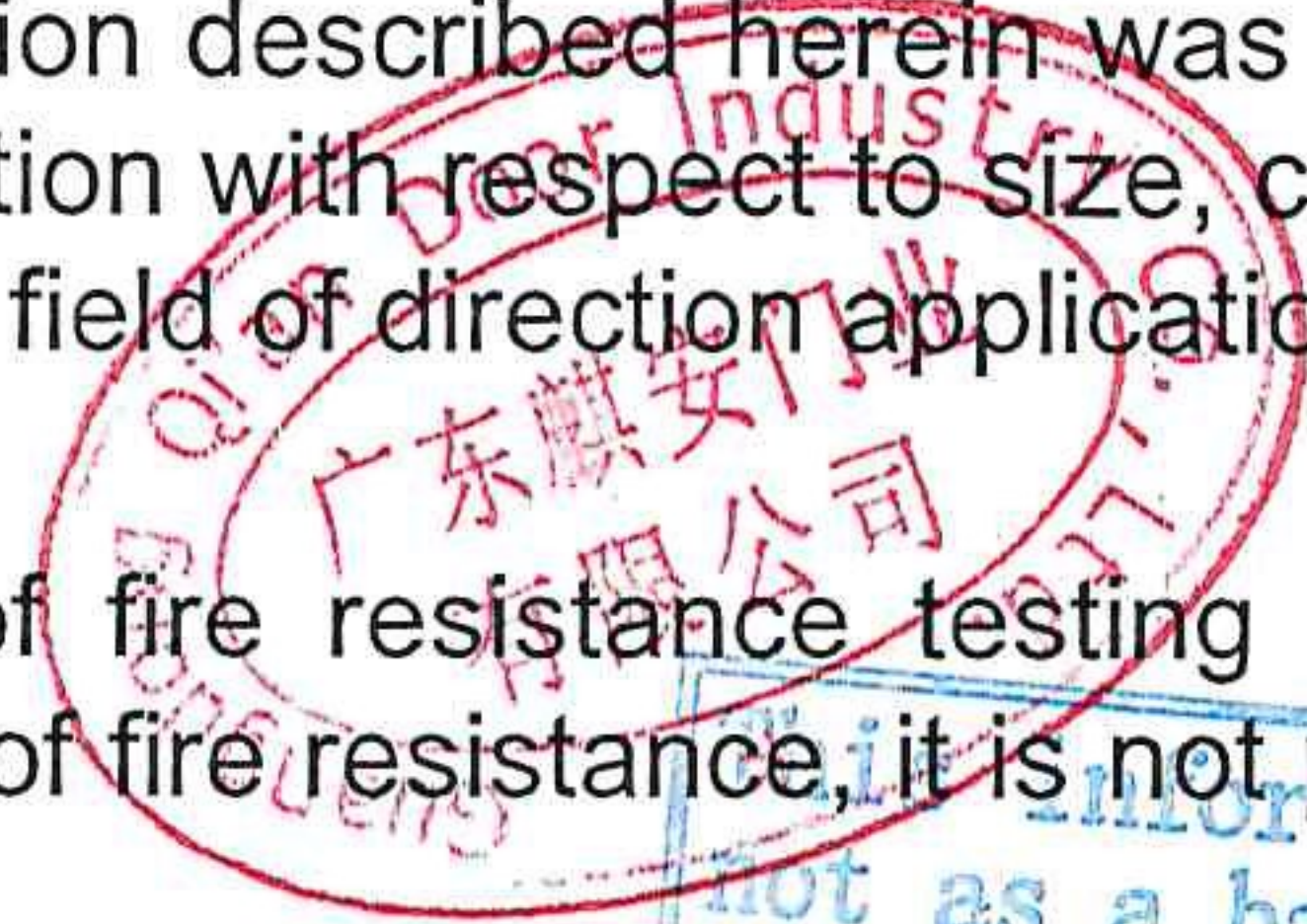
Notes:

- The requirement of smoke leakage rate S_{200} and S_a refer to 7.5.5.3.4 of EN 13501-2:2023.
- The S_{a3} classification indicate the doorset was tested with seals on 3 sides (vertical sides of the door leaf/leaves and head).

Limitation of result.

1. This report details the method of construction, the test conditions and the results obtained when the specific element of construction described herein was tested following the procedure outlined in BS EN 1634-3. Any significant deviation with respect to size, constructional details, edge or end conditions other than those allowed under the field of direction application in the relevant test method was not cover by this report.

2. Because of the nature of fire resistance testing and the consequent difficulty in quantifying the uncertainty of measurement of fire resistance, it is not possible to provide a stated degree of accuracy of the result.



Guangdong Qi'an Door Industry Co., Ltd.

APPENDIX A TEST SPECIMEN CONSTRUCTION

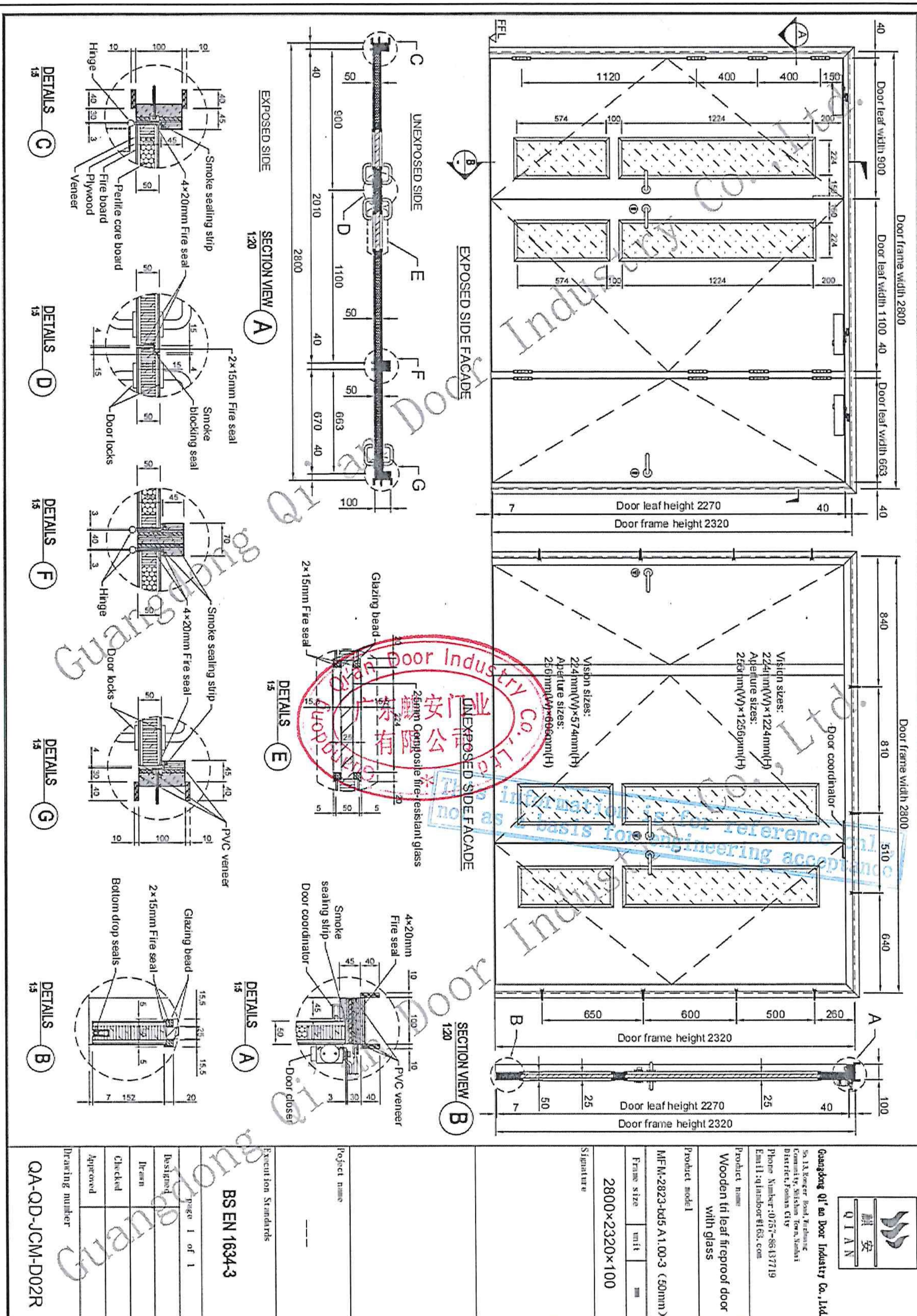
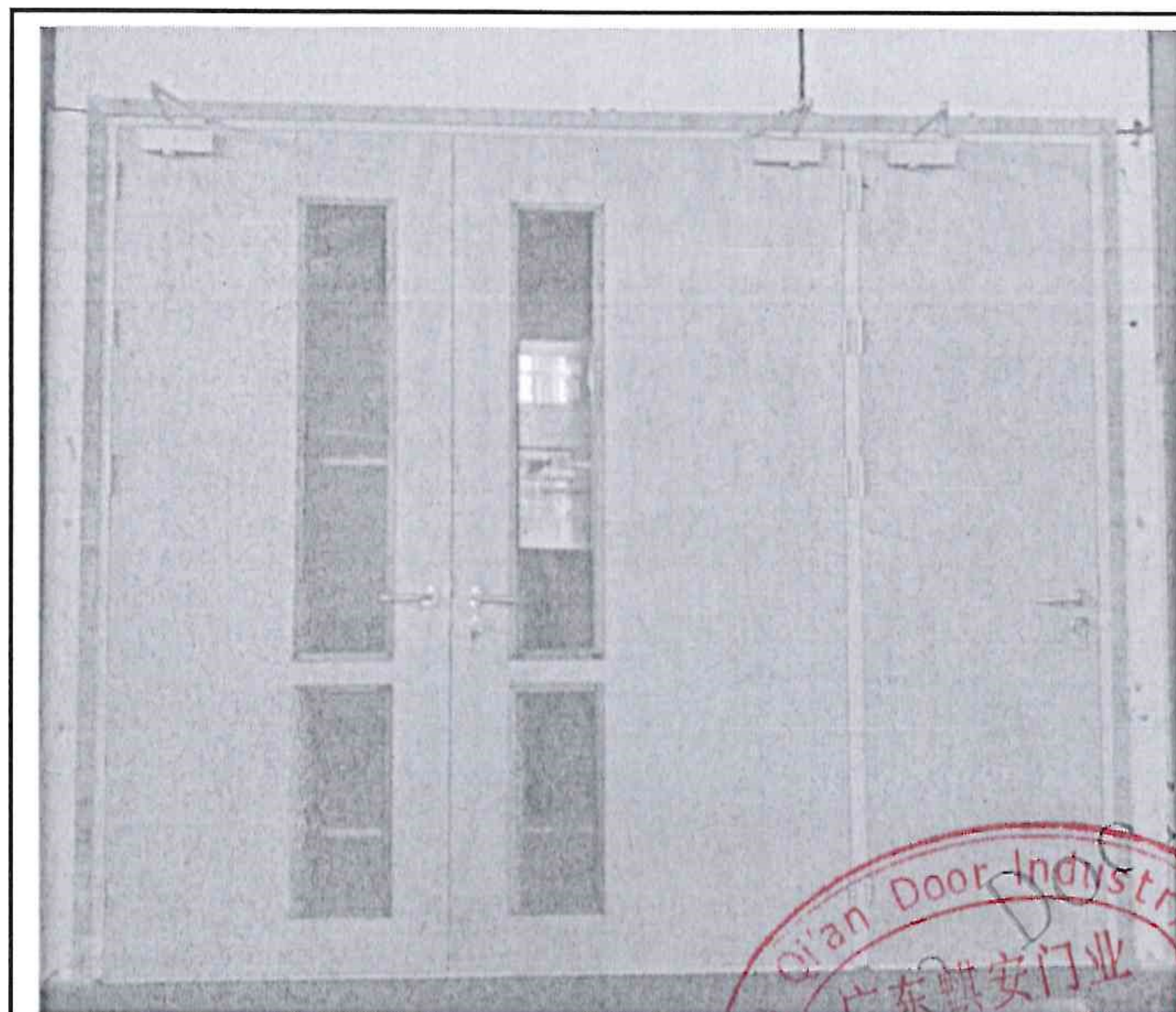
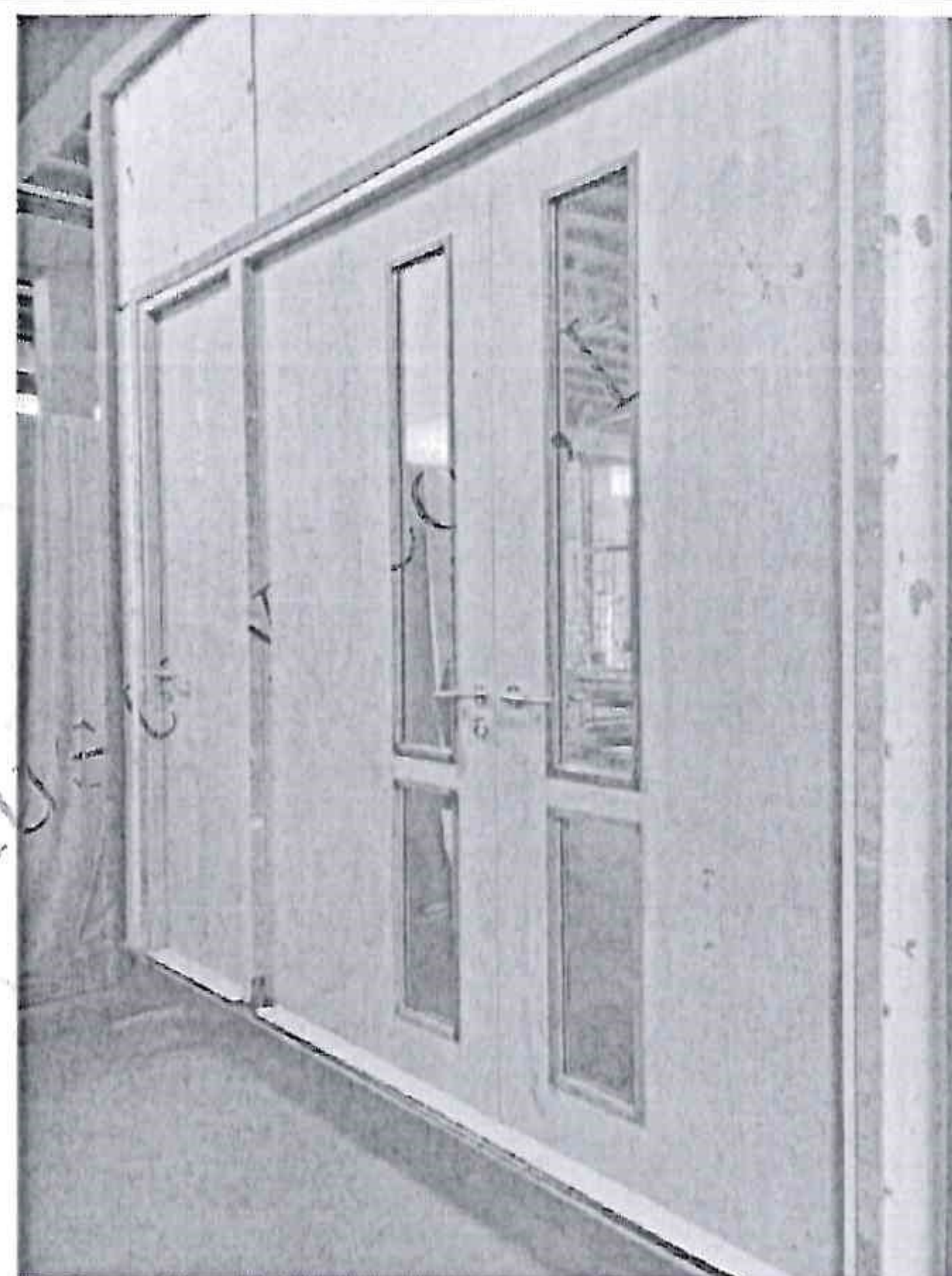


Figure A.1 Doorset drawing

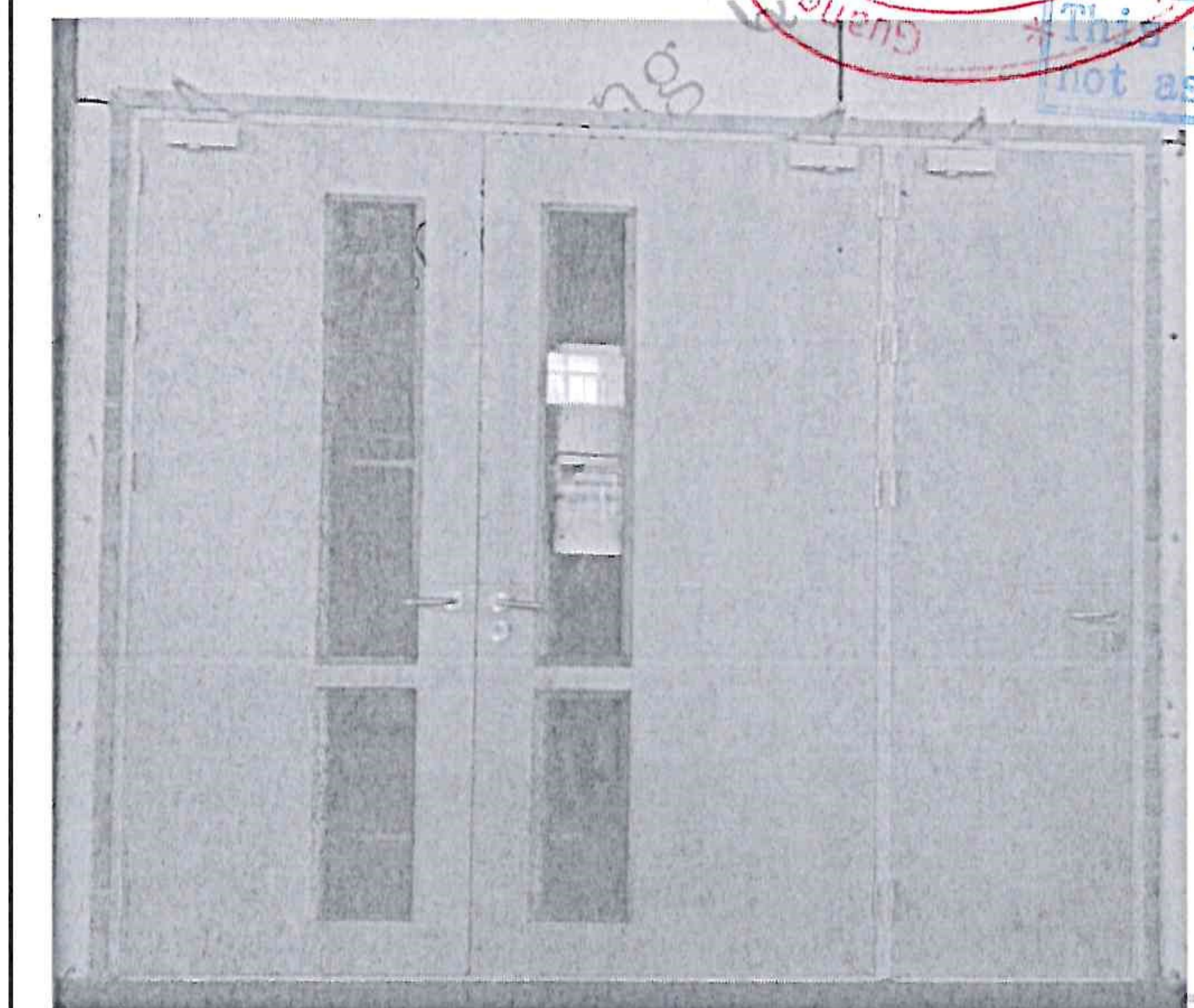
APPENDIX B TEST PHOTOGRAPHS



Pull side (Test before)



Push side (Test before)



Pull side (Test after)



Push side (Test after)

REVISION HISTORY

Revision No.	Date	Changes	Author	Reviewer
Original	3/5/2025	First issue	Singh Zhang Jiancheng	Credy Chen Ziwen
R1	9/10/2025	Update the version information of the report and company name of "Qi'an"	Singh Zhang Jiancheng	Credy Chen Ziwen
R2	11/21/2025	Update the company information of "Qi'an"	Singh Zhang Jiancheng	Credy Chen Ziwen

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 not as a basis for engineering acceptance
 The End of Report

Guangdong Qi'an Door Industry Co., Ltd.