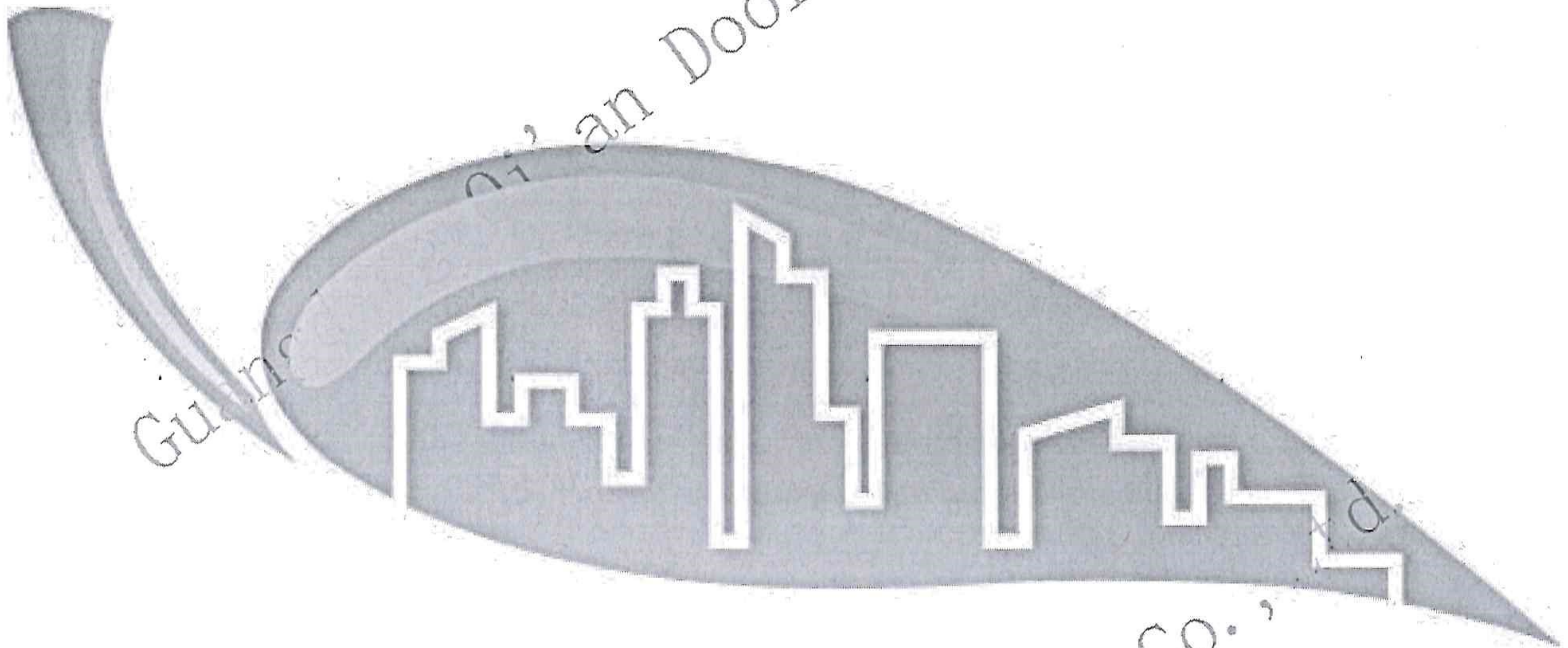


**Report Number: J250226001-5R2**

Supersede Report No. J250226001-5R1 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 12, 2025

Revised Date: Nov 21, 2025

Total Pages: 19

Doc. control  
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KAS QUALITY SERVICE

## Test Report

Report Number: J250226001-5R2

### 1. SUMMARY

Product: Single leaf wooden fire proof door with glass window  
Manufactured by Guangdong Qi'an Door Industry Co., Ltd.  
Model: MFM-1423-bd5 A1.00-1 (50 mm):  
Door Frame: 2320 mm(H) x 1350 mm(W) x 100 mm(T);  
Door Leaf: 2270 mm(H) x 1263 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:

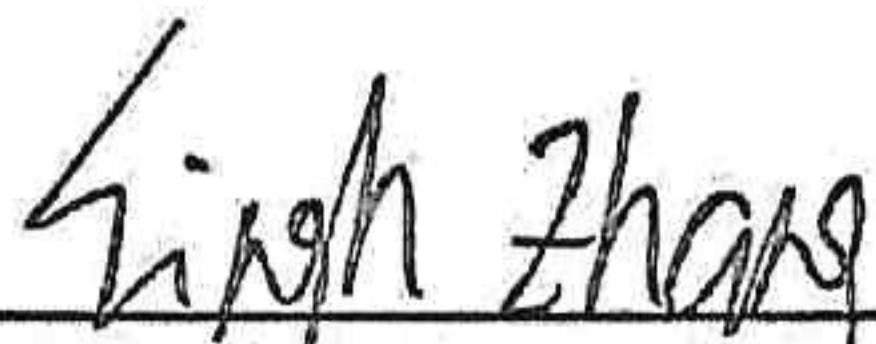
| No. of Test | Face exposed to pressure | Temperature | Leakage rate $Q_{spec}$ ( $m^3/h$ ) at pressure difference of |       |       | $S_{200}$ Criteria ( $m^3/h$ ) | Linear Leakage rate $Q_l$ ( $m^3/h/m$ ) at pressure difference of |       | $S_{a3}$ Criteria ( $m^3/h/m$ ) |
|-------------|--------------------------|-------------|---------------------------------------------------------------|-------|-------|--------------------------------|-------------------------------------------------------------------|-------|---------------------------------|
|             |                          |             | 10 Pa                                                         | 25 Pa | 50 Pa |                                | 10 Pa                                                             | 25 Pa |                                 |
| 1           | Push side                | Ambient     | 5.63                                                          | 10.31 | 16.80 | $\leq 20$                      | 0.96                                                              | 1.77  | $\leq 3$                        |
| 2           | Pull side                | Ambient     | 5.11                                                          | 8.00  | 8.25  | $\leq 20$                      | 0.88                                                              | 1.38  | $\leq 3$                        |

#### 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 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

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Guangdong Qi'an Door Industry Co., Ltd.

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

Guangdong Qi'an Door Industry Co., Ltd.

## 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: Single leaf wooden fire proof door with glass window

Trade Mark: /

Model and/or type reference: MFM-1423-bd5-A1.00-1 (50 mm):  
Door Frame: 2320 mm(H) x 1350 mm(W) x 100 mm(T);  
Door Leaf: 2270 mm(H) x 1263 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: S250226001-03

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 4, 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 single leaf wooden fire proof door with glass window, which incorporated various items of building hardware.

## 6. TEST SPECIMEN

### 6.1 Specimen description:

#### 6.1.1 Door Frame

The door frame had overall size of 1350 mm (W) x 2320 mm (H) and overall sectional dimensions of 55 mm wide x 100 mm thick with 15 mm deep rebate. 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 M5 x 60 mm self-drilling screw.

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

#### 6.1.2 Door Leaf

The specimen was comprised of single leaf which sized of 1263 mm (W) x 2270 mm (H) x 50 mm (T).

The stile on lock edge of door leaf was made of 1 no. of 134 mm (24 + 15 + 55 + 40 mm) x 31 mm flame retardant plywood and stile on hinge edge was made of 1 no. of 31 mm x 31 mm flame retardant plywood respectively. The interior stile was made of 1 no. of 40 mm x 31 mm flame retardant plywood. The rails on top and bottom edge of door leaf were made of 1 no. of 80 mm x 31 mm flame retardant plywood respectively. The interior rails were made of 2 nos. of 40 mm x 31 mm 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 door leaf had 1 mm (T) PVC as lipping.

#### 6.1.3 Door Hardware

The door leaf was hung within the door frame by 4 nos. 'LIKCOO / SS002' stainless steel hinges which was size of 4" x 4" x 3 mm. The top hinge was 150 mm away from the top edge of the door leaf and other three hinges were 400 mm, 800 mm, 1920 mm away from the top hinge respectively. The door leaf was provided with a surface mounted door closer 'TBN / DC0750' installed on the pull side. The door leaf was provided with a lockset 'Qi'an / 72-60A' and combined with a set of lever handle 'Qi'an / QA10101' and a cylinder 'Qi'an / QA70-D01' which was installed 1000 mm above the bottom edge of the door leaf. The lockset was latched but unlocked during the whole fire test period. A drop seal 'Fan Qiu / FQ-E-006' installed at the bottom of the door leaf.

#### 6.1.4 Glazed Panels

The doorset was comprised of two pieces of glazed panel on the 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 256 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.

#### 6.1.5 Intumescent Seal

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 10 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 rebate of each jamb and head of the door frame.

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                                                                                                                        |
|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| <b>1. Door Frame</b>                                   |                                                                                                                                    |
| Supplier                                               | : Guangdong Qi'an Door Industry Co., Ltd.                                                                                          |
| Material                                               | : Flame retardant Plywood + Fireproof Board                                                                                        |
| Overall size                                           | : 1350 mm x 2320 mm x 100 mm *                                                                                                     |
| Sectional dimension                                    | : 100 mm x 55 mm                                                                                                                   |
| Rebate                                                 | : 15 mm *                                                                                                                          |
| Density                                                | : Flame retardant Plywood: 650-700 kg/m <sup>3</sup><br>Fireproof Board: 950 kg/m <sup>3</sup>                                     |
| Jointing method of jamb to head                        | : Screw fixation                                                                                                                   |
| Fixing method to drywall support frame                 | : M5 x 60 mm Self-drilling screw fixed                                                                                             |
| Gap insulation between door frame and concrete drywall | : Fire sealant *                                                                                                                   |
| <b>2. Door Leaf</b>                                    |                                                                                                                                    |
| Door leaf sizes                                        | : 1263 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                                                                                                                            |
| <b>3. Door Leaf Core</b>                               |                                                                                                                                    |
| Supplier                                               | : Heshan Changsheng Environmental Protection Material Technology Co., Ltd.                                                         |
| Material                                               | : Perlite                                                                                                                          |
| Thickness                                              | : 31 mm *                                                                                                                          |
| Density                                                | : 400 ± 40 kg/m <sup>3</sup> (424 kg/m <sup>3</sup> #)                                                                             |
| Location                                               | : Door leaf internal filling                                                                                                       |
| <b>4. Stiles and Rails</b>                             |                                                                                                                                    |
| Supplier                                               | : Guangdong Hengli New Material Co., Ltd.                                                                                          |
| Material                                               | : Flame retardant Plywood                                                                                                          |
| Thickness                                              | : 31 / 40 / 80 / 134 mm x 31 mm                                                                                                    |
| Density                                                | : 650~700 kg/m <sup>3</sup> (640 kg/m <sup>3</sup> #)                                                                              |
| Fixing method                                          | : Pneumatic code nail                                                                                                              |
| <b>5. Lipping</b>                                      |                                                                                                                                    |
| Material                                               | : PVC                                                                                                                              |
| Thickness                                              | : 1 mm                                                                                                                             |
| Location                                               | : Edges around the door leaf                                                                                                       |
| <b>6. Facing</b>                                       |                                                                                                                                    |

| Item                    | Description                                                                |
|-------------------------|----------------------------------------------------------------------------|
| Supplier                | : Guangdong Hengli New Material Co., Ltd.                                  |
| Material                | : Veneer board                                                             |
| Thickness               | : 1 mm *                                                                   |
| Fixing method           | : Glued                                                                    |
| Applied location        | : Door leaf surface                                                        |
| <b>7. Sub-facing a</b>  |                                                                            |
| Supplier                | : Guangdong Hengli New Material Co., Ltd.                                  |
| Material                | : Plywood                                                                  |
| Thickness               | : 3 mm *                                                                   |
| Density                 | : 650 ~ 700 kg/m <sup>3</sup>                                              |
| Applied location        | : Surface base layer of door leaf                                          |
| <b>8. Sub-facing b</b>  |                                                                            |
| Supplier                | : Heshan Changsheng Environmental Protection Material Technology Co., Ltd. |
| Material                | : Calcium Silicate Board                                                   |
| Thickness               | : 5 mm *                                                                   |
| Density                 | : 950 kg/m <sup>3</sup> (989 kg/m <sup>3</sup> #)                          |
| Applied location        | : Bottom surface of door leaf base layer                                   |
| <b>9. Hinges</b>        |                                                                            |
| Supplier                | : Jiangmen Jinligao lock industry Co., Ltd                                 |
| Brand                   | : Likcoo *                                                                 |
| Model                   | : SS002                                                                    |
| Material                | : 304 stainless steel                                                      |
| Size                    | : 4" x 4" x 3 mm                                                           |
| Numbers                 | : 4 *                                                                      |
| Fixing method           | : Screw *                                                                  |
| <b>10. Door Closer</b>  |                                                                            |
| 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        | : Pull side of door leaf *                                                 |
| Fixing method           | : Screw *                                                                  |
| <b>11. Lockset</b>      |                                                                            |
| 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 *                                  |
| <b>12. Lever handle</b> |                                                                            |

| Item                          | Description                                                                                |
|-------------------------------|--------------------------------------------------------------------------------------------|
| 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                                                                          |
| Fixing method                 | : Screw *                                                                                  |
| <b>13. Cylinder</b>           |                                                                                            |
| 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 *                                                                                  |
| <b>14. Intumescent Seal a</b> |                                                                                            |
| 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 and discontinued at all ironmongeries. *       |
| <b>15. Intumescent Seal b</b> |                                                                                            |
| Supplier                      | : Foshan Nanhai Chongtai Fireproof Material CO.LTD                                         |
| Brand                         | : Fan Qiu                                                                                  |
| Model                         | : FQ-C2-1002                                                                               |
| Size                          | : 2 mm x 10 mm                                                                             |
| Location                      | : 1 no. at both sides of glass panels between the beading.                                 |
| <b>16. Smoking Proof Seal</b> |                                                                                            |
| 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 rebate of each jamb and head of door frame. *                               |
| <b>17. Drop Seal</b>          |                                                                                            |
| 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 of door leaf *                                                             |
| <b>18. Glazed Panel</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 |

| Item                    | Description                                           |
|-------------------------|-------------------------------------------------------|
| Aperture sizes          | : 256 mm (W) x 1256 mm (H)<br>256 mm (W) x 606 mm (H) |
| Vision sizes            | : 224 mm (W) x 1224 mm (H)<br>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)         |
| <b>19. Glazed beads</b> |                                                       |
| Material                | : Woodiness                                           |
| Sizes                   | : 15.5 mm x 20 mm                                     |
| Fixing method           | : Fixed with straight nails                           |
| <b>20. Glue</b>         |                                                       |
| Supplier                | : Dongguan Zhuoxin Fire Equipment Co., Ltd            |
| Brand                   | : Zhuoxin                                             |
| Material                | : BA01                                                |

\* Verified by the laboratory before the test;

# Measured by the test laboratory.

## 6.2 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.

## 6.3 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.

## 6.4 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.

## 6.5 Installation of Specimens

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

## 6.6 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 75% to 80% respectively.

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

First test: the door leaf outward the chamber, Second test: the door leaf 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<sub>a</sub> 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 S<sub>200</sub> classification

The average air temperature close to the face of the specimen was raised from ambient temperature to the required stabilization temperature of  $(200 \pm 20)$  °C in  $(30 \pm 5)$  min. The temperature distribution over the face of the specimen was monitored by 9 nos. of type K thermocouples positioned  $(100 \pm 50)$  mm from the exposed face of the test specimen. The temperature was controlled to  $(200 \pm 40)$  °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

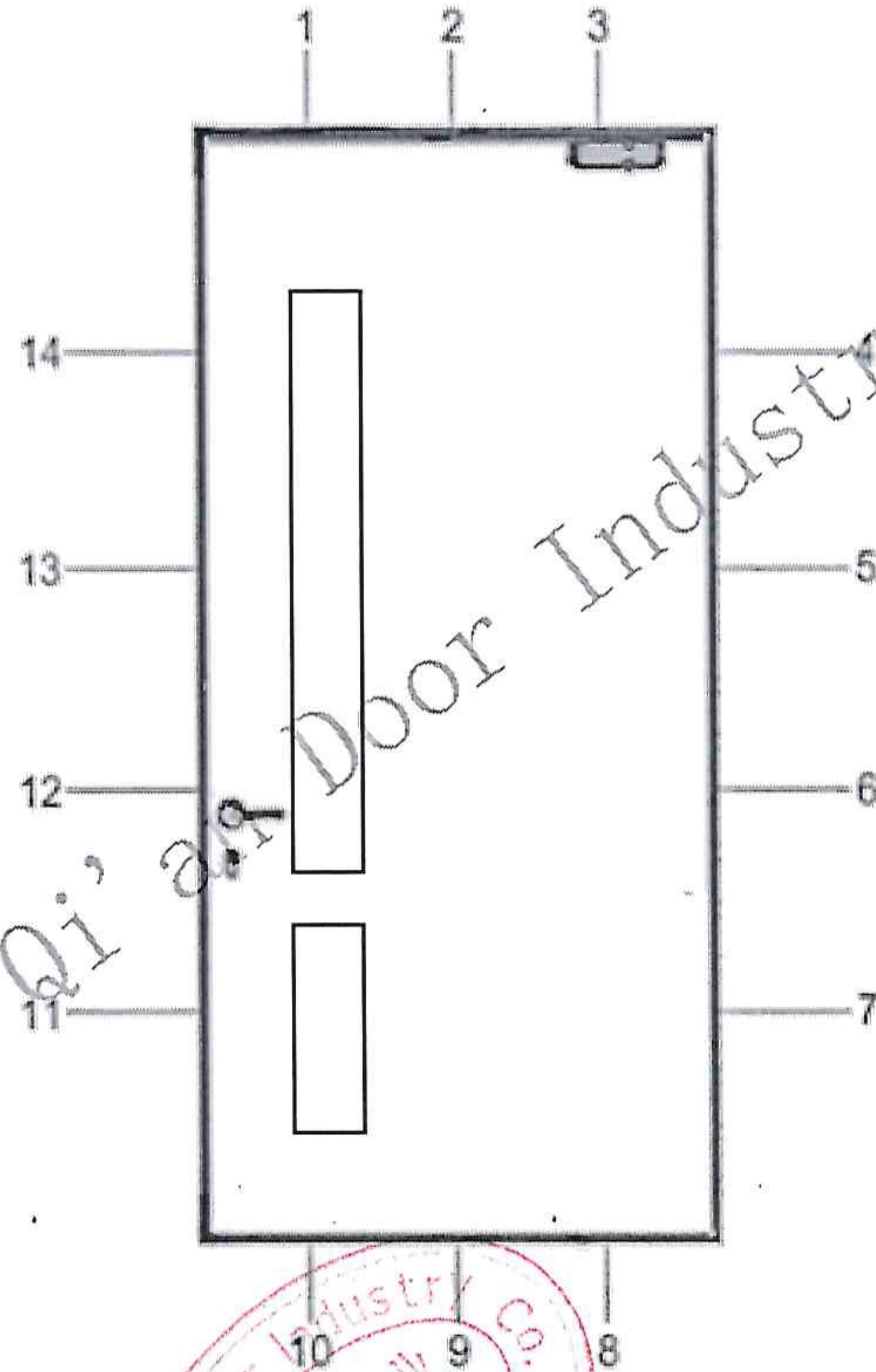


Figure 1 Initial Clearance Measurement Positions (View from pull side)

Table 2 Result of gaps at positions

| Initial Clearances at positions |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|---------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                                 | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  |
| Pull side                       | 1.0 | 0.1 | 0.8 | 4.3 | 3.0 | 2.4 | 2.8 | 2.9 | 2.2 | 2.5 | 1.8 | 2.1 | 2.3 | 1.8 |
| Push side                       | 2.8 | 3.0 | 4.0 | 3.5 | 3.8 | 3.4 | 3.5 | 3.0 | 2.0 | 2.4 | 2.5 | 2.6 | 2.0 | 2.3 |

Table 3 Average values of gaps

| Doorset   |        | 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                      | 5816                                           |
| Pull side | Actual | 0.63             | 2.53                | 3.13                    | 2.00                      |                                                |
| Push side | Actual | 3.26             | 2.47                | 3.55                    | 2.35                      |                                                |

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.

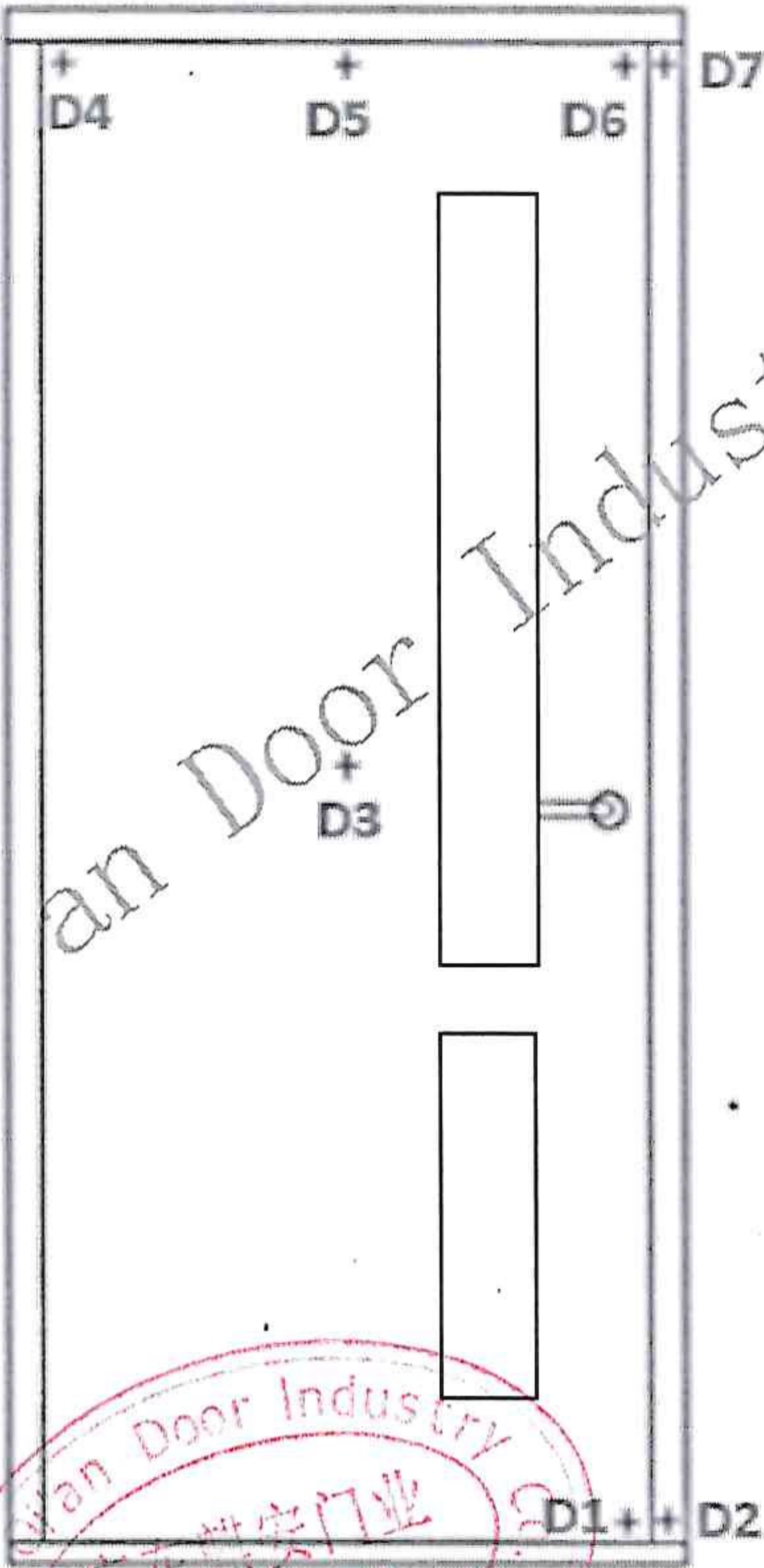


Figure 2 Positions for measuring horizontal deflection (View from push side)

| Doorset - Deflection at positions (mm) |       |           |    |    |    |    |    |    |
|----------------------------------------|-------|-----------|----|----|----|----|----|----|
| Test Condition                         |       | Push side |    |    |    |    |    |    |
|                                        |       | D1        | D2 | D3 | D4 | D5 | D6 | D7 |
| Ambient                                | 0 Pa  | 0         | 0  | 0  | 0  | 0  | 0  | 0  |
|                                        | 10 Pa | -1        | 0  | -1 | 0  | 0  | 0  | 0  |
|                                        | 25 Pa | -1        | 0  | -1 | 0  | 0  | 0  | 0  |
|                                        | 50 Pa | 0         | 0  | -1 | 0  | 0  | 0  | 0  |
| Test Condition                         |       | Pull side |    |    |    |    |    |    |
|                                        |       | D1        | D2 | D3 | D4 | D5 | D6 | D7 |
| Ambient                                | 0 Pa  | 0         | 0  | 0  | 0  | 0  | 0  | 0  |
|                                        | 10 Pa | -1        | 1  | 0  | 0  | 0  | 0  | 0  |
|                                        | 25 Pa | -1        | 0  | 0  | -1 | 0  | 0  | 0  |
|                                        | 50 Pa | -1        | 0  | 0  | -1 | 0  | -1 | 0  |

Positive deflections indicate movement towards the chamber

**8.3 Observations**

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

Table 4 Observations

|                                                     |                                                      |
|-----------------------------------------------------|------------------------------------------------------|
| <b>Push side</b>                                    |                                                      |
| <b>a) Ambient temperature test</b>                  |                                                      |
| No significant change of the specimen was observed. |                                                      |
| <b>b) After the test</b>                            |                                                      |
| Damages on specimen                                 | No significant change was visible to the smoke seal. |
| Operability                                         | The door leaf was able to be opened manually.        |
| <b>Pull side</b>                                    |                                                      |
| <b>a) Ambient temperature test</b>                  |                                                      |
| No significant change of the specimen was observed. |                                                      |
| <b>b) After the test</b>                            |                                                      |
| 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:

- 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 m<sup>3</sup>/h for a single leaf doorset, or 30 m<sup>3</sup>/h for a double leaf doorset;
- 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 m<sup>3</sup>/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: Single leaf wooden fire proof door with glass window  
 Manufactured by Guangdong Qi'an Door Industry Co., Ltd.  
 Model: MFM-1423-bd5 A1.00-1 (50 mm):  
 Door Frame: 2320 mm(H) x 1350 mm(W) x 100 mm(T);  
 Door Leaf: 2270 mm(H) x 1263 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:**

| No. of Test | Face exposed to pressure | Temperature | Leakage rate $Q_{spec}$ (m <sup>3</sup> /h) at pressure difference of |       |       | $S_{200}$ Criteria (m <sup>3</sup> /h) | Linear Leakage rate $Q_l$ (m <sup>3</sup> /h/m) at pressure difference of |       | $S_{a3}$ Criteria (m <sup>3</sup> /h/m) |
|-------------|--------------------------|-------------|-----------------------------------------------------------------------|-------|-------|----------------------------------------|---------------------------------------------------------------------------|-------|-----------------------------------------|
|             |                          |             | 10 Pa                                                                 | 25 Pa | 50 Pa |                                        | 10 Pa                                                                     | 25 Pa |                                         |
| 1           | Push side                | Ambient     | 5.63                                                                  | 10.31 | 16.80 | ≤ 20                                   | 0.96                                                                      | 1.77  | ≤ 3                                     |
| 2           | Pull side                | Ambient     | 5.11                                                                  | 8.00  | 8.25  | ≤ 20                                   | 0.88                                                                      | 1.38  | ≤ 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 and head).

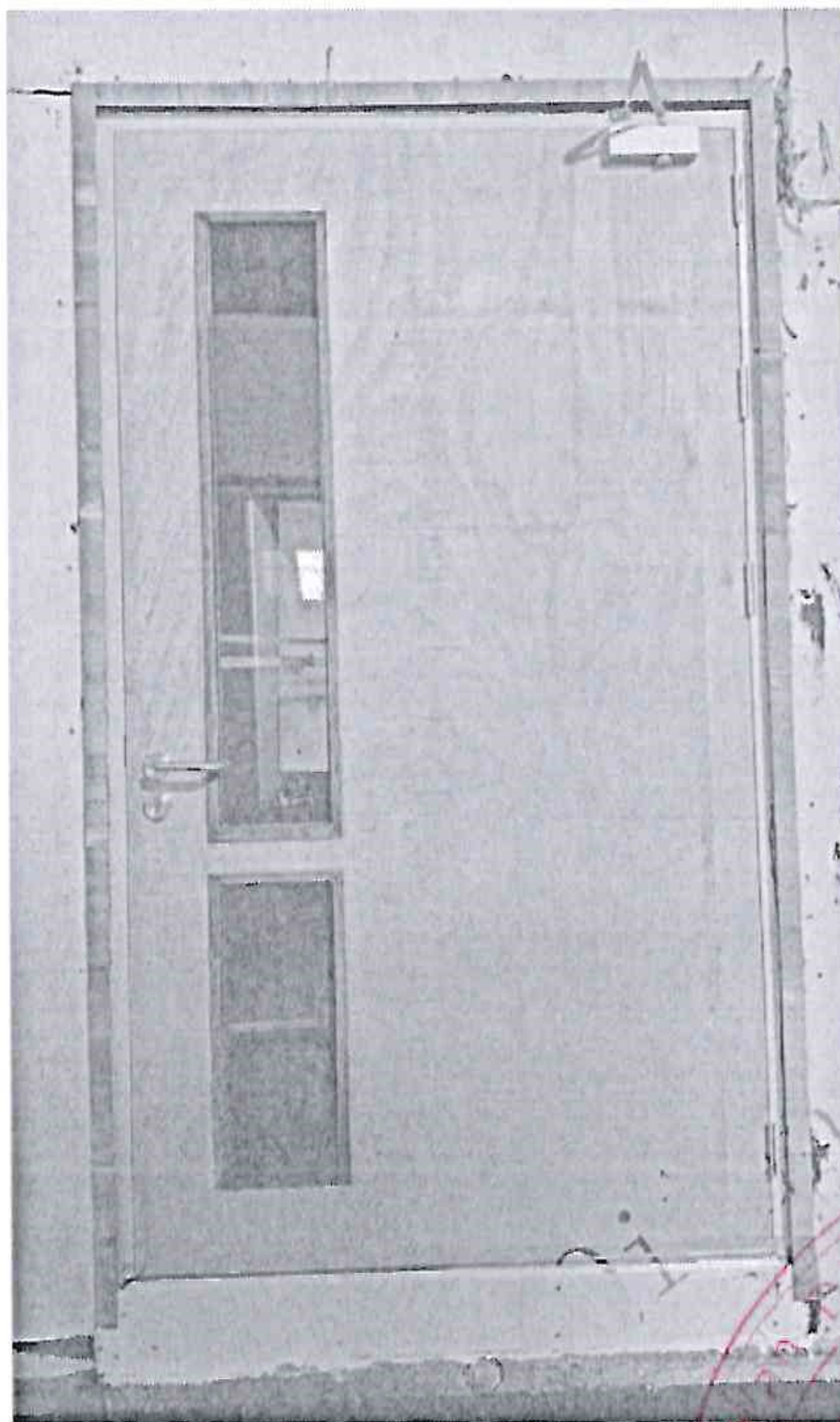
**Limitation of result.**

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.

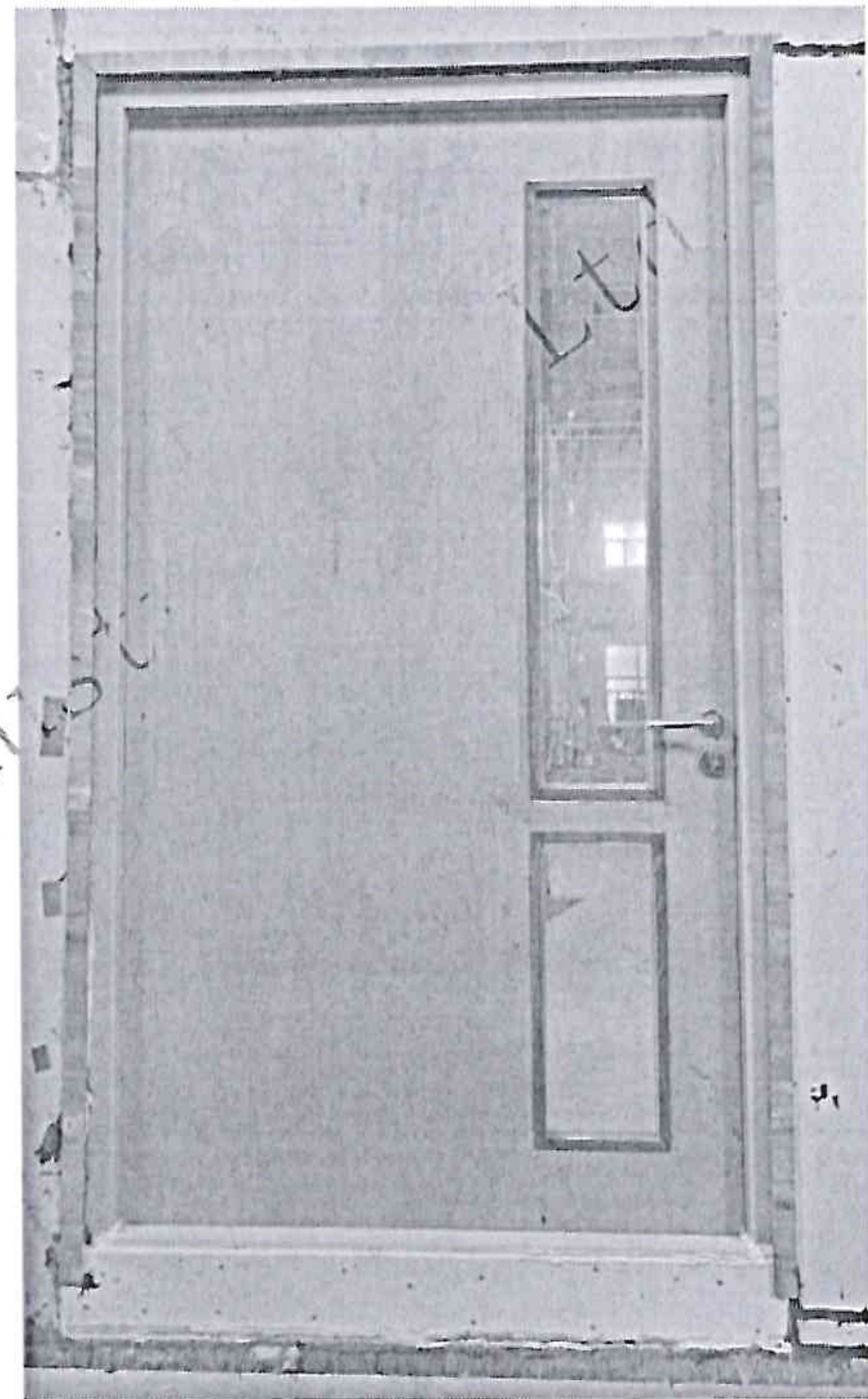
[illegible]

Figure A.1 Doorset drawing

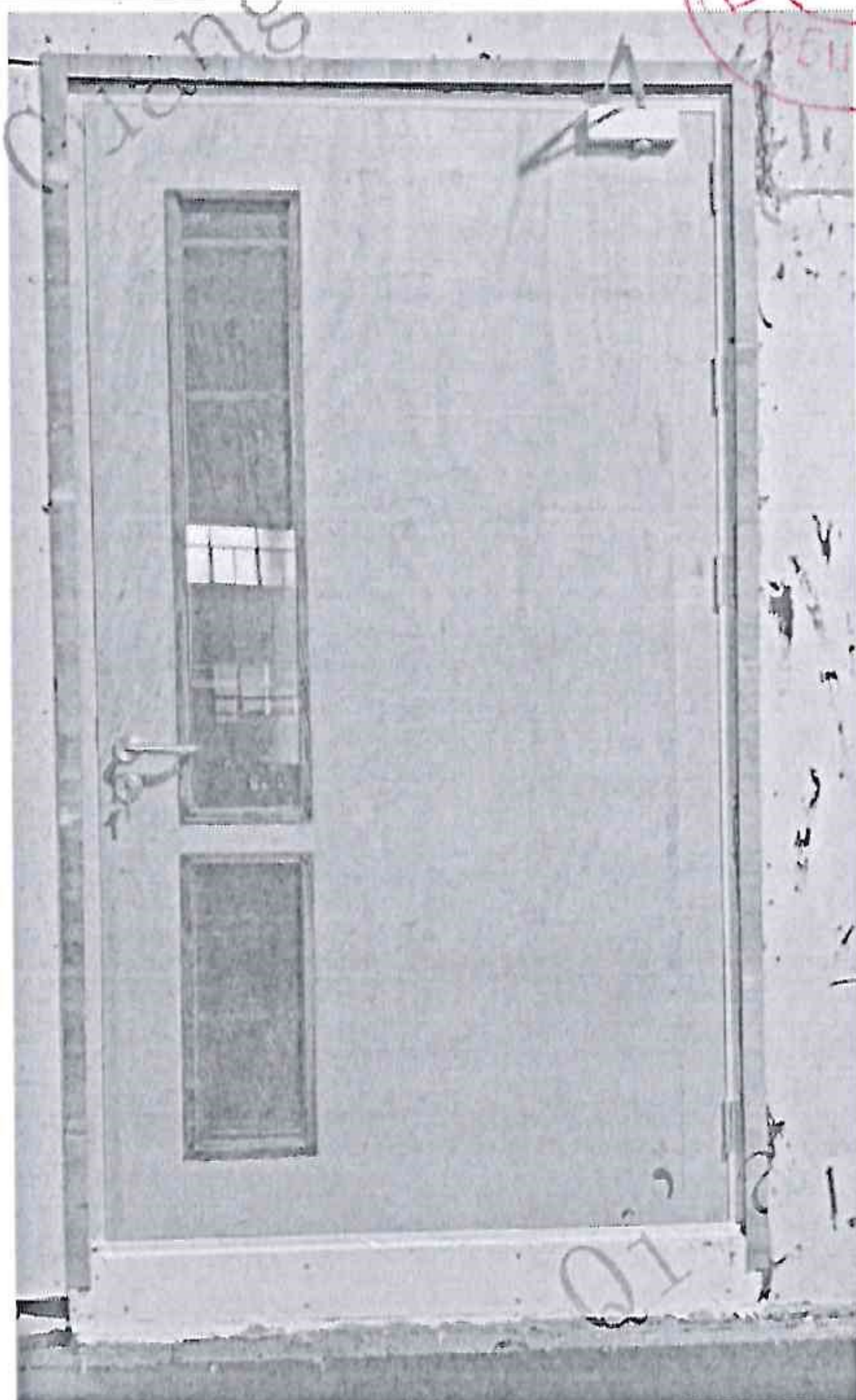
## APPENDIX B TEST PHOTOGRAPHS



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     | 3/12/2025  | 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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The End of Report  
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Guangdong Qi'an Door Industry Co., Ltd.