

# GUANGDONG YOHOME DOOR CO., LTD. TEST REPORT

## SCOPE OF WORK

EN 16034:2014 AND EN 14351-1:2006+A2:2016 TESTING ON CE WOODEN FIRE DOORSET,  
MODEL YHCEFD90

## REPORT NUMBER

250722010SHF-001-R1

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### REPORT ISSUED TO

#### GUANGDONG YOHOME DOOR CO., LTD.

Room 1101, 11th Floor, Ruiheng Science and Technology Innovation Park, No. 20 Juyuan South Road, Guicheng Sub-district, Nanhai District, Foshan City, Guangdong Province, China.

### SECTION 1

#### SCOPE

Intertek has conducted an evaluation for GUANGDONG YOHOME DOOR CO., LTD. to determine the performance characteristics of the CE Wooden fire doorset, model YHCEFD90. This evaluation began on July 22, 2025 and was completed on April 17, 2026. The tests were conducted from February 6, 2026 to March 23, 2026

The tests were conducted in accordance with EN 16034:2014 Pedestrian doorsets, industrial, commercial, garage doors and openable windows - Product standard, performance characteristics - Fire resisting and/or smoke control characteristics and EN 14351-1:2006+A2:2016 Windows and doors - Product standard, performance characteristics - Part 1: Windows and external pedestrian doorsets.

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### SECTION 2

#### SUMMARY OF TEST RESULTS

**Product Name:** CE Wooden fire doorset

**Series/Model:** YHCEFD90

| EN 16034:2014                                                                                                                        |                                     |                                              |
|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|----------------------------------------------|
| <b>Product:</b> fire resisting doorsets<br><b>Intended use:</b> fire compartmentation                                                |                                     |                                              |
| Essential Characteristics                                                                                                            | Performance                         | Note                                         |
| Resistance to fire (for fire compartmentation uses) *                                                                                | El <sub>2</sub> 90                  | AVCP 1<br><br>NPD- No performance determined |
| Smoke control (only for applications where limitation of smoke spread is required) *                                                 | S <sub>a4</sub><br>S <sub>200</sub> |                                              |
| Ability to release                                                                                                                   | NPD                                 |                                              |
| Self-closing (only for self-closing fire resistant and/or smoke control doorsets)                                                    | C                                   |                                              |
| Durability of ability to release                                                                                                     | NPD                                 |                                              |
| Durability of self-closing (only for self-closing fire resistant and/or smoke control doorsets) – against degradation (cycling test) | 3                                   |                                              |
| Durability of self-closing (only for self-closing fire resistant and/or smoke control doorsets) – against ageing (corrosion)         | achieved                            |                                              |

| EN 14351-1:2006+A2:2016                                                                                                 |             |      |
|-------------------------------------------------------------------------------------------------------------------------|-------------|------|
| <b>Product:</b> external pedestrian doorsets<br><b>Intended use:</b> communication in domestic and commercial locations |             |      |
| Essential Characteristics                                                                                               | Performance | Note |
| Resistance to wind load                                                                                                 | NPD         |      |
| Watertightness                                                                                                          | NPD         |      |

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|                                                         |                                                   |                                |
|---------------------------------------------------------|---------------------------------------------------|--------------------------------|
| Dangerous substances (indoor impact only)               | No dangerous substances declared for this product | NPD- No performance determined |
| Impact resistance                                       | NPD                                               |                                |
| Load-bearing capacity of safety devices                 | NPD                                               |                                |
| Height and width                                        | Height: Up to 2385 mm<br>Width: Up to 970 mm      |                                |
| Ability to release (Locked doors in escape routes only) | NPD                                               |                                |
| Acoustic performance                                    | NPD                                               |                                |
| Thermal transmittance                                   | NPD                                               |                                |
| Air permeability                                        | NPD                                               |                                |

Note: “\*” means that the detailed test results of fire resistance duration / Leakage rate and the classifications for each side of doorset can be found in the Section 6.

### SECTION 3

#### TEST METHODS

The specimens were evaluated in accordance with the following:

**EN 16034:2014**, Pedestrian doorsets, industrial, commercial, garage doors and openable windows - Product standard, performance characteristics - Fire resisting and/or smoke control characteristics

**EN 14351-1:2006+A2:2016**, Windows and doors - Product standard, performance characteristics - Part 1: Windows and external pedestrian doorsets

**EN 1363-1:2020**, Fire resistance tests - Part 1: General requirements

**EN 1634-1:2014+A1:2018**, Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware - Part 1: Fire resistance test for door and shutter assemblies and openable windows

**EN 1191:2012**, Windows and doors – Resistance to repeated opening and closing – Test method

**EN 1634-3:2004**, 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

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**EN 13501-2:2023**, *Fire classification of construction products and building elements - Part 2: Classification using data from fire resistance and / or smoke control tests, excluding ventilation services*

### SECTION 4

#### MATERIAL SOURCE/INSTALLATION

The specimens were randomly selected by Intertek B&C personnel Seven Song at the manufacturer of GUANGDONG YOHOME INDUSTRIAL CO., LTD., located at No. 280 Hefu Road, Hecheng Street, Gaoming District, Foshan City, Guangdong Province, China. The specimens were witnessed during production and signed prior to shipment from December 23, 2025 to December 26, 2025. Test specimens were received at the Shanghai Evaluation Center on January 29, 2026.

The subject test specimen is a traceable sample selected from the manufacturer's facility. Intertek selected the specimen and has verified the composition, manufacturing techniques and quality assurance procedures. All values quoted below are nominal, unless tolerances are given. All dimensions are in mm in this report, unless otherwise specified.

| DOOR ASSEMBLY DESCRIPTION |              |                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Door                      | Type         | Single Leaf Single Action Swing Wooden Fire Door with Glazed Panel                                                                                                                                                                                                                                                                                           |
|                           | Nominal Size | 994 mm wide × 2390 mm high × 55 mm thick                                                                                                                                                                                                                                                                                                                     |
|                           | Facing       | 5 mm thick flame-retardant plywood, density of 750 kg/m <sup>3</sup>                                                                                                                                                                                                                                                                                         |
|                           | Sub-facing   | 5 mm thick flame-retardant plywood, density of 750 kg/m <sup>3</sup>                                                                                                                                                                                                                                                                                         |
|                           | Core         | (15+5+15) mm thick flame-retardant plywood, density of 750 kg/m <sup>3</sup>                                                                                                                                                                                                                                                                                 |
|                           | Rail         | 1) Top rail:<br>Material: 830 mm x 82 mm x 35 mm thick flame-retardant plywood, density of 750 kg/m <sup>3</sup> ;<br>Location: one strip at the top edge of door leaf.<br><br>2) Bottom rail:<br>Material: 830 mm x 82 mm x 35 mm thick flame-retardant plywood, density of 750 kg/m <sup>3</sup> ;<br>Location: one strip at the bottom edge of door leaf. |
|                           | Stile        | 1) Hinge stile:<br>Material: 2390 mm x 82 mm x 35 mm thick flame-retardant plywood, density of 750 kg/m <sup>3</sup> ;<br>Location: one strip at the hinge edge of door leaf.<br><br>2) Latch stile:                                                                                                                                                         |

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|  |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |                  | Material: 2390 mm x 82 mm x 35 mm thick flame-retardant plywood, density of 750 kg/m <sup>3</sup> ;<br>Location: one strip at the leading edge of door leaf.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|  | Glazing Assembly | Glazing panel:<br>Model: FFB-41-A2.00;<br>Glass size: 190 x 1580 x 41 mm thick insulated glass;<br>Visible size: 150 mm wide x 1540 mm high;<br>Component: 5 mm thick tempered glass + 7 mm thick fire resisting gel + 5 mm tempered glass + 7 mm thick fire resisting gel + 5 mm thick tempered glass + 7 mm thick fire resisting gel + 5 mm tempered glass.                                                                                                                                                                                                                                                                                     |
|  |                  | Glazing gasket:<br>1) Fireproof cotton,<br>Model: FQ-M;<br>Size: trimmed to 27 x 5 mm;<br>Location: between the glazing bead and the glass panel, along the full perimeter beneath the glazing bead.<br>2) Fireproof intumescent cotton,<br>Model: FQ-ZM;<br>Size: trimmed to 42 x 5 mm;<br>Location: around the inner perimeter of the door opening.                                                                                                                                                                                                                                                                                             |
|  |                  | Glazing bead:<br>Size: 45 mm x 15 mm with 20 mm x 4 mm rebate;<br>Material: flame-retardant plywood, density of 750 kg/m <sup>3</sup> .<br>Installation:<br>The glazing beads were fixed on the door leaf by M4 x 50mm self-tapping screws at the opening face of door leaf, and by gun nails at the closing face of door leaf. The spacing of self-tapping screws/gun nails on each horizontal glazing bead was 50 mm from each end and 140 mm on center (o.c.). The location of self-drilling screws/gun nails on each vertical glazing bead was at a distance of 65 mm, 410 mm, 780 mm, 1185 mm and 1555 mm from the top edge of glazing bead. |
|  |                  | Fixing Plates:<br>1) Z6.5 x 15 x 20 x 1.5 mm, 50 mm wide galvanized sheet, grade DX51D+Z;<br>Installation: At the closing face of the door leaf, along the perimeter of door opening, with one flange of the angle steel pressed over the fireproof cotton, and the other flange was fixed to the door leaf surface by two M4 X 55 mm self-tapping screws.                                                                                                                                                                                                                                                                                        |

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|          |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                    | <p>Location: One at a distance of 280 mm, 560 mm, 975 mm, 1255 mm from the top edge of the door opening vertically respectively; one at each horizontal corner of the opening respectively.</p> <p>Bedding material:<br/>Model: FQ-M;<br/>Size: trimmed to 45 x 50 x 5 mm;<br/>Location: covering the flange of each steel plate and beneath the glazing bead</p> <p>2) L20 x 43 x 1.5 mm, 50 mm wide galvanized sheet, grade DX51D+Z;<br/>Installation: At the opening face of the door leaf, along the perimeter of door opening, with one flange of the angle steel pressed over inner side of the glazing bead, and the other flange was fixed to the inner side of door opening by two M4 X 55 mm self-tapping screws.<br/>Location: One at a distance of 290 mm, 580 mm, 955 mm and 1245 mm from the top edge of the opening of door leaf vertically respectively; one at each horizontal corner of the opening respectively.</p> |
| Frame    | Nominal Size       | 1100 mm (wide) × 2450 mm (high) × 110 mm deep                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|          | Clear Opening Size | 970 mm wide × 2385 mm high                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|          | Type               | Single rebate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|          | Frame stop         | 15 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|          | Material           | Flame-retardant plywood, density of 750 kg/m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|          | Installation       | The frame was installed in an aerated concrete block wall opening by five (5) sets of steel bars and nails on each jamb, spaced approx. 500 mm on center (o.c.) and at a distance of 225 mm from the top and bottom of each jamb. The clearances between the door frame and the wall were filled with mineral wool and clad with quick-setting cement on both sides                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Hardware | Hinge              | <p>Model: SSA001 5×4.5×3.5, Stainless steel 304;<br/>Size: 5.0" × 4.5" × 3.5 mm;<br/>Quantity: 4 pcs;<br/>Bedding material:<br/>Graphene Intumescent seal,<br/>Size: 127 x 49 x 1 mm;<br/>Location: below both hinge leaves.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|          | Lock               | Mortise Lock, Model: 72-60A;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

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|                  |                     |          |                                                                                                                                                                                                                                                                                                                           |
|------------------|---------------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                  |                     |          | Latch bolt length: 12 mm;<br>Latch bolt: Engaged; Dead bolt: Disengaged;<br>Backset: 60 mm;<br>Lock case size: 87 x 165 x 15 mm;<br>Bedding material:<br>Graphene Intumescent seal,<br>Size: 193 x 175 x 1 mm;<br>Location: enclosed the entire lock body.<br>Size: 180 x 25 x 1 mm;<br>Location: below the strike plate. |
|                  | Door closer         |          | Model: 071;<br>Installation: Surface mounted with the standard installation at the opening face of door leaf.                                                                                                                                                                                                             |
|                  | Automatic drop seal |          | Model: Schall-Ex L-15/30 WS;<br>Size: 15 x 30 x 994 mm;<br>Location: Concealed mounted at the bottom of the door leaf.                                                                                                                                                                                                    |
| Smoke Seal       | Model               |          | FQ-VA002                                                                                                                                                                                                                                                                                                                  |
|                  | Size                |          | 12 x 12 mm                                                                                                                                                                                                                                                                                                                |
|                  | Location            |          | One strip surface mounted on the door stop.                                                                                                                                                                                                                                                                               |
| Intumescent seal | Type 1              | Model    | FQ-C1504                                                                                                                                                                                                                                                                                                                  |
|                  |                     | Size     | 15 × 4 mm                                                                                                                                                                                                                                                                                                                 |
|                  |                     | Location | Two strips mortise mounted on both jambs and header.                                                                                                                                                                                                                                                                      |
|                  | Type 2              | Model    | FQ-C3006                                                                                                                                                                                                                                                                                                                  |
|                  |                     | Size     | 30 × 6 mm                                                                                                                                                                                                                                                                                                                 |
|                  |                     | Location | One strip mortise mounted centrally at the top edge, leading edge and hinge edge of the door leaf.                                                                                                                                                                                                                        |

The sample ID numbers assigned by the test lab are S250722010SHF.001~002 for Resistance to Fire Test, S250722010SHF.003~004 for Smoke Control Test, and S250722010SHF.005 for Durability of Self-closing Test.

The drawing of the fire doorset, the CE certificate of the hardware and the drawing of test wall construction can be found in Section 7, 8 and 9 respectively.

A comprehensive drawings and Installation Instructions of the CE Wooden fire doorset, model YHCEFD90, are maintained on Intertek file.

### SECTION 5

#### TEST PROCEDURE

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The test items are listed in the following according to EN 16034:2014 and EN 14351-1:2006+A2:2016.

### Operability test before the resistance to fire test

According to A.2 of EN 16034:2014, prior to the commencement of the EN 1634-1 fire test and according to A.3 of EN 16034:2014, prior to the commencement of the EN 1634-3 smoke control test, the doorsets to be tested were checked for operability in the test frames by operating from fully closed to the maximum possible opening and at least 90° and back to fully closed for 25 cycles.

### Self-closing test

According to A.4.1 of EN 16034:2014, prior to the commencement of the EN 1634-1 fire test and the EN 1634-3 smoke control test, the doorsets to be tested were opened to  $10^\circ \pm 2^\circ$  (for controlled closing devices) and held for  $20\text{ s} \pm 2\text{ s}$ , released without shock and allowed to close at a maximum mean speed of 300 mm/s to ensure that their closed position is achieved.

### Resistance to fire test

According to 4.1 and 5.1 of EN 16034:2014, the fire resistance was determined by testing according to EN 1634-1:2014+A1:2018 and results are classified according to EN 13501-2:2023.

#### Door gap measurements

According to 10.1.2 of EN 1634-1:2014+A1:2018, the primary gaps between the edge of the door leaf and the frame were measured and recorded. Details can be found in Section 10.

#### Closing force measurements

According to 10.1.3 of EN 1634-1:2014+A1:2018, the closing forces for doorsets which incorporate closing devices were measured and recorded. Details can be found in Section 11.

#### Final Setting

According to 10.1.4 of EN 1634-1:2014+A1:2018, the doorsets were subjected to a final closing which involved opening the door leaves to a distance of approximately 300 mm and returning them to the closed position.

#### Fire resistance test

After completing the pre-test examination, the test assembly was placed in front of the furnace for fire exposure according to EN 1634-1:2014+A1:2018. After positioning the assembly frame

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over the furnace opening, the burners were ignited, and the timer started. Temperatures within the furnace were monitored using thermocouples and the data was recorded. The burners were controlled to keep the furnace temperatures within the allowable limits specified in the test standards. After 5 minutes, the furnace pressure was adjusted so that the neutral plane was established at approximately 500 mm above the notional floor level. Periodic observations were made of the surface of the test assembly during the fire resistance test.

Door deflection relative to the frame, where applicable, was monitored throughout the test. Position for measurement of deflection is presented in the drawing of Section 10.

### Smoke control test

According to 4.2 and 5.2 of EN 16034:2014, the smoke control was determined by testing according to EN 1634-3:2004 and results are classified according to EN 13501-2:2023.

#### Pre-test procedure

After installation of the assembly in the supporting construction, but before it was mounted in front of the chamber, each door leaf was opened to an angle of 30° and closed 10 times, using the closing devices to ensure the assembly operates normally. The primary gaps between the edge of the door leaf and the frame were measured and recorded. Details can be found in Section 10.

According to 10.1.2 of EN 1634-3:2004, the closing forces for doorsets which incorporate closing devices were measured and recorded. Details can be found in Section 11.

#### Smoke control test

After completing the pre-test examination, the test assembly was mounted and sealed in front of the test chamber for performing the air leakage test according to EN 1634-3:2004.

#### Procedure for ambient temperature only testing to satisfy $S_a$ classification

The air flow was to be adjusted in the test chamber to provide a positive test pressure differential of 10 Pa, 25 Pa and 50 Pa at  $20 \pm 10$  °C of the temperature of the exposed face of the test assembly. Each pressure difference was maintained for 2 minutes, the apparatus leakage rate and the supporting / associated construction leakage rate, the total leakage rate for ambient temperature exposure test were measured and recorded. The length of gaps between the frame and the door of the test door assembly excluding the gap along the threshold was measured and recorded.

#### Procedure for ambient together with medium temperature testing to satisfy $S_m$ classification

After ambient temperature exposure test specified above, the temperature of test chamber increased to  $200 \pm 20$  °C within  $30 \pm 5$  minutes. Temperatures within the chamber were monitored using thermocouples and the data was recorded. The heating devices were controlled to keep the

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chamber temperatures within the allowable limits specified in the test standards. The air flow was to be adjusted in the test chamber to provide a positive test pressure differential of 10 Pa, 25 Pa and 50 Pa at  $200 \pm 20$  °C of the temperature of the exposed face of the test assembly. Each pressure difference was maintained for 2 minutes, the total leakage rate, the apparatus leakage rate and the supporting / associated construction leakage rate for medium temperature exposure test were measured and recorded. Periodic observations were made of unexposed surface of the test assembly during the air leakage test.

### Durability of self-closing (only for self-closing doorsets)

#### Durability of self-closing against degradation (cycling test)

The durability of self-closing against degradation is ensured by cycling testing according to 5.4.2 of EN 16034:2014. The test methods for cycling testing are given in Annex H of EN 1191:2012 for pedestrian doorsets.

One single specimen was kept in the laboratory from the date it was received until the date it was tested and had thus been conditioned at a temperature of between 15° to 30°C and a relative humidity of between 25 to 75%.

The doorset was opened to 90° and the operation was via the handle. According to EN 1191:2012, adjusted the door closer regulators so that the door closes smoothly from 90° open to fully close within a time of 3 s to 7 s. No slamming, even incorporated latch action. Backcheck or delay action shall set to inoperable or minimum effect. Run the cycle with opening time 2 s to 3 s. The rest time shall be at least 1 s but shall not exceed 4 s for manually operated moving components. Verified the backcheck function according to EN 1191:2012 if applicable. Completed the full number of cycles specified by the sponsor and conducted the final measurements and inspection and verified whether the door met the requirements specified in Section 7.4 of EN 1191:2012.

The results shall be expressed according to the use categories indicated in Table 1 of EN 16034:2014.

#### Durability of self-closing against ageing (corrosion)

The durability of self-closing is considered to be achieved if the building hardware used in the doorset complies with the relevant clauses of the building hardware product standards as listed in Table 2 of EN 16034:2014 except in cases where the hardware is classified by these standards as not corrosion resistant. Building hardware not covered by product standards listed in Table 2 shall show their compliance to EN 1670.

The durability of self-closing against ageing (corrosion) of the doorset shall be expressed as “achieved”.

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### Height and Width

According to 4.9 of EN 14351-1:2006+A2:2016, the clear opening height and clear opening width of external pedestrian doorset was measured and expressed in mm (see EN 12519:2004 clause 3.1).

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### SECTION 6

#### TEST RESULTS

##### **Test 1, Resistance to fire test conducted on February 6, 2026**

Two identical doorsets were installed in a steel restraint frame and built into a concrete masonry unit partition, with fully mortared joints. Doorset A was mounted so that the leaf swung towards the fire and Doorset B was mounted so that the leaf swung away the fire. Both doorsets were tested at the same time. The nominal dimensions of the test wall were 3 m high by 3 m wide.

##### **Self-closing (only for self-closing fire resistant doorsets)**

Operability test before the resistance to fire test

Both Doorset A and Doorset B were checked for operability in the restraint frame prior to the commencement of fire resistance test by operating from fully closed to 90° and back to fully closed for 25 cycles. Both Doorset A and Doorset B were in good condition after the operability test.

Self-closing test

Both Doorset A and Doorset B were checked for self-closing test prior to the commencement of the fire resistance test. The closing speed for Doorset A was 120.5 mm/s and for Doorset B was 154.9 mm/s respectively.

Both Doorset A and Doorset B were checked for operability in the restraint frame prior to the commencement of fire resistance test. Both Doorset A and Doorset B could close fully into their frames and engage the latching devices by the closing force applied by the door closers. The results for both Doorset A and Doorset B were classified and expressed by "C" according to EN 13501-2:2023.

##### **Resistance to fire test**

###### **Integrity**

Doorset A withstood the fire resistance test without passage of flame or gases hot enough to ignite cotton waste for 102 minutes. No through openings or penetrations were evident at this 102 minutes fire exposure portion of the test. During this 102 minutes fire exposure period no significant flaming was observed on the unexposed face of the assembly.

Doorset A therefore met the criteria of the test standards for integrity performance of 102 minutes.

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Doorset B withstood the fire resistance test without passage of flame or gases hot enough to ignite cotton waste for 101 minutes. No through openings or penetrations were evident at this 101 minutes fire exposure portion of the test. During this 101 minutes fire exposure period no significant flaming was observed on the unexposed face of the assembly.

After exposed to the fire for a period of 101 minutes, sustained flame was observed at the leading edge near the lock position of door leaf B. The integrity failure was deemed to occur.

Doorset B therefore met the criteria of the test standards for integrity performance of 101 minutes.

### Insulation

Transmission of heat through Doorset A during the fire resistance test of 102 minutes did not raise the average temperature on the unexposed surface by more than 140°C above its initial value and did not raise the maximum temperature on the unexposed surface by more than 180°C above the initial mean unexposed face temperature. In addition, the transmission of heat through the assembly did not raise the maximum temperature of the unexposed surface of the frame by more than 360°C for 102 minutes.

Doorset A therefore met the criteria of the test standards for insulation performance of 102 minutes (Classification I<sub>2</sub> according to EN 13501-2).

Transmission of heat through Doorset B during the fire resistance test of 101 minutes did not raise the average temperature on the unexposed surface by more than 140°C above its initial value and did not raise the maximum temperature on the unexposed surface by more than 180°C above the initial mean unexposed face temperature. In addition, the transmission of heat through the assembly did not raise the maximum temperature of the unexposed surface of the frame by more than 360°C for 101 minutes.

The Performance criteria "insulation" shall automatically be assumed not to be satisfied when the "integrity" criterion ceases to be satisfied.

Doorset B therefore met the criteria of the test standards for insulation performance of 101 minutes (Classification I<sub>2</sub> according to EN 13501-2).

The test doorsets were tested for fire resistance in accordance with EN 1634-1:2014+A1:2018 and classified in accordance with EN 13501-2:2023. The test doorsets satisfied the performance requirements for the following periods:

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| Performance Criteria |                                          | Test results                    |                                      |
|----------------------|------------------------------------------|---------------------------------|--------------------------------------|
|                      |                                          | Doorset A open into the furnace | Doorset B open away from the furnace |
| Integrity            | Sustained flaming                        | 102 minutes, no failure         | 101 minutes                          |
|                      | Gap gauge                                | 102 minutes, no failure         | 120 minutes, no failure              |
|                      | Cotton pad                               | 102 minutes, no failure         | 101 minutes                          |
| Insulation           | Area1<br>(Doorset excluding glazed area) | 102 minutes, no failure         | 101 minutes                          |
|                      | Area1 (Glazed area)                      | 102 minutes, no failure         | 101 minutes                          |

The test was discontinued after a period of 102 minutes at the request of the sponsor.

### Classification

The classification has been carried out in accordance with clause 7.5.5 of EN 13501-2:2023.

Fire resistance classification: **EI<sub>2</sub>90**

### Test 2, Smoke control test conducted on March 11, 2026, opening away from the chamber

The test Doorset C was fixed into a steel stud gypsum board wall system. The door clearances were adjusted so that they complied with installation instruction provided by the customer. Prior to the commencement of air leakage test, the specimen to be tested was checked for operability in the test chamber opening and opened to an angle of 30° and closed 10 times using the closing devices and then the retention force measurements were carried out. The door was closed automatically to its final closed position and the lock was latched; the threshold was sealed by the automatic drop seal provided by the sponsor. The test measurement data was shown in Section 11.

The test Doorset C was oriented to open away from the test chamber.

The nominal dimensions of the test wall were 3 m high by 3 m wide.

### Operability test before the smoke control test

Doorset C was checked for operability in the restraint frame prior to the commencement of fire resistance test by operating from fully closed to 90° and back to fully closed for 25 cycles. The doorset was in good condition after the operability test.

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### Self-closing test

Doorset C was checked for self-closing test prior to the commencement of the fire resistance test. The closing speed for doorset was 92.3 mm/s.

### Smoke control test result

Leakage rate for ambient together with medium temperature test as below:

| Test No. | Door opening direction | Temperature | Leakage rate $Q_{spec}$ (m <sup>3</sup> /h) at pressure difference of |       |       | Linear leakage rate $Q_l$ (m <sup>3</sup> /h/m) at pressure difference of |       |
|----------|------------------------|-------------|-----------------------------------------------------------------------|-------|-------|---------------------------------------------------------------------------|-------|
|          |                        |             | 10 Pa                                                                 | 25 Pa | 50 Pa | 10 Pa                                                                     | 25 Pa |
| 1        | Outwards               | Ambient     | 6.70                                                                  | 11.00 | 12.60 | 1.16                                                                      | 1.90  |
| 2        | Outwards               | Medium      | 3.40                                                                  | 3.90  | 4.80  |                                                                           |       |

Note:

1. The measured leakage/linear leakage rate include the leakage at the threshold.
2. Outwards: Door opened away from the test chamber.

### Test 3, Smoke control test conducted on March 11, 2026, opening into the chamber

The test Doorset D was fixed into a steel stud gypsum board wall system. The door clearances were adjusted so that they complied with installation instruction provided by the customer. Prior to the commencement of air leakage test, the specimen to be tested was checked for operability in the test chamber opening and opened to an angle of 30° and closed 10 times using the closing devices and then the retention force measurements were carried out. The door was closed automatically to its final closed position and the lock was latched; the threshold was sealed by the automatic drop seal provided by the sponsor. The test measurement data was shown in Section 11.

The test Doorset D was oriented to open into the test chamber.

The nominal dimensions of the test wall were 3 m high by 3 m wide.

### Operability test before the smoke control test

Doorset D was checked for operability in the restraint frame prior to the commencement of fire resistance test by operating from fully closed to 90° and back to fully closed for 25 cycles. The doorset was in good condition after the operability test.

### Self-closing test

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Doorset D was checked for self-closing test prior to the commencement of the fire resistance test. The closing speed for doorset was 114.1 mm/s.

### Smoke control test result

Leakage rate for ambient together with medium temperature test as below:

| Test No. | Door opening direction | Temperature | Leakage rate $Q_{spec}$ (m <sup>3</sup> /h) at pressure difference of |       |       | Linear leakage rate $Q_l$ (m <sup>3</sup> /h/m) at pressure difference of |       |
|----------|------------------------|-------------|-----------------------------------------------------------------------|-------|-------|---------------------------------------------------------------------------|-------|
|          |                        |             | 10 Pa                                                                 | 25 Pa | 50 Pa | 10 Pa                                                                     | 25 Pa |
| 1        | Inwards                | Ambient     | 2.50                                                                  | 4.40  | 6.70  | 0.43                                                                      | 0.76  |
| 2        | Inwards                | Medium      | 3.40                                                                  | 3.30  | 5.20  |                                                                           |       |

Note:

- The measured leakage/linear leakage rate include the leakage at the threshold.
- Inwards: Door opened into the test chamber.

### Classification

The classification has been carried out in accordance with clause 7.5.5.3.4 of EN 13501-2:2023.

Fire resistance classification: **S<sub>a4</sub>, S<sub>200</sub>**

### Test 4, Durability of self-closing (only for self-closing doorsets) on March 14, 2026 through March 23, 2026

Another identical Doorset E was mounted in a steel restraint frame and using a controlled hydraulic cylinder for the cycling test.

### Durability of self-closing against degradation (cycling test)

After completing 50000 cycles, no material failure of any component that is essential to the function of Doorset E, the operating force applied by the operating equipment did not exceed 150 % of the last measurement of the operating forces necessary to release and secure the fastening systems, the closing mechanism was still functional and the clearance between the door and the frame remained within the tolerances given in EN 1634-1.

The results were expressed according to the use categories indicated in Table 1 of EN 16034:2014.

Durability classification: **Category 3 (50,000 cycles)**

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### Durability of self-closing against ageing (corrosion)

Documents and CE certifications of hardware were checked and found that the hardware met the building hardware product standards as listed in Table 2 of EN 16034:2014. The durability of self-closing against ageing (corrosion) of the doorset was expressed as "achieved". The CE certificate of the hardware can be found in Section 8.

| Product Group                   | Relevant European Standard | Clauses of the European Standards covering the essential characteristic "Durability of self-closing" |          |
|---------------------------------|----------------------------|------------------------------------------------------------------------------------------------------|----------|
| Single axis hinges              | EN 1935:2002               | 5.4                                                                                                  | Grade: 7 |
|                                 |                            | 5.5                                                                                                  | Grade: 4 |
|                                 |                            | 5.8                                                                                                  | N/A      |
| Controlled door closing devices | EN 1154:1996               | 5.2.2                                                                                                | Grade: 8 |
|                                 |                            | 5.2.17.1                                                                                             | Grade: 3 |
|                                 |                            | 5.2.17.2                                                                                             |          |
| Mechanical locks and latches    | EN 12209:2003              | 5.3.1                                                                                                | Grade: X |

### Height and width

Clear opening Height of doorset: 2385 mm;

Clear opening Width of doorset: 970 mm;

### Dangerous substances (indoor impact only)

No dangerous substances declared by the client for this product.

A full set of test data is included in Section 11, and photographs have been presented in Section 12.

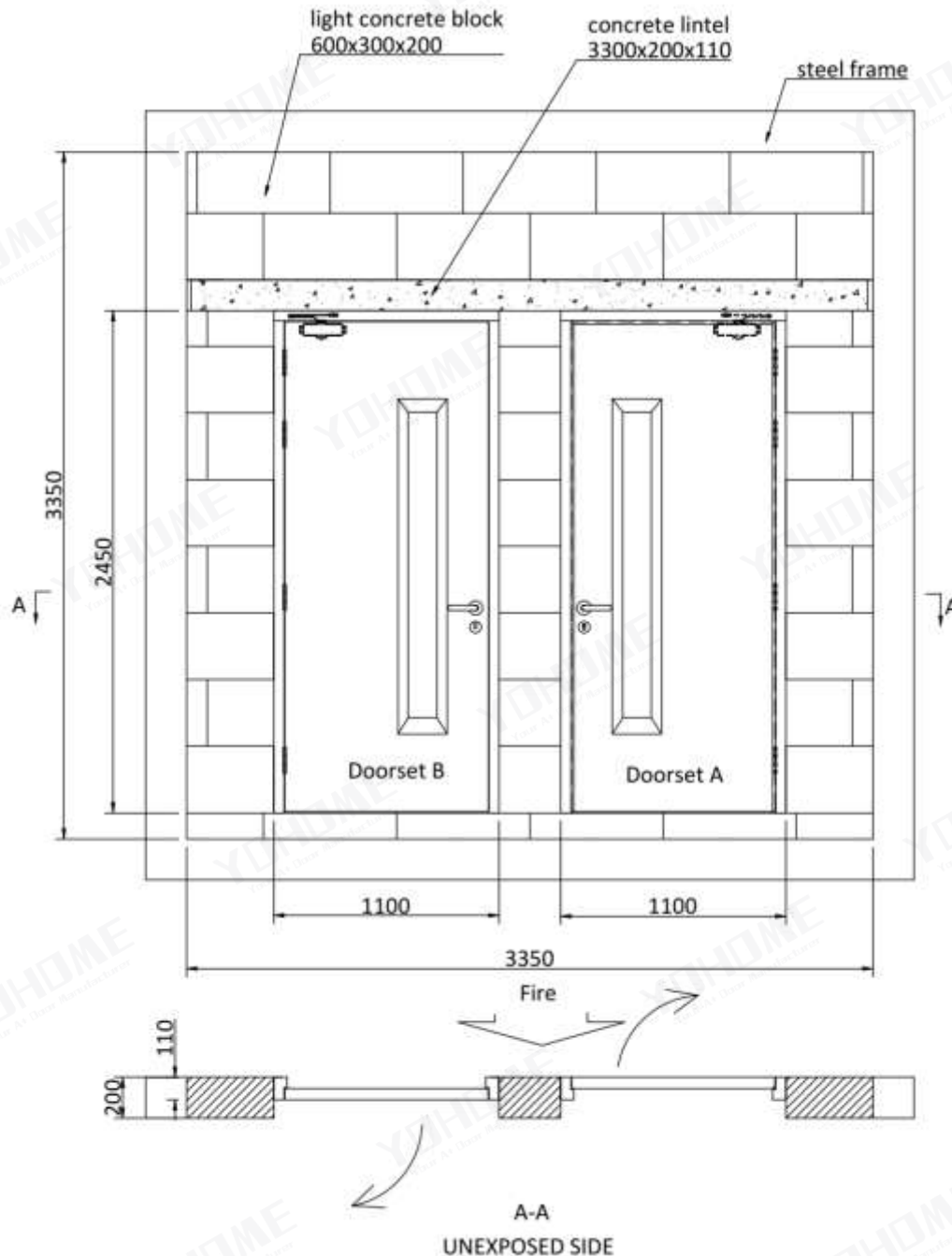
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### SECTION 9

#### TEST WALL CONSTRUCTION

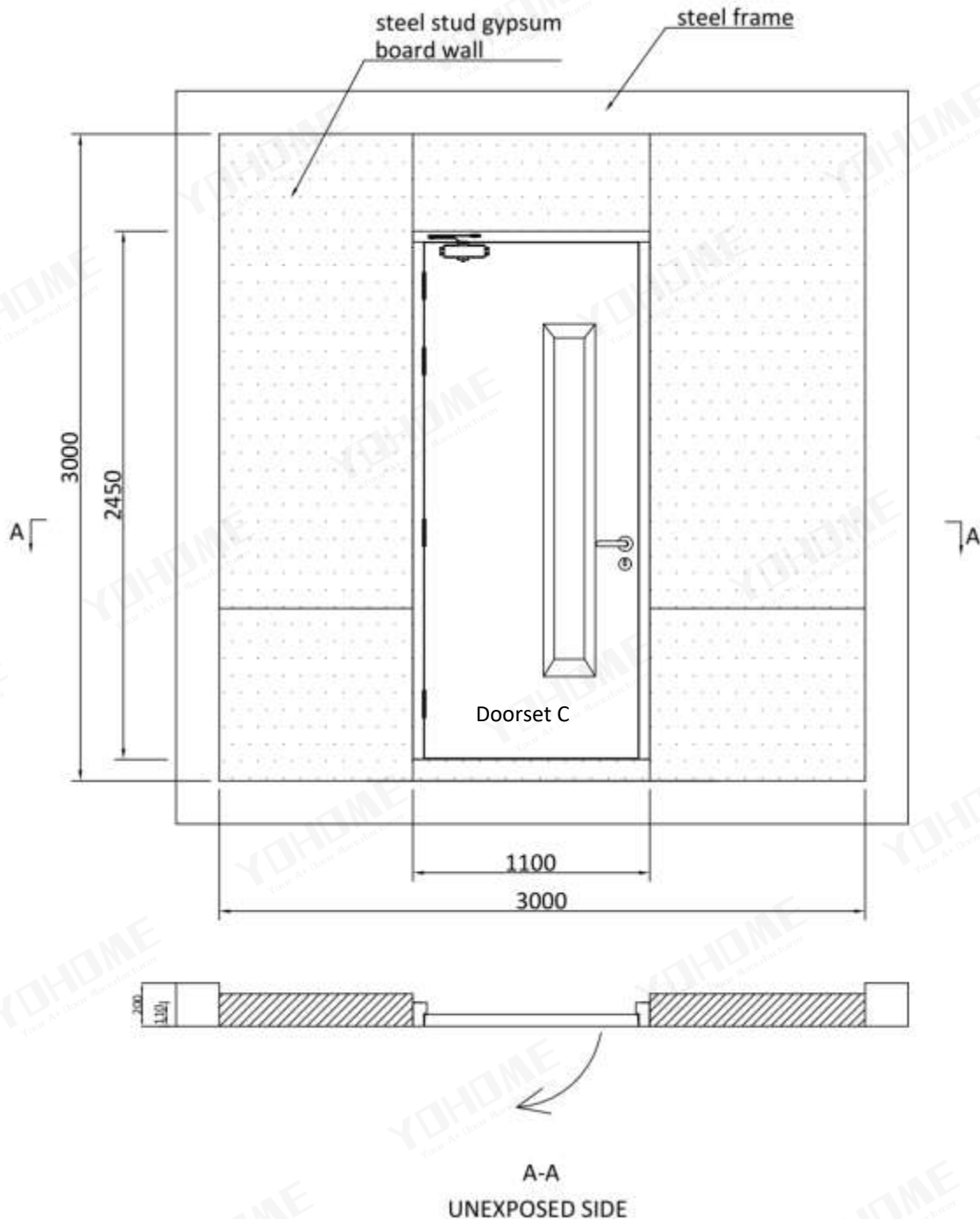


#### RESISTANCE TO FIRE TEST 1 - OPENING INTO & OPEN AWAY FROM THE FURNACE

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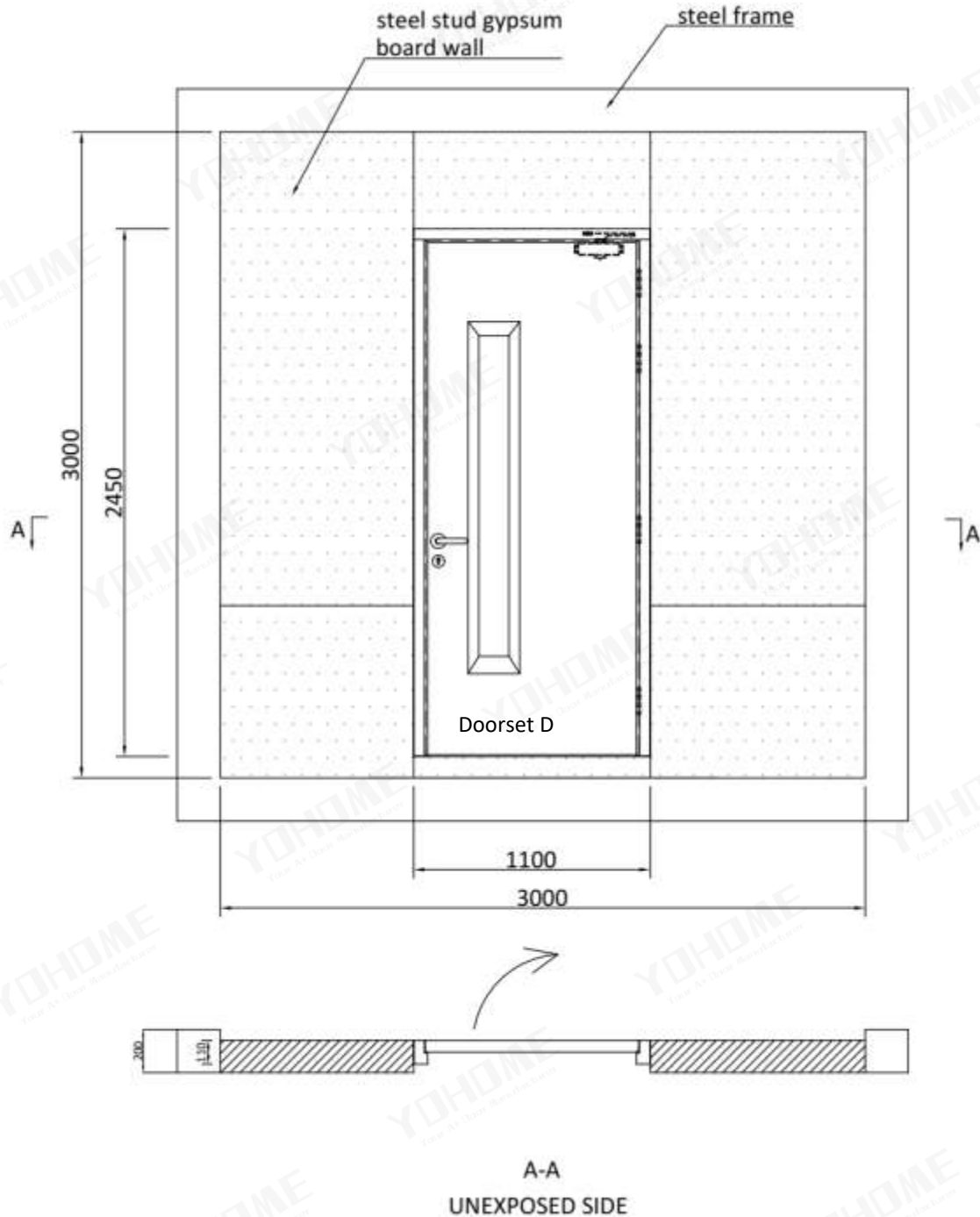


### SMOKE CONTROL TEST 2 - OPENING AWAY FROM THE CHAMBER

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### SMOKE CONTROL TEST 3 - OPENING INTO THE CHAMBER

## TEST REPORT

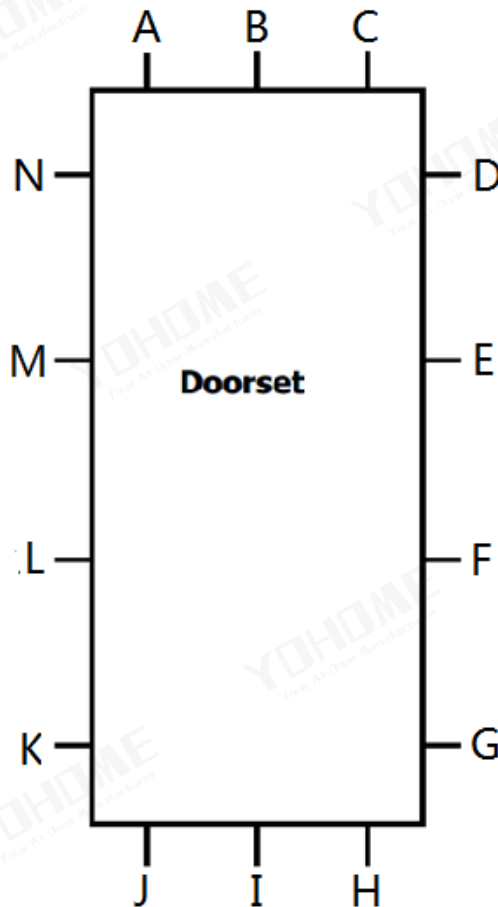
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### SECTION 10

#### TEST MEASUREMENT DATA

#### RESISTANCE TO FIRE TEST:



EXPOSED SIDE OF DOORSET A - OPENING INTO THE FURNACE

| Clearance dimension in mm at each position of Doorset A |     |     |     |     |     |     |     |     |      |     |     |     |     |
|---------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|
| A                                                       | B   | C   | D   | E   | F   | G   | H   | I   | J    | K   | L   | M   | N   |
| 2.2                                                     | 2.0 | 1.8 | 2.3 | 2.1 | 2.6 | 2.2 | 9.5 | 8.6 | 10.2 | 1.8 | 2.0 | 2.1 | 2.1 |

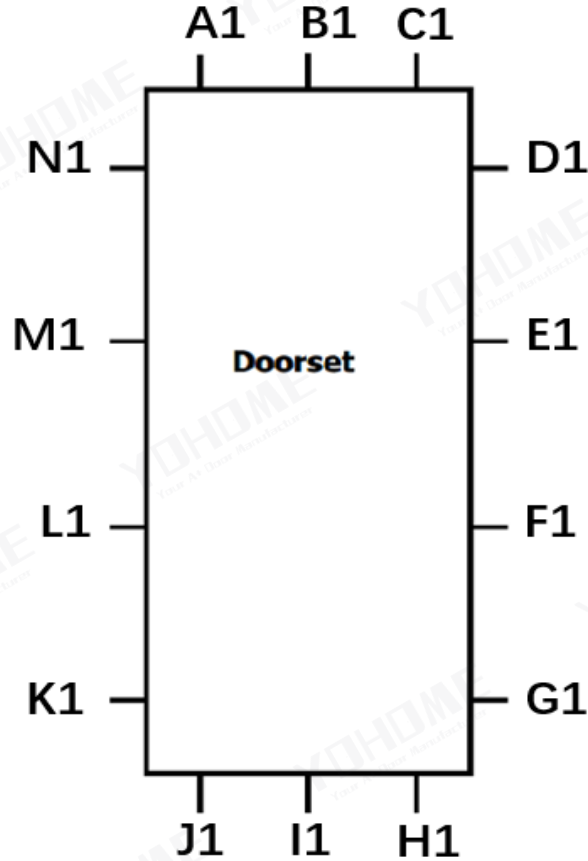
DO NOT SCALE

#### DOOR ASSEMBLY INITIAL CLEARANCES

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UNEXPOSED SIDE OF DOORSET B - OPENING AWAY FROM THE FURNACE

| Clearance dimension in mm at each position of the Doorset B |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| A1                                                          | B1  | C1  | D1  | E1  | F1  | G1  | H1  | I1  | J1  | K1  | L1  | M1  | N1  |
| 2.4                                                         | 2.3 | 2.1 | 2.0 | 2.2 | 2.5 | 2.2 | 9.3 | 9.0 | 8.5 | 1.9 | 2.0 | 2.2 | 2.1 |

DO NOT SCALE

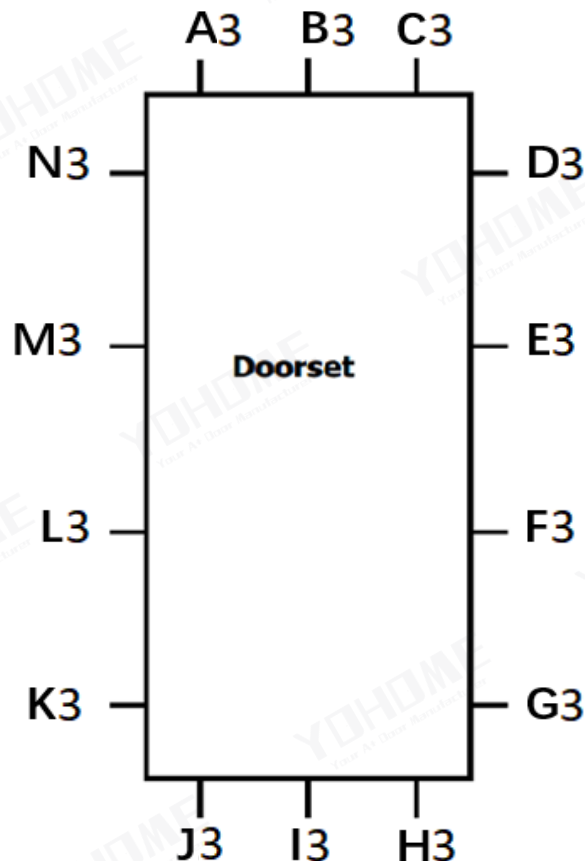
### DOOR ASSEMBLY INITIAL CLEARANCES

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### SMOKE CONTROL TEST:



### UNEXPOSED SIDE OF DOORSET C - OPENING AWAY FROM THE CHAMBER

| Clearance dimension in mm at each position of Doorset C |     |     |     |     |     |     |      |     |      |     |     |     |     |
|---------------------------------------------------------|-----|-----|-----|-----|-----|-----|------|-----|------|-----|-----|-----|-----|
| A3                                                      | B3  | C3  | D3  | E3  | F3  | G3  | H3   | I3  | J3   | K3  | L3  | M3  | N3  |
| 2.4                                                     | 2.2 | 2.0 | 2.2 | 2.0 | 2.7 | 2.1 | 11.0 | 8.0 | 11.0 | 1.2 | 2.7 | 2.0 | 2.0 |

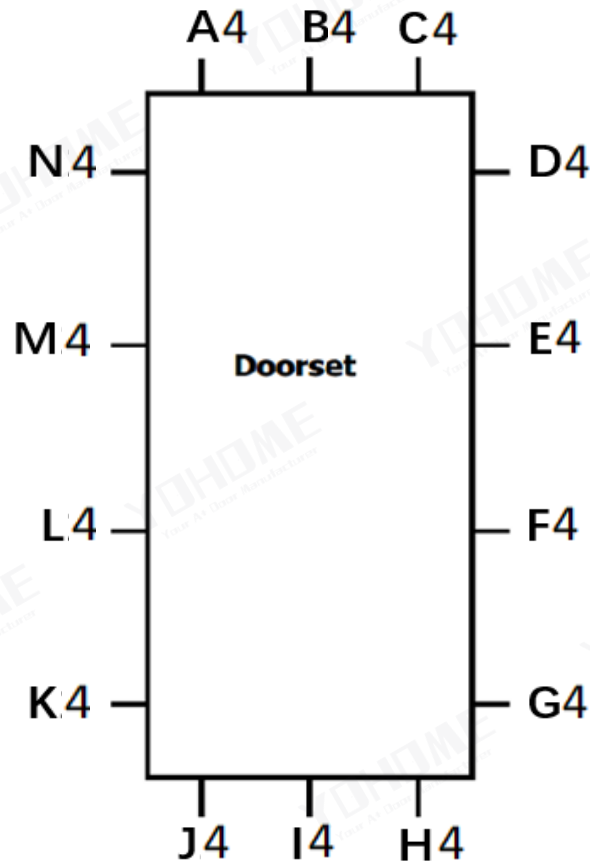
DO NOT SCALE

### DOOR ASSEMBLY INITIAL CLEARANCES

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EXPOSED SIDE OF DOORSET D - OPENING INTO THE CHAMBER

| Clearance dimension in mm at each position of Doorset D |     |     |     |     |     |     |     |     |      |     |     |     |     |
|---------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|
| A4                                                      | B4  | C4  | D4  | E4  | F4  | G4  | H4  | I4  | J4   | K4  | L4  | M4  | N4  |
| 2.3                                                     | 2.0 | 1.0 | 2.3 | 2.1 | 2.5 | 2.0 | 9.5 | 8.6 | 10.2 | 1.6 | 2.1 | 2.0 | 2.0 |

DO NOT SCALE

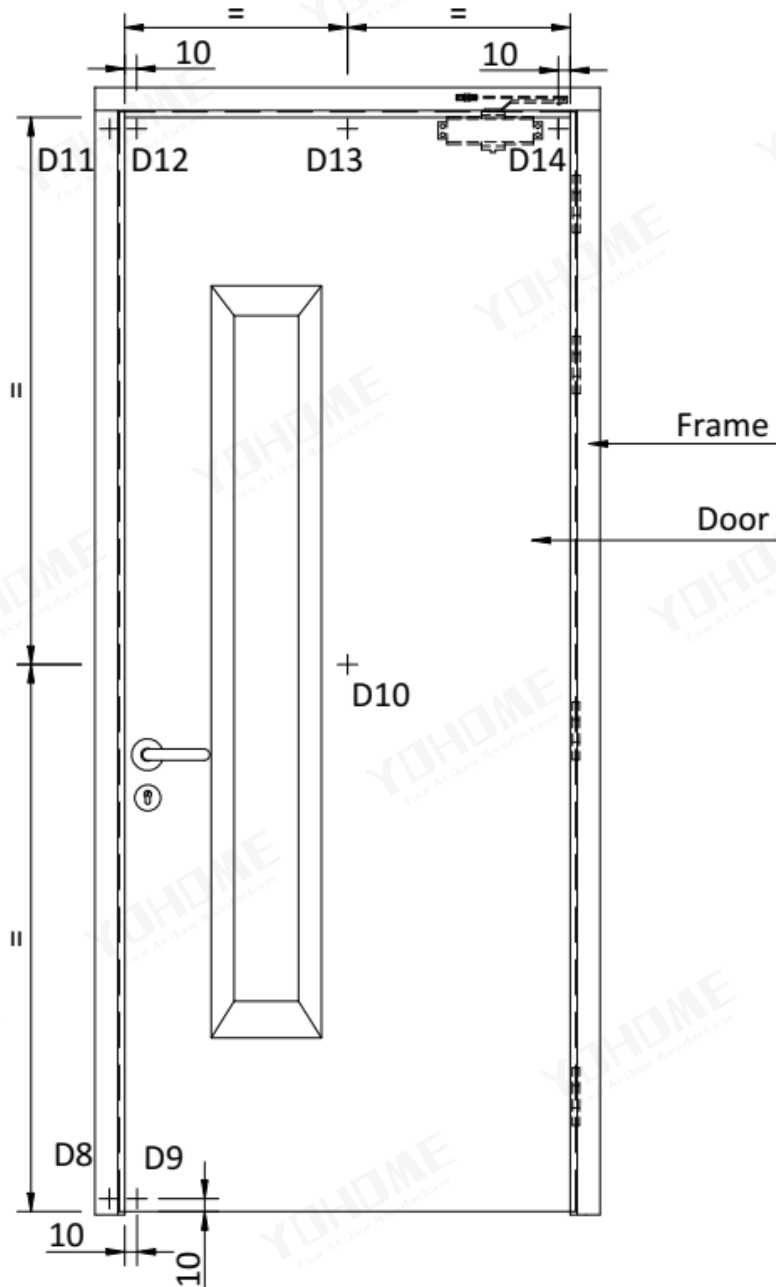
### DOOR ASSEMBLY INITIAL CLEARANCES

## TEST REPORT

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### RESISTANCE TO FIRE TEST:



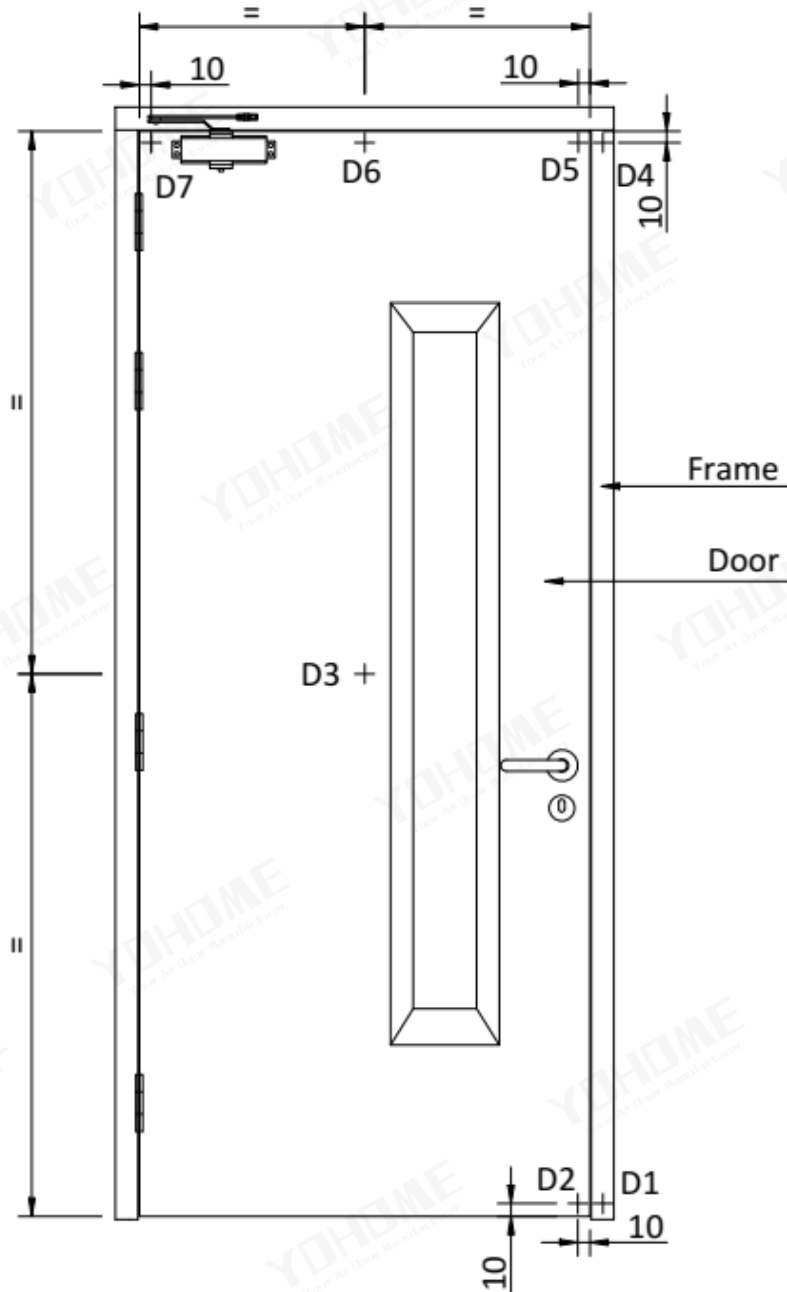
UNEXPOSED SIDE OF DOORSET A

POSITION FOR MEASUREMENT OF HORIZONTAL DEFLECTION

## TEST REPORT

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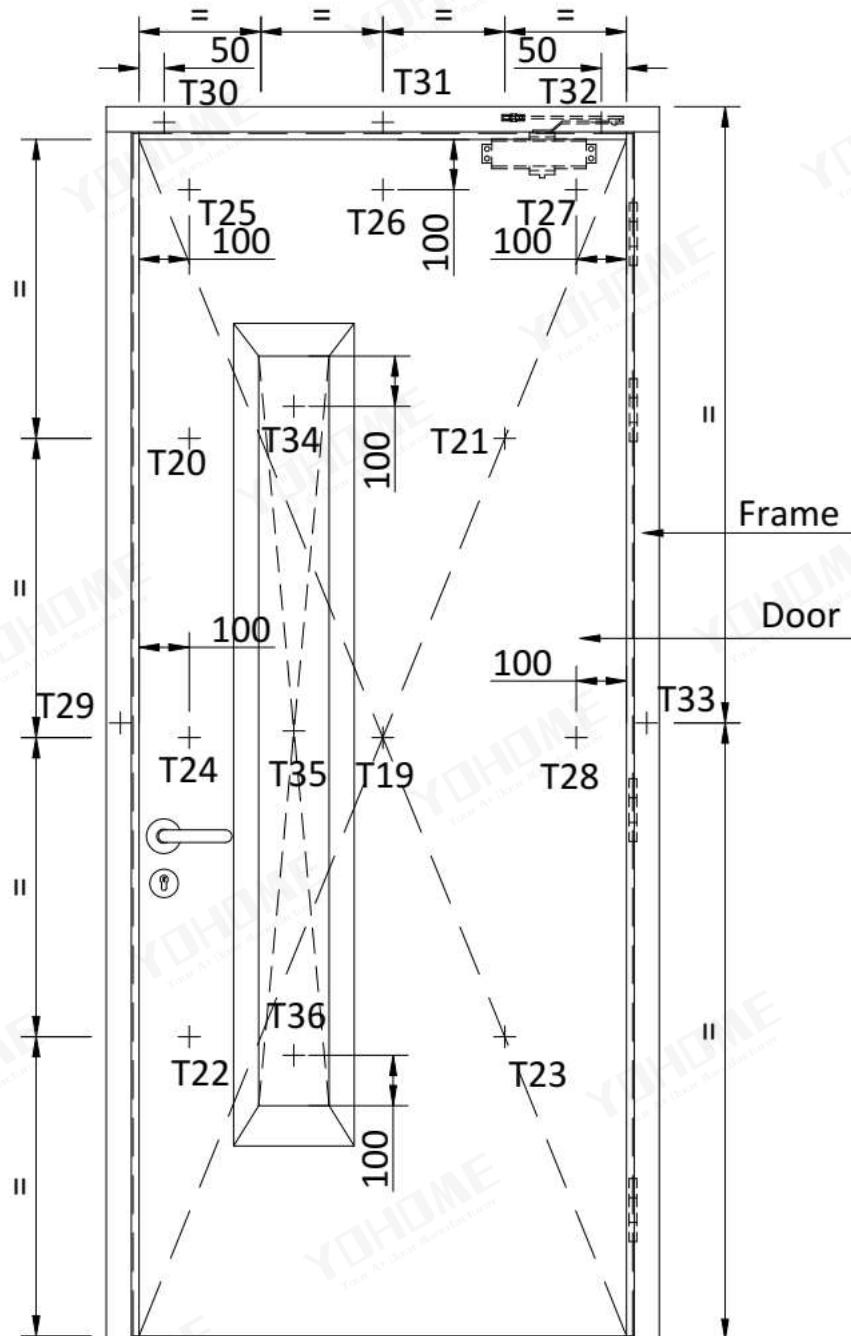
**UNEXPOSED SIDE OF DOORSET B**

**POSITION FOR MEASUREMENT OF HORIZONTAL DEFLECTION**

# TEST REPORT

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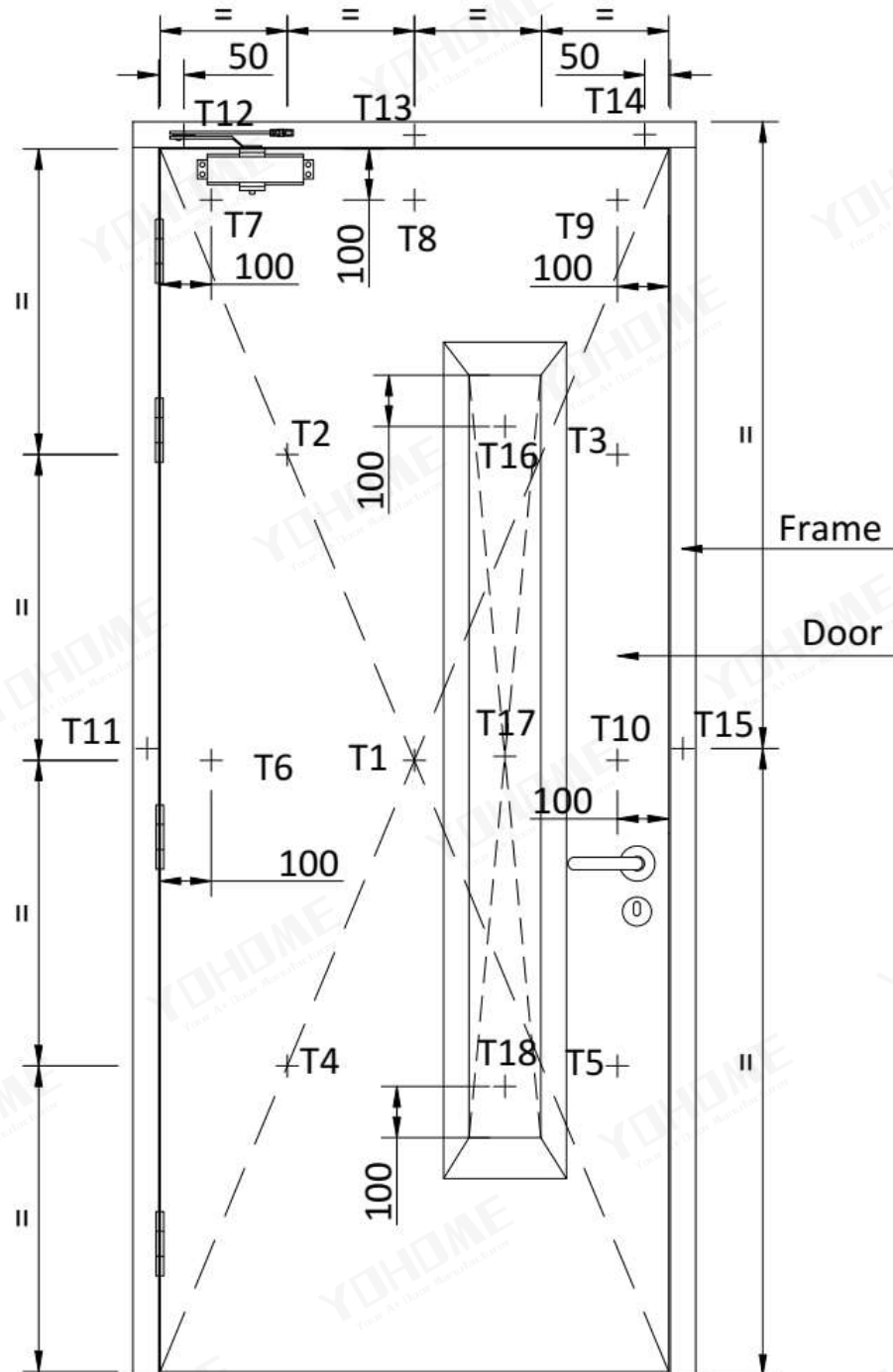


### POSITION FOR MEASUREMENT OF UNEXPOSED TEMPERATURE OF DOORSET A

## TEST REPORT

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**POSITION FOR MEASUREMENT OF UNEXPOSED TEMPERATURE OF DOORSET B**

## TEST REPORT

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### SECTION 11

#### TEST DATA

##### RESISTANCE TO FIRE TEST:

**Standards:** EN 1634-1:2014+A1:2018, Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware - Part 1: Fire resistance test for door and shutter assemblies and openable windows

**Procedure:** Part 1: Fire resistance test for door and shutter assemblies and openable windows

**Conditioning:** According to EN 1363-1, Section 8

##### Equipment:

| ITEM                      | ID                         |
|---------------------------|----------------------------|
| Full scale furnace        | SH1097                     |
| Furnace pressure gauge    | SH1097-15 & SH1097-15-2    |
| Test Clock                | SH1042                     |
| Furnace thermocouple      | SH1097-4 & SH1097-4-1~8    |
| Ambient temperature gauge | SH1097-11                  |
| Unexposed thermocouple    | SH1097-12                  |
| Clearance Measurements    | SH1506                     |
| Force gauge               | SH1211                     |
| Displacement Measurements | SH1377-1~11 & SH1377-13~15 |

**Heating Conditions:** According to EN 1363-1, Section 5.1

**Pressure Conditions:** According to EN 1363-1, Section 5.2

**Ambient Conditions:** 10 to 40°C according to EN 1363-1, Section 5.6

**Test Specimen:** According to EN 1634-1, Section 6

**Installation of test specimen:** According to EN 1634-1, Section 7

**Furnace Thermocouples:** According to EN 1634-1, Section 9.1.1

**Unexposed Face Thermocouples:** According to EN 1634-1, Section 9.1.2

**Thermocouples:**

**Thermocouple Pads:** Length and width 30 mm, thickness  $2.0 \pm 0.5$  mm, dry density  $900 \pm 90$  kg/m<sup>2</sup>

**Pressure Measurements:** According to EN 1634-1, Section 9.2

**Deflection Measurements:** According to EN 1634-1, Section 9.3

**Pre-test Examination:** According to EN 1634-1, Section 10.1

**Test Procedure:** According to EN 1634-1, Section 10.2

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### Resistance to fire test 1 conducted on February 6, 2026:

#### Test Observations of Doorset A:

| Time |      | All observations are from the unexposed face unless noted otherwise.                                                                                                            |
|------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mins | Secs |                                                                                                                                                                                 |
| 00   | 00   | Test started.                                                                                                                                                                   |
| 01   | 33   | Smoke issued from the outer edges of the glazing beads and the top edge of door leaf.                                                                                           |
| 04   | 07   | Discoloration was observed at the glazing panel.                                                                                                                                |
| 06   | 04   | The glazing panel lost transparency completely.                                                                                                                                 |
| 11   | 04   | Smoke issued from the bottom edge of door leaf.                                                                                                                                 |
| 11   | 33   | Smoke issued from the location of the handle.                                                                                                                                   |
| 14   | 17   | Discoloration was observed at the door surface near the top of the left glazing bead.                                                                                           |
| 29   | 32   | Darkening was observed at the door surface around the handle and the cylinder.                                                                                                  |
| 60   | 00   | No significant change.                                                                                                                                                          |
| 80   | 09   | Darkening was observed at the door surface at both top corners and round the hinges.                                                                                            |
| 102  | 00   | Test was discontinued at the request of the sponsor. Neither sustained flaming, ignition of cotton pad nor through openings were evident on unexposed surface of the Doorset A. |

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### Test Observations of Doorset B:

| Time |      | All observations are from the unexposed face unless noted otherwise.                                                                 |
|------|------|--------------------------------------------------------------------------------------------------------------------------------------|
| Mins | Secs |                                                                                                                                      |
| 00   | 00   | Test started.                                                                                                                        |
| 01   | 33   | Smoke issued from the outer edges of the glazing beads, the location of door closer and the top edge of door leaf.                   |
| 04   | 07   | Discoloration was observed at the glazing panel.                                                                                     |
| 06   | 04   | The glazing panel lost transparency completely.                                                                                      |
| 11   | 04   | Smoke issued from the bottom edge of door leaf.                                                                                      |
| 11   | 33   | Smoke issued from the locations of hinges. Discoloration was observed at the top glazing bead.                                       |
| 14   | 17   | Unknown liquid leakage was observed from the bottom glazing bead.                                                                    |
| 20   | 16   | Smoke issued from the leading edge of door leaf.                                                                                     |
| 34   | 02   | Darkening was observed at the door surface around the hinges.                                                                        |
| 64   | 00   | Darkening was observed at the door surface and the jamb near the lock position of door leaf.                                         |
| 80   | 09   | Darkening was observed at the door surface around the handle and the cylinder.                                                       |
| 101  | 38   | The intermittent flame was observed at the leading edge near the lock position of door leaf.                                         |
| 101  | 46   | The sustained flame was observed at the leading edge near the lock position of door leaf. The integrity failure was deemed to occur. |
| 102  | 00   | Test was discontinued at the request of the sponsor.                                                                                 |

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### Temperature Data:

Mean furnace temperature together with temperature-time relationship specified in the standard:

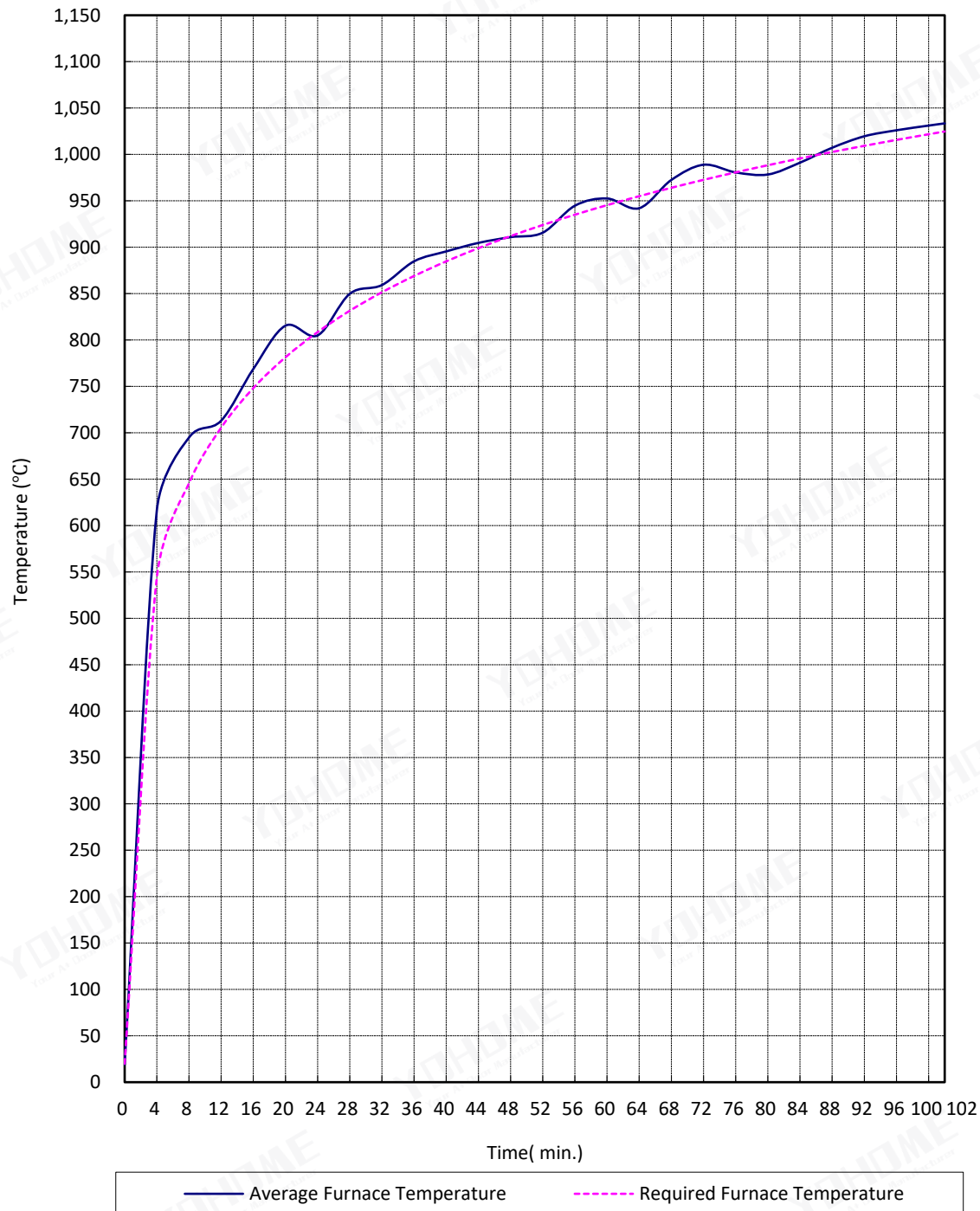
| Time Mins | Specified Furnace Temperature/ °C | Furnace mean Temperature/ °C |
|-----------|-----------------------------------|------------------------------|
| 0         | 20                                | 19                           |
| 4         | 544                               | 616                          |
| 8         | 645                               | 695                          |
| 12        | 705                               | 713                          |
| 16        | 748                               | 769                          |
| 20        | 781                               | 815                          |
| 24        | 809                               | 805                          |
| 28        | 832                               | 850                          |
| 32        | 851                               | 859                          |
| 36        | 869                               | 885                          |
| 40        | 885                               | 895                          |
| 44        | 899                               | 905                          |
| 48        | 912                               | 911                          |
| 52        | 924                               | 916                          |
| 56        | 935                               | 945                          |
| 60        | 945                               | 953                          |
| 64        | 955                               | 942                          |
| 68        | 964                               | 973                          |
| 72        | 973                               | 989                          |
| 76        | 981                               | 981                          |
| 80        | 988                               | 978                          |
| 84        | 996                               | 991                          |
| 88        | 1003                              | 1007                         |
| 92        | 1009                              | 1020                         |
| 96        | 1016                              | 1026                         |
| 100       | 1022                              | 1031                         |
| 102       | 1025                              | 1033                         |

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**Graph for mean furnace temperature and temperature-time curve specified in the standard:**



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### Unexposed surface temperatures of Doorset A:

| Time<br>Mins | T19<br>(°C) | T20<br>(°C) | T21<br>(°C) | T22<br>(°C) | T23<br>(°C) | Mean temperature<br>(°C) |
|--------------|-------------|-------------|-------------|-------------|-------------|--------------------------|
| 0            | 8           | 8           | 8           | 7           | 8           | 8                        |
| 4            | 8           | 8           | 8           | 7           | 8           | 8                        |
| 8            | 8           | 8           | 8           | 7           | 8           | 8                        |
| 12           | 8           | 9           | 8           | 7           | 8           | 8                        |
| 16           | 9           | 9           | 8           | 7           | 9           | 8                        |
| 20           | 9           | 11          | 9           | 7           | 9           | 9                        |
| 24           | 11          | 17          | 10          | 7           | 10          | 11                       |
| 28           | 13          | 24          | 12          | 8           | 12          | 14                       |
| 32           | 16          | 30          | 14          | 8           | 15          | 17                       |
| 36           | 19          | 34          | 17          | 8           | 18          | 19                       |
| 40           | 23          | 37          | 21          | 26          | 21          | 26                       |
| 44           | 27          | 40          | 24          | 31          | 24          | 29                       |
| 48           | 31          | 43          | 28          | 35          | 28          | 33                       |
| 52           | 36          | 46          | 34          | 40          | 33          | 38                       |
| 56           | 41          | 48          | 39          | 45          | 40          | 43                       |
| 60           | 46          | 51          | 44          | 49          | 46          | 47                       |
| 64           | 51          | 54          | 48          | 54          | 52          | 52                       |
| 68           | 55          | 57          | 52          | 57          | 56          | 55                       |
| 72           | 58          | 59          | 54          | 60          | 59          | 58                       |
| 76           | 61          | 61          | 57          | 64          | 61          | 61                       |
| 80           | 65          | 65          | 61          | 70          | 65          | 65                       |
| 84           | 71          | 70          | 66          | 75          | 70          | 70                       |
| 88           | 76          | 76          | 72          | 79          | 76          | 76                       |
| 92           | 82          | 82          | 78          | 82          | 82          | 81                       |
| 96           | 86          | 85          | 82          | 86          | 86          | 85                       |
| 100          | 90          | 87          | 86          | 90          | 90          | 89                       |
| 102          | 92          | 89          | 86          | 92          | 93          | 90                       |

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### Unexposed surface temperatures of Doorset A:

| Time<br>Mins | T24<br>(°C) | T25<br>(°C) | T26<br>(°C) | T27<br>(°C) | T28<br>(°C) | T29<br>(°C) | T30<br>(°C) | T31<br>(°C) | T32<br>(°C) | T33<br>(°C) |
|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 0            | 9           | 9           | 9           | 9           | 8           | 8           | 9           | 8           | 9           | 8           |
| 4            | 9           | 9           | 9           | 9           | 8           | 8           | 9           | 8           | 9           | 8           |
| 8            | 9           | 9           | 9           | 9           | 8           | 8           | 9           | 8           | 9           | 8           |
| 12           | 10          | 9           | 9           | 9           | 8           | 8           | 9           | 8           | 9           | 8           |
| 16           | 11          | 10          | 9           | 9           | 8           | 8           | 9           | 9           | 9           | 8           |
| 20           | 14          | 12          | 10          | 11          | 9           | 9           | 10          | 9           | 10          | 8           |
| 24           | 17          | 14          | 12          | 13          | 11          | 9           | 11          | 9           | 11          | 9           |
| 28           | 19          | 18          | 14          | 16          | 13          | 10          | 12          | 10          | 12          | 9           |
| 32           | 23          | 22          | 17          | 21          | 16          | 11          | 13          | 11          | 13          | 10          |
| 36           | 26          | 26          | 21          | 25          | 19          | 12          | 15          | 13          | 15          | 11          |
| 40           | 30          | 30          | 24          | 30          | 22          | 14          | 17          | 15          | 18          | 13          |
| 44           | 34          | 35          | 28          | 34          | 26          | 16          | 19          | 17          | 20          | 15          |
| 48           | 38          | 39          | 31          | 39          | 29          | 18          | 22          | 20          | 23          | 17          |
| 52           | 43          | 43          | 36          | 43          | 33          | 20          | 24          | 23          | 26          | 19          |
| 56           | 48          | 47          | 40          | 48          | 38          | 23          | 27          | 27          | 29          | 22          |
| 60           | 53          | 51          | 45          | 53          | 42          | 26          | 29          | 31          | 32          | 25          |
| 64           | 57          | 54          | 48          | 57          | 46          | 30          | 32          | 34          | 35          | 28          |
| 68           | 60          | 58          | 51          | 60          | 50          | 33          | 35          | 37          | 39          | 31          |
| 72           | 63          | 61          | 54          | 63          | 53          | 37          | 37          | 41          | 42          | 35          |
| 76           | 66          | 64          | 57          | 66          | 56          | 40          | 40          | 44          | 45          | 38          |
| 80           | 71          | 67          | 60          | 69          | 59          | 44          | 43          | 47          | 49          | 42          |
| 84           | 76          | 71          | 64          | 72          | 62          | 48          | 47          | 51          | 53          | 46          |
| 88           | 81          | 76          | 68          | 76          | 66          | 53          | 51          | 55          | 56          | 49          |
| 92           | 86          | 80          | 73          | 81          | 72          | 57          | 56          | 59          | 60          | 53          |
| 96           | 89          | 83          | 79          | 86          | 77          | 62          | 61          | 64          | 64          | 56          |
| 100          | 92          | 87          | 82          | 90          | 81          | 66          | 68          | 68          | 68          | 60          |
| 102          | 94          | 89          | 84          | 91          | 83          | 68          | 68          | 69          | 70          | 62          |

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### Unexposed surface temperatures of Doorset A:

| Time<br>Mins | T34<br>(°C) | T35<br>(°C) | T36<br>(°C) |
|--------------|-------------|-------------|-------------|
| 0            | 8           | 9           | 8           |
| 4            | 9           | 9           | 9           |
| 8            | 10          | 10          | 9           |
| 12           | 16          | 16          | 16          |
| 16           | 23          | 23          | 22          |
| 20           | 30          | 30          | 30          |
| 24           | 37          | 36          | 37          |
| 28           | 43          | 43          | 45          |
| 32           | 48          | 48          | 49          |
| 36           | 53          | 53          | 54          |
| 40           | 57          | 58          | 58          |
| 44           | 60          | 61          | 60          |
| 48           | 62          | 64          | 62          |
| 52           | 65          | 67          | 65          |
| 56           | 69          | 71          | 68          |
| 60           | 71          | 74          | 70          |
| 64           | 72          | 75          | 72          |
| 68           | 73          | 76          | 73          |
| 72           | 75          | 77          | 74          |
| 76           | 76          | 78          | 75          |
| 80           | 77          | 79          | 76          |
| 84           | 78          | 80          | 77          |
| 88           | 79          | 81          | 78          |
| 92           | 80          | 81          | 79          |
| 96           | 80          | 82          | 80          |
| 100          | 81          | 82          | 81          |
| 102          | 81          | 82          | 81          |

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### Unexposed surface temperatures of Doorset B:

| Time<br>Mins | T1<br>(°C) | T2<br>(°C) | T3<br>(°C) | T4<br>(°C) | T5<br>(°C) | Mean temperature<br>(°C) |
|--------------|------------|------------|------------|------------|------------|--------------------------|
| 0            | 9          | 8          | 8          | 8          | 7          | 8                        |
| 4            | 9          | 8          | 8          | 8          | 7          | 8                        |
| 8            | 9          | 8          | 8          | 8          | 7          | 8                        |
| 12           | 10         | 8          | 8          | 8          | 7          | 8                        |
| 16           | 9          | 8          | 8          | 8          | 8          | 8                        |
| 20           | 11         | 9          | 10         | 8          | 10         | 9                        |
| 24           | 11         | 10         | 12         | 10         | 13         | 11                       |
| 28           | 13         | 11         | 16         | 11         | 17         | 14                       |
| 32           | 16         | 13         | 19         | 13         | 21         | 16                       |
| 36           | 18         | 16         | 23         | 16         | 25         | 20                       |
| 40           | 22         | 19         | 26         | 19         | 28         | 23                       |
| 44           | 25         | 22         | 30         | 23         | 32         | 26                       |
| 48           | 29         | 25         | 34         | 26         | 35         | 30                       |
| 52           | 33         | 29         | 38         | 29         | 38         | 33                       |
| 56           | 37         | 33         | 42         | 33         | 41         | 37                       |
| 60           | 41         | 37         | 45         | 37         | 44         | 41                       |
| 64           | 44         | 41         | 49         | 41         | 47         | 45                       |
| 68           | 48         | 45         | 52         | 46         | 49         | 48                       |
| 72           | 52         | 49         | 54         | 50         | 52         | 51                       |
| 76           | 56         | 53         | 57         | 54         | 54         | 55                       |
| 80           | 60         | 57         | 60         | 58         | 57         | 59                       |
| 84           | 64         | 61         | 64         | 62         | 60         | 62                       |
| 88           | 68         | 65         | 68         | 65         | 64         | 66                       |
| 92           | 72         | 70         | 72         | 68         | 68         | 70                       |
| 96           | 77         | 75         | 77         | 72         | 73         | 75                       |
| 100          | 81         | 80         | 80         | 77         | 76         | 79                       |
| 102          | 82         | 82         | 81         | 80         | 78         | 81                       |

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### Unexposed surface temperatures of Doorset B

| Time<br>Mins | T6<br>(°C) | T7<br>(°C) | T8<br>(°C) | T9<br>(°C) | T10<br>(°C) | T11<br>(°C) | T12<br>(°C) | T13<br>(°C) | T14<br>(°C) | T15<br>(°C) |
|--------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 0            | 8          | 8          | 9          | 9          | 7           | 7           | 7           | 7           | 8           | 7           |
| 4            | 8          | 8          | 9          | 9          | 7           | 7           | 8           | 7           | 8           | 8           |
| 8            | 8          | 8          | 9          | 9          | 8           | 11          | 13          | 7           | 8           | 8           |
| 12           | 8          | 9          | 9          | 9          | 8           | 14          | 21          | 8           | 16          | 8           |
| 16           | 8          | 10         | 9          | 10         | 9           | 16          | 29          | 9           | 36          | 10          |
| 20           | 10         | 12         | 11         | 11         | 11          | 18          | 44          | 11          | 60          | 15          |
| 24           | 13         | 17         | 13         | 14         | 14          | 20          | 56          | 13          | 67          | 20          |
| 28           | 20         | 22         | 16         | 17         | 18          | 22          | 54          | 17          | 62          | 22          |
| 32           | 27         | 26         | 20         | 22         | 23          | 24          | 52          | 23          | 61          | 28          |
| 36           | 32         | 30         | 24         | 26         | 28          | 28          | 49          | 29          | 58          | 36          |
| 40           | 36         | 34         | 28         | 31         | 31          | 31          | 48          | 34          | 57          | 40          |
| 44           | 40         | 37         | 32         | 35         | 35          | 35          | 48          | 38          | 54          | 41          |
| 48           | 42         | 41         | 36         | 39         | 39          | 39          | 46          | 43          | 53          | 46          |
| 52           | 44         | 44         | 40         | 43         | 44          | 44          | 46          | 48          | 51          | 47          |
| 56           | 46         | 47         | 44         | 47         | 48          | 49          | 47          | 52          | 52          | 50          |
| 60           | 48         | 49         | 47         | 50         | 52          | 53          | 49          | 56          | 52          | 53          |
| 64           | 50         | 52         | 51         | 54         | 56          | 57          | 51          | 60          | 53          | 58          |
| 68           | 52         | 54         | 54         | 56         | 59          | 60          | 53          | 63          | 55          | 62          |
| 72           | 54         | 56         | 56         | 59         | 62          | 63          | 56          | 66          | 56          | 67          |
| 76           | 56         | 58         | 59         | 61         | 65          | 68          | 59          | 69          | 58          | 72          |
| 80           | 59         | 61         | 62         | 63         | 69          | 71          | 62          | 72          | 60          | 77          |
| 84           | 62         | 65         | 65         | 66         | 73          | 74          | 65          | 75          | 63          | 79          |
| 88           | 65         | 69         | 68         | 69         | 77          | 77          | 69          | 78          | 65          | 82          |
| 92           | 68         | 73         | 72         | 73         | 81          | 79          | 72          | 80          | 68          | 84          |
| 96           | 71         | 76         | 76         | 76         | 83          | 81          | 76          | 82          | 70          | 86          |
| 100          | 76         | 78         | 80         | 80         | 86          | 83          | 78          | 84          | 73          | 90          |
| 102          | 80         | 79         | 81         | 82         | 88          | 84          | 79          | 85          | 74          | 101         |

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### Unexposed surface temperatures of Doorset B

| Time<br>Mins | T16<br>(°C) | T17<br>(°C) | T18<br>(°C) |
|--------------|-------------|-------------|-------------|
| 0            | 9           | 11          | 9           |
| 4            | 9           | 11          | 9           |
| 8            | 11          | 13          | 10          |
| 12           | 16          | 18          | 15          |
| 16           | 22          | 25          | 22          |
| 20           | 29          | 32          | 28          |
| 24           | 36          | 38          | 34          |
| 28           | 42          | 45          | 40          |
| 32           | 47          | 50          | 45          |
| 36           | 52          | 55          | 49          |
| 40           | 56          | 60          | 53          |
| 44           | 59          | 63          | 56          |
| 48           | 62          | 66          | 59          |
| 52           | 65          | 69          | 61          |
| 56           | 69          | 72          | 64          |
| 60           | 72          | 76          | 67          |
| 64           | 73          | 77          | 69          |
| 68           | 75          | 79          | 71          |
| 72           | 75          | 80          | 72          |
| 76           | 76          | 80          | 73          |
| 80           | 77          | 81          | 74          |
| 84           | 78          | 82          | 75          |
| 88           | 79          | 83          | 76          |
| 92           | 80          | 84          | 76          |
| 96           | 80          | 85          | 77          |
| 100          | 81          | 85          | 78          |
| 102          | 81          | 85          | 78          |

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### Horizontal Deflection of Doorset A (Positive values indicate movement into the furnace)

| Time<br>Mins | D8<br>(mm) | D9<br>(mm) | D10<br>(mm) | D11<br>(mm) | D12<br>(mm) | D13<br>(mm) | D14<br>(mm) |
|--------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
| 0            | 0          | 0          | 0           | 0           | 0           | 0           | 0           |
| 10           | -1         | -1         | 3           | 5           | 3           | 3           | 1           |
| 20           | 0          | 8          | 4           | 13          | 11          | 8           | 4           |
| 30           | 1          | 13         | 1           | 18          | 20          | 13          | 7           |
| 40           | 2          | 13         | 0           | 23          | 25          | 15          | 9           |
| 50           | 2          | 14         | -4          | 29          | 29          | 18          | 11          |
| 60           | 2          | 15         | -11         | 32          | 35          | 20          | 13          |
| 70           | 3          | 15         | -14         | 34          | 36          | 21          | 14          |
| 80           | 2          | 16         | -19         | 38          | 37          | 22          | 12          |
| 90           | 2          | 16         | -19         | 40          | 38          | 21          | 12          |
| 100          | 3          | 17         | -20         | 41          | 38          | 22          | 14          |

### The closing force of door closer of Doorset A

| Door Closer Closing Force |          |        |
|---------------------------|----------|--------|
| Highest gauge reading     | Distance | Moment |
| (N)                       | (m)      | (N·m)  |
| 19.8                      | 0.94     | 18.8   |
| 19.9                      | 0.94     |        |
| 20.2                      | 0.94     |        |

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### Horizontal Deflection of Doorset B (Positive values indicate movement into the furnace)

| Time<br>Mins | D1<br>(mm) | D2<br>(mm) | D3<br>(mm) | D4<br>(mm) | D5<br>(mm) | D6<br>(mm) | D7<br>(mm) |
|--------------|------------|------------|------------|------------|------------|------------|------------|
| 0            | 0          | 0          | 0          | 0          | 0          | 0          | 0          |
| 10           | 0          | 1          | 2          | 6          | 5          | 3          | -1         |
| 20           | 0          | 4          | 3          | 13         | 15         | 9          | 5          |
| 30           | 1          | 7          | 1          | 10         | 15         | 14         | 7          |
| 40           | 3          | 9          | -2         | 15         | 21         | 17         | 10         |
| 50           | 4          | 10         | -5         | 26         | 23         | 18         | 13         |
| 60           | 4          | 11         | -9         | 30         | 38         | 22         | 15         |
| 70           | 4          | 11         | -12        | 33         | 38         | 22         | 15         |
| 80           | 5          | 12         | -17        | 37         | 40         | 27         | 17         |
| 90           | 5          | 12         | -20        | 98         | 42         | 27         | 18         |
| 100          | 6          | 11         | -21        | 39         | 43         | 27         | 17         |

### The closing force of door closer of Doorset B

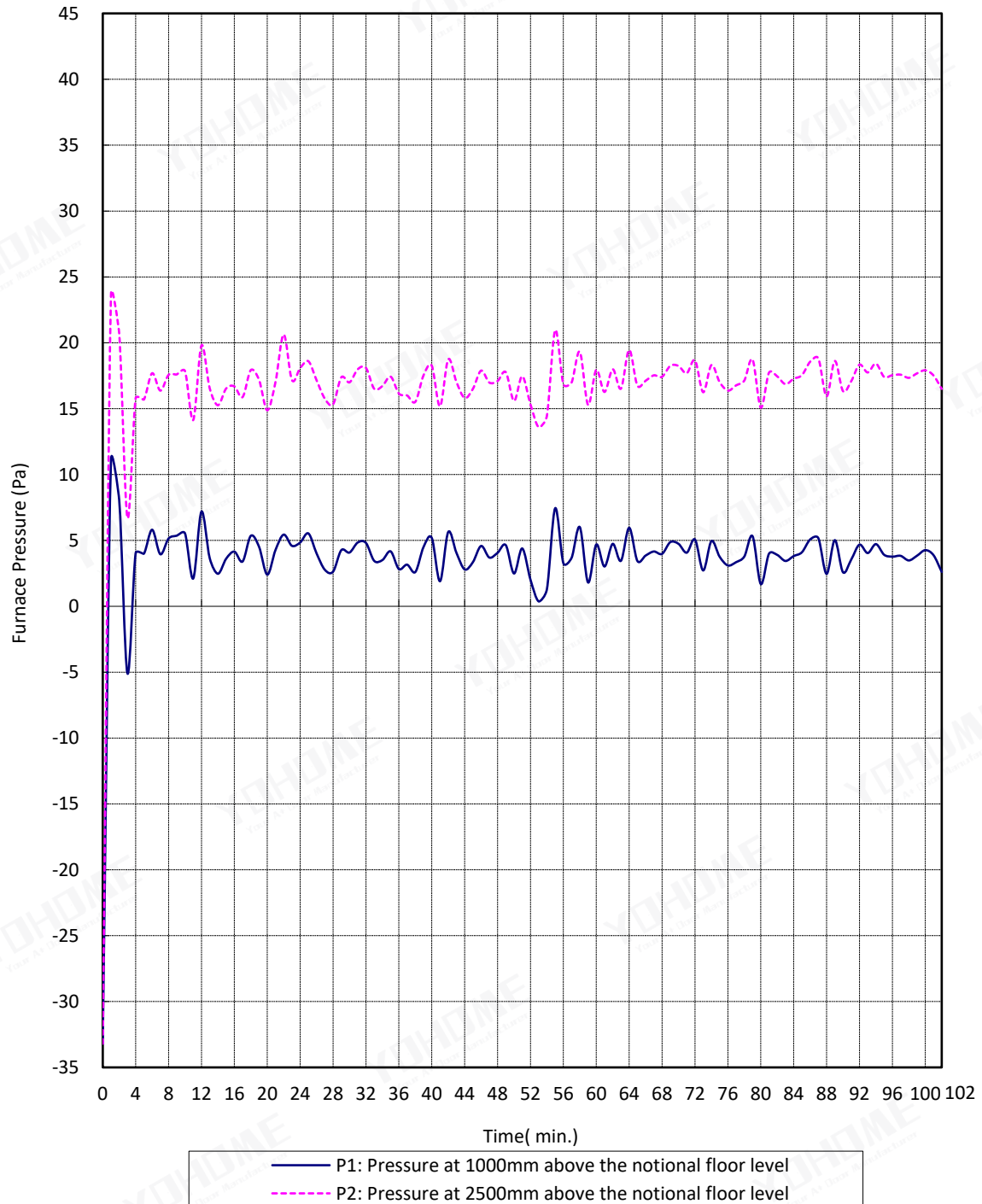
| Door Closer Closing Force |          |        |
|---------------------------|----------|--------|
| Highest gauge reading     | Distance | Moment |
| (N)                       | (m)      | (N·m)  |
| 21.3                      | 0.94     | 19.9   |
| 21.0                      | 0.94     |        |
| 21.2                      | 0.94     |        |

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### Graph for Furnace pressure



## TEST REPORT

Issue Date: 2026-04-17

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### Smoke control test 2 & 3 conducted on March 11, 2026:

**Standards:** EN 1634-3:2004, 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

**Conditioning:** According to EN 1634-3, Section 8

**Equipment:**

| ITEM                      | ID        |
|---------------------------|-----------|
| Test Chamber              | SH1346    |
| Chamber thermocouple      | SH1097-12 |
| Pressure Gauge            | SH1346-1  |
| Air Flow Gauge            | SH1346-2  |
| Ambient temperature gauge | SH1097-11 |
| Clearance Measurements    | SH1506    |
| Test Clock                | SH1042    |

|                                 |                                    |
|---------------------------------|------------------------------------|
| Test equipment:                 | According to EN 1634-3, Section 4  |
| Test Condition:                 | According to EN 1634-3, Section 5  |
| Test Specimen:                  | According to EN 1634-3, Section 6  |
| Installation of test specimen:  | According to EN 1634-3, Section 7  |
| Conditioning:                   | According to EN 1634-3, Section 8  |
| Application of instrumentation: | According to EN 1634-3, Section 9  |
| Test Procedure:                 | According to EN 1634-3, Section 10 |

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### Test Observations of Doorset C:

| Time |      | All observations are from the unexposed face unless noted otherwise.                                                                                                                                                                                                                                                                                       |
|------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mins | Secs |                                                                                                                                                                                                                                                                                                                                                            |
| 00   | 00   | Ambient temperature test started. Ambient temperature was 11.4 °C.                                                                                                                                                                                                                                                                                         |
| 25   | 30   | Ambient temperature test was completed, and leakage rates of $Q_{sup/assoc} + Q_{app}$ and $Q_t$ were measured at test pressure differentials of 10 Pa, 25 Pa and 50 Pa. No deformations were noted and no other observations of irregular behavior of the test assembly were made during the ambient temperature test.                                    |
| 26   | 00   | Medium temperature test started, and the heating system started to work.                                                                                                                                                                                                                                                                                   |
| 56   | 00   | The chamber temperature adjacent to exposed face of the specimen reached to mean temperature of 220 °C and then started to measure leakage rate of $Q_{sup/assoc} + Q_{app}$ and $Q_t$ at test pressure differentials of 10 Pa, 25 Pa and 50 Pa.                                                                                                           |
| 71   | 00   | The medium temperature test was completed. No deformations were noted and no other observations of irregular behavior of test assembly were made during the medium temperature test.<br><br>After the test, opened the door manually and no damage was observed from the perimeter seals on the door and frame and the automatic drop seal under the door. |

### Door Closer Closing Force of Doorset C:

| Door Closer Closing Force |          |        |
|---------------------------|----------|--------|
| Highest gauge reading     | Distance | Moment |
| (N)                       | (m)      | (N·m)  |
| 19.8                      | 0.94     | 19.0   |
| 20.5                      | 0.94     |        |
| 20.3                      | 0.94     |        |

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### Leakage rate of Doorset C for ambient together with medium temperature test:

The length of gaps between the frame and the door of the test door assembly excluding the gap along the threshold was 5.8 m.

| Test No. | Door opening direction | Temperature | Leakage rate $Q_{spec}$ (m <sup>3</sup> /h) at pressure difference of |       |       | Linear leakage rate $Q_l$ (m <sup>3</sup> /h/m) at pressure difference of |       |
|----------|------------------------|-------------|-----------------------------------------------------------------------|-------|-------|---------------------------------------------------------------------------|-------|
|          |                        |             | 10 Pa                                                                 | 25 Pa | 50 Pa | 10 Pa                                                                     | 25 Pa |
| 1        | Outwards               | Ambient     | 6.70                                                                  | 11.00 | 12.60 | 1.16                                                                      | 1.90  |
| 2        | Outwards               | Medium      | 3.40                                                                  | 3.90  | 4.80  |                                                                           |       |

#### Note:

1. The measured leakage/linear leakage rate include the leakage at the threshold.
2. Outwards: Door opened away from the test chamber.

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### Test Observations of Doorset D:

| Time |      | All observations are from the unexposed face unless noted otherwise.                                                                                                                                                                                                                                                                                       |
|------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mins | Secs |                                                                                                                                                                                                                                                                                                                                                            |
| 00   | 00   | Ambient temperature test started. Ambient temperature was 14.5 °C.                                                                                                                                                                                                                                                                                         |
| 25   | 00   | Ambient temperature test was completed, and leakage rates of $Q_{sup/assoc} + Q_{app}$ and $Q_t$ were measured at test pressure differentials of 10 Pa, 25 Pa and 50 Pa. No deformations were noted and no other observations of irregular behavior of the test assembly were made during the ambient temperature test.                                    |
| 25   | 30   | Medium temperature test started, and the heating system started to work.                                                                                                                                                                                                                                                                                   |
| 55   | 30   | The chamber temperature adjacent to exposed face of the specimen reached to mean temperature of 220 °C and then started to measure leakage rate of $Q_{sup/assoc} + Q_{app}$ and $Q_t$ at test pressure differentials of 10 Pa, 25 Pa and 50 Pa.                                                                                                           |
| 70   | 15   | The medium temperature test was completed. No deformations were noted and no other observations of irregular behavior of test assembly were made during the medium temperature test.<br><br>After the test, opened the door manually and no damage was observed from the perimeter seals on the door and frame and the automatic drop seal under the door. |

### Door Closer Closing Force of Doorset D:

| Door Closer Closing Force |          |        |
|---------------------------|----------|--------|
| Highest gauge reading     | Distance | Moment |
| (N)                       | (m)      | (N·m)  |
| 21.7                      | 0.94     | 20.0   |
| 21.3                      | 0.94     |        |
| 20.8                      | 0.94     |        |

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### Leakage rate of Doorset D for ambient together with medium temperature test:

The length of gaps between the frame and the door of the test door assembly excluding the gap along the threshold was 5.8 m.

| Test No. | Door opening direction | Temperature | Leakage rate $Q_{\text{spec}}$ ( $\text{m}^3/\text{h}$ ) at pressure difference of |       |       | Linear leakage rate $Q_l$ ( $\text{m}^3/\text{h}/\text{m}$ ) at pressure difference of |       |
|----------|------------------------|-------------|------------------------------------------------------------------------------------|-------|-------|----------------------------------------------------------------------------------------|-------|
|          |                        |             | 10 Pa                                                                              | 25 Pa | 50 Pa | 10 Pa                                                                                  | 25 Pa |
| 1        | Inwards                | Ambient     | 2.50                                                                               | 4.40  | 6.70  | 0.43                                                                                   | 0.76  |
| 2        | Inwards                | Medium      | 3.40                                                                               | 3.30  | 5.20  |                                                                                        |       |

#### Note:

1. The measured leakage/linear leakage rate include the leakage at the threshold.
2. Inwards: Door opened into the test chamber.

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### Durability of self-closing test 4 conducted on March 14, 2026 through March 23, 2026:

**Standards:** EN 1191:2012, Windows and doors – Resistance to repeated opening and closing – Test method

**Procedure:** Annex H Test procedures for side-hung pedestrian doorsets excluding power operated doors

**Test Condition:** According to EN 1191, Section 6

**Equipment:**

| ITEM                   | ID       |
|------------------------|----------|
| Torque wrench          | SH1254   |
| Force gauge            | SH1211   |
| Stopwatch              | SH1228   |
| Clearance Measurements | SH1506   |
| Electronic scale       | SH1386-2 |

Test requirements: EN 1191:2012, Section 5

Preparation for testing: EN 1191:2012, Section 6

Test procedure: EN 1191:2012, Section 7 & Annex H

### Test data

The dead loads applied to the operation points were measured 1.5 kg.

The weight of the door was measured 122 kg.

Cycling completed: 50000 cycles

Opening time: 3s - 7s

Closing time: 2s - 3s

Rest time: 1s

Operating forces measured before and after the cycling test:

| Test sequence | Operation of Door Closer (Opening force) | Operation of the handle de-latch |
|---------------|------------------------------------------|----------------------------------|
| Before Test   | Avg. 53.14 N·m                           | Avg. 0.60 N·m                    |
| After Test    | Avg. 48.07 N·m                           | Avg. 0.57 N·m                    |

The clearance measured between the door and the frame before and after the cycling test:

| Test sequence | Top edge    | Leading edge | Hinge edge  | Bottom edge |
|---------------|-------------|--------------|-------------|-------------|
| Before Test   | Avg. 3.7 mm | Avg. 3.3 mm  | Avg. 1.3 mm | Avg. 6.3 mm |
| After Test    | Avg. 3.8 mm | Avg. 3.4 mm  | Avg. 1.4 mm | Avg. 6.1 mm |

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### SECTION 12 PHOTOGRAPHS



Fig. 1 Exposed Side Prior to the Fire Test 1



Fig. 2 Unexposed Side Prior to the Fire Test 1

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Fig. 3 Unexposed Side after 30 Minutes of the Fire Test 1



Fig. 4 Unexposed Side after 60 Minutes of the Fire Test 1

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Fig. 5 Unexposed Side after 102 Minutes of the Fire Test 1



Fig. 6 Exposed Side after 102 Minutes of the Fire Test 1

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Fig. 7 Unexposed Side of test door assembly before air leakage test 2



Fig. 8 Exposed Side of test door assembly after air leakage test 2

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Fig. 9 Unexposed Side of test door assembly before air leakage test 3



Fig. 10 Test door assembly after air leakage test 3

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### SECTION 13

#### REVISION LOG

| REVISION # | DATE       | PAGES                     | REVISION                                                          |
|------------|------------|---------------------------|-------------------------------------------------------------------|
| 0          | 2026-04-17 | N/A                       | Original Report Issue                                             |
| 1          | 2026-04-23 | 1, 2, 3, 8, 19,<br>20, 21 | As per the requirement of the sponsor,<br>revised the model name. |