

GUANGDONG YOHOME DOOR CO., LTD

TEST REPORT

SCOPE OF WORK

AS 1530.4: 2014 Fire Resistance Testing on Single Leaf Single Action Timber Composite Fire Door,
Model: YHASFD90, When Installed in Plasterboard Partition

REPORT NUMBER

241203110GZC-001 R2

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Intertek Testing Services Shenzhen Ltd. Guangzhou Branch



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REPORT ISSUED TO

Applicant : GUANGDONG YOHOMES DOOR CO., LTD
Address : 2108, Block 4, Jiabang Guojin Center, No. 1, Pingzhou Shilong South Road, Guicheng Street, Nanhai District, Foshan City
Manufacturer : GUANGDONG YOHOMES INDUSTRIAL CO., LTD
Address : No. 280 Hefu Road, Hecheng Street, Gaoming District, Foshan City

SECTION 1

SCOPE

Intertek has conducted an evaluation for GUANGDONG YOHOMES DOOR CO., LTD to determine the fire resistance characteristics of the Single Leaf Single Action Swing Timber Composite Fire Door, model: YHASFD90, when installed in plasterboard partition. The test was conducted on December 6, 2024. Test Location: C2-1, Heping Xu, Yongning Street, Zengcheng District, Guangzhou, China.

The test was conducted in accordance with AS 1530.4: 2014, Methods for fire tests on building materials, components and structures - Part 4: Fire-resistance tests for elements of construction, Section 7 Doorsets and shutter assemblies and AS 1905.1: 2015*, Components for the protection of openings in fire-resistant walls - Part 1: Fire-resistant doorsets, Section 3 Determination of fire resistance.

* Indicates the standard is not accredited by IAS.

SECTION 2

SUMMARY OF TEST RESULTS

Summary of Test Assembly

Two identical specimens were tested simultaneously. The specimens were referenced to Doorset A and Doorset B for the purpose of the test.

The specimen had an overall size of 3000 mm high by 1100 mm wide and incorporated a door leaf of overall dimension 2947 mm high by 1013 mm wide by 60 mm thick. The door leaf was hung within a timber composite frame on six stainless steel hinges. The door leaf was constructed of 5 mm thick plywood and 8 mm thick fire-rate board sandwiching a 34 mm thick fire-rated door core perlite. The door leaf included stiles, rails and mid-rails which were made of flame-retardant solid wood. The stiles and rails were fixed together by steel staple. One number of 30mm (w) x 4mm (t) fire intumescent seal was mortised mounted at vertical edge and top edge of the door leaf. One number of 30mm (w) x 4mm (t) fire intumescent seal was mortised mounted at the rabbet of jamb and head of the door frame. One number of 15mm (w) x 15mm (t) smoke seal was surfaced mounted at the stop of jamb and head of the door frame. One number of 15mm (w) x 30mm (t) automatic drop seal was fitted at the bottom of door leaf. One number of 100mm (w) x 10mm (t) door casing was surfaced mounted around the pull side of the door frame. One number of 65mm (w) x 10mm

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(t) door casing was surfaced mounted around the push side of the door frame. A surface-mounted door closer with regular arm was at the top rim of the door leaf on the pull side. A mortice lock was fitted in the door leaf. The doorset was latched but not locked during the test.

The leaf of Doorset A was orientated such that it opened toward the heating conditions of the test.

The leaf of Doorset B was orientated such that it opened away from the heating conditions of the test

The door frame was installed in steel stud framed wall with two layers of 12.5mm thick plasterboard on each side and sandwiched with mineral wool.

Test Result

Test result for doorset A opening into the furnace:

PERFORMANCE CRITERIA	RESULTS
Structural adequacy	Not applicable
Integrity	90 minutes
Insulation	90 minutes
Fire resistance level (FRL)	-/90/90

The test specimen satisfied the applicable performance criteria of Fire Resistance Level (FRL):-/90/90. The FRL is applicable for exposure to fire from the same direction as tested.

The test was discontinued after a period of 90 minutes at the request of the sponsor.

Test result for doorset B, opening away from furnace:

PERFORMANCE CRITERIA	RESULTS
Structural adequacy	Not applicable
Integrity	90 minutes
Insulation	90 minutes
Fire resistance level (FRL)	-/90/90

The test specimen satisfied the applicable performance criteria of Fire Resistance Level (FRL):-/90/90. The FRL is applicable for exposure to fire from the same direction as tested.

The test was discontinued after a period of 90 minutes at the request of the sponsor.

Report Authorized:

Authorized By:



Kevin Pan
Reviewer

Completed By:



Jim Li
Project Engineer

Noted: If you have any questions for the report, please contact: lillian.lf.he@intertek.com

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SECTION 3

TEST METHOD

The specimen was evaluated in accordance with the following:

AS 1530.4-2014, *Methods for fire tests on building materials, components and structures - Part 4: Fire-resistance tests for elements of construction, Section 7 Doorsets and shutter assemblies.*

AS 1905.1-2015*, *Components for the protection of openings in fire-resistant walls - Part 1: Fire-resistant doorsets, Section 3 Determination of fire resistance.*

* indicates this standard isn't approved by the IAS.

SECTION 4

SAMPLE VERIFICATION AND CONSTRUCTION

Sampling / Specimen Selection

The test specimens were provided to Intertek directly by the client and were not independently selected for testing. The test specimens were received in good condition at the Evaluation Center on Dec. 6, 2024 and the sample ID number assigned by the test lab is S241203110GZU.001~002.

Support Construction and Installation

The doorset was mounted within an aperture in a plasterboard partition to form the test construction. The partition was constructed of nominal 75 mm x 45 mm C studs sandwiched with 50 mm rock wool with two layers of 12.5 mm plasterboard on both faces. Each specimen was fixed with nine self-tapping screws per jamb and three self-tapping screws on header within an aperture in the partition. The gap between each specimen and plasterboard partition was nominal 10 mm, this gap was filled with rock wool on both sides. Free edges were left at each vertical end of plasterboard partition and the 40 mm gap was filled with rock wool to create an impermeable barrier. The plasterboard partition was erected by representatives of the laboratory. Installation was conducted by representatives of test sponsor on Dec. 6, 2024.

Conditioning

After installation, the test specimen was subjected to normal laboratory temperatures and conditions between the completion of construction of the test specimen and the start of the test over a total combined time of 1 day. Throughout this period, both temperature and humidity of the laboratory were measured and recorded as being within a range of 14.5°C to 28.2°C and 29.6% to 82.0% respectively.

Test Specimen Construction

A comprehensive description of the test construction is given in the Schedule of Construction Components. The description is based on a detailed survey of the specimens and information supplied by the sponsor of the test.

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SECTION 5

MATERIAL SOURCE/INSTALLATION

A description of the test assembly is given in the table below. The description of the test specimen was provided by the client. All values quoted below are nominal, unless tolerances are given.

ASSEMBLY UNITS		DESCRIPTION					
Door	Type	Single Leaf Single Action Swing Timber Composite Fire Door					
	Nominal Size	1013	mm wide	2947	mm high	60	mm thick
	Main materials	Facing: 5 mm plywood with the density of 760 kg/m ³ Sub-facing: 8 mm magnesium oxide fire rated board with the density of 1000 kg/m ³ Door core: 34 mm magnesium oxide fire rated door core panel with the density of 450 kg/m ³ Top & Bottom Rail: 40 × 34 mm flame retardant solid wood (NYATOH Wood) with the density of 800 kg/m ³ Left & Right Stile: 40 × 34 mm flame retardant solid wood (NYATOH Wood) with the density of 800 kg/m ³ Medium Rail & Stile: 40 × 34 mm flame retardant solid wood (NYATOH Wood) with the density of 800 kg/m ³					
Frame	Nominal Size	1100	mm wide	3000	mm high	115	mm depth
	Material	Facing: 5 mm plywood with the density of 760 kg/m ³ Sub-facing: 5 mm magnesium oxide fire-rate board with the density of 1000 kg/m ³ Core: Flame retardant solid wood (NYATOH Wood) with the density of 800 kg/m ³ Door Casing: 5 mm plywood with the density of 760 kg/m ³ + 5 mm magnesium oxide fire-rate board with the density of 1000 kg/m ³					
	Jambs to head joint method	Butt joint & screwed, using 100 mm length and 5 mm diameter countersunk head wood screws.					
	Installation	The frame was installed in light steel keel opening by nine (9) sets of self-tapping screw on each frame jamb, spaced approx. 300 mm and three (3) sets of self-tapping screw on frame header, spaced approx. 500 mm.					

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ASSEMBLY UNITS		DESCRIPTION
Hardware	Lock	Manufacturer: JIANGMEN LIKCOO HARDWARE MANUFACTURING CO LTD Type: Mortice lock Model: ML023 Backset: 70 mm; Latch bolt: 12.7 mm; Latch bolt: engaged; Deadbolt: disengaged.
	Hinge	Manufacturer: JIANGMEN LIKCOO HARDWARE MANUFACTURING CO LTD Type: Stainless Steel 304; Model: SSA002-4.5''x 4''x 3 Quality: Six; Size: 4.5''x 4''x 3 mm; Fixing: 30 mm length 5 mm diameter countersunk head wood screws, 4 off per blade
	Lever Handle	Manufacturer: JIANGMEN LIKCOO HARDWARE MANUFACTURING CO LTD Model: SH101 Type: Sprung return lever handle; Material: Stainless steel
	Door closer	Manufacturer: JIANGMEN LIKCOO HARDWARE MANUFACTURING CO LTD Model: DL005-3 Location: Surface mounted on the pull side.
	Drop seal	Manufacturer: ATHMER OHG Model: M-15/30 EK Size: 15 x 30 mm Location: Concealed mounted centrally on bottom of the door leaf.
Intumescent Seal		Manufacturer: Foshan Nanhai Chong Tai Fireproof Material Company Limited Model: FQ-C3004 Size: 4 x 30 mm Type: Rigid Box Seal Location: a) One strip mortise mounted on both jambs and header of the door leaf and frame; b) One strip mortise mounted, centred on thickness vertical edges and top edge of door leaf;
Smoke Seal		Manufacturer: Foshan Nanhai Chong Tai Fireproof Material Company Limited Model: FQ-VA002 Size: 15 x 15 mm Location: One strip surfaced mounted on the stop of door frame.

The drawings of the test specimen and test wall construction can be found in Section 10 and 11 respectively.

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SECTION 6 INSTRUMENTATION

The instrumentation was provided in accordance with the requirements of the Standard.

Furnace	The furnace temperature was measured by nine mineral insulated metal sheathed Type K thermocouples, distributed over a plane 100 mm from the surface of the test construction.
Thermocouple Allocation	Thermocouples were provided to monitor the unexposed surface of the specimen. The output of all instrumentation was recorded at no less than one minute interval as follows:
Thermocouples 11 to 15 on Doorset A Thermocouples 31 to 35 on Doorset B	At five positions on the unexposed surface of the doorset, one approximately at the centre and one at the approximate centre of each quarter section of each doorset.
Thermocouples 16 to 20 on Doorset A Thermocouples 36 to 40 on Doorset B	At five positions on the unexposed surface of the door leaf, positioned at 100 mm in from the door leaf vertical edges, two at mid-height, and three at 100 mm below the top edge of the leaf.
Thermocouples 21 to 25 on Doorset A Thermocouples 41 to 45 on Doorset B	At five positions on the unexposed surface of the door frame, positioned at 15 mm from the door frame vertical edges, two at mid-height, and three at 15 mm below the top edge of the frame.
Thermocouples 26 to 30 on Doorset A Thermocouples 46 to 50 on Doorset B	At five positions on the unexposed surface of separating element, positioned at 100 mm from the door frame vertical edges, two at mid-height, and three at 100 mm above the top edge of the frame. The locations and reference numbers of the various unexposed surface thermocouples are shown in Figure 4.
Roving Thermocouple	A 'type K' roving thermocouple was available to measure temperatures on the unexposed surface of the specimen at any position which might appear to be hotter than the temperatures indicated by the fixed thermocouples.
Radiometer R1 on Doorset A R2 on Doorset B	Water-cooled foil heat flux meters were used to record the heat radiation from the specimen, the heat flux meters were positioned at a distance of 1m from the geometric center of the specimen.
Furnace Pressure	After the first 5 minutes of the test and for the remainder of the test, the furnace pressure was maintained at 4 ± 3 Pa with respect to laboratory atmosphere. The furnace pressure was measured at 1000 mm above the notional floor level.
Integrity Criteria	Cotton pads and gap gauges were provided to evaluate the integrity of the specimen.

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SECTION 7

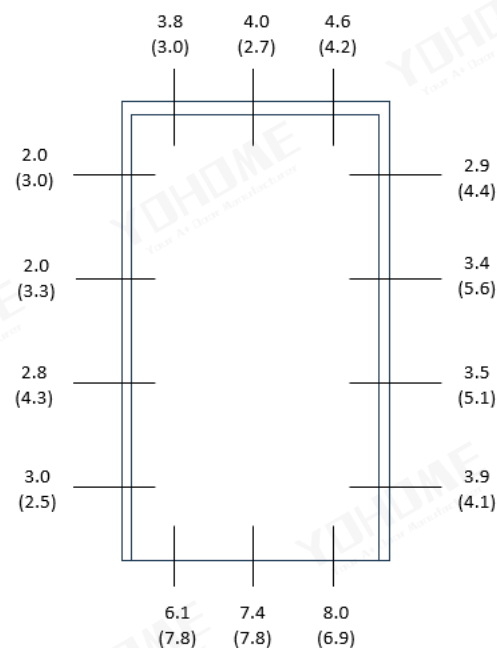
PRE-TEST MEASUREMENT

Pre-test functionality test

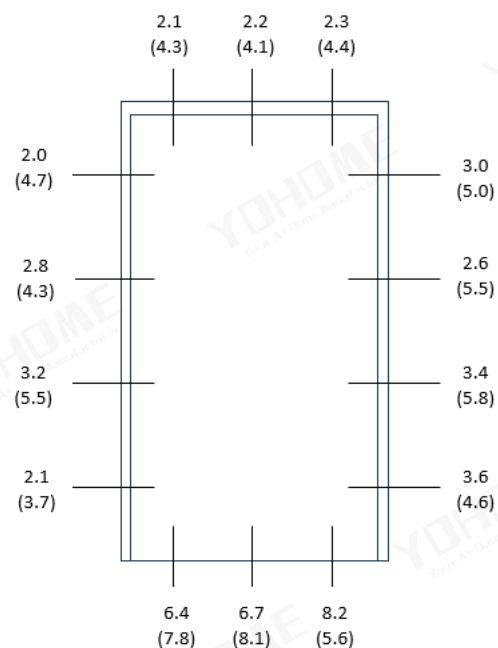
Opening and closing cycles	The doors were subjected to a series of 50 opening and closing cycles of at least 75° for side-hung doorsets in accordance with Clause 7.2.5 of AS 1530.4: 2014.
Opening Force of Doorset A	60 N @ Handle position
Opening Force of Doorset B	67 N @ Handle position

Gap measurement data

The primary clearance gaps between the edge of the door leaf and frame were measured and summarized in the following table.



Doorset A - Measured from Exposed Face
(Brackets for the unexposed face)



Doorset B - Measured from Unexposed Face
(Brackets for the exposed face)

Average clearance measurements	Doorset	Doorset A of exposed face	Doorset B of unexposed face
	Top edge	4.1 mm	2.2 mm
	Latch edge	2.7 mm	3.2 mm
	Hinge edge	2.5 mm	2.5 mm
	Bottom edge	7.2 mm	7.1 mm

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Average clearance measurements	Doorset	Doorset A of unexposed face	Doorset B of exposed face
	Top edge	3.3 mm	4.3 mm
	Latch edge	4.8 mm	5.2 mm
	Hinge edge	3.3 mm	4.6 mm
	Bottom edge	7.5 mm	7.2 mm

Final Setting

The specimen was subjected to a final closing in accordance with clause 7.2.7 of AS 1530.4:2014 which involved opening the door leaf to a distance of approximately 300 mm and returning them to the closed position.

SECTION 8

PERFORMANCE CRITERIA AND TEST RESULTS

Performance Criteria

Integrity

Integrity failure shall be deemed to have occurred when one of the following occurs:

- a) Integrity failure shall be deemed to have occurred upon ignition of the cotton pad when glowing or flaming occurs or for a period of 30 seconds.
- d) Sustained flaming on the unexposed face for 10 seconds or longer shall be deemed to be integrity failure.
- c) Integrity failure shall be deemed to occur when a 6mm gap gauge can be passed through the specimen so that the gap gauge projects into the furnace and can be moved a distance of 150mm along the gap.
- d) Integrity failure shall be deemed to occur when a 25mm gap gauge can be passed through the specimen so that the gap gauge projects into the furnace
- e) For side-hung doorsets with door leaf or leaves having a latching mechanism, failure in respect to integrity shall be considered to have occurred when this mechanism ceases to be engaged. If the latching mechanism is disengaged at the end of the test and the time to disengagement is not recorded during the test, a zero-integrity level shall be assigned.

Insulation

Insulation failure shall be deemed to have occurred when one of the following occurs:

- a) The average temperature of the unexposed face of the test specimen, as measured by the thermocouples specified in clause 2.2.3.1, exceeds the initial temperature by more than 140 K.
- b) The temperature at any location on the unexposed face of the test specimen exceeds the initial temperature by more than 180 K.

Radiation

- a) Failure in relation to radiation shall be deemed to have occurred when the calculated total heat flux at a distance of 365 mm exceeds 10 kW/m².

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Test Result

Doorset A - opening into the furnace:

Integrity

No through openings or penetrations were evident at this 90 minutes' fire exposure portion of the test. No cotton pad or significant flaming were observed on the unexposed face of the assembly for 90 minutes. The latching mechanism was visibly engaged.

Insulation

Transmission of heat through the assembly during the fire resistance test of 90 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.

Radiation

The calculated total heat flux at a distance of 365 mm using the configuration factor formula in AS 1530.4 Appendix A did not exceed 10 kW/m².

The test was discontinued after a period of 90 minutes at the request of the sponsor.

Doorset B - opening away from furnace:

Integrity

No through openings or penetrations were evident at this 90 minutes' fire exposure portion of the test. No cotton pad or significant flaming were observed on the unexposed face of the assembly for 90 minutes. The latching mechanism was visibly engaged.

Insulation

Transmission of heat through the assembly during the fire resistance test of 90 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.

Radiation

The calculated total heat flux at a distance of 365 mm using the configuration factor formula in AS 1530.4 Appendix A did not exceed 10 kW/m².

The test was discontinued after a period of 90 minutes at the request of the sponsor.

A full set of test data is included in Section 13, and photographs have been presented in Section 14.

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SECTION 9

APPLICATION OF TEST RESULTS

The results of these fire tests may be used to directly assess fire hazard, but it should be recognized that a single test method will not provide a full assessment of fire hazard under all fire conditions.

These results only relate to the behaviour of the specimen of the element of the construction under the particular conditions of the test. They are not intended to be the sole criteria for assessing the potential fire performance of the element in use, and they do not necessarily reflect the actual behaviour in fires.

This report details methods of construction, the test conditions and the results obtained when the specific element of construction described herein was test following the procedure outlined in AS 1530.4. Any significant variation with respect to size, construction details, loads, stresses, edge or end conditions, other than that allowed under the field of direct application in the relevant test method, is not cover by this report.

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

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SECTION 10

FIRE DOOR ASSEMBLY DRAWING

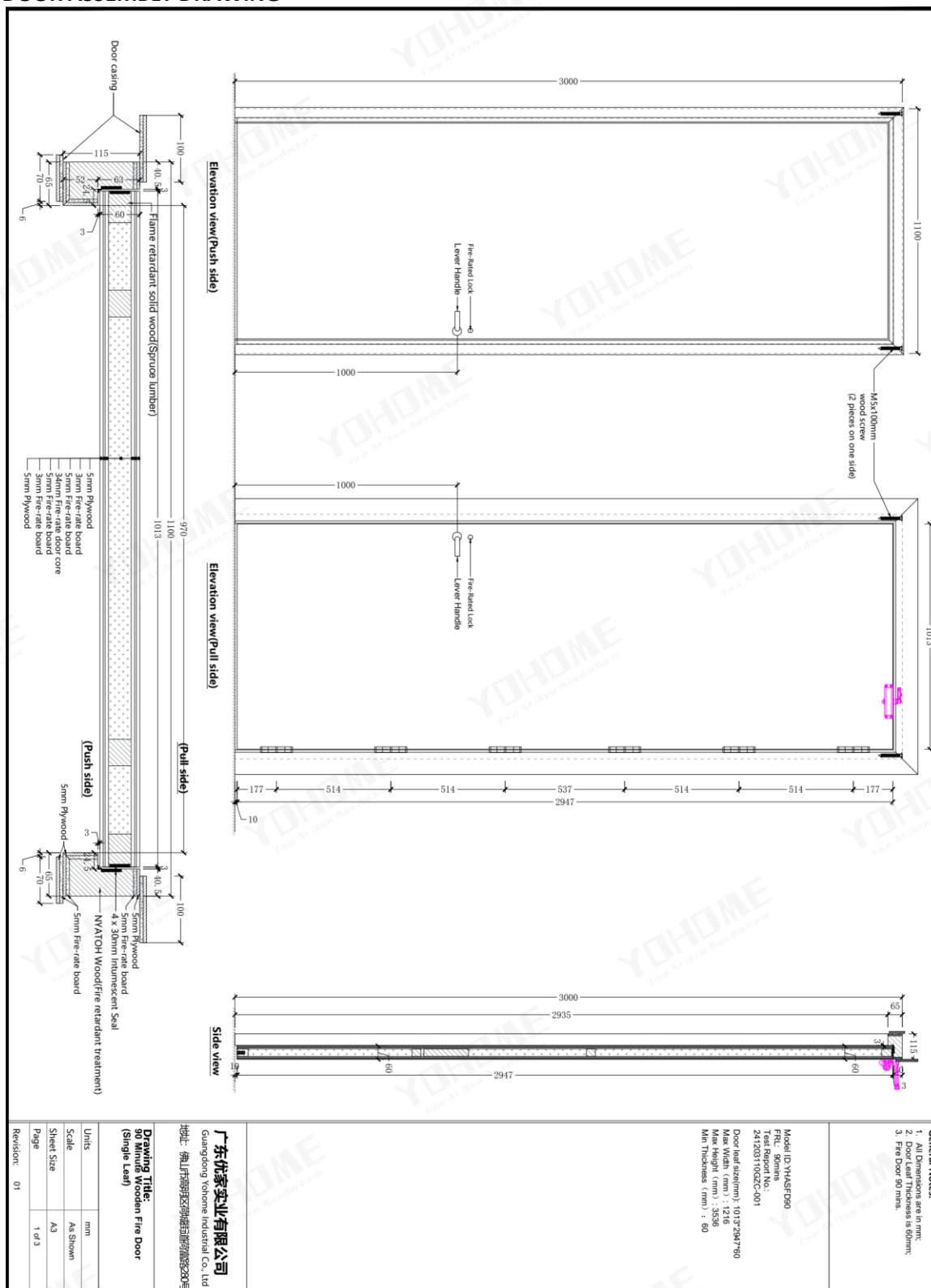


Figure 1 – General Elevation of Test Doorset

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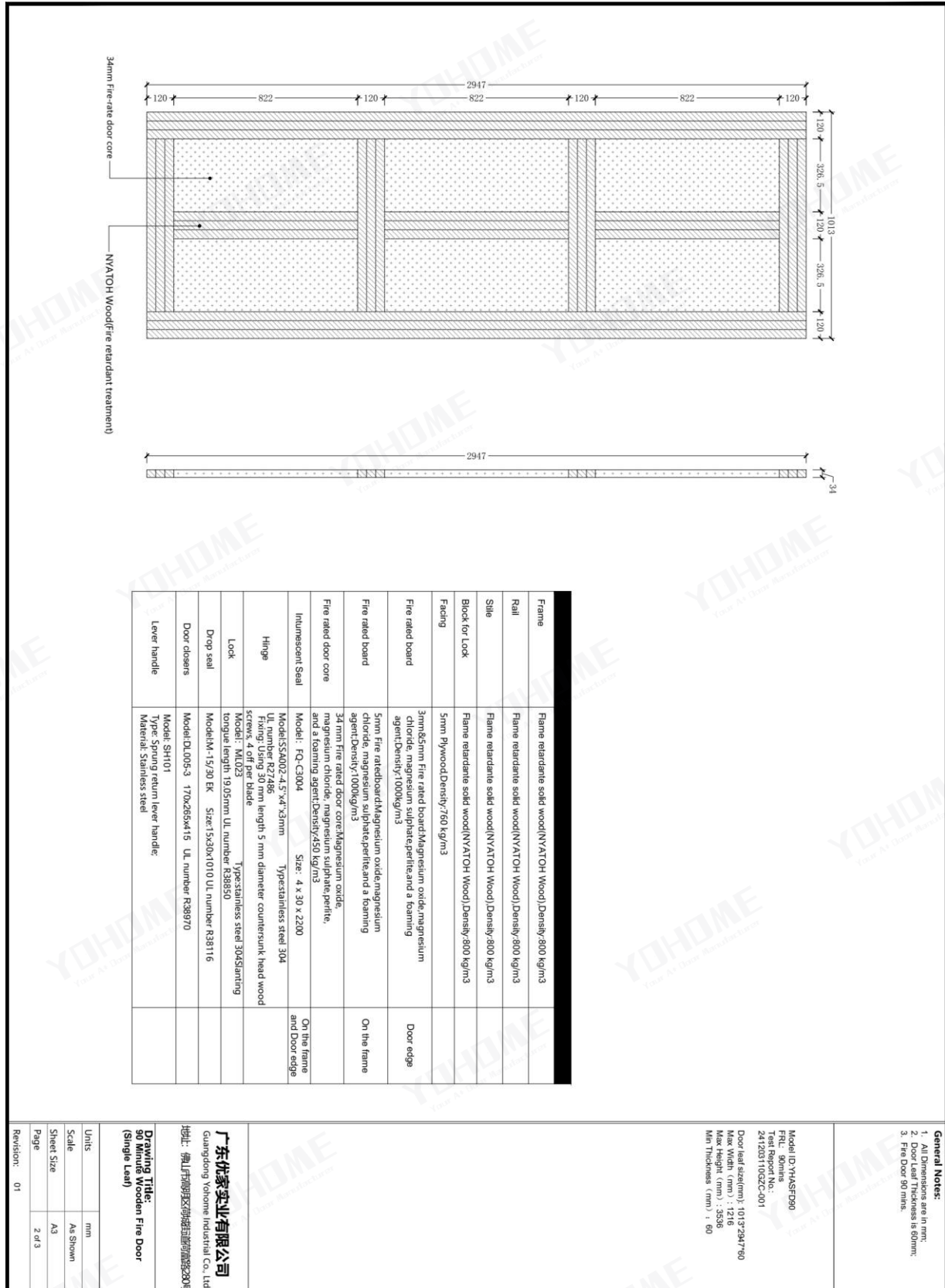


Figure 2 – Internal Structure of Door Leaf

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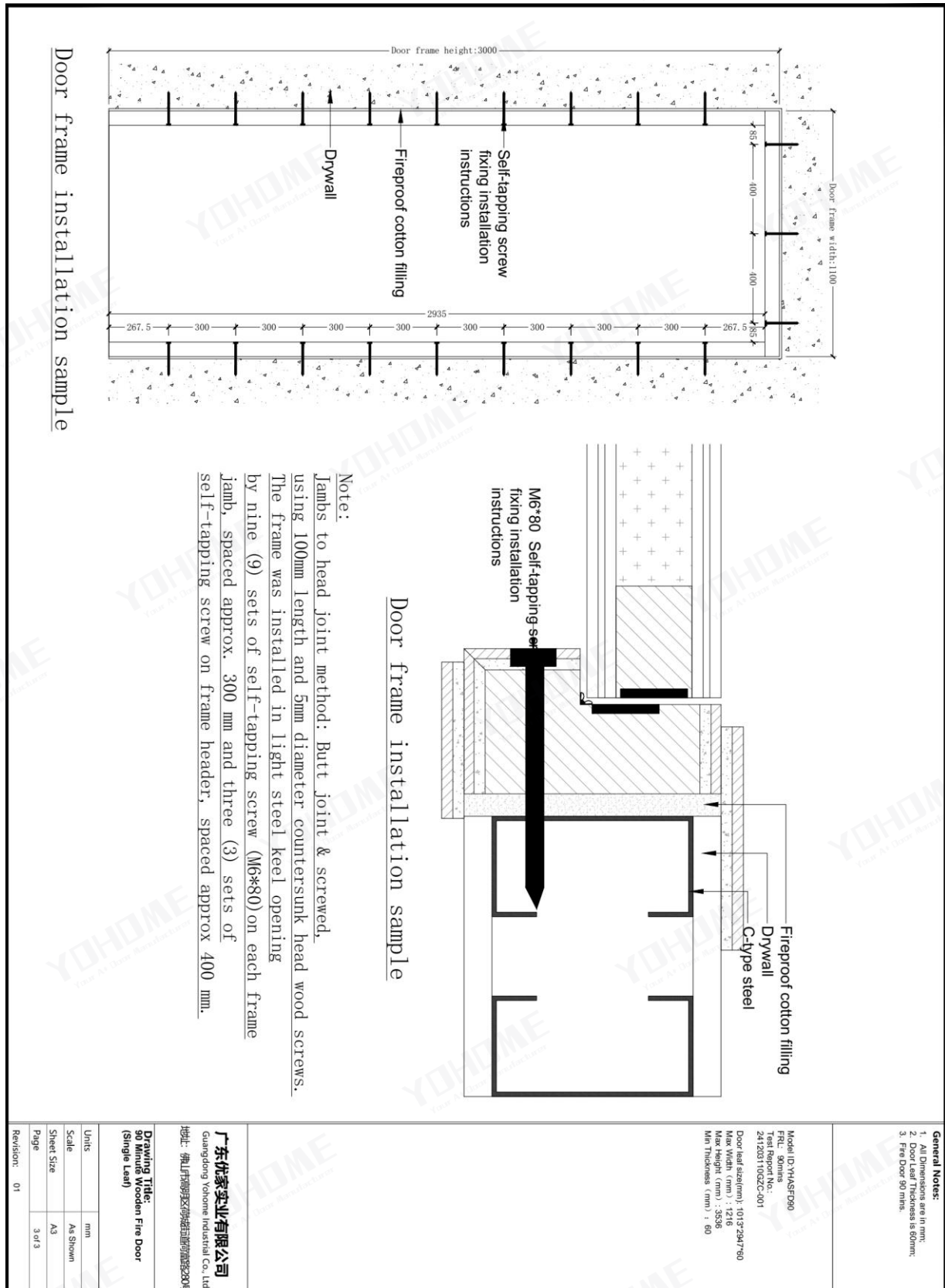


Figure 3 – Details of Door Frame and Leaf

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SECTION 11

TEST WALL CONSTRUCTION

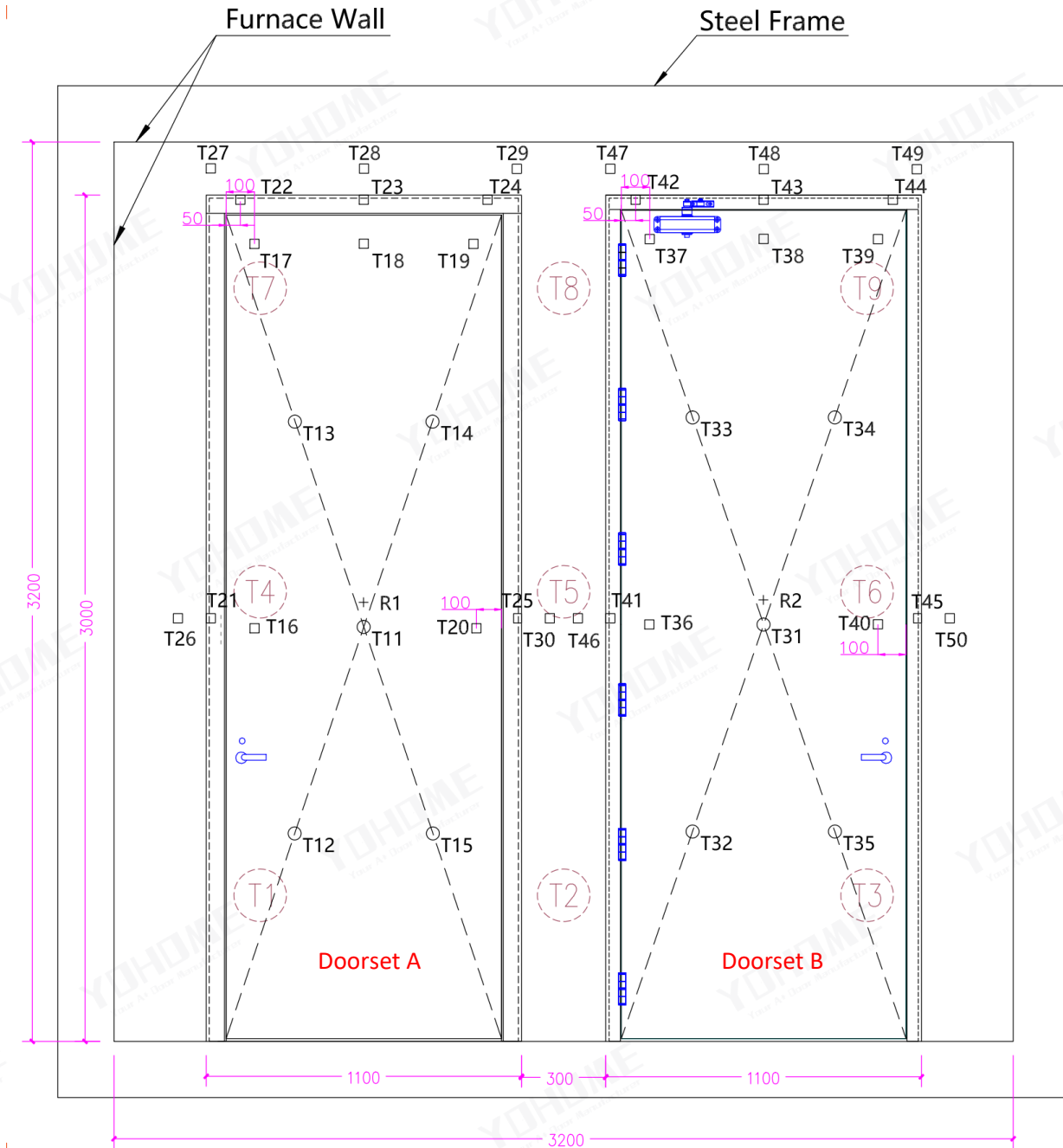


Figure 4 – Locations and reference number of thermocouples to monitor the temperature

T1 ~ T9 Position for furnace thermocouples

○ Positions for thermocouples for average and maximum temperature rise.

□ Positions for thermocouples for maximum temperature rise.

+ R1/R2, Positions for radiation measurement.

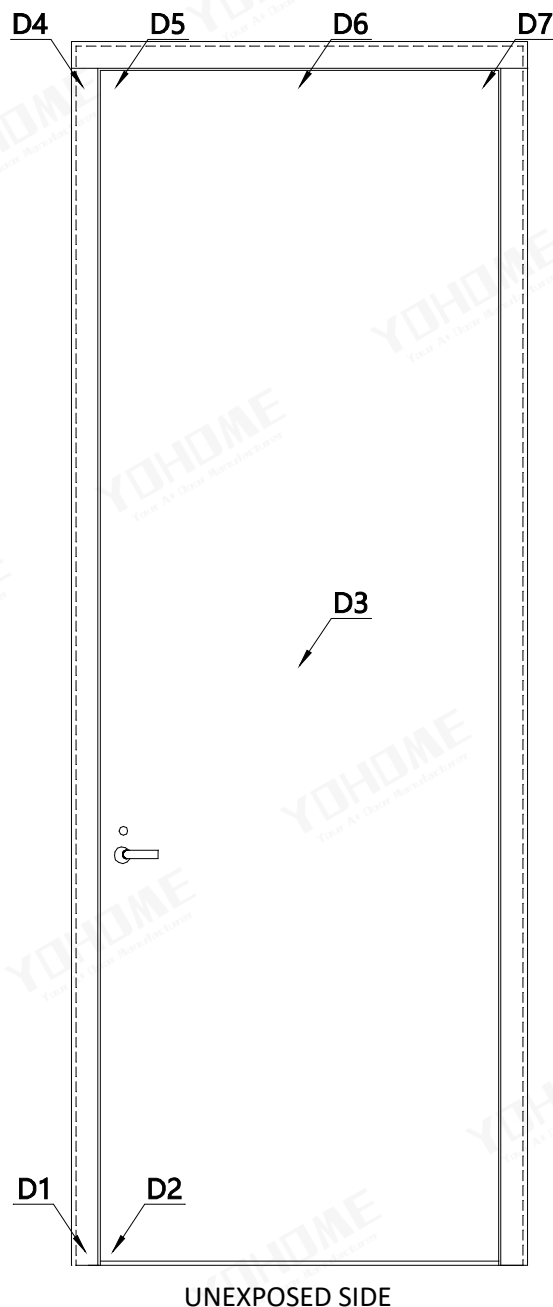
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SECTION 12

TEST MEASUREMENT DATA



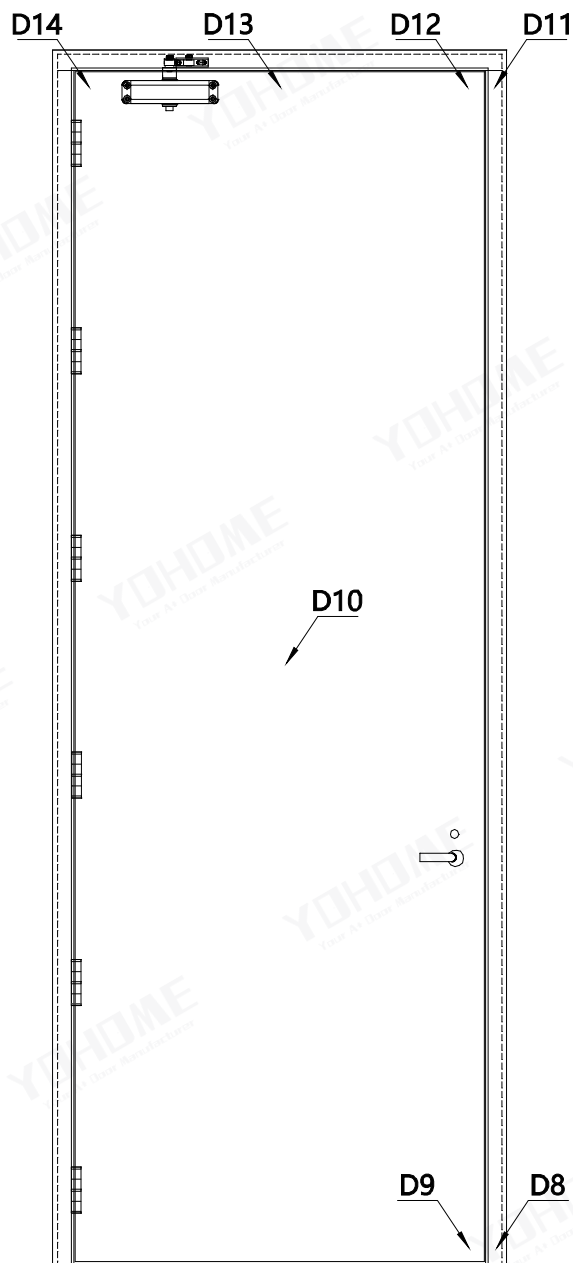
D1~D7 Positions for deflection measurement

Figure 5 – Locations for horizontal deflection of measurements of doorset A

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UNEXPOSED SIDE

D8~D14 Positions for deflection measurement

Figure 6 – Locations for horizontal deflection of measurements of doorset B

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SECTION 13

TEST DATA

Test Observations

The ambient air temperature in the vicinity of the test construction was 22.2 °C at the start of the test with maximum variation of -0.6°C during the test.

Time		All observations are from the unexposed face unless noted otherwise.
Mins	Secs	
00	00	Test started.
02	30	Doorset A & B, smoke issued around the doorsets.
03	03	There was an unidentified sound emitted from the doorset.
06	52	There was an unidentified sound emitted from the doorset.
11	16	Doorset A, the leading edge of doorset was blackened.
13	35	Doorset B, the hinge edge of doorset was blackened.
18	29	Doorset A, the bottom edge of doorset was blackened.
23	05	Doorset B, the lower left corner of doorset was blackened.
30	00	No integrity failure has occurred.
33	19	Doorset B, unidentified liquid emitted from the handle of the doorset.
33	49	Doorset A, unidentified liquid emitted from the upper left corner of the doorset.
39	45	Doorset A, the top edge of doorset was blackened.
41	33	Doorset B, the top edge of doorset was blackened.
56	05	Doorset B, the lock cylinder of doorset was blackened.
56	55	Doorset A, identified liquid emitted from the lock cylinder of the doorset.
59	12	Doorset A, smoke issued from the lock cylinder of the doorset.
60	00	No integrity failure has occurred.
62	05	Doorset B, a cotton pad was applied at the position between upper left corner of frame and supporting construction, and pad wasn't ignited.
65	10	Doorset B, a cotton pad was applied at the position between upper left corner of frame and supporting construction, and pad wasn't ignited.
68	13	Doorset B, the handle of doorset was blackened.
80	12	Doorset A, the handle of doorset was blackened.
86	15	Doorset A, light glowing was found at the upper left corner of door leaf
90	00	Test was discontinued at the request of the sponsor.
After Test		Doorset A, latching mechanism was visibly engaged. Doorset B, latching mechanism was visibly engaged.

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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	27
3	502	427
6	603	610
9	663	640
12	705	702
15	739	757
18	766	785
21	789	805
24	809	827
27	826	843
30	842	870
33	856	874
36	869	879
39	881	886
42	892	900
45	902	912
48	912	926
51	921	937
54	930	947
57	938	954
60	945	967
63	953	976
66	960	983
69	966	988
72	973	985
75	979	984
78	985	989
81	990	995
84	996	1004
87	1001	1014
90	1006	1017

Total Quality. Assured.

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Mean unexposed surface temperatures of the door leaf of Doorset A

Time Mins	T11 (°C)	T12 (°C)	T13 (°C)	T14 (°C)	T15 (°C)	Mean temperature (°C)
0	24.9	23.7	24.3	24.9	23.7	24.3
3	24.3	23.1	24.9	24.9	23.7	24.2
6	24.9	19.1	24.9	24.9	24.3	23.6
9	24.9	21.4	24.9	26.0	24.3	24.3
12	24.9	22.5	25.4	26.6	24.3	24.7
15	24.9	22.0	25.4	26.6	24.9	24.8
18	24.9	21.4	26.0	26.6	24.9	24.8
21	24.9	23.1	26.6	27.8	25.4	25.6
24	24.9	23.1	27.2	28.3	26.6	26.0
27	25.4	23.7	28.9	29.5	27.8	27.1
30	26.0	24.9	30.6	31.2	28.9	28.3
33	26.6	26.0	33.0	33.5	31.2	30.1
36	27.8	28.3	35.3	35.8	33.5	32.1
39	29.5	31.2	38.2	38.2	35.8	34.6
42	31.2	34.1	39.0	40.7	39.0	36.8
45	33.0	35.8	40.1	41.8	41.8	38.5
48	35.3	37.0	40.7	42.9	45.2	40.2
51	37.0	38.7	42.4	43.5	45.7	41.5
54	39.5	40.1	43.5	45.2	48.0	43.3
57	41.8	41.8	44.6	46.8	50.2	45.0
60	44.6	43.5	45.2	48.5	51.9	46.7
63	46.8	44.6	45.2	49.7	54.1	48.1
66	49.7	45.7	45.7	51.3	55.8	49.6
69	51.9	46.8	46.3	52.5	54.7	50.4
72	50.2	48.0	46.8	54.1	55.3	50.9
75	52.5	49.1	47.4	54.7	55.3	51.8
78	55.3	50.8	48.0	55.3	55.8	53.0
81	57.5	51.9	48.5	56.4	55.3	53.9
84	59.8	53.6	49.7	57.0	55.3	55.1
87	62.0	55.3	51.3	58.1	54.7	56.3
90	63.7	58.1	53.0	59.2	54.7	57.7

Total Quality. Assured.

Test Report

Report No.: 241203110GZC-001 R2

Report Date: 2024-12-20

Individual unexposed surface temperatures of the door leaf and frame of Doorset A

Time Mins	T16 (°C)	T17 (°C)	T18 (°C)	T19 (°C)	T20 (°C)	T21 (°C)	T22 (°C)	T23 (°C)	T24 (°C)	T25 (°C)
0	24.9	24.9	24.3	23.1	24.7	20.8	22.0	22.5	23.1	22.5
3	24.9	24.9	23.7	23.1	25.4	20.8	22.0	22.5	23.1	22.0
6	24.3	26.0	24.3	23.1	22.5	20.2	21.4	23.1	23.1	22.0
9	22.5	22.5	24.9	23.7	23.1	20.2	20.8	23.1	23.7	22.5
12	23.1	23.1	24.9	23.7	23.1	19.7	22.0	23.7	23.7	22.5
15	22.5	23.1	24.9	23.7	23.7	19.7	22.5	23.7	24.3	22.5
18	21.4	23.7	24.9	23.7	23.7	19.7	23.1	23.7	24.3	22.0
21	22.5	24.9	25.4	23.7	24.3	19.7	24.9	23.7	24.9	22.5
24	23.1	26.6	26.0	23.1	24.3	20.2	26.0	24.3	24.9	22.5
27	23.7	45.2	26.6	24.9	24.9	20.8	34.1	24.3	25.4	23.7
30	24.3	40.1	27.8	25.4	25.4	22.0	33.5	23.7	26.6	26.0
33	24.9	31.8	29.5	27.2	27.2	24.3	33.0	24.3	27.8	28.3
36	26.6	31.8	31.2	29.5	28.9	27.2	36.4	23.7	29.5	31.8
39	29.5	33.0	33.0	31.8	30.6	29.5	40.1	29.5	30.6	35.3
42	33.0	34.7	35.3	34.1	32.4	31.8	44.0	31.2	33.0	38.2
45	35.8	36.4	37.6	36.4	34.7	34.1	45.7	31.8	35.8	41.2
48	39.0	38.7	39.5	39.0	37.0	36.4	50.8	33.5	38.2	44.0
51	41.2	40.7	42.4	41.2	39.0	38.2	52.5	35.3	39.5	46.3
54	43.5	42.9	45.2	44.0	41.2	39.0	60.3	37.0	41.8	49.1
57	46.3	45.2	47.4	46.3	44.0	40.7	61.4	38.7	43.5	50.8
60	48.5	47.4	49.7	49.1	46.8	41.8	62.0	40.1	45.7	52.5
63	50.8	50.2	51.9	51.3	49.1	42.4	65.4	41.8	47.4	53.6
66	53.0	53.0	54.7	53.6	52.2	43.5	66.5	44.0	49.1	54.7
69	55.3	56.4	57.0	55.8	53.6	44.6	67.6	45.2	51.9	55.3
72	53.6	58.6	59.2	57.5	54.1	45.7	66.5	48.0	57.0	55.8
75	54.7	61.4	62.0	59.8	54.7	46.3	67.6	50.2	64.3	55.8
78	57.0	64.8	64.3	61.4	59.2	46.8	67.6	51.3	74.4	56.4
81	58.1	68.7	67.1	63.7	57.5	48.0	67.1	53.6	78.3	56.4
84	59.8	73.8	67.1	65.4	59.2	49.1	67.1	57.5	80.0	56.4
87	60.9	82.2	67.1	73.8	60.3	50.2	67.1	60.9	82.8	57.0
90	62.6	73.2	69.3	78.9	61.4	51.3	68.7	63.7	86.7	56.4

Test Report

Report No.: 241203110GZC-001 R2

Report Date: 2024-12-20

Individual unexposed surface temperatures of the separating element of Doorset A

Time Mins	T26 (°C)	T27 (°C)	T28 (°C)	T29 (°C)	T30 (°C)
0	19.7	17.9	19.7	20.2	22.0
3	19.7	17.9	19.7	19.7	20.8
6	20.2	17.9	20.2	19.1	20.2
9	19.7	19.1	20.2	20.2	21.4
12	19.7	20.8	21.4	21.4	21.4
15	20.8	23.1	23.7	23.7	22.0
18	22.0	26.0	27.8	27.2	22.0
21	23.7	30.6	33.0	32.4	23.7
24	26.6	35.8	37.6	38.7	28.3
27	31.2	46.8	41.8	44.0	33.5
30	36.4	59.2	45.2	48.5	39.5
33	41.2	65.9	48.0	51.9	45.2
36	46.3	69.3	50.8	54.7	49.1
39	50.2	71.0	53.0	56.4	52.5
42	53.0	71.6	55.3	58.1	54.7
45	55.8	71.6	57.5	59.8	56.4
48	57.5	71.0	59.2	61.4	58.1
51	58.1	71.6	59.8	62.0	58.6
54	59.2	70.4	60.9	62.6	59.2
57	59.2	68.7	61.4	63.1	59.2
60	59.2	66.5	61.4	63.7	58.6
63	58.6	64.3	60.3	63.1	58.6
66	58.1	62.0	59.8	62.0	58.6
69	57.0	59.8	58.6	60.9	58.6
72	56.4	59.2	59.8	60.9	58.6
75	56.4	60.3	60.3	62.6	58.6
78	56.4	61.4	60.3	65.4	58.6
81	56.4	61.4	59.8	66.5	58.6
84	57.0	61.4	59.8	68.2	58.5
87	57.5	60.9	59.2	68.7	58.9
90	58.6	61.4	59.2	71.6	59.1

Test Report

Report No.: 241203110GZC-001 R2

Report Date: 2024-12-20

Mean unexposed surface temperatures of the door leaf of Doorset B

Time Mins	T31 (°C)	T32 (°C)	T33 (°C)	T34 (°C)	T35 (°C)	Mean temperature (°C)
0	20.2	19.7	20.2	20.2	20.2	20.1
3	20.2	19.7	20.2	20.2	20.2	20.1
6	20.2	19.7	20.2	20.2	20.8	20.2
9	20.2	19.7	22.5	20.8	20.8	20.8
12	20.8	20.8	22.5	20.2	20.2	20.9
15	20.2	20.2	24.3	20.2	20.8	21.1
18	20.2	20.2	23.7	20.8	21.4	21.3
21	20.8	21.4	22.5	20.8	22.0	21.5
24	20.8	22.0	21.4	21.4	23.1	21.7
27	21.4	23.1	22.0	22.5	24.3	22.7
30	22.0	25.4	22.5	23.1	25.4	23.7
33	22.5	26.6	23.1	24.3	27.2	24.7
36	23.1	27.8	22.5	25.4	28.9	25.5
39	24.9	30.1	24.9	27.2	31.2	27.7
42	26.0	32.4	26.6	29.5	33.5	29.6
45	27.8	34.7	28.3	31.2	36.4	31.7
48	30.1	36.4	30.1	34.1	38.7	33.9
51	32.4	37.6	33.0	36.4	39.0	35.7
54	34.7	38.7	34.7	38.7	39.0	37.2
57	37.0	38.7	35.3	41.2	39.0	38.2
60	38.7	41.2	35.8	42.9	39.5	39.6
63	40.7	43.5	37.0	45.2	40.7	41.4
66	42.4	45.7	37.0	46.8	40.7	42.5
69	44.6	47.4	37.6	48.0	41.2	43.8
72	46.8	49.1	38.7	49.7	40.1	44.9
75	49.1	50.8	39.5	50.8	40.7	46.2
78	51.3	51.9	40.1	50.8	41.2	47.1
81	53.6	52.5	41.2	49.7	41.2	47.6
84	55.8	53.0	42.9	49.7	42.4	48.8
87	57.0	53.0	43.5	49.1	43.5	49.2
90	58.6	52.5	45.2	49.1	44.6	50.0

Total Quality. Assured.

Test Report

Report No.: 241203110GZC-001 R2

Report Date: 2024-12-20

Individual unexposed surface temperatures of the door leaf and frame of Doorset B

Time Mins	T36 (°C)	T37 (°C)	T38 (°C)	T39 (°C)	T40 (°C)	T41 (°C)	T42 (°C)	T43 (°C)	T44 (°C)	T45 (°C)
0	20.8	21.4	22.0	20.8	20.2	17.9	19.7	19.7	18.5	20.8
3	20.8	21.4	22.0	20.8	20.2	17.3	20.8	19.7	18.5	20.8
6	20.8	21.4	22.0	20.8	20.2	17.3	24.9	19.7	19.1	20.8
9	27.8	28.3	23.1	22.0	20.8	27.8	46.3	61.4	40.1	22.0
12	26.6	23.7	23.1	21.4	20.2	35.3	52.5	54.1	52.5	20.8
15	30.1	24.9	23.1	20.8	20.2	41.2	55.8	45.2	55.3	24.3
18	33.0	26.0	24.3	21.4	20.2	49.7	54.7	35.8	61.4	27.8
21	31.2	28.3	23.1	21.4	20.8	52.5	54.1	40.7	69.9	27.8
24	28.9	26.6	22.5	22.0	20.8	58.1	54.1	35.8	72.1	29.5
27	29.5	27.2	23.1	22.5	21.4	59.8	52.5	33.5	77.7	26.6
30	25.4	26.0	23.7	23.7	22.0	64.3	50.8	38.2	77.2	27.2
33	24.9	26.6	24.9	24.9	23.1	65.9	50.2	42.9	77.7	26.6
36	23.7	27.2	25.4	26.6	23.7	65.9	51.9	54.1	76.6	29.5
39	24.9	28.3	26.6	27.8	25.4	63.1	52.5	48.5	80.5	31.8
42	25.4	29.5	28.3	30.1	26.6	59.2	55.3	50.8	78.9	34.1
45	26.6	30.6	30.1	31.8	28.3	59.2	58.1	51.9	78.3	37.6
48	27.2	31.8	31.8	34.1	30.1	59.8	59.8	55.3	73.2	41.2
51	27.8	33.0	34.1	35.8	31.8	60.3	63.1	57.0	74.9	42.9
54	28.9	34.1	36.4	38.2	34.1	60.3	66.5	56.4	72.1	45.7
57	29.5	35.3	38.7	40.1	35.8	59.2	78.3	57.5	76.0	48.5
60	27.2	35.8	40.7	41.2	37.6	59.8	113.7	60.9	69.3	50.2
63	26.0	37.6	42.4	42.4	39.5	58.1	94.0	63.7	67.6	51.9
66	26.6	40.1	44.0	42.9	41.2	58.6	88.4	72.7	69.3	54.7
69	26.6	44.6	45.7	43.5	42.9	59.2	86.2	80.0	71.6	57.5
72	28.3	50.2	48.0	45.2	43.5	58.6	86.2	83.9	71.6	58.1
75	30.1	54.7	49.7	48.0	44.0	58.1	92.3	89.0	70.4	58.1
78	31.8	58.1	51.3	49.7	45.7	57.5	99.6	92.9	69.9	59.2
81	33.0	61.4	53.0	50.2	47.4	58.1	108.6	90.1	71.0	60.3
84	35.8	63.7	55.3	51.3	49.7	57.5	108.6	85.6	72.7	61.4
87	37.6	65.4	57.0	51.9	51.3	58.6	114.2	83.9	77.7	63.1
90	39.5	66.5	58.1	50.2	53.0	58.6	108.1	83.9	77.7	63.7

Test Report

Report No.: 241203110GZC-001 R2

Report Date: 2024-12-20

Individual unexposed surface temperatures of the separating element of Doorset B

Time Mins	T46 (°C)	T47 (°C)	T48 (°C)	T49 (°C)	T50 (°C)
0	20.2	17.9	21.4	19.1	20.8
3	20.2	17.3	21.4	19.1	20.8
6	19.7	16.2	21.4	17.9	20.8
9	19.7	14.5	35.3	20.8	20.8
12	19.7	20.2	31.2	22.5	21.4
15	19.7	28.9	24.9	23.1	25.4
18	20.8	34.7	24.9	27.2	24.9
21	24.3	37.0	26.6	29.5	29.5
24	30.1	40.7	28.9	31.8	31.8
27	35.8	41.2	31.8	37.0	37.0
30	40.7	44.6	35.8	41.8	39.5
33	45.7	46.8	41.8	45.7	43.5
36	49.1	46.8	45.7	48.5	46.3
39	51.3	48.5	48.0	50.2	50.8
42	53.0	48.5	49.7	51.3	53.0
45	54.7	50.2	51.3	52.5	56.4
48	55.3	48.5	53.6	53.0	58.1
51	56.4	50.8	54.7	53.0	60.3
54	56.4	51.3	55.8	53.0	60.9
57	56.4	46.8	56.4	53.0	62.0
60	55.8	45.2	56.4	51.9	62.0
63	55.3	46.8	55.8	51.9	62.0
66	54.7	46.8	56.4	51.3	60.9
69	54.7	42.4	57.5	51.3	59.2
72	54.1	43.5	57.0	51.3	58.1
75	53.6	44.6	56.4	52.5	58.1
78	53.6	45.2	58.1	53.0	58.1
81	53.6	45.7	58.6	53.6	58.1
84	54.7	46.8	59.8	54.1	59.2
87	56.4	46.8	60.9	55.3	59.2
90	57.5	51.3	60.9	55.8	61.4

Total Quality. Assured.

Test Report

Report No.: 241203110GZC-001 R2

Report Date: 2024-12-20

Horizontal Deflection (Positive values indicate movement into the furnace)

A steel ruler was provided to measure the horizontal deflections of the specimen relative to base line. The measurement position in Figure 5 & 6.

Maximum deflection value of the specimen was **BOLDED** at the following table.

Time Mins	D1 (mm)	D2 (mm)	D3 (mm)	D4 (mm)	D5 (mm)	D6 (mm)	D7 (mm)
0	0	0	0	0	0	0	0
20	0	5	5	0	5	5	5
40	0	5	10	0	5	8	5
60	0	8	10	0	7	8	8
80	3	10	10	3	10	10	8
85	3	10	10	3	10	10	8
90	3	10	13	3	10	10	8

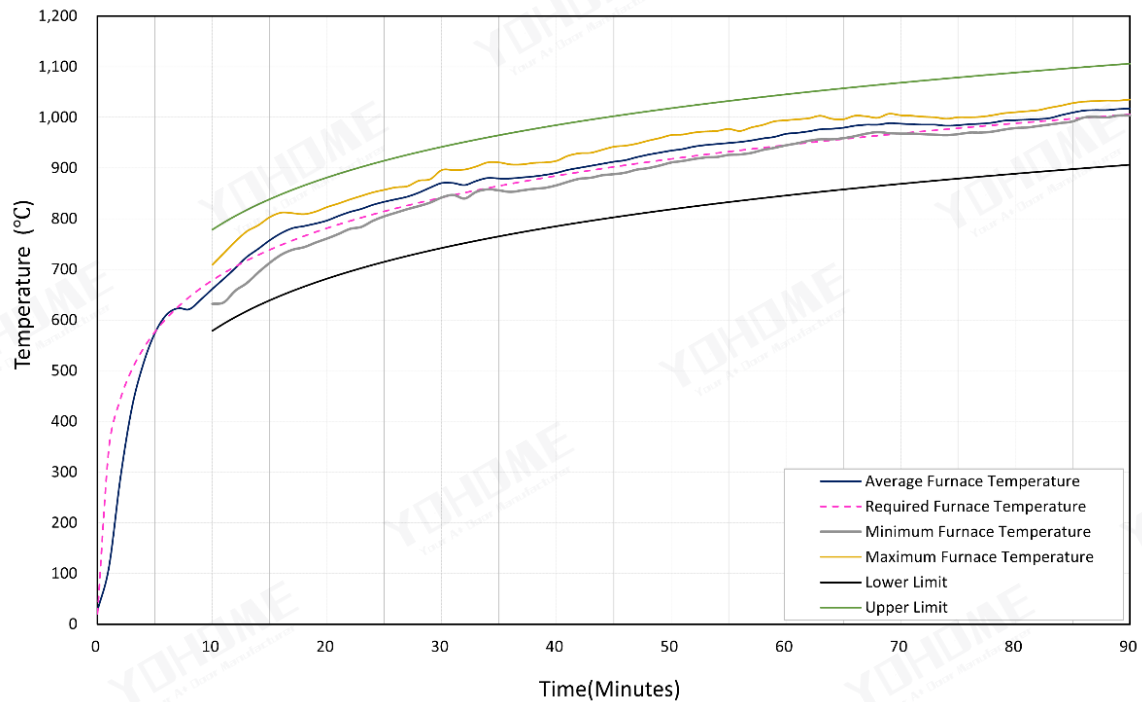
Time Mins	D8 (mm)	D9 (mm)	D10 (mm)	D11 (mm)	D12 (mm)	D13 (mm)	D14 (mm)
0	0	0	0	0	0	0	0
20	0	-5	3	0	5	10	5
40	0	-5	5	0	5	10	5
60	0	-5	5	0	8	10	8
80	0	0	5	0	10	10	10
85	0	0	5	0	10	10	10
90	0	0	5	0	10	12	10

Test Report

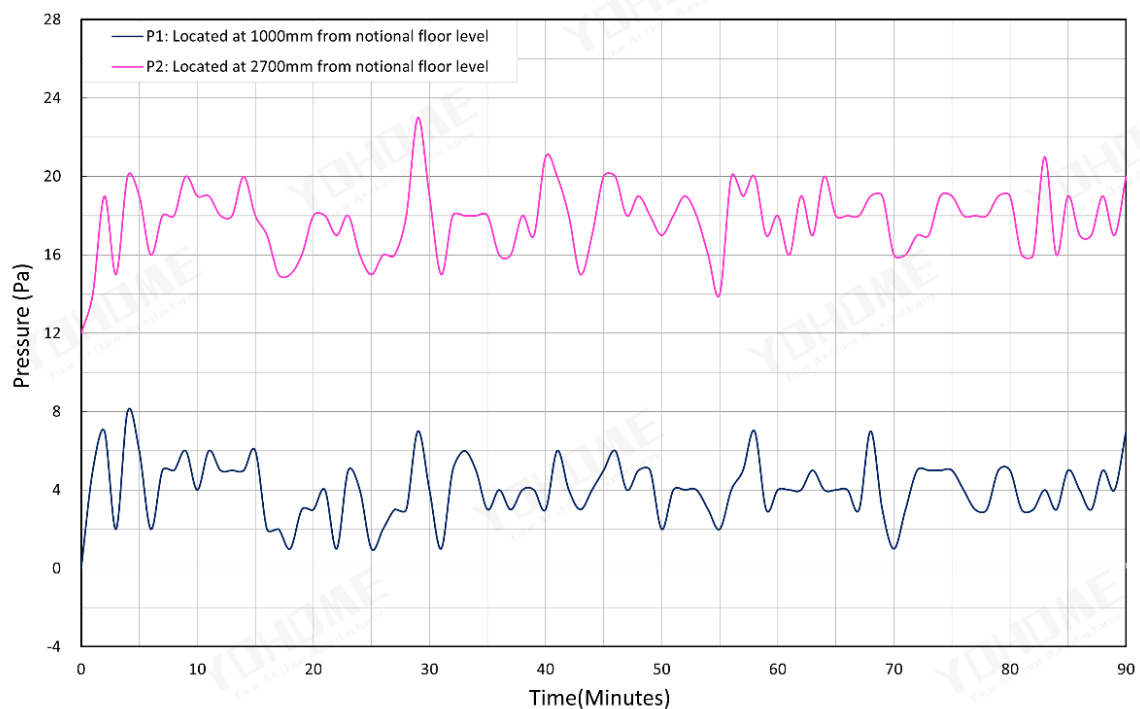
Report No.: 241203110GZC-001 R2

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



Graph for Furnace Pressure Relative to the Laboratory Atmosphere

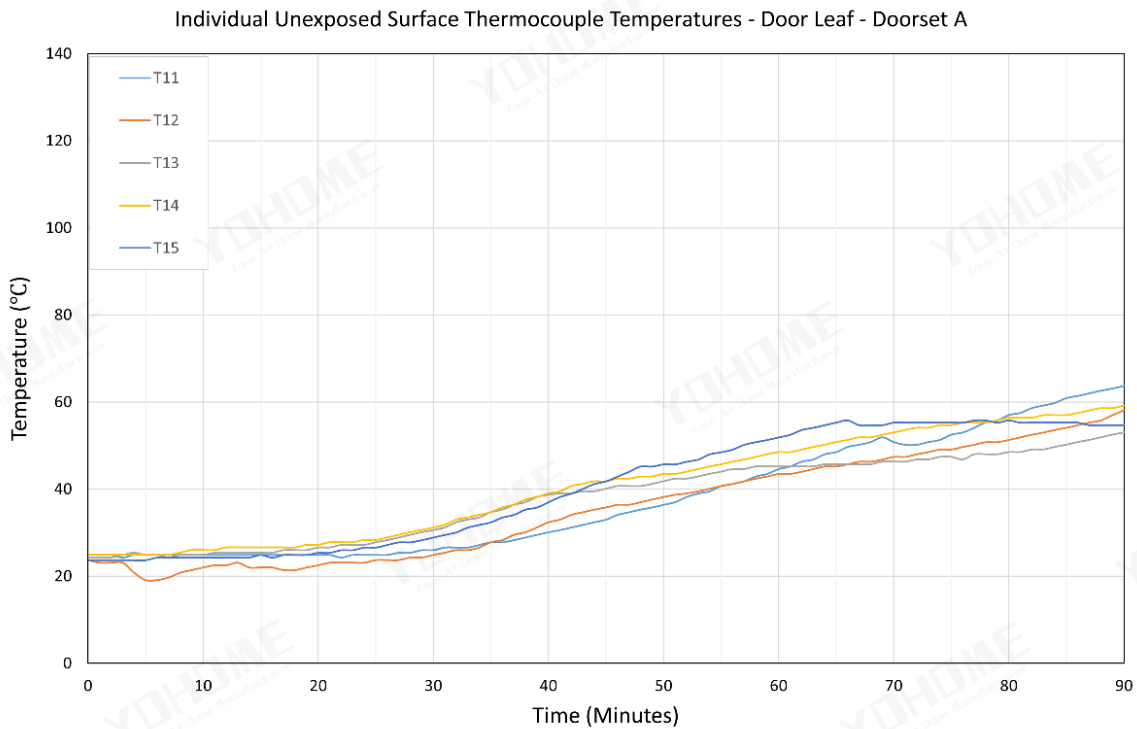


Test Report

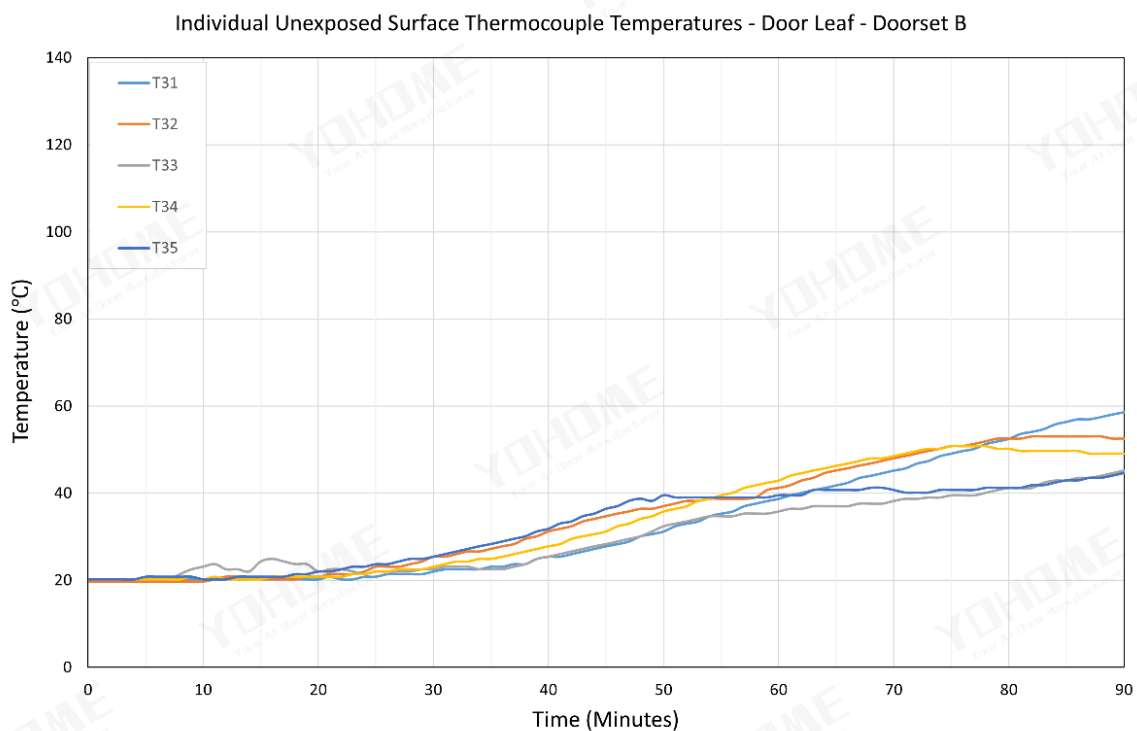
Report No.: 241203110GZC-001 R2

Report Date: 2024-12-20

Graph for Mean unexposed surface temperatures of the door leaf of Doorset A



Graph for Mean unexposed surface temperatures of the door leaf of Doorset B

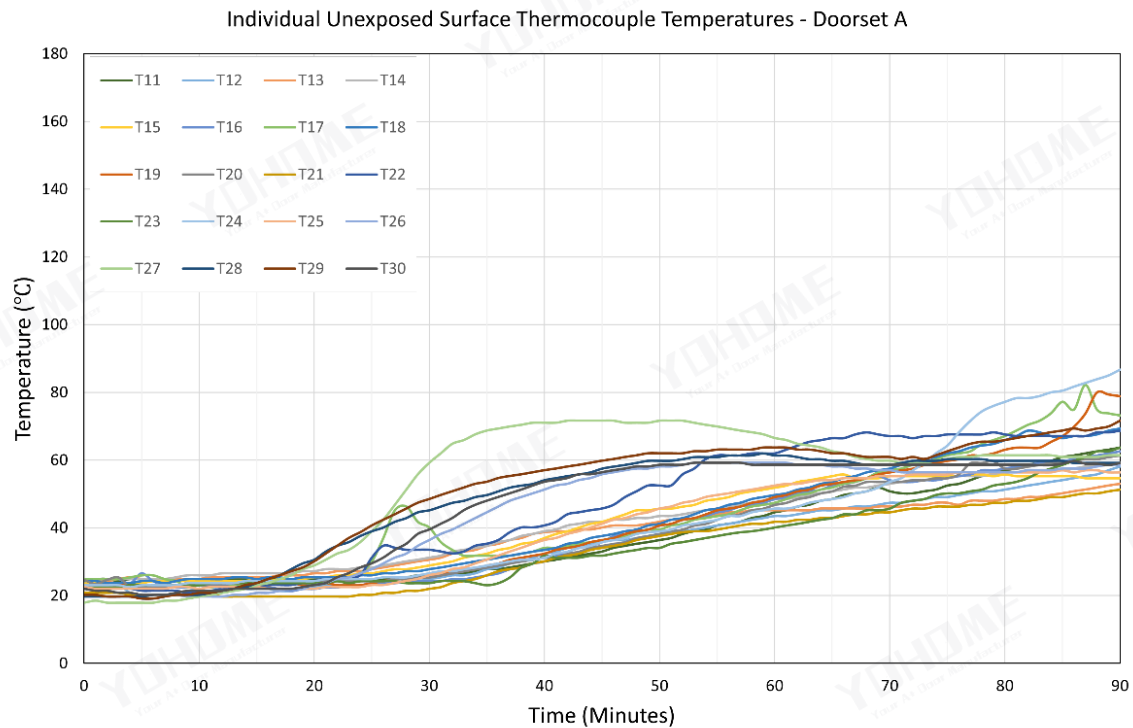


Test Report

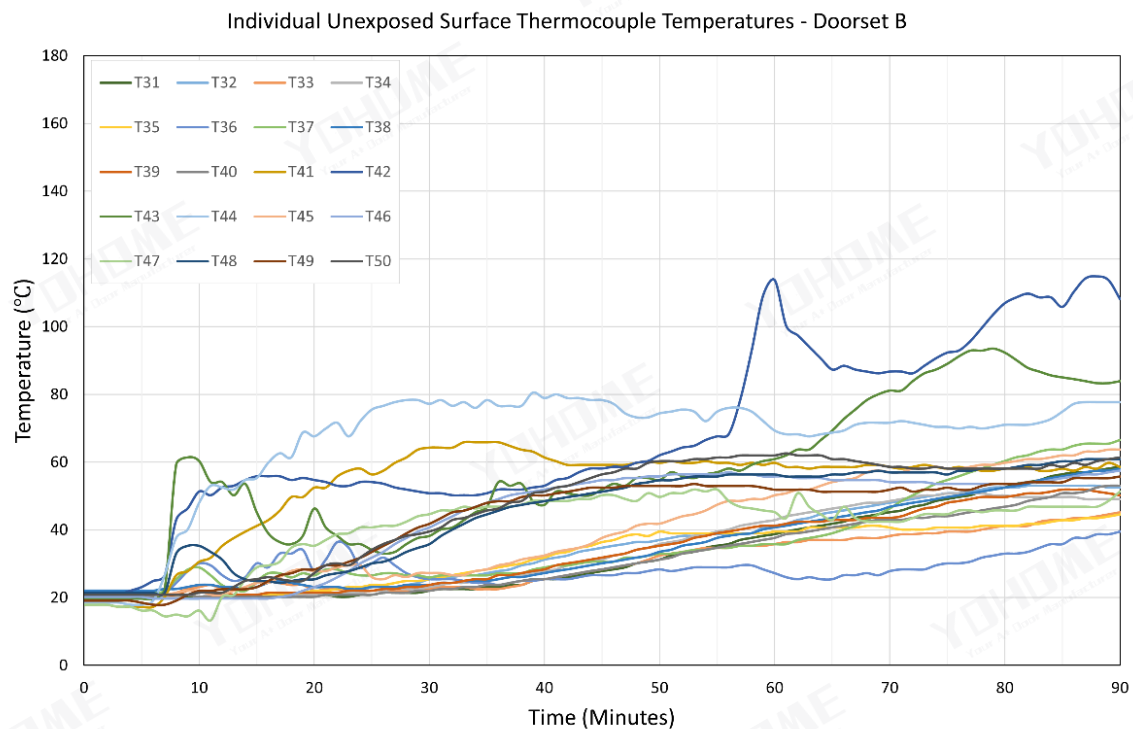
Report No.: 241203110GZC-001 R2

Report Date: 2024-12-20

Graph for Individual unexposed surface temperatures of door leaf, frame and separating element of Doorset A



Graph for Individual unexposed surface temperatures of door leaf, frame and separating element of Doorset B



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SECTION 14

PHOTOGRAPHS



Photo 1 – Exposed Side Prior to the Fire Test



Photo 2 - Unexposed Side Prior to the Fire Test

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Photo 3 – Latching Mechanism



Photo 4 – Hinge and Intumescent Strip

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Photo 5 – Unexposed Side after 30 Minutes



Photo 6 - Unexposed Side after 60 Minutes

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Photo 7 - Unexposed Side after 90 Minutes

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Photo 8 - Exposed Side after 90 Minutes

SECTION 15

REVISION LOG

Revision No.	Date	REVISION	Reviser	Reviewer
0	2024-12-20	Original Report Issue	/	/
1	2025-9-15	Added the description of handle, hinge and frame in section 5, updated the drawings accordingly in section 10.	Jim Li	Kevin Pan
2	2025-9-26	Added and updated manufacturer and model information in section 5, updated the drawings accordingly the drawings in section 10.	Jim Li	Kevin Pan

Note: The report 241203110GZC-001 with revision No. 1 will be replaced by revision No. 2 report, it will be effective from 2025-9-26, and the revision No. 1 report will be invalid.

*****End of Report*****