

TEST REPORT

Your ref : PH08263
Our ref : FPE/63383/21
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FIRE-DOORS AND FIRE-SHUTTERS SANS 1253:2016

1 OBJECTIVE OF TEST

- 1.1 The sample as described under section 2 of this report was tested in accordance with SANS 1253: 2016 "Fire doors and Fire shutters".
- 1.2 The fire-door assembly as described under section 2 of this report **complied** with the relevant requirements of SANS 1253:2016 "Fire-doors and fire shutter" in respect of class A assembly listed below.

2 DESCRIPTION OF SAMPLE AS SUPPLIED BY CLIENT

One single-leaf, hinged, with a view panel class A fire door in a timber frame assembly was received by the Fire Protection Engineering of SABS.

The details of the fire-door assembly are given below as provided by the client:

2.1 DOOR FRAME

- Overall dimensions : 2064 mm in height x 877 mm in width x 230 mm in depth
Rebate : 25 mm x 50 mm in depth
Fixing lugs : 16 of 300 mm length x 25 mm length x 1,6 mm thickness on each jamb

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2.2 DOOR LEAF

Overall dimensions	: 2025 mm high x 808 mm wide x 44 mm thick
Finishing material	: 3 mm MDF/Hardboard
Core materials	: "ROCKLITE V" panel
Finishing Edges	: 8mm timber with 10mm x 2.0mm "intumex LPSK" intumescent strips inserted into edging

2.3 HINGES

Number	: 3
Type	: Stainless steel
Material	: Stainless steel

2.4 FASTENINGS

Lock	: PH5025 Profile cylinder deadlock & knob cylinder
Handles	: Stainless steel push plate & Pull handle
Closing Device	: Dorma, TS83 non hold open standard arm door closer

3 NATURE AND METHOD OF TEST

The fire-door assembly was tested to SANS 1253: 2016 "*Fire doors and fire shutters*" for class A hinged fire-door assembly. The fire-door assembly was built into a brick wall in a test frame. The frame was positioned in the furnace such that the door could be opened to the outside (Unexposed side of the furnace).

4 DATE OF RECEIPT

02 February 2021

5 DATE OF TEST

29 March 2021

6 TEST APPARATUS

Table 1

Equipment	Serial No	Calibration certificate No	Re-cal date	UoM
Vertical furnace	PP &E003143	Verified	-	-
Stop watch	53935727	Calibrated - 106513	2021-03-30	± 50 m/s
Measuring tape	FPE	Calibrated – V1449	2021-08-20	± 0,5 mm

Photo 1 – Exposed face before testing



Photo 2 – Closing device prior to test



7 RESULTS

Note: The subclause numbering of this section is consistent with the numbering of SANS 1253:2016.

Table 2

Test as per clause of SANS 1253	Requirements	Results	Conclusions
4 General			
4.1	The sample shall be assembled and supplied as a complete pre-hung door.	Sample was supplied as a complete unit.	Complied
4.2 Class and Type:			
4.2.1	The fire door shall be fire resistant to Class A,B,C,D,E or F	Class A.	Complied
4.2.2	Type: Double-leaf, hinged, single action.	Single-leaf, hinged, single action.	Complied
4.3 Materials			
4.3.1	Structural material shall be used and finished in accordance with good practice, various materials shall be compatible.	Structural materials were used and finished in accordance with good practice.	Complied
4.3.2	Insulation material shall a) Be so selected that they do not delaminate or become compacted in use, and b) Not depend on free moisture for their insulating properties.	Did not delaminate during the test.	Complied
		Did not depend on free moisture.	Complied
4.3.3 Intumescent material			
	When materials that depend on intumescence for their insulating or fire-stopping properties are used, they shall be completely embedded or enclosed in material of adequate strength and impermeability to protect them from mechanical damage and from penetration by moisture.	Intumescent strip used.	Complied

4.4 Glazing and Hardware			
4.4.1	General Glass and accessories incorporated into the door shall not contribute to the failure of the door in any way.	Viewing panel was not fitted	Not applicable
4.4.2.1 Glazing			
	Each leaf of fire- door assembly of class A,B ,E or F may have only one glazed area or viewing panel of dimensions that do not exceed 100 x 300 mm ± 5mm or of diameter that does not exceed 200mm	Viewing panel was not fitted.	Not applicable
4.4.2.2	Viewing panel of larger sizes shall meet the minimum fire resistance periods given in table 1	Viewing panel was not fitted.	Not applicable
4.4.2.3	Viewing panels shall not be permitted in class C and class D fire-door assemblies.	Viewing panel was not fitted.	Not applicable
4.4.2.4	Viewing panels, where permitted, shall be tested for compliance with requirements for integrity and stability for the type of viewing panel fitted.	Viewing panel was not fitted.	Not applicable
4.4.3 Hinges			
	Hinges (including floor springs) of an assembly shall <ul style="list-style-type: none"> a) Be capable of supporting the weight of the door. b) During installation of an assembly, allow leaf of the door to be detached from the frame without the hinges having been unscrewed from leaf and. c) Be capable of being so adjusted that a door that has been installed and closed cannot be removed without using any tool. 	Remained intact after 1000 cycles of opening and closing. Leaf door was detached from the frame without hinges having been unscrewed from leaf. Could not be removed without a tool.	Complied Complied Complied
4.4.4 Fastenings			
4.4.4.1	Fastenings, including locks, latches, bolts or any combination of these, shall be of types compatible with type and class of door and shall be as required.	Profile cylinder deadlock & knob cylinder fitted.	Complied
4.4.4.2	Mortice locks shall not exceed 150mm in depth and 20mm in thickness.	Mortice latch fitted.	Complied
4.4.4.3	When the doors are required to form part of the escape route the fastening shall allow the door to be so installed that they can easily opened in the direction of the escape without specialized knowledge or the use of keys or tools.	The door was easily opened in the direction of the escape route.	Complied
4.4.5 Closing devices			
4.4.5.1	Each door assembly shall be fitted with closing devices that is compatible with the class of door and that is of the type required.	Door Closer fitted (Dorma).	Complied
4.4.5.2	Closing devices with a liquid reservoir type damper shall have a plug, valve or other means that will automatically release excess pressure, to prevent explosion of the device in event of fire.	Not applicable.	Not applicable
4.4.5.3	A closing device that depends solely on retained liquid pressure for its closing action shall not be used in fire-door assembly.	Not applicable.	Not applicable

4.4.6 Additional or optional hardware			
4.4.6.1	Hardware, including electrical hold-open devices, pull-knobs, kick plates and push plates, shall be so fitted that the integrity of the door is not impaired.	No additional hardware fitted.	Not applicable
4.4.6.2	If the hardware is not factory fitted, provision for fitting shall be made and the fitting position shall be indicated by means of detachable labels that also provide fixing instructions.	No additional hardware fitted.	Not applicable
4.5 Hinged-door assemblies			
4.5.1 Closing of hinged doors			
4.5.1.1	The closing action of a hinged door shall be smooth and positive, and the speed and force of the closing action shall be so adjusted that the door can operate without the exertion of undue force and without causing injuries to persons.	Closing action was smooth and positive without undue force.	Complied
4.5.1.2	The closing device shall close the door, even though the door may be pushed open to the limit of its travel	The door closed after it was pushed open to the limit of its travel.	Complied
4.5.1.3	The closing action of a double leaf hinged door with rebate meeting styles shall be coordinated by means of coordinators. Hold open devices may form part of an automatic closing device.	Single leaf hinged fire door.	Not applicable
4.5.2 Fit			
4.5.2.1	The fit of the leaf of the door, when the door is closed, shall be such that the clearance between the top leaf and the frame does not exceed 3 mm, and the total width of clearance between the vertical sides of the leave of a single-leaf door set and the frame does not at any cross-section exceed 6 mm.	Clearance between the top leaf and the frame - 2 mm. Clearance between vertical sides - 5 mm.	Complied Complied
4.5.2.2	In the case of a double-leaf hinged door, the clearance between one meeting stile and the other, and the clearance between the frame and the leaves shall not exceed 4mm.	Single leaf, hinged door.	Not applicable
4.5.2.3	The floor clearance of the leaf of a door shall not be less than 5 mm and not be more than 12 mm, measured between the lower edge of the leaf and the final level of the floor or sill. The final level may be the top of any non-combustible floor covering	Floor clearance - 7 mm.	Complied
4.5.3 Frames			
4.5.3.1	General Any frame door should be installed in a wall in such a way that there is no possibility that the door frame will be bypassed by fire.	The fire did not bypass the frame during the test.	Complied
4.5.3.2 Dimensions			
	The width of the rebates of frames shall be at least 25 mm and the material thickness of the steel frames should be at least 1,5 mm for class A, B, C and D doors.	The rebate was 25 mm width x 50 mm depth x 1,6 mm thick.	Complied
4.5.3.3 Fixing lugs			
4.5.3.3.1	Frames of which the height does not exceed 2, 08 m shall have at least three fixing lugs on each jamb.	The height of the frame exceeded 2,08m and has four lugs.	Not applicable
4.5.3.3.2	All other frames shall have at least four fixing lug on each jamb.	Four lugs fitted.	Complied

4.5.3.3.3	Fixing lugs shall be: a) Fitted centrally b) Thickness $\geq 1, 2$ mm c) Width ≥ 25 mm d) Length of the outstand ≥ 150 mm e) Within 350 mm of the top of each jamb.	Fitted centrally. Thickness = 2 mm. Width = 25 mm. Length = 300 mm. Fixing lugs was within. 350 mm.	Complied Complied Complied Complied
4.5.4	Reliability of operation a) No undue wear b) Hinges and fastening c) Clearances shall not change by more than 0,1 mm	Remained intact after 1000 cycles of opening and closing.	Complied
4.6 Sliding door assembly.			
4.6.2	Horizontal sliding doors	Not applicable.	Not applicable
4.6.3	Vertical sliding door	Not applicable.	Not applicable
4.7 Dimensions			
4.7.1 Hinged doors			
	The width and height of a single-leaf door and each leaf of a double door shall be as required, but shall not exceed 1,2m and 2,7m, respectively.	2025 mm x 805 mm single-leaf door.	Complied
4.7.2	Sliding door	Not applicable.	Not applicable
4.8 Smoke emission			
	When the door or an assembly is tested limited smoke may appear on the unexposed face but shall not cause discomfort.	Limited smoke appeared.	Complied
4.9 Resistance to fire			
4.9.1	General When a door or an assembly is tested, it shall, for the appropriate minimum period comply with the requirements given in clause 4.9.2 to 4.9.4.	Complied.	Complied
4.9.2 Stability			
4.9.2.1	The door or assembly shall withstand the fire exposure and effectively close an opening without the doors moving out of the frame by more than 25mm.	The door did not move out of frame.	Complied
4.9.2.2	There will be no flaming on the unexposed face of the door assembly within the first 30min of the classification period.	Did not flame.	Complied
4.9.2.3	Intermittent light flames of approximately 150mm long, may occur for periods not exceeding 5 min intervals along the edges of the door, after 30min.	Did not flame.	Complied
4.9.2.4	Light flaming may occur during the last 15 min of the classification period on the unexposed face area of the door, provided it is contained within a distance of 40mm from the vertical door edge and 75mm from the top edge of the door and within 75mm from the top edge of the frame of the viewing panel.	Did not flame.	Complied
4.9.3 Integrity			
	The door or assembly shall withstand the prescribed fire exposure without the development, at any point of the door a) A straight-through gap of width that exceeds 10mm, and b) Straight-through gaps of width that exceeds 6mm, but does not exceed 10mm and the combined length that exceeds the greater of the width or the height of the door.	No gap developed. No gap developed	Complied Complied

4.9.4 Insulation			
	The door or assembly shall withstand the prescribed fire exposure without the mean temperature of the unexposed face rising to more than 140°C initial ambient temperature, or the temperature at any point of the face rising to more than 180°C above initial ambient at 60 minutes.	The mean temperature was 79,9°C. Maximum temperature at one point was 82,1°C.	Complied
4.10 Structural strength (Class C and D assemblies only)		Class A was tested.	Not applicable
6 Markings			
6.1	Each door and assembly shall have metal identification plates fixed in readily visible positions to the door and to the frame.	Identification plates fitted.	Complied
	Marked with the following information:		
	a) Manufactures name or trade mark. b) Unique identification number and date of manufacturer. c) Class	P & H Protective Plaster. See photo no: 8. A129317.Feb 21. Class A.	Complied Complied Complied
6.2	Secondary information such as installation instruction shall be supplied on a removable label or tag. Position where closing devices or additional hardware are to be mounted shall be indicated by removable labels. These labels shall also include mounting instructions.	Received as complete unit.	Not applicable

Observations made during test.

Table 3

Time, min	Observations	Photo, No	U – Unexposed side E – Exposed side
0	Unexposed face, before test start.	1	U
5	Unexposed face, after test started.	2	U
29	Unexposed face, door still intact. See photo 3.	3	U
39	Unexposed face, door still intact. See photo 4.	4	U
40	Unexposed face, door face loosening. See photo 5.	5	U
47	Unexposed face, door still intact. See photo no 6.	6	U
60	Unexposed face, door flaming. See photo no 7.	7	U
-	Identification plate after test. See photo no 8.	8	-
-	Exposed face after testing.	9	E

NOTE 1: "Exposed" in the context of this report means exposed to the heat of the furnace.

NOTE 2: Min means minutes.

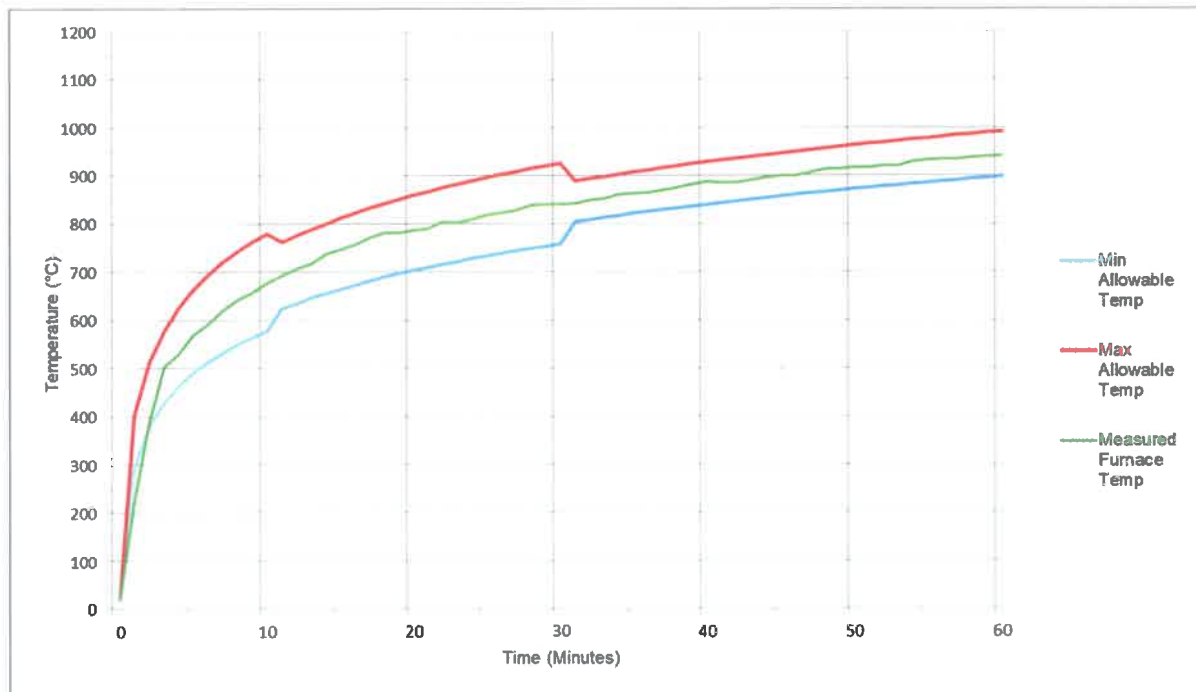
The following temperatures were recorded during the test:

Table 4

Time, min	Temperature, °C Unexposed face						
	TC 1	TC 2	TC 3	TC 4	TC 5	Average	Maximum
0	22,1	21,1	21,8	22,0	21,7	21,9	22,1
10	28,7	35,7	31,5	31,5	34,4	32,4	35,7
20	75,0	74,2	78,2	78,3	80,3	77,2	80,3
30	78,9	78,1	79,8	80,6	82,1	79,9	82,1
40	106,8	118,5	103,1	120,7	127,9	115,4	127,9
50	182,1	171,9	176,9	198,2	196,4	184,1	196,4
60	219,4	191,5	191,4	230,7	211,4	208,9	230,7

NOTE: The temperatures in the table 4 above were recorded from thermocouples on an unexposed face of the door.

The following Furnace temperatures were recorded during the test:



8 PHOTOGRAPHS

Photo 2: At 5 min, door still intact

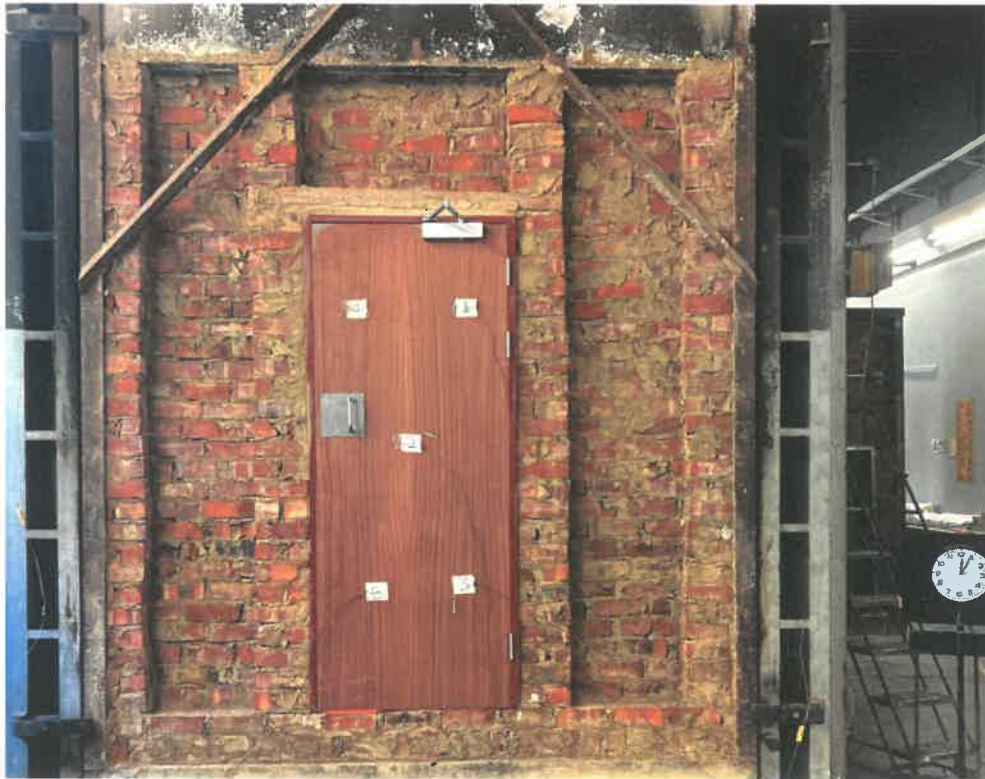


Photo 3: At 29 min, door still intact



Photo 4: At 39 min, door still intact



Photo 5: Door face loosening



Photo 6: At 47 min, door still intact



Photo 7: At 60 min, before test stopped



Photo 8 – Identification plate after test



Photo 9 – Exposed face after testing



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< END OF REPORT >