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Testing. Advising. Assuring.

Title:

Indicative fire test of utilising the heating and pressure conditions given in BS EN 1363-1:2012

WF Report No:
375988 Issue 3

Prepared for:

Frelan Hardware.
Unit 10 Mitcham Ind Est
Streatham Road
Mitcham
Surrey
CR4 2AP

Date:

9th March 2017

Indicative Fire Test to BS EN 1363-1:2012

We have pleasure in enclosing the information of the indicative fire test conducted on your behalf on the 9th November 2017.

The information enclosed relates to an investigation which utilised the heating and pressure conditions given in BS EN 1363-1:2012. The full requirements of the Standard were not, however, complied with. The information is provided for the test sponsor's information only and should not be used to demonstrate performance against the Standard nor compliance with a regulatory requirement.

The test was not conducted under the requirements of UKAS accreditation.

The purpose of the test was to provide an indication of the fire resistance performance of Frelan Hardware 5-levere sashlock referenced JL136 when installed in to 30 and 60 minute fire rated simulated single-acting single-leaf doorsets.

For the purpose of the test the simulated doorsets were referenced **Specimen A** and **Specimen B.**

Specimen A briefly had overall nominal dimensions 1500 mm high by 721 mm wide incorporating a section of door leaf with overall dimensions 1500 mm high by 687 mm wide by 44 mm thick. The door leaf was of a solid graduated density chipboard construction, with 8 mm hardwood lippings to the leading vertical edge and included a section of softwood timber frame along one vertical edge to simulate the leading edge frame member.

Specimen B briefly had overall nominal dimensions 1500 mm high by 726 mm wide incorporating a section of door leaf with overall dimensions 1500 mm high by 687mm wide by 54 mm thick. The door leaf was of a solid graduated density chipboard construction, with 8 mm hardwood lippings to the leading vertical edge and included a section of hardwood timber frame along one vertical edge to simulate the leading edge frame member.

Each Specimen was installed two Frelan Hardware Door viewers and a Frelan Hardware 5-levere sashlock connected to a Frelan Hardware lever handle. Further details of the ironmongery and test specimen's construction can be found in the schedule of components section of this report.

Both specimens were orientated to simulate a full scale doorsets that would open towards the heating conditions of the test and formed the front vertical face of a 1.5 metre wide by 1.5 metre high by 2 metre deep gas fired furnace chamber, the temperature rise of which was controlled to conform to the relationship given in BS EN 1363-1:2012.

The test was discontinued after a period of 62 minutes.

The following information relating to the test is enclosed:

- Table 1 - Specified and recorded furnace temperatures.
- Graph 1 - Specified and recorded furnace temperatures.
- Observations of the general behaviour of the specimen during the test.
- Test photographs from before, after and during the test.
- Test specimen drawings
- Schedule of components

We trust that the information enclosed is useful to you.

Yours sincerely

Dan Fitzsimmons
Technical Officer – Fire Resistance Department
Exova Warringtonfire

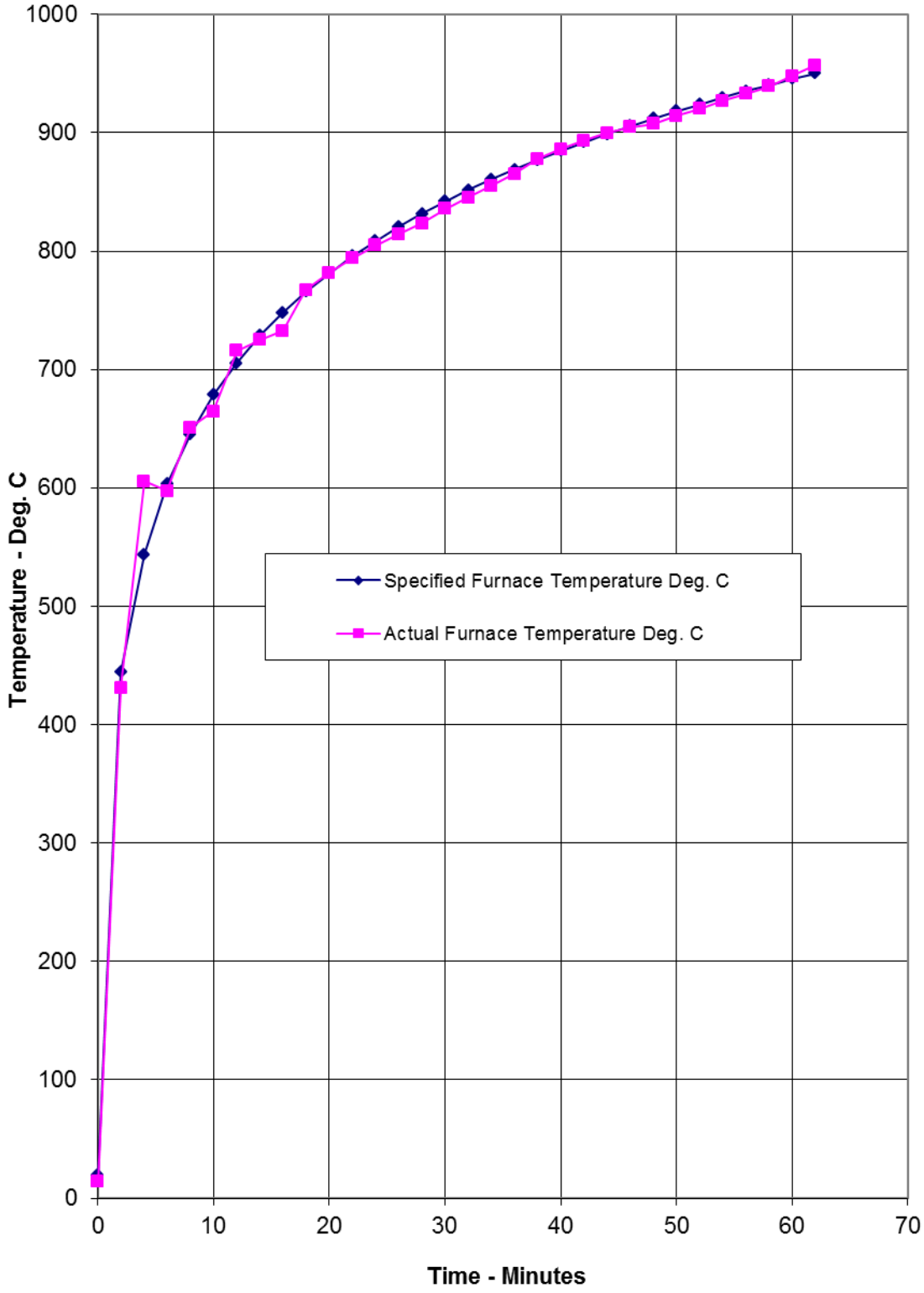
Issue 2 due to change to the text within the schedule of components section of this report –
D. Fitzsimmons, 10th March 2017

Issue 3 due to change to the product reference codes within the schedule of components section of this report – D. Fitzsimmons, 14th March 2017

Table 1

Time Mins	Specified Furnace Temperature Deg. C	Actual Furnace Temperature Deg. C
0	20	14
2	445	431
4	544	605
6	603	597
8	645	651
10	678	665
12	705	716
14	728	725
16	748	733
18	766	767
20	781	782
22	796	794
24	809	805
26	820	814
28	832	823
30	842	836
32	851	845
34	860	855
36	869	865
38	877	878
40	885	886
42	892	893
44	899	900
46	906	905
48	912	907
50	918	914
52	924	920
54	930	927
56	935	933
58	940	939
60	945	948
62	950	957

Graph 1


1000
900
800
700
600
500
400
300
200
100
0
Temperature - Deg. C
0
10
20
30
40
50
60
70
Time - Minutes
Specified Furnace Temperature Deg. C
Actual Furnace Temperature Deg. C

Test Observations

Time		All observations are from the unexposed face unless noted otherwise.
mins	secs	The ambient air temperature in the vicinity of the test construction was 8ºC at the start of the test with a maximum variation of +5ºC during the test.
00	00	**The test commences.**
05	00	Steam/smoke release is observed along leading edge of both specimens.
10	00	Heavy steam/smoke release is observed from around the lockset position on both specimens.
22	00	Dark coloured rings are observed forming around the door viewers on both specimens.
34	00	A tiny intermittent flicker of flame is observed next to the lockset on specimen A.
36	00	**Specimen A is blanked off to allow the test to continue on specimen B, after showing no signs of integrity failure.**
45	00	Dark coloured rings around the door viewers on specimen B expand in size.
48	00	An intermittent flicker of flame is observed from around the outside of the bottom door viewer on specimen B. Cotton wool pad integrity test is performed over the door viewer, the pad didn't ignite.
52	00	The intermittent flicker of flame observed around the outside of the bottom door viewer continues. Cotton wool pad integrity test is performed over the door viewer, the pad didn't ignite.
54	00	The intermittent flicker of flame observed around the outside of the bottom door viewer on specimen B continues. Cotton wool pad integrity test is performed over the door viewer, the pad didn't ignite.
55	00	**The intermittent flicker of flame observed around the outside of the bottom door viewer on specimen B continues. Cotton wool pad integrity test is performed over the door viewer, the pad ignites.**
57	00	**Sustained flaming has formed long the leading edge between the lockset and the frame.**
60	00	**The test discontinued.**

Test Photographs

The exposed face of the specimens prior to the start of the test

The unexposed face of the specimen prior to the start of the test

The unexposed face of the specimens after 10 minutes of testing

The unexposed face of the specimens after 15 minutes of testing

The unexposed face of the specimens after 20 minutes of testing

The unexposed face of the specimens after 26 minutes of testing

The unexposed face of the specimens after 30 minutes of testing

The unexposed face of the specimens after 36 minutes of testing

The unexposed face of specimen B after 40 minutes of testing

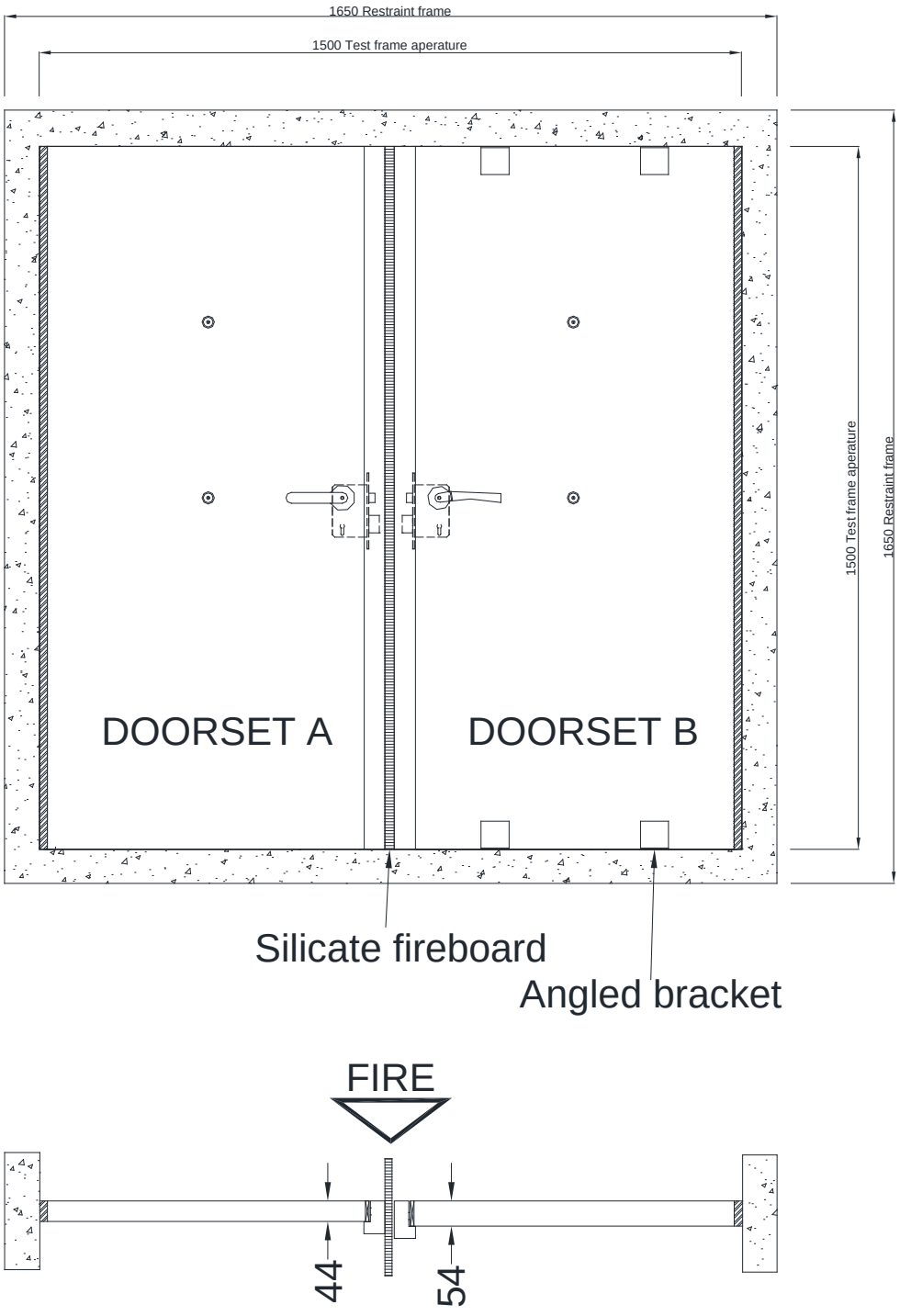
Intermittent flicker of flame the unexposed face of specimen B after 50 minutes of testing

Sustained flaming between the frame and the leaf on the unexposed face of specimen B after 57 minutes of testing

The exposed face of the specimens immediately after testing

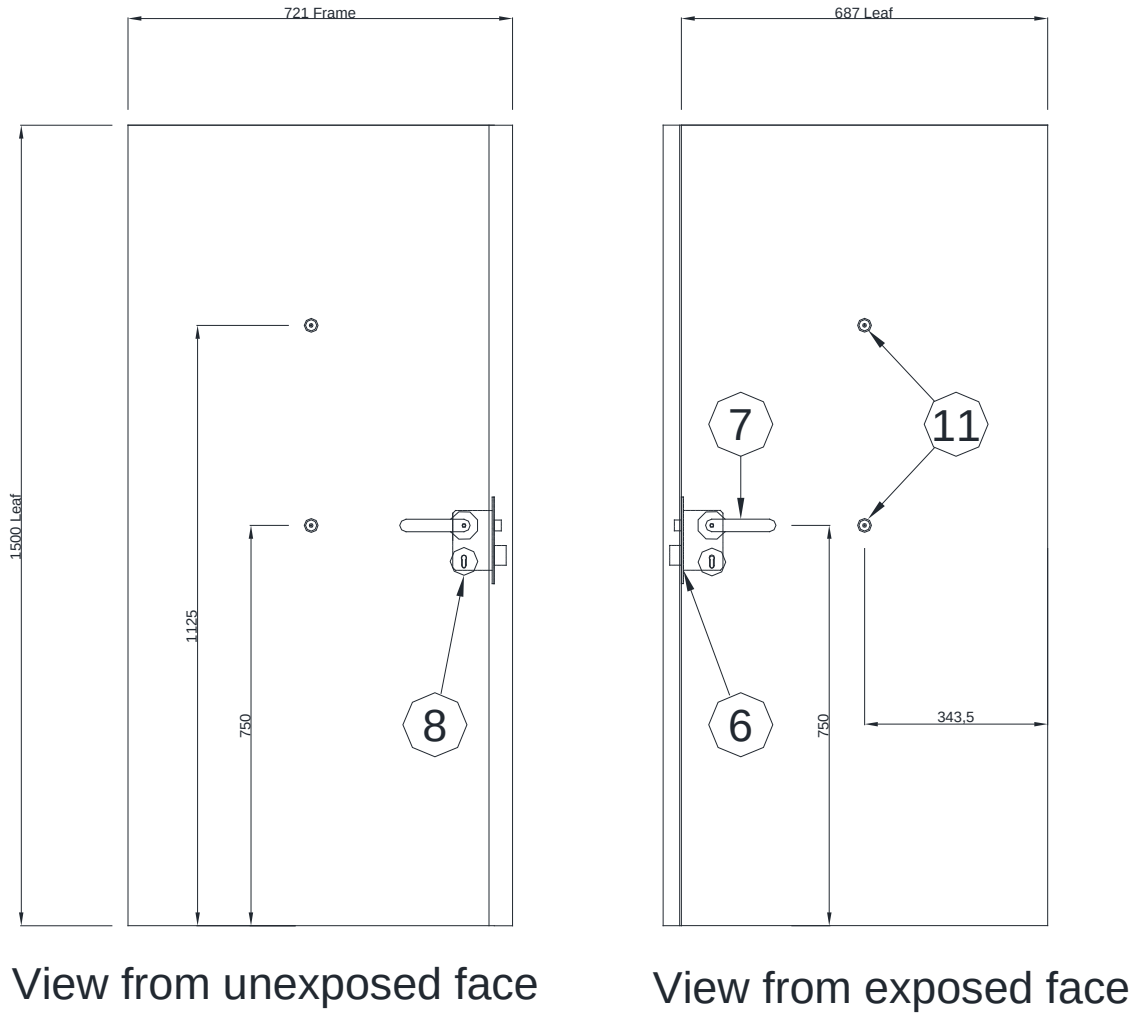
Test Specimen

Figure 1- General Elevation of Test Construction



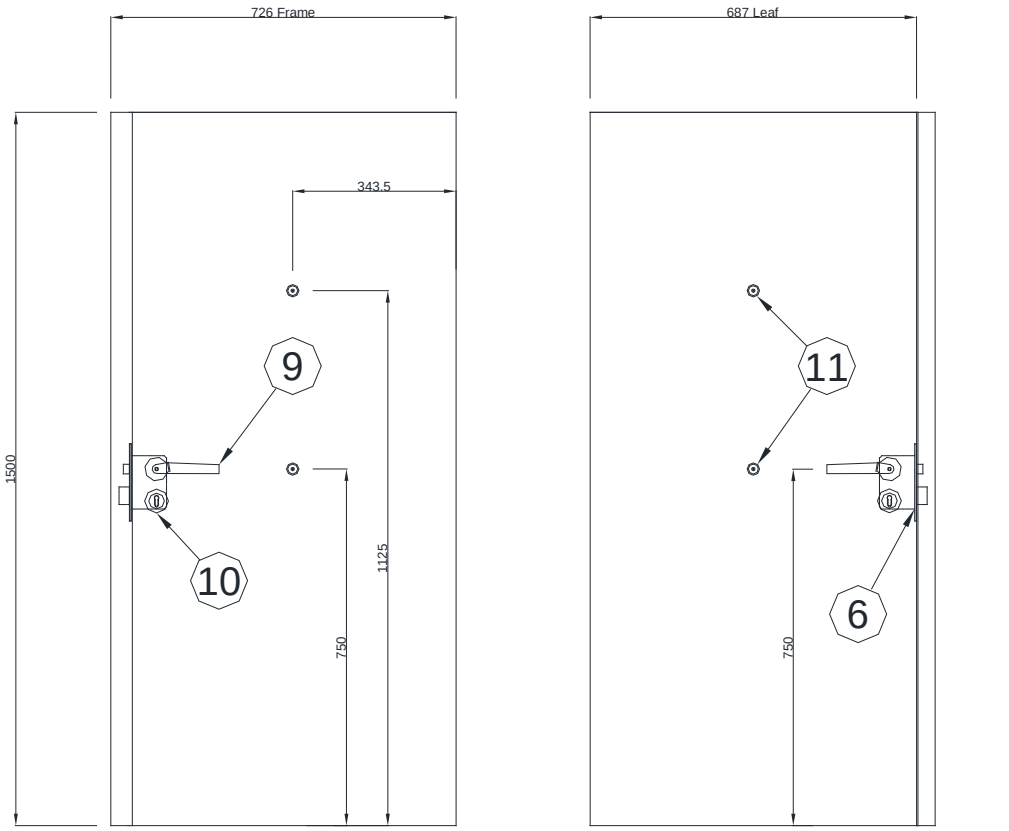
Do not scale. All dimensions are in mm

Figure 2 – Details of Door Leaves Doorset A



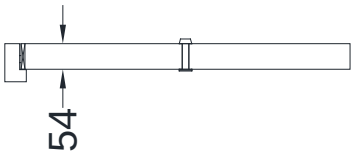
Do not scale. All dimensions are in mm

Figure 3 – Details of Door Leaves Doorset B



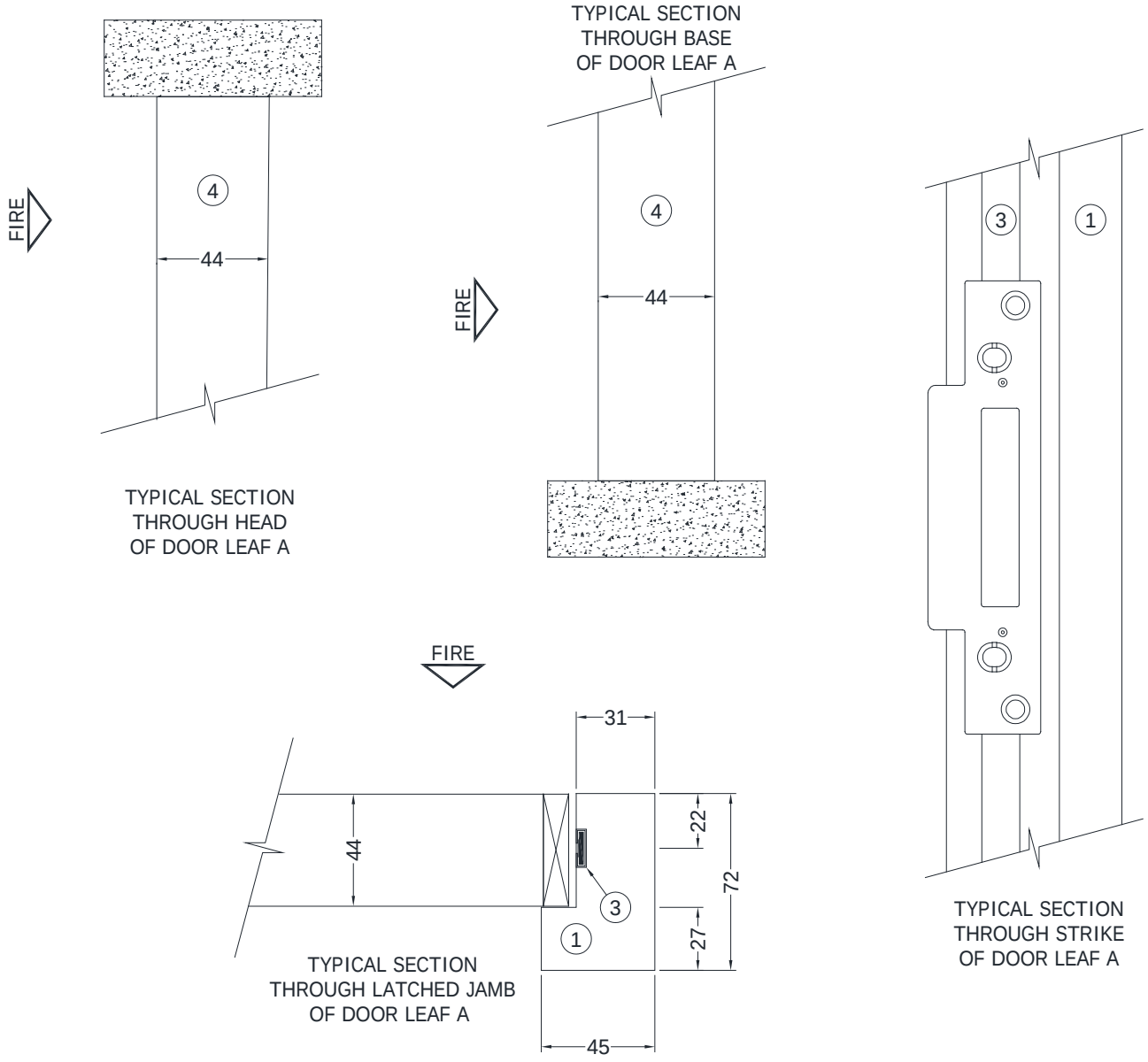
View from unexposed face

View from exposed face



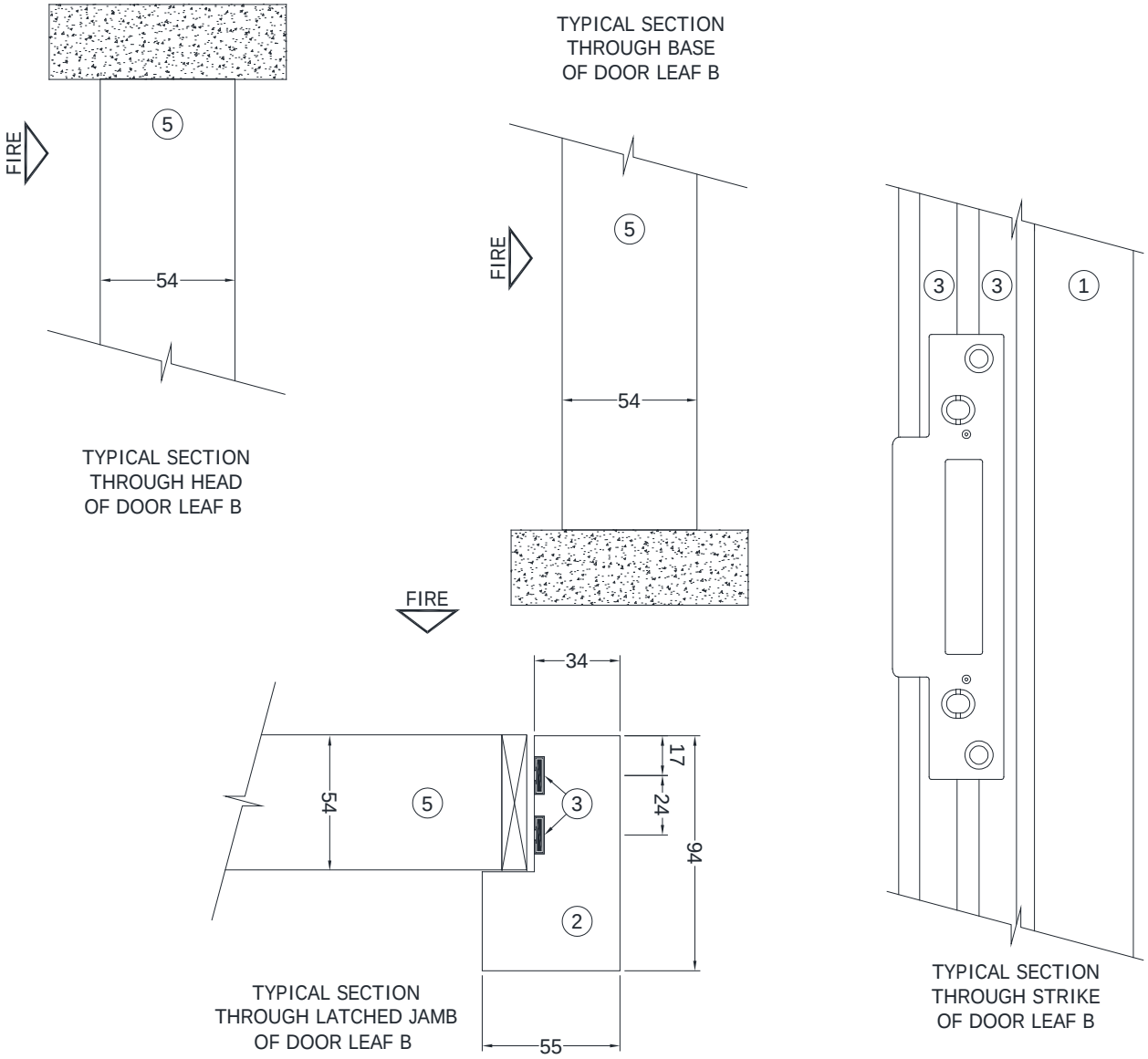
Do not scale. All dimensions are in mm

Figure 4 – Details of Door Leaves



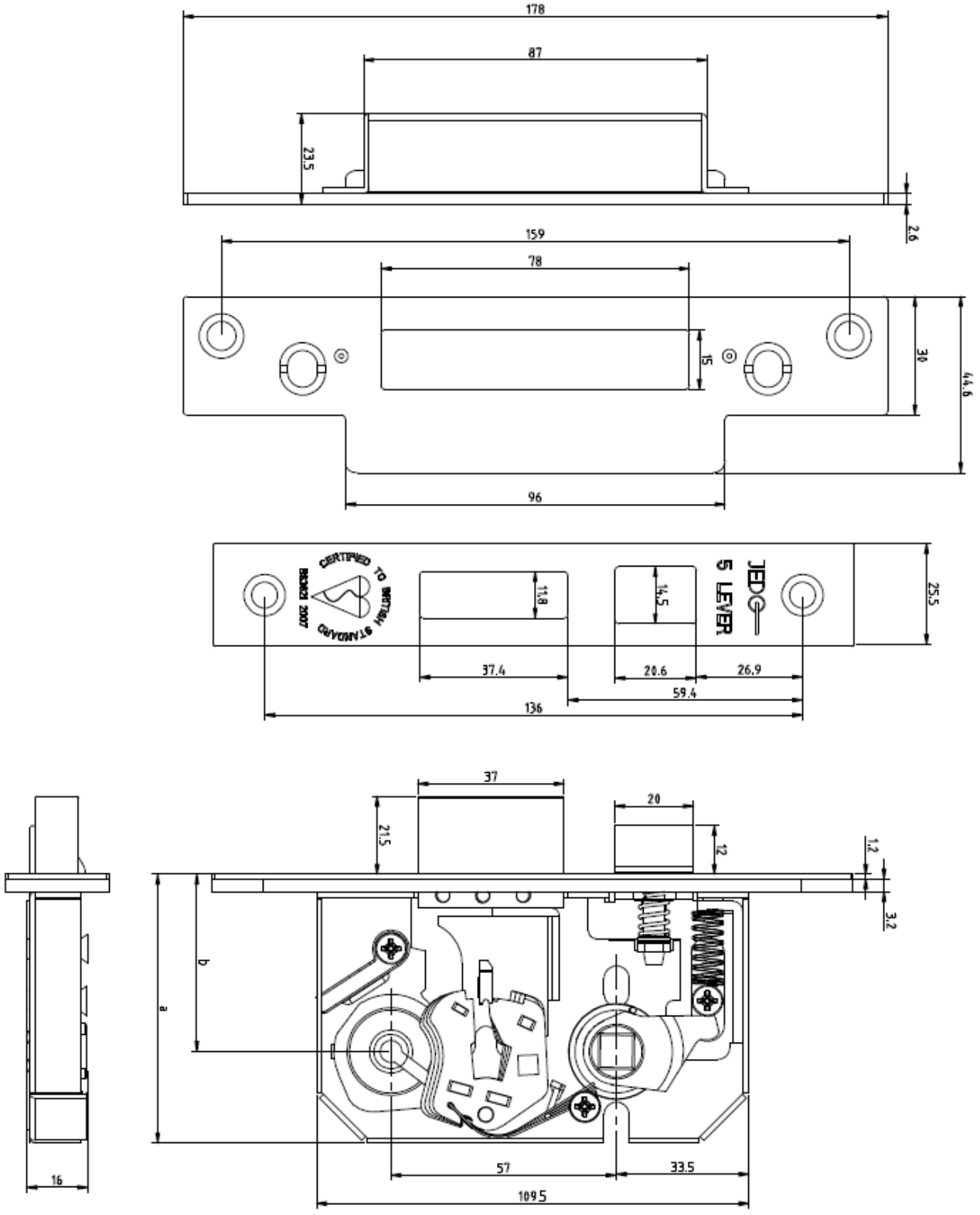
Do not scale. All dimensions are in mm

Figure 5 – Details of Door Leaves



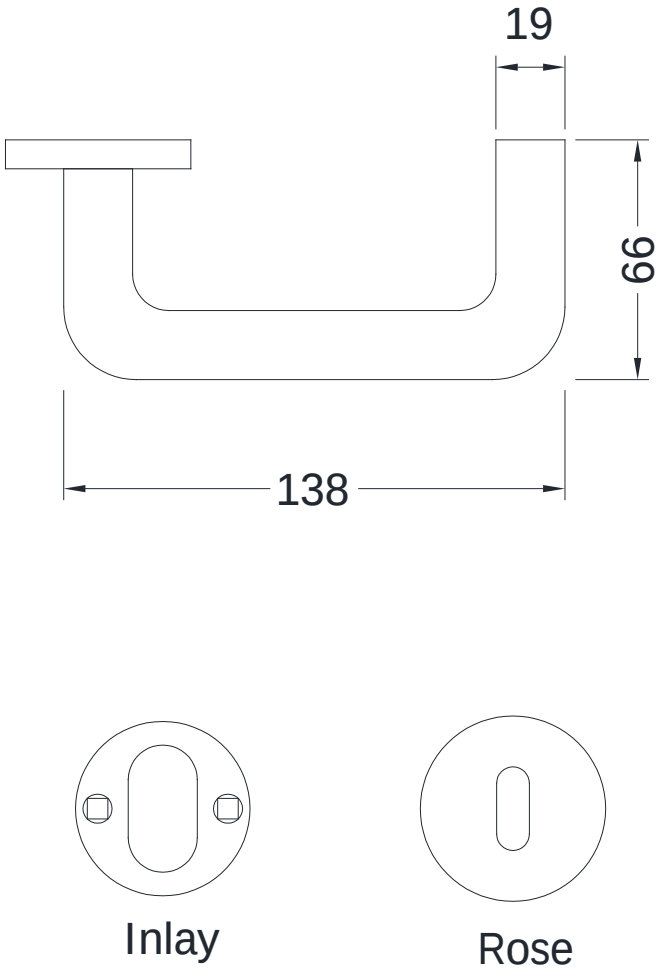
Do not scale. All dimensions are in mm

Figure 6 – Details of item 6



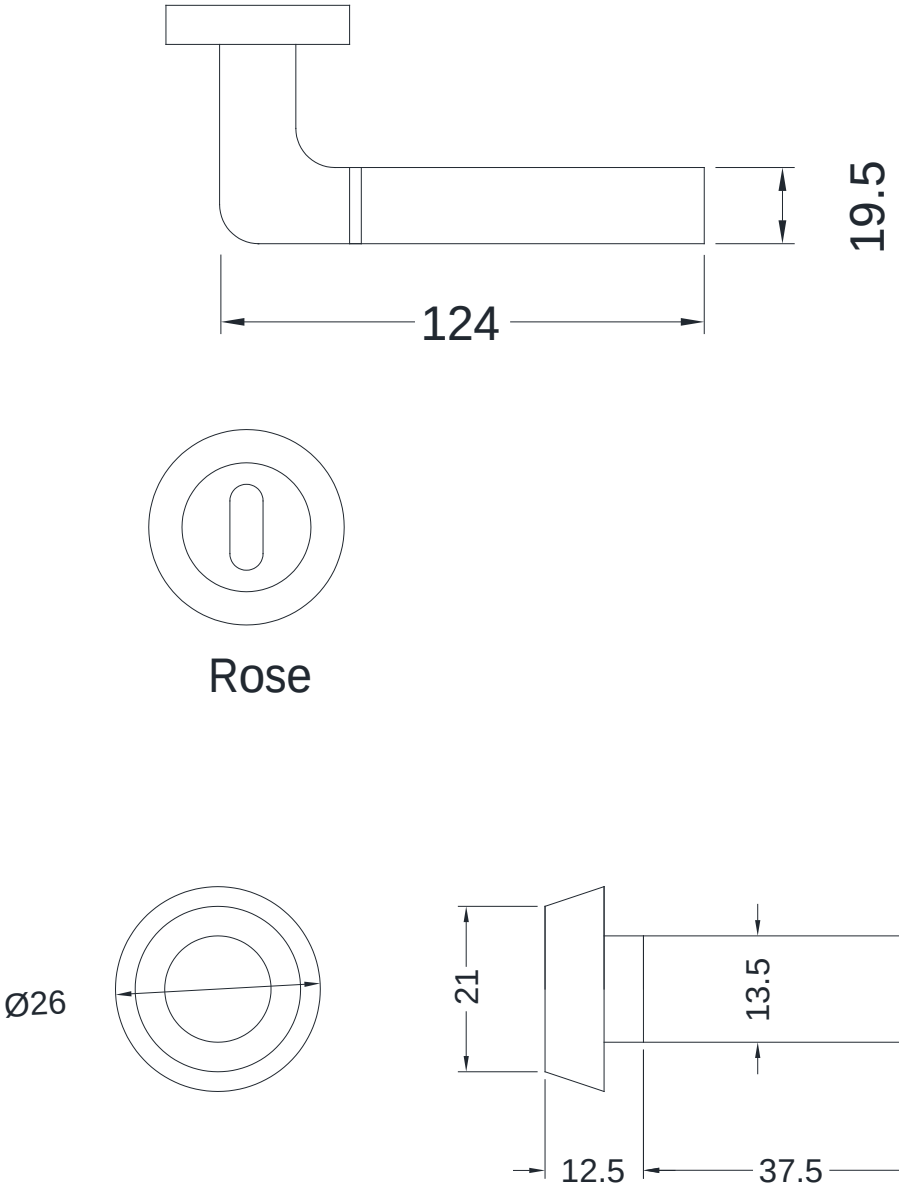
Do not scale. All dimensions are in mm

Figure 7 – Details of items 7 & 8



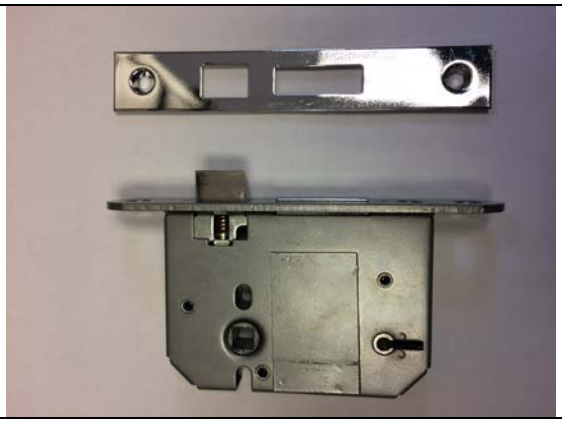
Do not scale. All dimensions are in mm

Figure 8 – Details of items 9,10 & 11



Do not scale. All dimensions are in mm

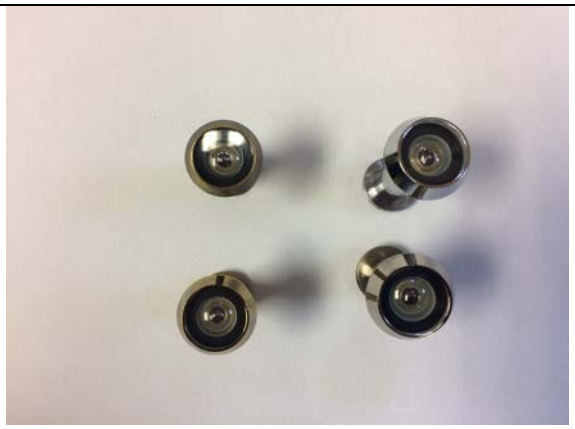
Figure 9 – Photos of ironmongery



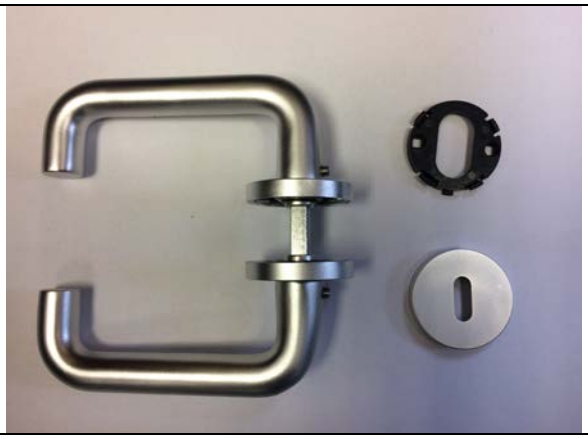
Item 6

Item 6

Item 11



Item 11



Items 7 and 8

Item 7 and 8

Item 9 and 10

Item 9 and 10

Schedule of Components

(Refer to Figures 1 to 8)
(All values are nominal unless stated otherwise)
(All other details are as stated by the sponsor)

Item		Description
1. Door Frame Jamb & Head (A)		
Material	:	Pine Softwood
Density	:	510 ~ 550 kg/m^3 nominal
Average moisture content	:	8.4% (measured with a Protimeter moisture meter by Exova Warringtonfire)
Overall size	:	42 mm x 72 mm, with 12 mm x 46 mm deep rebate
Fixing method	:	Held in place by support brackets
Fixings		4 off place with 100 mm long x 4.8 mm diameter at 25 mm & 75 mm from the head and base connecting the frame to leaf
2. Door Frame Jamb & Head (B)		
Material	:	Sapele, hardwood
Density	:	620 ~ 660 kg/m^3, nominal
Average moisture content	:	8.8% (measured with a Protimeter moisture meter by Exova Warringtonfire)
Overall size	:	96 mm x 56 mm, with 54 mm x 20 mm deep rebate
Fixing method	:	Held in place by support brackets
Fixings	:	4 off place with 100 mm long x 4.8 mm diameter at 25 mm & 75 mm from the head and base connecting the frame to leaf Held in place by angled brackets secured into both side of the restraint frame
3. Intumescent Seal		
Manufacturer	:	Pyroplex Ltd
Reference	:	CF 355
Material	:	Graphite intumescent strip within a polyvinyl chloride, PVC, carrier
Overall size	:	15 mm x 4 mm
Fixing method	:	Self adhered into grooves within rebate of frame, strips were interrupted at furniture positions
4. Door Leaf A		
Manufacturer	:	Halspan
Reference	:	Prima
Overall thickness	:	44 mm
Construction		
Core	:	Chipboard
Lippings	:	Hardwood 8mm thick, to vertical edge (latched jamb) only

Item		Description
5. Door Leaf B		
Manufacturer	:	Halspan
Reference	:	Prima
Overall thickness	:	54 mm
Construction		
Core	:	Chipboard
Lippings	:	Hardwood 8 mm thick, to vertical edge (latched jamb) only
6. Latch to Doorset		
Manufacturer	:	Frelan Hardware
Reference	:	JL-BSS76
Material		
i. Lock case	:	Steel
ii. Forend plate	:	Steel
iii. Latch bolt	:	Steel
iv. Lock bolt	:	Steel
v. Lock keep	:	Steel
Overall sizes		
i. Lock case	:	109.5 mm long x 81 mm wide x 16 mm deep
ii. Forend plate	:	162 mm long x 25.5 mm wide x 3 mm deep
iii. Latch bolt	:	14.5 mm x 20 mm with 12 mm single throw
iv. Lock bolt	:	11.8 mm x 37 mm with 21.5 mm single throw
v. Lock keep	:	178 mm long x 44 mm wide x 23.5 mm deep
Fixing Method	:	Steel countersunk wood head screws 28 mm long x 4.7 mm diameter
Intumescent protection		
i. Doorset A	:	One layer of 1 mm interdens fitted around the lock case and behind the forend, and lock keep
ii. Doorset B	:	Two layers of 1 mm interdens fitted around the lock case and behind the forend, and lock keep
Operation of latch bolt	:	Engaged
Operation of lock bolt	:	Disengaged
7. Lever handles to Doorset A		
Manufacturer	:	Frelan Hardware
Reference	:	SAA01
Material	:	Aluminium
Overall size	:	19 mm diameter x 138 mm long x 66 mm projection
8. Rose to Doorset A		
Manufacturer	:	Frelan Hardware
Reference	:	SAA01
Material	:	Aluminium cover with plastic inlay
Overall size	:	52 mm diameter x 8 mm deep cover 48 mm diameter x 5.7 mm deep inlay
9. Lever handles to Doorset B		
Manufacturer	:	Frelan Hardware
Reference	:	JV861PCSC
Material	:	Steel
Overall size	:	12.5 mm – 19.5 mm diameter x 124 mm long x 61 mm projection

Item		Description
10. Rose to Doorset B		
Manufacturer	:	Frelan Hardware
Reference	:	JV503PC/SC
Material	:	Steel
Overall size	:	50 mm diameter x 9.6 mm deep
11. Door viewer		
Manufacturer	:	Frelan Hardware
Reference		
i. Doorset A	:	JV942
ii. Doorset B	:	JV943
Material		
i. Doorset A upper	:	Brass
ii. Doorset A lower	:	Chrome
iii. Doorset B upper	:	Chrome
iv. Doorset B lower	:	Chrome
Intumescent protection	:	
i. Doorset A upper	:	1 mm graphite intumescent sheet wrapped around the tubular body of the door viewer,
ii. Doorset A lower	:	Non-fitted
iii. Doorset B upper	:	1 mm graphite intumescent sheet wrapped around the tubular body of the door viewer,
iv. Doorset B lower	:	Non-fitted