FIELD OF APPLICATION

TECHNICAL ASSESSMENT REPORT OF FIRE RESISTANCE TEST RESULTS

REPORT Nr.:	**249753**	*PROYECT Nr:*	**PY20-0010**	*REF Nr:*	**MV72218**
REV Nr.:	**04**				
DATE OF ISSUE:	**12/07/2021**				
PRODUCT FAMILY:	**Type:**	**30 minutes resistance to fire Single and double timber doorset**			
	Reference:	**T 30 B-FLUSH DOOR SHAKER DESIGN MOLDED-SKIN**			
TEST STANDARD	**EN 1634-1. "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."**				
APPLICANT:	**NORMA DOORS TECHNOLOGIES, S.A. PARAJE DE QUIÑONES S/N 42120 SAN LEONARDO DE YAGÜE (SORIA)**				

CLASSIFICATION **$EI_1 30$ / $EI_2 30$**

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Department Director

This revision of the document cancels and replaces the one issued on 11th May 2021
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CONTENT

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1 FOREWORD

This field of application report has been commissioned by NORMA DOORS TECHNOLOGIES and relates to the fire resistance of the product:

- T 30 B-FLUSH DOOR
- SHAKER DESIGN
- MOLDED-SKIN

The report has been written in accordance with the general principles outlined in EN 15725: 2010: *Extended application reports on the fire performance of construction products and building elements*.

This field of application (scope) uses established empirical methods of extrapolation and experience of fire testing similar door assemblies, in order to extend the scope of application by determining the limits for the designs based on the tested constructions and performances obtained.

The scope is an evaluation of the potential fire resistance performance, if the variations specified herein were to be tested in accordance with EN 1634-1, and therefore can neither be considered for a CE marking application nor can the conclusion be used to establish a formal classification against EN 13501-2.

This field of application has been written using appropriate test evidence generated at EA accredited laboratories, to the relevant test standard. The test evidence is from a laboratory that has been accredited by a national accreditation body that is a signatory of the International Laboratories Accreditation Co-operation (ILAC). The supporting test evidence has been deemed appropriate to support the manufacturers stated door design and is summarised in Appendix A and Appendix B

The scope presented in this report relates to the behaviour of the proposed door design variations under the particular conditions of the test; they are not intended to be the sole criterion for considering the potential fire hazard of the door assembly in use.

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2 PROPOSAL

It is proposed to consider the fire resistance performance of the NORMA DOORS TECHNOLOGIES doorset designs described in the technical specification in sections 3.1, 4.1 and 5.1 of this assessment report, for 30 minutes fire resistance, if the doorsets were to be tested to the requirements of

- EN 1634-1. "*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.*"

The field of application defined in this report is based on the fire resistance test evidence for the doorset design, which is summarised in Appendix A. Analysis of specific construction details that require assessment are given within this report against the relevant element of construction, as appropriate.

3 T 30 B-FLUSH DOOR

3.1 TECHNICAL SPECIFICATION

3.1.1 GENERAL

The technical specification for the proposed door assembly is given in the following sections and is based on the test evidence for the door design, summarised in Appendix A

3.1.2 INTENDED USE

The intended use of the proposed door assembly is summarised below:

A pedestrian doorset including frame, door leaf or leaves which is provided to give a fire resisting capability when used for the closing of permanent openings in fire resisting separating elements, which together with the building hardware and any seals (whether provided for the purpose of fire resistance or smoke control or for other purposes such as draught or acoustics) which form the assembly.
The construction of door leaves covered by this assessment comprises the following specifications

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3.1.3 DESCRIPTION OF CONSTRUCTION

Element	Material	Dimensions(mm)	Min. Density (Kg/m^3)
Core	Chipboard	34.2 thick or 39.2 thick	455
Stiles	Pine wood	34.2 thick x 30 wide 39,2 x 38 wide 39,2 thick x 30 wide	450
	MDF	34.2 thick x 30 wide	650
Top & bottom rail	Pine Wood	34.2 thick x 30 wide 39,2 x 38 wide 39,2 thick x 30 wide	450
Facing	MDF	5.0 (core 34.2) or 3.0 (core 39.2)	820
Lipping (if required)	Hardwood	44 thick x 7 wide	500

3.2 LEAF SIZES

The approval for increased leaf dimensions is based on the tests listed in appendix A and takes into account the margin of over-performance above 30 minutes integrity for the designs and the characteristics exhibited during test.
Doorsets with reduced dimensions are deemed to be less onerous, any size smaller than specify may be manufactured.

Design	Max. Leaf Height (mm)	Max. Leaf Width (mm)	Max. Area (m^2)
RF T-30 B	2426 (at a max width of 1000)	1069 (at a max height of 2200)	2,4

Note: Glazed door (30/0) type 4 (see clause 3.6) cannot be taken to a size larger than 2110 mm x 930 mm

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3.3 CONFIGURATIONS AND ORIENTATION

3.3.1 Configurations

This assessment covers the various designs listed in section 3.1 for the following configurations:

- Latched, single acting, single doorset (LSASD)
- Latched, single acting, double doorset (LSADD)
- Unlatched, single acting, double doorset (USADD)

3.3.2 Sense of Exposure

The primary fire resistance tests for this design were all conducted with the doorset hung such that the door leaf opened towards the fire, which is considered the most onerous orientation in terms of fire resistance performance.

3.4 LEAF SIZE ADJUSTEMENT

3.4.1 Closing Bevel

Door leaves other than those detailed in the following table may not be altered post manufacture:

Element	Reduction
Long edges	The dimension stated in section 3.1 may be reduced by 3 mm for fitting purposes

3.4.2 Trimming of Bottom Rail and Stiles

Based on the testing conducted, it is permitted to trim up to 3mm from the Bottom and stiles of the design detailed in 3.1 No reduction to be made at the head of the door, retention of fire certificate label is essential.

Design	SECTION (mm)	Trim up to
T-30 B	34.2 thick x 30 wide	3 mm

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3.5 DOOR GAPS

For fire resistance performance, door gaps must fall within the following range:

Location	Dimensions
Door edge gaps	Maximum 4 mm
Threshold	10 mm between bottom of leaf and top of floor covering

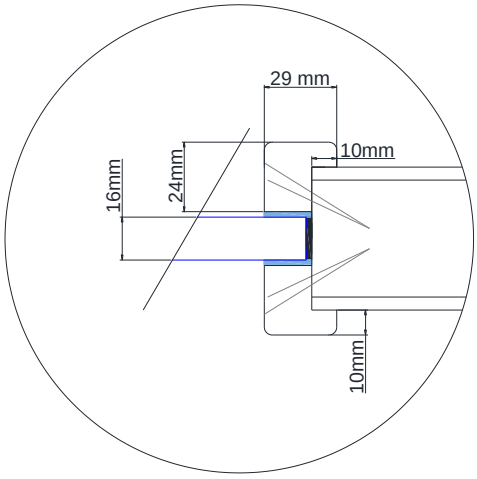
3.6 GLAZING

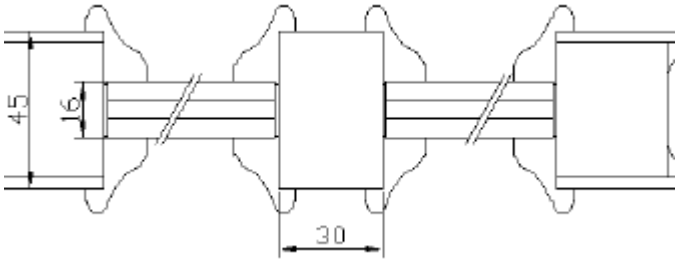
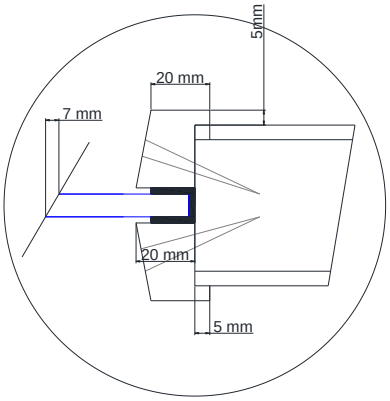
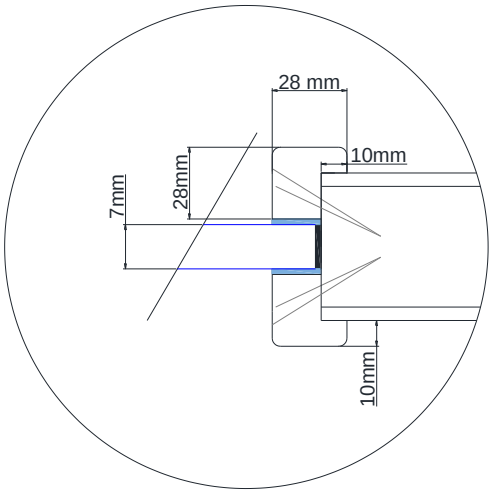
The testing conducted on the designs covered by this assessment permits assessment of glazing to the specification contained in the following sections and to the characteristics detailed in the tables below

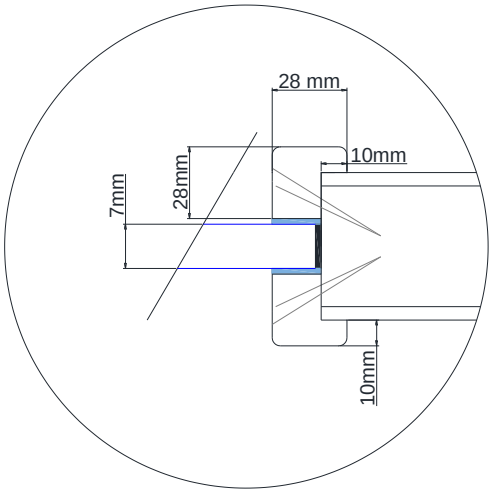
All glass types must be fitted fully in accordance with the manufacture's tested details/installation requirements, particularly with respect to edge cover and expansion allowance.

Glass Type	Intumescent System	Bead	Fixings	Dimension and Margins
Pyrobel 16 EG (30/30) Type 1	19 mm wide by 2 mm thick Odice Super Wool (mineral wool) with a 16 mm wide by 1 mm thick Interdens liner	Bolection bead overall 24 mm wide by 29 mm high (including 10 by 10 bolection) MDF 630 Kg/m^3	Acrylodice fillere and pins 50 mm long. Fixing positioned 50 mm in from the corners, at max 150 mm centres.	Max. Height: 2032mm (at 600 mm wide) Max. Width: 610 mm (at 2000 mm wide) Max. Area: 1.23 m^2 Min. Margins:140 mm from the perimeter edge Nr of panes: 1
Pyrobel 16 EG (30/30) Type 2	16 mm wide by 1 mm thick Odice Interdens	Bead / Moulding 26 mm by 26 mm Only for type 2 Intermediate members 30 mm wide by 45 mm thick MDF veneered with hardwood. MDF 630 Kg/m^3	Orbasil silicone sealant and screws 50 mm long by No 8. Fixings positioned 50 mm in from the corners, at max 150 mm centres.	Max. Height: 520 (at 400 mm wide) Max. Width: 400 mm (at 520 mm wide) Max. Area: 0.21 m^2 Min. Margins:140 mm from the perimeter edge Min distance between panels: 30 mm Nr max of panes: 6
Pyrostem 7 mm (30/0) Type 3	Exitex Exiglaze 30 'U' channel – 12 mm wide by 17 mm high	Bolection bead overall 21 mm wide by 20 mm high (including 5 by 5 mm bolection) Bead to include a 15° splay Beech wood 720 Kg/m^3	Acrylodice and screws 50 mm long by No 8. Fixings positioned 50 mm in from the corners, at max 150 mm centres.	Max. Height: 1587 mm Max. Width:437 mm Max. Area: 0.63 m2 Min. Margins:140 mm from the perimeter edge Nr of panes: 2 Min horizontal distance between panels: 320 mm

Glass Type	Intumescent System	Bead	Fixings	Dimension and Margins
Pyrostem 7 mm (30/0) Type 4	18 mm wide by 2 mm thick Odice Super Wool (mineral wool) with a 7 mm wide by 1 mm thick Interdens liner Acrylodice filler	Bolection bead overall 28 mm wide by 28 mm high (including 10 by 10 mm bolection) MDF 630 Kg/m^3	Acrylodice and screws 50 mm long by No 8. Fixings positioned 50 mm in from the corners, at max 150 mm centres.	Max. Height: 1385 mm Max. Width:120 mm Max. Area: 0.16 m2 Min. Margins:140mm from the perimeter edge Nr of panes: 2 Min horizontal distance between panels: 320 mm
Pyrobelite 7 mm (30/0) Type 3	18 mm wide by 2 mm thick Odice Super Wool (mineral wool) with a 7 mm wide by 1 mm thick Interdens liner	Bolection bead overall 28 mm wide by 28 mm high (including 10 by 10 mm bolection) MDF 630 Kg/m^3	Acrylodice and screws 50 mm long by No 8. Fixings positioned 50 mm in from the corners, at max 150 mm centres.	Max. Height: 1385 mm Max. Width:120 mm Max. Area: 0.16 m2 Min. Margins:140 mm from the perimeter edge Nr of panes: 2 Min horizontal distance between panels: 320 mm
Pyroguard EW 30 Impact 7 mm (30/0) Type 4	15 mm wide by 10 mm thick Pyroplex 8193	Bolection bead overall 28 mm wide by 28 mm high (including 10 by 10 mm bolection) MDF 630 Kg/m^3	Acrylodice fillere and pins 50 mm long. Fixings positioned 50 mm in from the corners, at max 150 mm centres.	Max. Height: 1415 mm Max. Width: 155 mm Max. Area: 0.22 m2 Min. Margins: 380 mm from the perimeter edge Nr of panes: 1
Pyrosterm 7 mm (30/0) Type 4	15 mm wide by 10 mm thick Pyroplex 8193	Bolection bead overall 28 mm wide by 28 mm high (including 10 by 10 mm bolection) MDF 630 Kg/m^3	Acrylodice fillere and pins 50 mm long. Fixings positioned 50 mm in from the corners, at max 150 mm centres.	Max. Height: 1415 mm Max. Width: 155 mm Max. Area: 0.22 m2 Min. Margins: 380 mm from the perimeter edge Nr of panes: 1

Type Nr	Fixing description
1 **T-30 B Pyrobel 16 EG (30/30)**	

Type Nr	Fixing description
2 **T-30 B** **Pyrobel 16 EG** **EI glass**	
3 **T-30 B** **Pyrostem 7** **EW glass**	
4 **T-30 B** **Pyrostem 7** **EW glass** **Pyroguard** **EW30 Impact 7**	

Type Nr	Fixing description
5 **T-30 B** **Pyrobelite 7** **EW glass**	

NOTES:

Bead materials

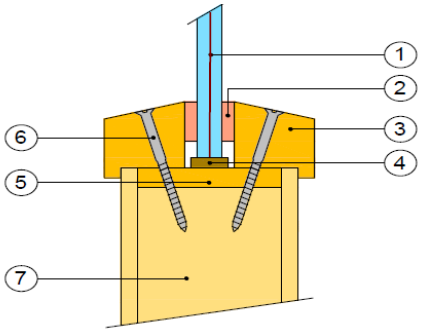
Possible to change from wood fibre-based material to solid wood of the same or higher density but not vice versa. For solid wood, material change is possible to hardwood from softwood for same and increased density only

Change location in door leaf or panel.

- Move vertically: Possible to move the glass downwards but not upwards and provided that the smallest tested distance between door leaf edge and glazing is not reduced, and minimum 50 mm away from any hardware cut-outs.
- Move horizontally: Possible providing the minimum tested distance between the edge of the leaf and the glazing is not reduced, and minimum 50 mm away from any hardware cut-outs.

Other Assessed Glazing Systems

Based on the documents CERTIFIRE certificate No CF 257 Pyroguard EW30 IMPACT (7 mm)
For this application the following conditions shall apply:
The glass shall be glazed within a previously fire tested or CERTIFIRE approved timber based doorset utilising the following basic specification:



1 Pyroguard EW30 IMPACT (7mm)*
2 Glazing system (see below)
3 Hardwood glazing beads (see below for alternative specs)
4 Non-combustible/hardwood setting blocks
5 Liner (see below)
6 Fixings (see below)
7 Nominally 44 mm thick FD30 door leaf
* Option of IGU with Pyroguard EW30 clear or wired glass, 6 mm steel spacer and 6 mm toughened glass, with the system specified in table below

Glass Type	Glazing system	Max. Pane Hight	Max. Pane width	Max. Pane Area
Pyroguard EW30 IMPACT *(30/0)* (7 mm)	Sealmaster Intumescent Foam Glazing Tape 10 x 5 mm Ø1.6x40mm long steel pins or No.8x40mm long screws at 150max. centres and 50mm from corners (fixed at 45°), 15 mm high beads, with a 5x5mm min. bolection, from hardwood (min. density 620kg/m3 with a 20° chamfer). System may be used with and without non-combustible setting blocks	1846 mm	760 mm	1.31 m^2
Pyroguard EW30 IMPACT *(30/0)* (7 mm)	Dufaylite Interdens 10 x 2 mm glazing strip The glazing beads shall be Sapele hardwood of minimum density 610 kg/m^3, sections, 20 mm wide by 21 mm high with a 5 mm by 5 mm bolection return, chamfered by approximately 21º and fixed using, 50 mm long steel pins or screws at nominally 70mm at corners and a maximum of 200mm centres and angled at 45º to glass.	1846 mm	760 mm	1.31 m^2

3.7 LEAF FACING MATERIALS

3.7.1 Primary Facings

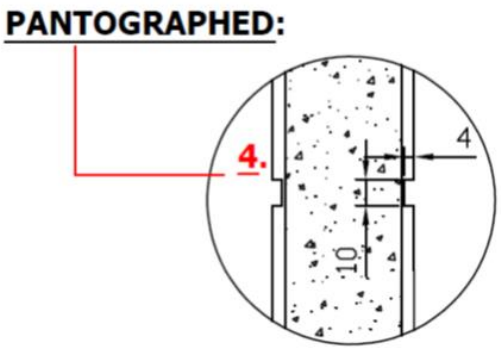
The following materials have been tested or for use with the designs covered by this assessment, as shows table below:

Design	Material	Thickness (mm)	Min. Density (Kg/m^3)
T-30 B	MDF	5.0 (core 34.2) or 3.0 (core 39.2)	820 840

3.7.2 Grooves

Based on the specimens tested, a maximum of 10 mm wide x 4 mm deep horizontal grooves may be machined in the door facings, only when the primary facing has 5.0 mm thickness.

Based on the specimens tested, a maximum of 5 mm wide x 3 mm deep vertical and horizontal grooves may be machined in the door facings, when the primary facing has 3.0 mm thickness



Pantographed detail

3.7.3 Decorative & Protective Materials

The following additional decorative and protective materials on the leaf, panel or frame door are permitted, with the characteristics shown in tables below:

c	permitted thickness
Paint	0 mm to 0.5 mm
Timber veneers	0 mm to 3 mm
Plastic	0 mm to 2 mm
Other decorative materials **with a Reaction to Fire class B-F or a melting point below 660 °C, but no metals**	0 mm to 2 mm
Other decorative materials **with a Reaction to Fire class A1 or A2 and a melting point of 660 °C or above**	Any, providing the total increase in leaf weight is not more than 25 % (see Note 1)

Decorative and /or protective finishes on the edge	Maximum permitted thickness
Paint	0 mm to 0.5 mm
Timber veneers /Plastic	0 mm to 1.5 mm (timber veneers) 0 mm to 0.8 mm (plastic) (see Note 2)
Other decorative materials **with a Reaction to Fire class B-F or a melting point below 660 °C, but no metals**	0 mm to 0.8 mm
Other decorative materials **with a Reaction to Fire class A1 or A2 and a melting point of 660 °C or above**	It's not possible

Notes:

1. Possible providing the total increase in leaf weight is not more than 25 % and providing the decorative and/or protective finish is fixed with adhesive. The intumescent seal remains as tested, but is possible to cover an intumescent seal with paint, veneer or high-pressure laminate and plastic no thicker than 0.8 mm.
2. The leaf to frame gaps remains as section 3.5;
3. In case of uninsulated glass, the decorative and/or protective finishes may not be positioned in places where it can be exposed to radiation through the glass

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3.8 DOOR FRAME

3.8.1 Door Frame Construction

Door frames must be constructed to meet the following specification:

Design	Material	Frame Type Nr	Min. Density (Kg/m³)
T-30 B	Softwood Hardwood	1,2, 1b* ,5*,6	450
	MDF	3, 4	730
		7*	700
		8	650

(*) only for non-insulated door (E)

NOTES:

- Intumescent joints should be kept the same as in the type of frame indicated
- possible to change from finger joint and/or laminated timber (not plywood) to solid timber within the same or higher group

Softwood: Wood of trees of the botanical group Gymnosperms. Most commercial softwoods belong to the group “conifers” which is a part of the botanical group Gymnosperms.
Hardwood: wood of trees which represent one group of the Angiosperms knows as the dicotyledons

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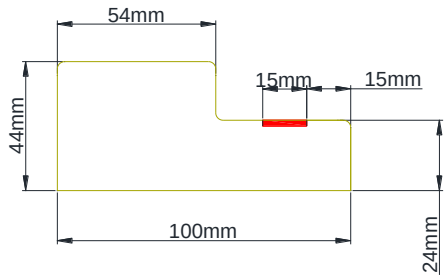
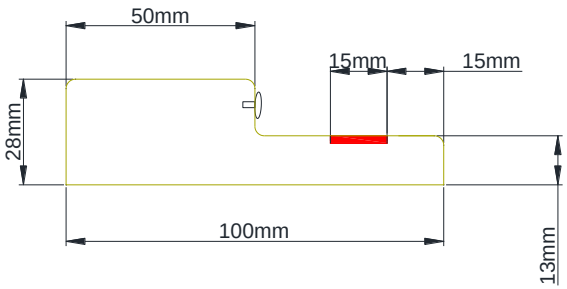
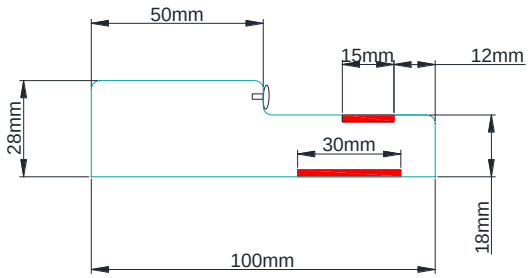
Frame description



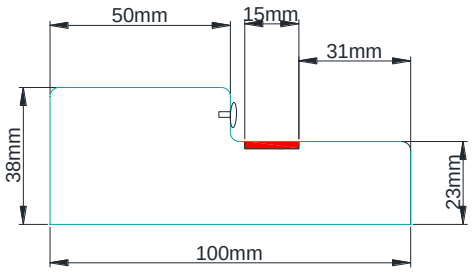
Type 1
Soft Wood, Exitex (EXIFIRE 1.31.0051) 15 x 4 mm
No weather strip



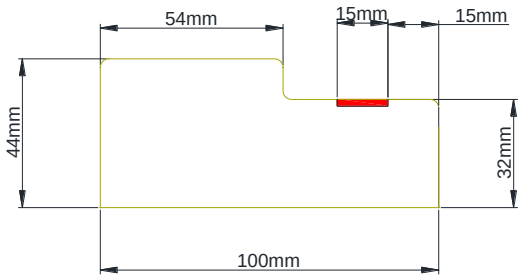
Type 2
Softwood, Palusol PL 15 x 2 mm,
Weather strip ODICE EF BIGW BS



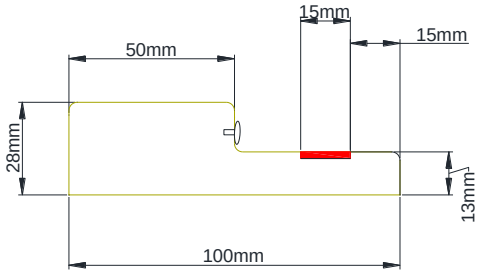
Type 3
MDF, Palusol PL 15 x 2 mm, BIFIRE graphite 30 x 2,
Weather strip INDOPLAST DV-09



Type 4
MDF, Palusol PL 15 x 2 mm
Weather strip GIESSE-SCHELEGEL Q LON -45

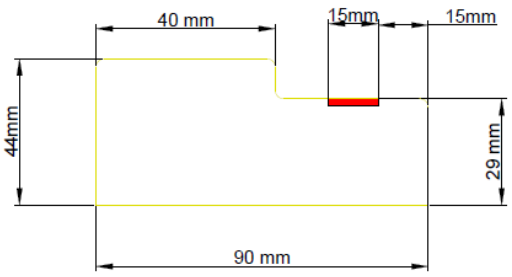


Type 1b
Soft Wood, Exitex (EXIFIRE 1.31.0051) 15 x 4 mm
No weather strip

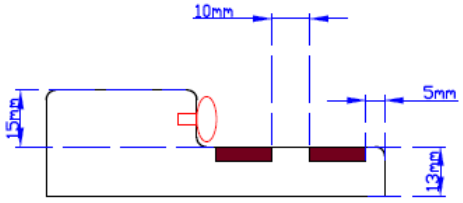


Type 5
Soft wood , Exitex (EXIFIRE 1.31.0051) 15 x 4 mm
Weather strip GIESSE-SCHELEGEL Q LON -45

Frame description

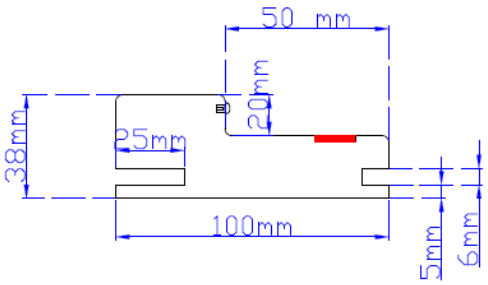


Type 6
Soft Wood, Pyroplex (Certifire CF 355) 15 x 4 mm
No weather strip



Type 7

MDF, Pyroplex 8700 15 x 4 mm
Weather strip GIESSE-SCHELEGEL Q LON -55

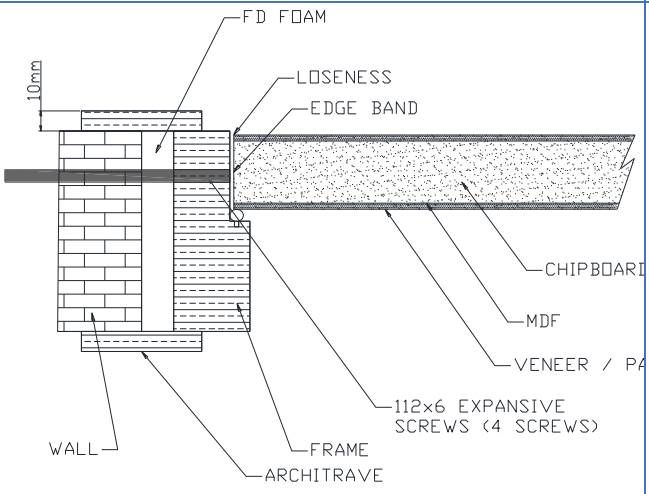
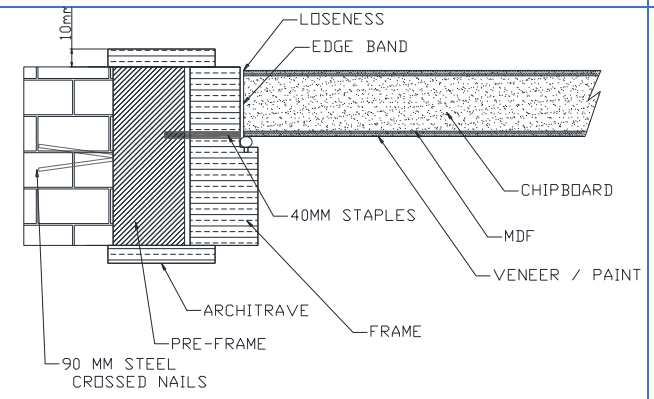


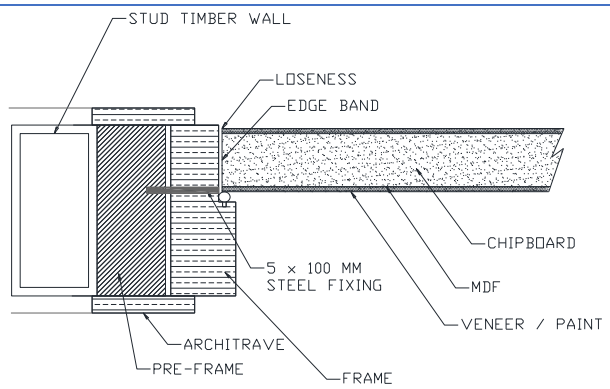
Type 8
MDF, Batex System, Palusol PL 15 x 2 mm
Weather strip GIESSE-SCHELEGEL Q LON -45

3.8.2 Door Frame Installation

The number of fixings can be increased but not reduced. The distance between fixing centres can be decreased or can be increase up to 15%

The following diagrams indicate acceptable door frame installations:

Type Nr	Frame description
	For type 1 (block wall) the set is fixed to the wall, using 8 metric 6 x 112 mm steel fixing and 10 mm diameter wall plugs, distributed 4 on the side of the hinges and 4 on the side of the strike. The arrangement of the metal fixings on each side is 100 mm from the top and 100 mm from the bottom, at max 600 mm centres The gap at the back of the frame, up to 10 mm, is filled with fire-resistant polyurethane foam, reference: • Blue 60 manufactured by EXITEX, or • Orbafoam Fire-Stop, Quilosa • Pyroplex Fire rated Expanding Foam
	For type 2 (wooden subframe) The wooden subframe is fixed to the supporting construction by means of a total of 8 pairs of steel crossed nails, 3 mm thick and dimensions of 13 x 90 mm. The arrangement of the metal fixings on each side is 100 mm from the top and 100 mm from the bottom, at max 600 mm centres The set is fixed to the wooden sub-frame, using 40 mm steel staples distributed 4 on the side of the hinges and 4 on the side of the strike. The arrangement of the metal fixings on each side is 100 mm from the top and 100 mm from the bottom, at max 600 mm centres The gap at the back of the frame, up to 10 mm, is filled with fire-resistant polyurethane foam, reference: • Blue 60 manufactured by EXITEX, or • Orbafoam Fire-Stop, Quilosa • Pyroplex Fire rated Expanding Foam



For type 3 (plasterboard wall) The frame is fixed to the timber stud wall using steel fixings 5mm x 100mm, distributed 4 on the side of the hinges and 4 on the side of the strike.

The arrangement of the metal fixings on each side is 100 mm from the top and 100 mm from the bottom, at max 600 mm centres

The gap at the back of the frame, up to 10 mm, is filled with fire-resistant polyurethane foam, reference:

- Blue 60 manufactured by EXITEX, or
- Orbafoam Fire-Stop, Quilosa
- Pyroplex Fire rated Expanding Foam

3.9 LIPPINGS

Doors including MDF stiles must be lipped on the vertical door leaf edges as follows:

- *Timber*: Hardwood min. density 640 kg/m3
- *Thickness*: 7 mm
- *Fixing*: U/F adhesive

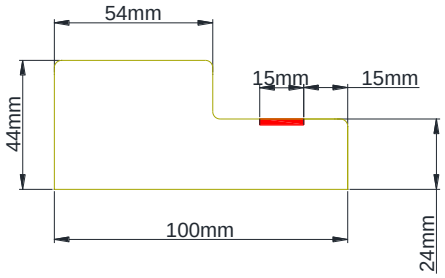
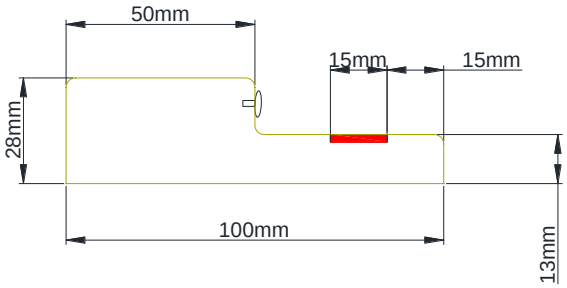
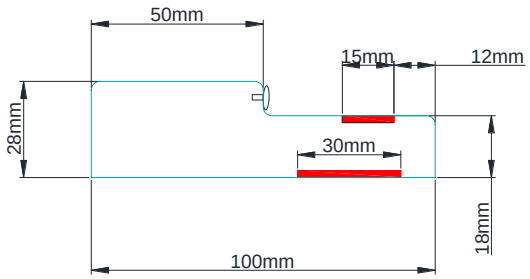
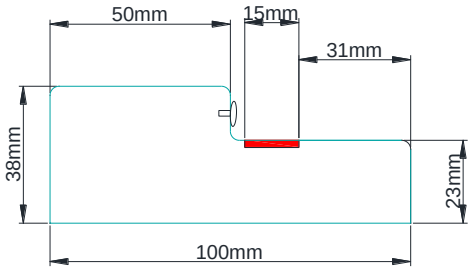
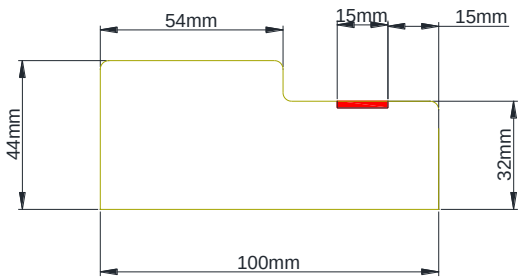
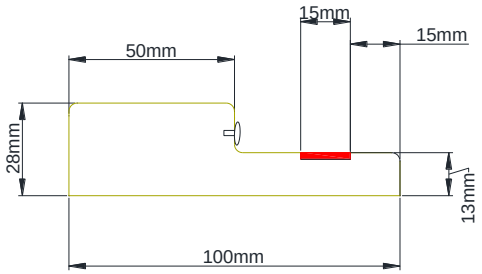
Doors including 38 x 39 mm softwood stiles may be supplied un lipped

3.10 INTUMESCENT MATERIALS

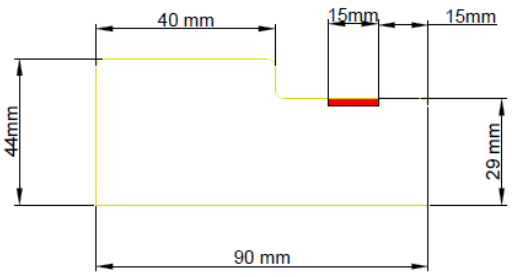
The intumescent materials tested and assessed for these doorset designs are as follows:

3.10.1 Frame edge seals

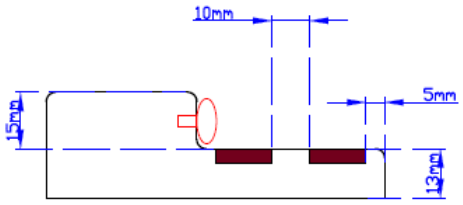
The gaskets are associated with the allowed frame types as shows below:

Frame description	
 ***Type 1*** *Soft Wood, Exitex (EXIFIRE 1.31.0051) 15 x 4 mm No weather strip*	 ***Type 2*** *Softwood, Palusol PL 15 x 2 mm, Weather strip ODICE EF BI GW QS*
 ***Type 3*** *MDF, Palusol PL 15 x 2 mm, BIFIRE graphite 30 x 2, Weather strip INDOPLAST DV-09*	 ***Type 4*** *MDF, Palusol PL 15 x 2 mm Weather strip GIESSE-SCHELEGEL Q LON -45*
 ***Type 1b*** *Soft Wood, Exitex (EXIFIRE 1.31.0051) 15 x 4 mm No weather strip*	 ***Type 5*** *Soft wood , Exitex (EXIFIRE 1.31.0051) 15 x 4 mm Weather strip GIESSE-SCHELEGEL Q LON -45*

Frame description

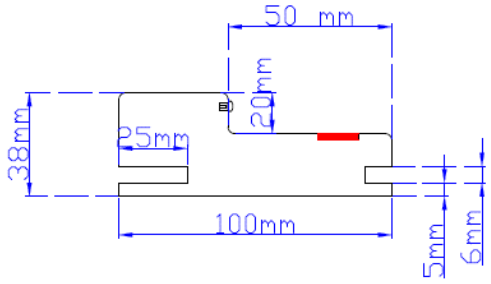


Type 6
Soft Wood, Pyroplex (Certifire CF 355) 15 x 4 mm
No weather strip



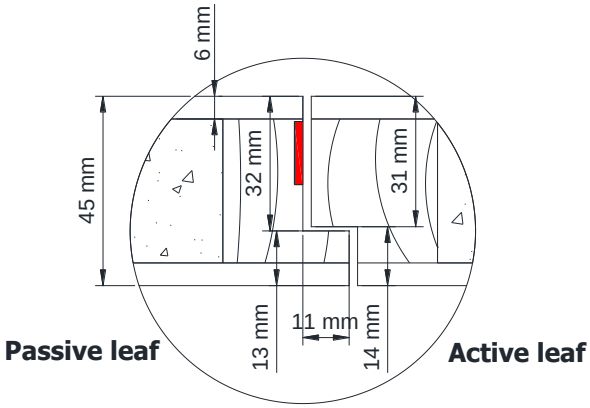
Type 7

MDF, Pyroplex 8700 15 x 4 mm
Weather strip GIESSE-SCHELEGEL Q LON -55



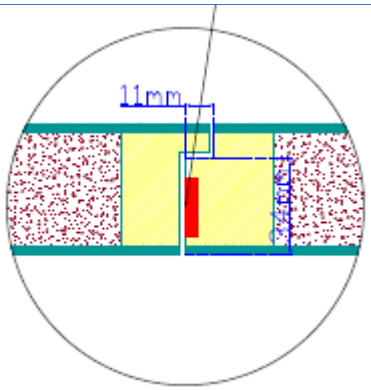
Type 8
MDF, Batex System, Palusol PL 15 x 2 mm
Weather strip GIESSE-SCHELEGEL Q LON -45

3.10.2 Door edge seals



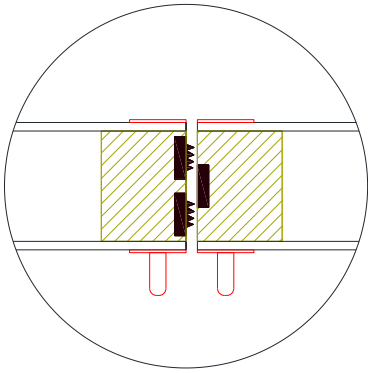
Type 1

Intumescent seal: Palusol PL 15 x 2



Type 2.

Intumescent Seal: Pyroplex Fire Door seals-rigid box seal 20 x 4 mm



Type 3. Unlatched doors

Intumescent Seal: Pyroplex 8712 (2 units) 15 x 4 mm,and Pyroplex 8700 15 x 4 mm

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3.11 TESTED HARDWARE

The following hardware has been tested or assessed for the doorset designs covered in this assessment:

Element	Manufacturer and Product Reference	Intumescent protection
Locks and latches	• One-point lock. ARRONE, Ref. AR910-R-60-SSS • One-point lock. ARRONE, Ref. AR8004-63-SC • One-point lock. LINCE, Ref. 5470 NP-60-323 • One-point lock. LINCE, Ref. 5470 F • One-point lock. TOVER SECURITY SYSTEMS, Ref. 310 RF • One-point lock. TESA, Ref. I-MAX with lock TESA 2030F • One-point lock, ASSA ABLOY, Ref. VINGCARD SIGNATURE RFID EURO • Three-point lock. MCM, Ref. 701RF-3	• 1mm AR/INT-DIN_LOCK-60, ARRONE • 1 mm Interdens, ODICE Not needed at strike plate
Hinges	• ARRONE, Ref. AR8182-SSS-A1 • Harrayma, Ref. BRI-3 • MHA. Ref. 474	Not needed
Door Closers	• ARRONE, Ref. AR1500-SE/SE • ARRONE, Ref. AR6800-SE • ARRONE, Ref. AR8182 & AR9292* • GEZE, Ref. TS 1000C • LINCE, Ref. CPA 23 • TELESCO, DELTA 1300	Not needed *ARRONE, Ref. AR/INT 8180/8580
Concealed door closer	• ARRONE, Ref. AR7383 • RUTLAND, ref. ITS 11204 • GEZE, Ref. BOXER 2-4	As manufacturer specifications
Furniture	• Handle AT, Ref. Siena • Handle. AT ARTE TOSCANA, Ref. R071 venice handle & escutcheon PCSC • Handle. HERRAYMA, Ref. Brasilia Ri-403 • Handle. SENELLI, Ref. Pesaro • Handle. TOVER SECURITY SYSTEMS, Ref. MADF • Digital handle (electronic shield). MCM, Ref. easyKEY Adapt • Knob. HERRAYMA, Ref. PI-13 • Knob. HERRAYMA, Ref. RI-034 • Panic bars. UCEM, Ref. Exit Combi B150 (active leaf) • Panic bars. UCEM, Ref. Exit Combi BP120C (passive leaf) • Push plate, PROLINE (650 x 75 x 1,2 mm) • Pull handle, PROLINE, Ref. PH301	Not needed
Eye viewer	• AMIG, Ref. 30-50 UL • FRELAN, Ref. JV942PC	ODICE Flexilodice 8 mm BIFIRE Sealbifire

Threshold Seal	• CCE Ref. TREND • CCE, Series EASY Ref. ASGSFI • EXITEX, Ref. Concealex A8100 • NORSOUND, Ref. NOR810	As manufacturer specifications
Closer selector	• JUSTOR, Ref. SP 81 • SELECTRITE, Ref. MK1	Not needed
Flush bolts	• MONVADO, Ref. 382 HN • PROLINE, Ref. JSS51	15 X 2 MM Palusol strip
Air transfer grilles	• PYROPLEX, Ref. Fire Rated Air Transfer Grilles	Not needed

3.12 ADDITIONAL AND ALTERNATIVE HARDWARE

The following section details the permitted scope and constraints for fitting hardware to these door designs.

The following items of hardware must also bear the CE Mark:

- Latches and Locks: Test Standards EN 12209
- Single Axis Hinges: Test Standard EN 1935
- Controlled Door Closing Devices: Test Standard EN 1154
- Panic Exit Hardware: Test Standard EN 1125
- Door co-ordinators: Test Standard EN 1158

3.12.1 Locks & Latches

The lock must comply with the relevant product standard and have passed a full-size fire test to EN 1634-1 or a small-scale fire test to EN 1634-2. Each of the linear dimensions shall be no larger than tested successfully in the original doorsets, and the latch bolt shall have a similar or greater engagement.

Additionally, for internal locks, the amount of material removed from the door leaf shall be as tested in the original doorsets or less. Any additional component should be metal and the distance between the intumescent protection, if fitted, and the lock forend shall remain as tested, otherwise further test is required.

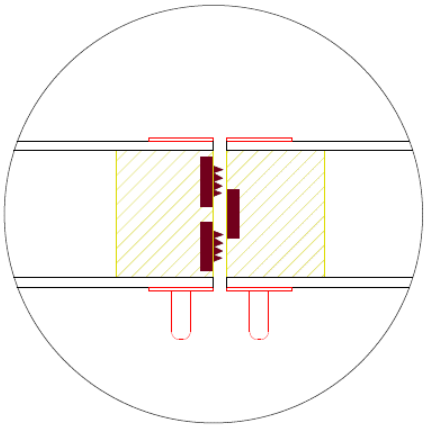
Locks and latches must either be as tested, or alternatively components with the following specifications are acceptable:

Element	Specification
Maximum forend and strike plate dimensions	240 mm high x 25 mm wide x 3 mm thick
Maximum body dimensions	175 mm high x 140 mm wide x 24 mm thick
Materials	All parts essentials to the locking/latching action (including the latch bolt, forend and strike) to be steel, stainless steel or brass (melting point ≥ 800°C)
Location	1070 mm from the threshold
Latch bolt	Minimum 11 mm
Intumescent protection	See table section 3.11 (hardware protection)

The following hardware has been assessed for the doorset designs covered in this assessment:

Element	Manufacturer and Product Reference	Intumescent protection
Locks and latches	• One-point lock. ADVANCE PRODUCT ENGINEERING, Ref. 3 Lever sash lock 2.5 (code AC3LSL25/ AC3LSL25R) • One-point lock. ADVANCE PRODUCT ENGINEERING, Ref. 3 Lever sash lock 3.0 (code AC3LSL30/ AC3LSL30R) • One-point lock. ADVANCE PRODUCT ENGINEERING, Ref. 3 Lever bathroom lock 2.5 (code AC3LBL25/ AC3LBL25R) • One-point lock. ADVANCE PRODUCT ENGINEERING, Ref. 3 Lever bathroom lock 3.0 (code AC3LBL30/ AC3LBL30R) • One-point lock. ADVANCE PRODUCT ENGINEERING, Ref. 3 Lever upright latch 2.5 (code AC3LUL25/ AC3LUL25R) • One-point lock. ADVANCE PRODUCT ENGINEERING, Ref. 3 Lever upright latch 3.0 (code AC3LUL30/AC3LUL30R)	• 1 mm Interdens® Not needed at strike plate

The double leaf door can be installed without lock. Provided that a 15 mm wide by 4 mm thick Pyroplex seal is placed on one of the leaves at the edge of the meeting between leaves, and on the other leaf two Pyroplex 8712 seals 15 mm wide by 4 mm thick at the edge of the meeting between leaves.



3.12.2 Door closer

The door closer must comply with EN 1154, and have passed a full-size fire test to EN 1634-1 or a small-scale fire test to EN 1634-2. The intumescent protection, if fitted, shall be the same as tested.

3.12.3 Concealed Door closer

The door closer must comply with the relevant product standard for that particular type of door closer and has passed a full-size fire test to EN 1634-1 or a small-scale fire test to EN 1634-2. The size of the door closer cannot be greater than tested and the material removed from the door shall be as tested or less. The intumescent protection, if fitted, shall be the same as tested.

Element	Specification
Maximum body dimension	338 mm long x 32 mm deep x 55 mm high
Maximum guide rail dimension	464mm long x 23 mm deep x 15 mm high
Intumescent protection	See table section 3.11 (hardware protection)

3.12.4 Hinges

Door leaves up to 2200 mm high must be hung on a minimum of 3 hinges, whilst leaves over this height or with fixed top must fit 4 hinges.

Hinges with the following specification are acceptable:

Element		Specification	
Blade height		100 – 102 mm	
Blade width (excluding knuckle)		28 – 31 mm	
Blade thickness		3 mm	
Fixings		Minimum of 3No. steel wood screws per blade. Dimensions: those supplied by the manufacturer	
Materials		Steel, stainless steel or brass (melting point ≥ 800°C)	
Hinge position	Where 3 hinges are fitted or required	Top	120-175 mm from the head of the leaf to the top of the hinge
		2nd	1003-1075 mm from the foot of the leaf to the bottom of the hinge
		Bottom	120-190 from the foot of the leaf to the bottom of the hinge
	Where 4 hinges are fitted or required	Top	120-175 mm from the head of the leaf to the top of the hinge
		2nd	1486-1588 mm from the foot of the leaf to the bottom of the hinge
		3rd	983-1079 mm from the foot of the leaf to the bottom of the hinge
		Bottom	126-258 mm from the foot of the leaf to the bottom of the hinge
Intumescent protection		See table section 3.11 (hardware protection)	

3.12.5 Push /Pull Plates & Kick Plates

The different possibilities are shown below:

Element	Specification
Add a screw fixed protective plate on leaf or panel	Possible for horizontal plates across the full opening width of the closing face and full leaf width of the opening face to a maximum of 500 mm high. Possible for vertical plates no more than 200 mm wide running the clear opening height on the closing face and full height of the leaf on the opening face. In both cases, maximum area permitted to be covered by plates/signs is 40% of the clear opening area or 1 m², whichever is the smaller. Plate thickness to be limited to 2 mm and fixed with maximum 25 mm long screws and a minimum of 200 mm centres along the length of the plates. For double doorsets, protective plates may be dissimilar. For plates outside these parameters a further test is required.
Add a glued protective plate on leaf or panel	Possible for plates across the full opening size of the closing face and full leaf size of the opening face and up to a maximum of 2 mm thick and not restrained by mechanical means, e.g., by hardware. Maximum area permitted to be covered by plates is 40 % of the clear opening area. May be applied to the face of the leaf only, i.e., not the edge of the leaf. For double doorsets, the rule may be applied to each leaf separately.
Add protective composites and plastic plates, face fixed on leaf or panel	Possible providing the plates are fitted within the clear opening width and for class EI doors only. For double doorsets, this may be applied to each leaf separately.

3.12.6 Panic Hardware

Panic Hardware may be fitted if the device is fully surface mounted and the door leaf is suitable for an unlatched condition.

Alternative Panic Hardware is possible providing all critical components have a melting point ≥ 800°C and the restraint mechanism has a similar or greater engagement. Additionally, the amount of material removed from the door leaf should be as tested or less. The intumescent protection, is to remain as tested (see section 3.11)

The alternative device must be of the same type (surface mounted), complies with the relevant product standard, is suitable for use on the original doorset and has passed a full-size fire test to EN 1634-1 or a small-scale fire test to EN 1634-2 and the latch bolt shall have same or greater engagement.

3.12.7 Door Selectors

Door Selectors may be fitted for face fixed devices, provided that the device complies with EN 1158 and providing no material is removed from door leaf or frame (screws excepted).

3.12.8 Drop down Seal

The following types of automatic threshold drop seals may be recessed in to the bottom rail of leaves to these designs without compromising performance:

Manufacturer	Product Reference
EXITEX	Concealex A8100
CCE	EASY ASGSFI
CCE	TREND
NORSOUND	NOR810

3.12.9 Flush Bolts

Flush bolts may be incorporated centrally into the top and bottom of one meeting edge, providing the following maximum dimensions are not exceeded:

Element	Specifications
Max. dimensions	204mm high x 38 mm deep x 20 mm wide
Material	Flush bolts must be steel, stainless steel, or brass (melting point ≥800°C), and the mortice must be as tight to the mechanism as is compatible with its operation.
Position	Placed on the passive leaf, embedded in the edge, one at the top and one at the bottom.
Intumescent protection	None required at flush bolt case
Perimeter intumescent	Where flush bolts are included to the top and bottom edge of the secondary leaf, an additional 15 mm by 2 mm thick Palusol strip is to be included in the passive leaf tight against the flush bolt to ensure the intumescent is not interrupted by passes the flush bolt.

3.12.10 Letter Boxes/Plates

Is not possible to add letter boxes/plates without additional test evidence on a representative door leaf and of the same or thinner leaf thickness. The additional test must be performed according to EN 1634-1 or EN 1634-2.

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3.12.11 Air transfer Grilles

The following type of air transfer grille may be recessed in to the leaf to these designs without compromising performance:

Manufacturer	Product Reference
PYROPLEX	Fire Rated Air Transfer Grilles

Element	Specification		
Location	Maximum 300 mm from the bottom of the leaf Minimum 150 mm from the bottom of the leaf 150 mm from the edge of the leaf		
Thickness	40 mm		
Dimensions		*Maximum*	*Minimum*
	Width	345 mm	150 mm
	Height	345 mm	150 mm
	Area	0,108 m^2	0,0225 m^2
	Minimum distance between the grille and the edge of the leaf must be 150 mm		

3.12.12 Door Viewers

Door viewers may be fitted into the leaf provided that glass lenses ≤ 15 mm diameter leaf cut out for classification ≤ 30 min, if they are manufactured from metal with a melting point > 800 °C. Viewer shall be a tight fit and within a solid cored leaf, otherwise not possible without specific test evidence in accordance with EN 1634-1 or EN 1634-2.

The following types of Door viewers are permitted in accordance with the requirements stated above, provided they are installed with an intumescent seal graphite base (see section 3.11):

Manufacturer	Product Reference
FRELAN	JV942PC
AMIG	30-50 UL

Possible to change the position of the door viewer within the door leaf, but not closer than 100 mm from door leaf edge or other door viewers.

3.12.13 Coat Hooks and other Surface Mounted Hardware and fire safety directional signed

Ancillary items which are wholly surface mounted may be fitted. The different possibilities are shown below:

Element	Specification
Add a screw fixed element on leaf or panel	Maximum area permitted to be covered by plates/signs is 40% of the door leaf area or 1 m², whichever is the smaller. They should be fixed with maximum 25 mm long screws and a minimum of 200 mm centres along the length of the elements. For double doorsets, elements may be dissimilar.
Add a glued element on leaf or panel	Maximum area permitted to be covered by elements is 40 % of the door leaf area. May be applied to the face of the leaf only, i.e. not the edge of the leaf. For double doorsets, the rule may be applied to each leaf separately.
Add protective composites and plastic elements, face fixed on leaf or panel	Possible providing the elements are fitted within the clear opening width and for class EI doors only. For double doorsets, this may be applied to each leaf separately.

3.13 SUPPORTING CONSTRUCTION

The supporting construction must provide the required level of fire resistance designated for the doorset design and be a suitable medium to permit adequate fixity.

The fire resistance of a doorset tested in a high- or low-density rigid standard supporting construction can be applied to a doorset, mounted in the same manner in a wall provided the density and the thickness of the wall are equal to or greater than that in which the doorset was tested, 100 mm thick and 745 kg/ m3 density

In addition, for timber door leaves hung in timber frames, the result of the test in a rigid standard supporting construction is applicable to the door assembly in a flexible construction (stud timber wall/plasterboard), with appropriate fixings for timber frame.

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3.14 SMOKE CONTROL

The doorset design required to provide a smoke control function, with the classification Sa, S_{200}, is shown belows:

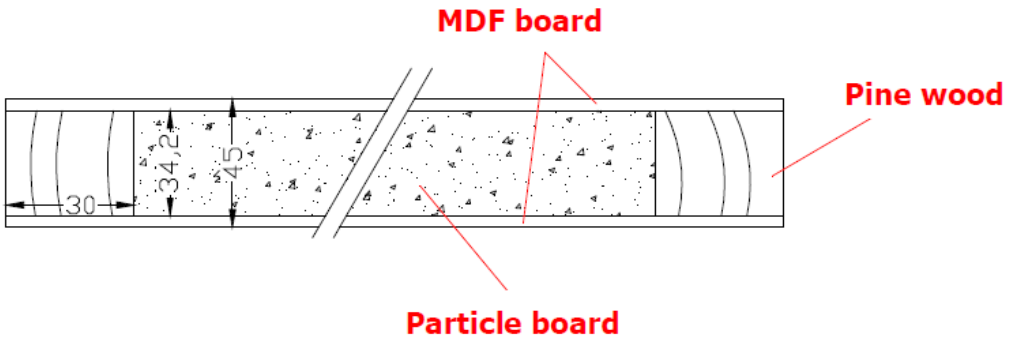
Dimensions:

Total dimensions (architraves included): 1110 x 2200 mm (width x height).
Dimensions of the clearance: 903 x 2102 mm (width x height).
Dimensions of the leaf: 930 x 2110 mm (width x height).

Composition of the leaf:

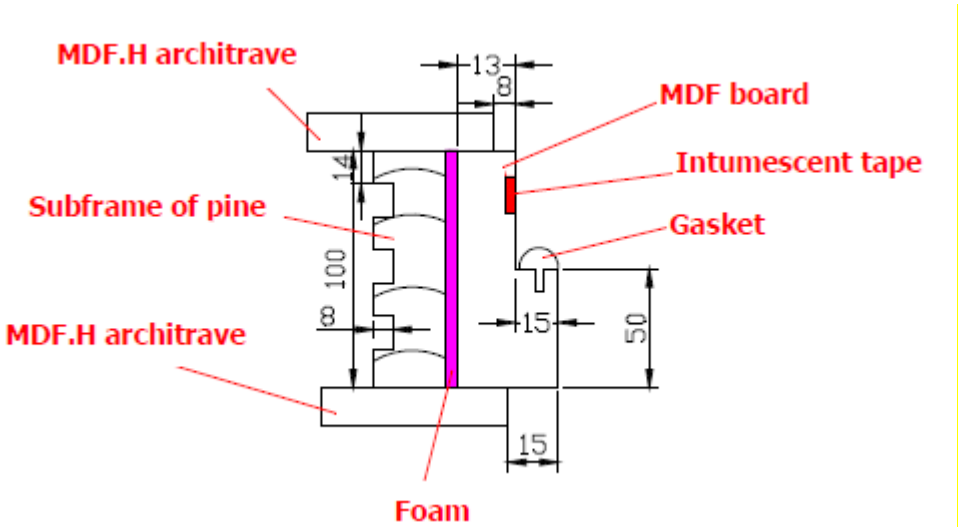
total thickness of 45 mm (from the exposed to the unexposed side to the chamber (see detail)

- MDF board with reference, 5 mm thick and density ≥ 820 kg/m^3.
- Core made of a particle board 34,2 mm thick and density ≥ 455 kg/m^3.
- MDF board with reference, 5 mm thick and density ≥ 820 kg/m^3.
- Perimeter frame of pine wood, vertical edges melamine finish



Frame

The frame of each door is made of an MDF board , section of 28 x 100 mm (width x depth) and density≥680 kg/m^3:



Architraves

The exposed and the unexposed side to the chamber of the frame and subframe system of each door incorporates MDF architraves with reference “MDF.H” by INTASA, section with dimensions of 16 x 80 mm, density of 700 kg/m^3 and fixed by means of nails each 300 mm.

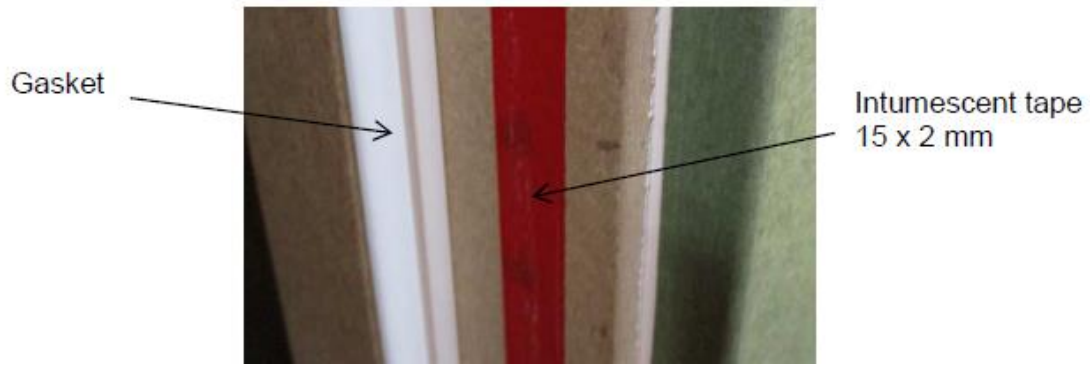
Building hardware:

- Handle model “Siena” by AT, placed on both sides of the leaf of each door.
- Lock with reference “AR910-R-60-SSS” by ARRONE with strike plate, mortised on one lateral of each leaf and upper edge of the latch bolt placed at 1110 mm from the bottom edge of each leaf. Each lock and strike plate incorporate an intumescent kit with reference “AR/INT-DIN-LOCKS” by ARRONE.
- Three stainless steel hinges per door with reference “AR8182-SSS” by ARRONE, 3 mm thick, dimensions of Ø 14 x 102 mm, screwed to the frame and the leaf, and upper side of each one placed at 275, 1133 and 1990 mm from the bottom edge of the leaf of each door.
- Overhead door closer serial “Delta 1300”, reference “AS1303S.PL” by TELESCO, one placed on the upper left corner of the unexposed side of door A and other on the exposed side of door B. Note: both door closers are activated throughout the test.
- Drop down seal with reference “HS FH + RD 48 dB” by Planet, mortised on the bottom edge of the leaf of each door, along their entire width. They incorporate an intumescent product with reference “Interdens 15” by Odice, of 1 mm thick.

Others

- Intumescent tape with reference “PALUSOL PL SA” by Odice, dimensions of 15 x 2 mm and placed on the entire perimeter of the rebate of the frame of each door.

Gasket with reference “FLEXILODICE EF BI GW QS” by Odice, dimensions of 10 x 2 mm, and placed on the entire perimeter of the rebate of the frame of each door.



Fixing method between frame and subframe:

The frame and the subframe are fixed together by means of screws with dimensions of Ø 4 x 40 mm and placed four per vertical lateral

The gap between the frame and the subrame is filled with polyurethane foam with reference “ORBAFOAM FIRE-STOP B1 CÁNULA” by Quilosa.

4 SHAKER DESING

4.1 TECHNICAL SPECIFICATION

4.1.1 GENERAL

The technical specification for the proposed door assembly is given in the following sections and is based on the test evidence for the door design, summarised in section 3.

4.1.2 INTENDED USE

The intended use of the proposed door assembly is summarised below:

A pedestrian doorset including frame, door leaf or leaves which is provided to give a fire resisting capability when used for the closing of permanent openings in fire resisting separating elements, which together with the building hardware and any seals (whether provided for the purpose of fire resistance or smoke control or for other purposes such as draught or acoustics) which form the assembly.
The construction of door leaves covered by this assessment comprises the following specifications

4.1.3 DESCRIPTION OF CONSTRUCTION

Element	Material	Dimensions(mm)	Min. Density (Kg/m^3)
Core	MDF	24.2 thick	680
Stiles	Pine wood	24.2 thick x 30 wide	450
Top & bottom rail	Pine Wood	24.2 thick x 30 wide	450
Facing	MDF	5.0 thick	820
Decorative panel	MDF	5.0 thick	820

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4.2 LEAF SIZES

The approval for increased leaf dimensions is based on the tests listed in appendix A and takes into account the margin of over-performance above 30 minutes integrity for the designs and the characteristics exhibited during test.
Doorsets with reduced dimensions are deemed to be less onerous, any size smaller than specify may be manufactured.

Design	Max. Leaf Height (mm)	Max. Leaf Width (mm)	Max. Area (m^2)
SHAKER DESIGN	2426 (at a max width of 1000)	1069 (at a max height of 2200)	2,4

4.3 CONFIGURATIONS AND ORIENTATION

4.3.1 Configurations

This assessment covers the various designs listed in section 4.1 for the following configurations:

- Latched, single acting, single doorset (LSASD)

4.3.2 Sense of Exposure

The primary fire resistance tests for this design were all conducted with the doorset hung such that the door leaf opened towards the fire, which is considered the most onerous orientation in terms of fire resistance performance.

4.4 LEAF SIZE ADJUSTEMENT

4.4.1 Closing Bevel

Door leaves other than those detailed in the following table may not be altered post manufacture:

Element	Reduction
Long edges	The dimension stated in section 3.1 may be reduced by 3 mm for fitting purposes

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4.4.2 Trimming of Bottom Rail and Stiles

Based on the testing conducted, , it is permitted to trim up to 3mm from the bottom and stiles of the design detailed in 3.14.1. No reduction to be made at the head of the door, retention of fire certificate label is essential.

Design	SECTION (mm)	Trim up to
SHAKER DESIGN	24.2 thick x 30 wide	3 mm

4.5 DOOR GAPS

For fire resistance performance, door gaps must fall within the following range:

Location	Dimensions
Door edge gaps	Maximum 4 mm
Threshold	10 mm between bottom of leaf and top of floor covering

4.6 LEAF FACING MATERIALS

4.6.1 Primary Facings

The following materials have been tested or for use with the designs covered by this assessment, as shows table below:

Design	Material	Thickness (mm)	Min. Density (Kg/m^3)
SHAKER DESIGN	MDF	Primary 5.0 Decorative facing 5.0	820 820

4.6.2 Grooves

Based on the specimens tested, a maximum of 5 mm wide x 2,5 mm deep grooves may be machined in the door facings, only on the 45 mm thick area.

4.6.3 Decorative & Protective Materials

The following additional decorative and protective materials on the leaf, panel or frame door are permitted, with the characteristics shown in tables below:

Facing material	permitted thickness
Paint	0 mm to 0.5 mm
Timber veneers	0 mm to 3 mm
Plastic	0 mm to 2 mm
Other decorative materials **with a Reaction to Fire class B-F or a melting point below 660 °C, but no metals**	0 mm to 2 mm
Other decorative materials **with a Reaction to Fire class A1 or A2 and a melting point of 660 °C or above**	Any, providing the total increase in leaf weight is not more than 25 % (see Note 1)

Decorative and /or protective finishes on the edge	Máximum permitted thickness
Paint	0 mm to 0.5 mm
Timber veneers /Plastic	0 mm to 1.5 mm (timber veneers) 0 mm to 0.8 mm (plastic) (see Note 2)
Other decorative materials **with a Reaction to Fire class B-F or a melting point below 660 °C, but no metals**	0 mm to 0.8 mm
Other decorative materials **with a Reaction to Fire class A1 or A2 and a melting point of 660 °C or above**	It's not possible

Notes:

1. Possible providing the total increase in leaf weight is not more than 25 % and providing the decorative and/or protective finish is fixed with adhesive. The intumescent seal remains as tested, but is possible to cover an intumescent seal with paint, veneer or high-pressure laminate and plastic no thicker than 0.8 mm.
2. The leaf to frame gaps remains as section 3.5;
3. In case of uninsulated glass, the decorative and/or protective finishes may not be positioned in places where it can be exposed to radiation through the glass

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4.7 DOOR FRAME

4.7.1 Door Frame Construction

Door frames must be constructed to meet the following specification:

Design	Material	Frame Type Nr	Min. Density (Kg/m^3)
SHAKER DESIGN	Softwood Hardwood	1,2	450
	MDF	3, 4	730

NOTES:

- Intumescent joints should be kept the same as in the type of frame indicated
- possible to change from finger joint and/or laminated timber (not plywood) to solid timber within the same or higher group
- cross section dimensions including rebates, can be increased. Never reduced.

Softwood: Wood of trees of the botanical group Gymnosperms. Most commercial softwoods belong to the group “conifers” which is a part of the botanical group Gymnosperms.
Hardwood: wood of trees which represent one group of the Angiosperms knows as the dicotyledons

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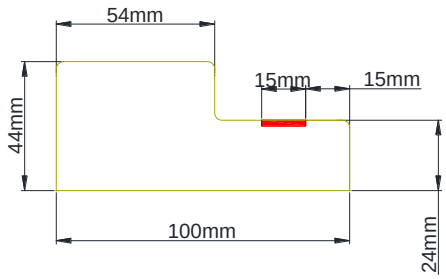
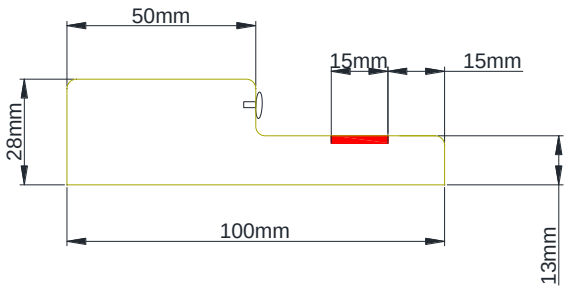
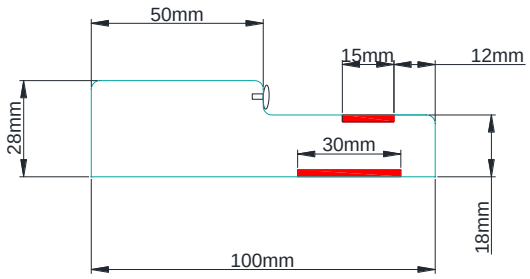
Frame description



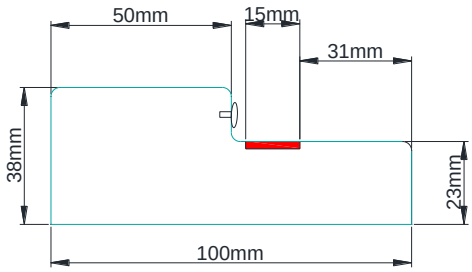
Type 1
Soft Wood, Exitex (EXIFIRE 1.31.0051) 15 x 4 mm
No weather strip



Type 2
Softwood, Palusol PL 15 x 2 mm,
Weather strip ODICE EF BIGW BS



Type 3
MDF, Palusol PL 15 x 2 mm, BIFIRE graphite 30 x 2,
Weather strip INDOPLAST DV-09



Type 4
MDF, Palusol PL 15 x 2 mm
Weather strip GIESSE-SCHELEGEL Q LON -45

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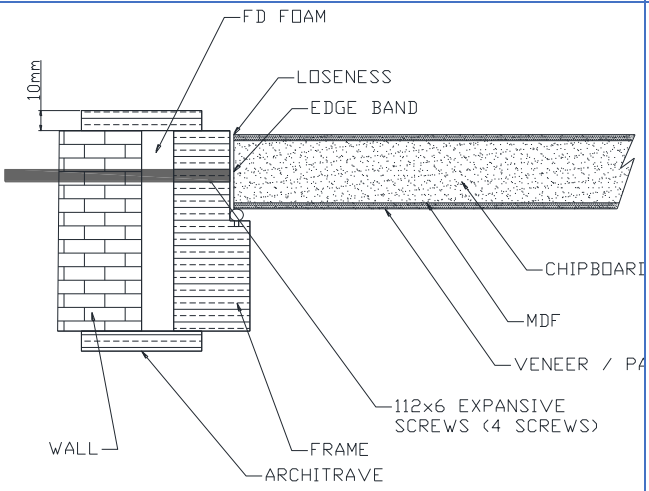
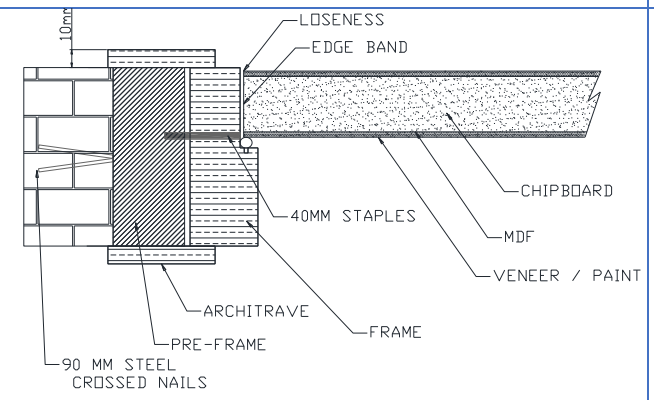
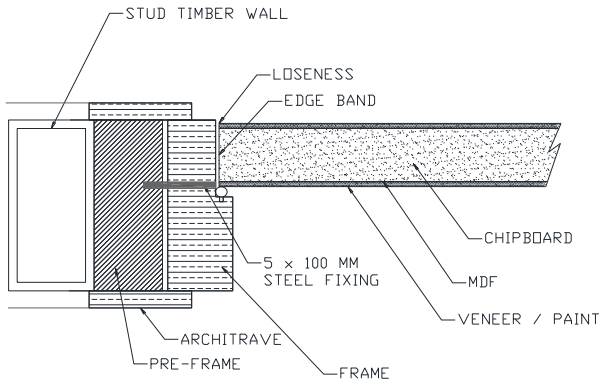
4.7.2 Door Frame Installation

The number of fixings can be increased but not reduced. The distance between fixing centres can be decreased or can be increase up to 15%
The following diagrams indicate acceptable door frame installations:

Type Nr	Frame description
	For type 1 (block wall)The set is fixed to the wall, using 8 metric 6 x 112 mm steel fixing and 10 mm diameter wall plugs, distributed 4 on the side of the hinges and 4 on the side of the strike. The arrangement of the metal fixings on each side is 100 mm from the top and 100 mm from the bottom, at max 600 mm centres The gap at the back of the frame, up to 10 mm, is filled with fire-resistant polyurethane foam, reference: • Blue 60 manufactured by EXITEX, or • Orbafoam Fire-Stop, Quilosa • Pyroplex Fire rated Expanding Foam
	For type 2 (wooden subframe) The wooden subframe is fixed to the supporting construction by means of a total of 8 pairs of steel crossed nails, 3 mm thick and dimensions of 13 x 90 mm. The arrangement of the metal fixings on each side is 100 mm from the top and 100 mm from the bottom, at max 600 mm centres The set is fixed to the wooden sub-frame, using 40 mm steel staples distributed 4 on the side of the hinges and 4 on the side of the strike. The arrangement of the metal fixings on each side is 100 mm from the top and 100 mm from the bottom, at max 600 mm centres The gap at the back of the frame, up to 10 mm, is filled with fire-resistant polyurethane foam, reference: • Blue 60 manufactured by EXITEX, or • Orbafoam Fire-Stop, Quilosa • Pyroplex Fire rated Expanding Foam

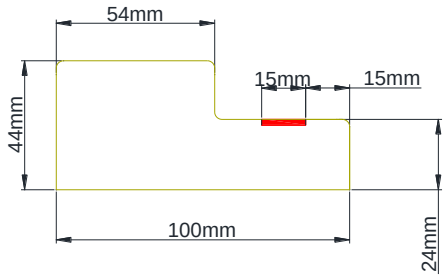
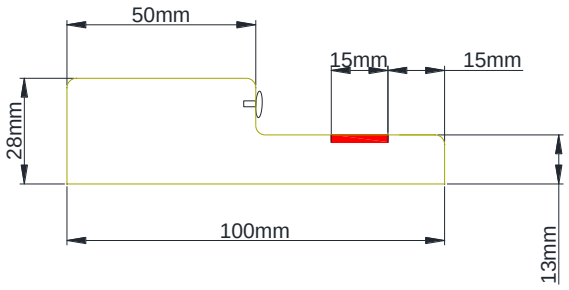
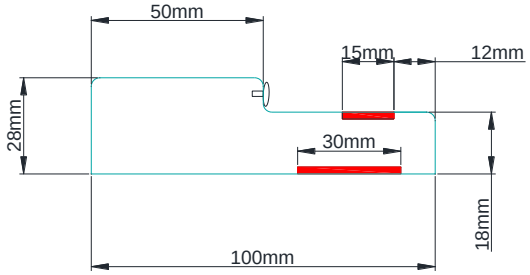
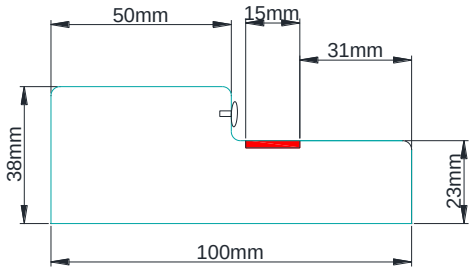
Type Nr	Frame description
	For type 3 (plasterboard wall) The frame is fixed to the timber stud wall using steel fixings 5mm x 100mm, distributed 4 on the side of the hinges and 4 on the side of the strike. The arrangement of the metal fixings on each side is 100 mm from the top and 100 mm from the bottom, at max 600 mm centres The gap at the back of the frame, up to 10 mm, is filled with fire-resistant polyurethane foam, reference: • Blue 60 manufactured by EXITEX, or • Orbafoam Fire-Stop, Quilosa • Pyroplex Fire rated Expanding Foam

4.8 INTUMESCENT MATERIALS

The intumescent materials tested and assessed for these doorset designs are as follows:

4.8.1 *Frame edge seals*

The gaskets are associated with the allowed frame types as shows below:

Frame description	
 ***Type 1*** *Soft Wood, Exitex (EXIFIRE 1.31.0051) 15 x 4 mm* *No weather strip*	 ***Type 2*** *Softwood, Palusol PL 15 x 2 mm,* *Weather strip ODICE EF BI GW QS*
 ***Type 3*** *MDF, Palusol PL 15 x 2 mm, BIFIRE graphite 30 x 2,* *Weather strip INDOPLAST DV-09*	 ***Type 4*** *MDF, Palusol PL 15 x 2 mm* *Weather strip GIESSE-SCHELEGEL Q LON -45*

4.9 TESTED HARDWARE

The following hardware has been tested or assessed for the doorset designs covered in this assessment:

Element	Manufacturer and Product Reference	Intumescent protection
Locks and latches	• One-point lock. ARRONE, Ref. AR910-R-60-SSS • One-point lock. ARRONE, Ref. AR8004-63-SC • One-point lock. LINCE, Ref. 5470 NP-60-323 • One-point lock. LINCE, Ref. 5470 F • One-point lock. TOVER SECURITY SYSTEMS, Ref. 310 RF • Three-point lock. MCM, Ref. 701RF-3	• 1mm AR/INT-DIN_LOCK-60, ARRONE • 1 mm Interdens, ODICE Not needed at strike plate
Hinges	• ARRONE, Ref. AR8182-SSS-A1 • Harrayma, Ref. BRI-3 • MHA. Ref. 474	Not needed
Door Closers	• ARRONE, Ref. AR1500-SE/SE • ARRONE, Ref. AR6800-SE • GEZE, Ref. TS 1000C • LINCE, Ref. CPA 23 • TELESCO, DELTA 1300	Not needed
Concealed door closer	• ARRONE, Ref. AR7383 • RUTLAND , ref. ITS 11204	As manufacturer specifications
Furniture	• Handle AT, Ref. Siena • Handle. AT ARTE TOSCANA, Ref. R071 venice handle & escutcheon PCSC • Handle. HERRAYMA, Ref. Brasilia Ri-403 • Handle. SENELLI, Ref. Pesaro • Handle. TOVER SECURITY SYSTEMS, Ref. MADF • Digital handle (electronic shield). MCM, Ref. easyKEY Adapt • Knob. HERRAYMA, Ref. PI-13 • Panic bars. UCEM, Ref. Exit Combi B150 (active leaf) • Panic bars. UCEM, Ref. Exit Combi BP120C (passive leaf)	Not needed
Eye viewer	• AMIG, Ref. 30-50 UL • FRELAN, Ref. JV942PC	ODICE Flexilodice 8 mm BIFIRE Sealbifire
Threshold Seal	• CCE Ref. TREND • CCE, Series EASY Ref. ASGSFI • EXITEX, Ref. Concealex A8100	As manufacturer specifications
Closer selector	• JUSTOR, Ref. SP 81	Not needed
Flush bolts	• MONVADO, Ref. 382 HN	15 X 2 MM Palusol strip

4.10 ADDITIONAL AND ALTERNATIVE HARDWARE

The following section details the permitted scope and constraints for fitting hardware to these door designs.

The following items of hardware must also bear the CE Mark:

- Latches and Locks: Test Standards EN 12209
- Single Axis Hinges: Test Standard EN 1935
- Controlled Door Closing Devices: Test Standard EN 1154
- Panic Exit Hardware: Test Standard EN 1125
- Door co-ordinators: Test Standard EN 1158

4.10.1 Locks & Latches

The lock must comply with the relevant product standard and have passed a full-size fire test to EN 1634-1 or a small-scale fire test to EN 1634-2. Each of the linear dimensions shall be no larger than tested successfully in the original doorsets, and the latch bolt shall have a similar or greater engagement.

Additionally, for internal locks, the amount of material removed from the door leaf shall be as tested in the original doorsets or less. Any additional component should be metal and the distance between the intumescent protection, if fitted, and the lock forend shall remain as tested, otherwise further test is required.

Locks and latches must either be as tested, or alternatively components with the following specifications are acceptable:

Element	Specification
Maximum forend and strike plate dimensions	240 mm high x 25 mm wide x 3 mm thick
Maximum body dimensions	174 mm high x 90 mm wide x 24 mm thick
Materials	All parts essentials to the locking/latching action (including the latch bolt, forend and strike) to be steel, stainless steel or brass (melting point ≥ 800°C)
Location	1070 mm from the threshold
Latch bolt	Minimum 11 mm
Intumescent protection	See table section 3.11 (hardware protection)

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The following hardware has been assessed for the doorset designs covered in this assessment:

Element	Manufacturer and Product Reference	Intumescent protection
Locks and latches	• One-point lock. ADVANCE PRODUCT ENGINEERING, Ref. 3 Lever sash lock 2.5 (code AC3LSL25/ AC3LSL25R) • One-point lock. ADVANCE PRODUCT ENGINEERING, Ref. 3 Lever sash lock 3.0 (code AC3LSL30/ AC3LSL30R) • One-point lock. ADVANCE PRODUCT ENGINEERING, Ref. 3 Lever bathroom lock 2.5 (code AC3LBL25/ AC3LBL25R) • One-point lock. ADVANCE PRODUCT ENGINEERING, Ref. 3 Lever bathroom lock 3.0 (code AC3LBL30/ AC3LBL30R) • One-point lock. ADVANCE PRODUCT ENGINEERING, Ref. 3 Lever upright latch 2.5 (code AC3LUL25/ AC3LUL25R) • One-point lock. ADVANCE PRODUCT ENGINEERING, Ref. 3 Lever upright latch 3.0 (code AC3LUL30/AC3LUL30R)	• 1 mm Interdens® Not needed at strike plate

4.10.2 Door closer

The door closer must comply with EN 1154, and have passed a full-size fire test to EN 1634-1 or a small-scale fire test to EN 1634-2. The intumescent protection, if fitted, shall be the same as tested.

4.10.3 Concealed Door closer

The door closer must comply with the relevant product standard for that particular type of door closer and has passed a full-size fire test to EN 1634-1 or a small-scale fire test to EN 1634-2. The size of the door closer cannot be greater than tested and the material removed from the door shall be as tested or less. The intumescent protection, if fitted, shall be the same as tested.

Element	Specification
Maximum body dimension	242 mm long x 32 mm deep x 49 mm high
Maximum guide rail dimension	464mm long x 23 mm deep x 15 mm high
Intumescent protection	See table section 3.11 (hardware protection)

4.10.4 Hinges

Door leaves up to 2200mm high must be hung on a minimum of 3 hinges, whilst leaves over this height or with fixed top must fit 4 hinges.

Hinges with the following specification are acceptable:

Element		Specification	
Blade height		100 – 102 mm	
Blade width (excluding knuckle)		28 – 31 mm	
Blade thickness		3 mm	
Fixings		Minimum of 3No. steel wood screws per blade Dimensions: those supplied by the manufacturer	
Materials		Steel, stainless steel or brass (melting point ≥ 800°C)	
Hinge position	Where 3 hinges are fitted or required	Top	120-175 mm from the head of the leaf to the top of the hinge
		2nd	1003-1075 mm from the foot of the leaf to the bottom of the hinge
		Bottom	120-175 from the foot of the leaf to the bottom of the hinge
	Where 4 hinges are fitted or required	Top	120-175 mm from the head of the leaf to the top of the hinge
		2nd	1486-1588 mm from the foot of the leaf to the bottom of the hinge
		3rd	983-1079 mm from the foot of the leaf to the bottom of the hinge
		Bottom	126-258 mm from the foot of the leaf to the bottom of the hinge
Intumescent protection		Not needed	

4.10.5 Push /Pull Plates & Kick Plates

The different possibilities are shown below:

Element	Specification
Add a screw fixed protective plate on leaf or panel	Possible for horizontal plates across the full opening width of the closing face and full leaf width of the opening face to a maximum of 500 mm high. Possible for vertical plates no more than 200 mm wide running the clear opening height on the closing face and full height of the leaf on the opening face. In both cases, maximum area permitted to be covered by plates/signs is 40% of the clear opening area or 1 m², whichever is the smaller. Plate thickness to be limited to 2 mm and fixed with maximum 25 mm long screws and a minimum of 200 mm centres along the length of the plates. For double doorsets, protective plates may be dissimilar. For plates outside these parameters a further test is required.
Add a glued protective plate on leaf or panel	Possible for plates across the full opening size of the closing face and full leaf size of the opening face and up to a maximum of 2 mm thick and not restrained by mechanical means, e.g. by hardware. Maximum area permitted to be covered by plates is 40 % of the clear opening area. May be applied to the face of the leaf only, i.e. not the edge of the leaf. For double doorsets, the rule may be applied to each leaf separately.
Add protective composites and plastic plates, face fixed on leaf or panel	Possible providing the plates are fitted within the clear opening width and for class EI doors only. For double doorsets, this may be applied to each leaf separately.

4.10.6 Panic Hardware

Panic Hardware may be fitted if the device is fully surface mounted and the door leaf is suitable for an unlatched condition.

Alternative Panic Hardware is possible providing all critical components have a melting point ≥ 800°C and the restraint mechanism has a similar or greater engagement. Additionally, the amount of material removed from the door leaf should be as tested or less. The intumescent protection, is to remain as tested (see section 3.11)

The alternative device must be of the same type (surface mounted), complies with the relevant product standard, is suitable for use on the original doorset and has passed a full-size fire test to EN 1634-1 or a small-scale fire test to EN 1634-2 and the latch bolt shall have same or greater engagement.

4.10.7 Drop down Seal

The following types of automatic threshold drop seals may be recessed in to the bottom rail of leaves to these designs without compromising performance:

Manufacturer	Product Reference
EXITEX	Concealex A8100
CCE	EASY ASGSFI
CCE	TREND

4.10.8 Flush Bolts

Flush bolts may be incorporated centrally into the top and bottom of one meeting edge, providing the following maximum dimensions are not exceeded:

Element	Specifications
Max. dimensions	150 mm high x 12 mm deep x 14 mm wide
Material	Flush bolts must be steel, stainless steel, or brass (melting point ≥800°C), and the mortice must be as tight to the mechanism as is compatible with its operation.
Position	Placed on the passive leaf, embedded in the edge, one at the top and one at the bottom.
Intumescent protection	None required at flush bolt case
Perimeter intumescent	Where flush bolts are included to the top and bottom edge of the secondary leaf, an additional 15 mm by 2 mm thick Palusol strip is to be included in the passive leaf tight against the flush bolt to ensure the intumescent is not interrupted by passes the flushbolt.

4.10.9 Letter Boxes/Plates

Is not possible to add letter boxes/plates without additional test evidence on a representative door leaf and of the same or thinner leaf thickness. The additional test must be performed according to EN 1634-1 or EN 1634-2.

4.10.10 Air transfer Grilles

No site cutting of apertures permitted

4.10.11 Door Viewers

Door viewers may be fitted into the leaf provided that glass lenses ≤ 15 mm diameter leaf cut out for classification ≤ 30 min, if they are manufactured from metal with a melting point > 800 °C. Viewer shall be a tight fit and within a solid cored leaf, otherwise not possible without specific test evidence in accordance with EN 1634-1 or EN 1634-2.

The following types of Door viewers are permitted in accordance with the requirements stated above, provided they are installed with an intumescent seal graphite base (see section 3.11):

Manufacturer	Product Reference
FRELAN	JV942PC
AMIG	30-50 UL

Possible to change the position of the door viewer within the door leaf, but not closer than 100 mm from door leaf edge or other door viewers.

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4.10.12 Coat Hooks and other Surface Mounted Hardware and fire safety directional signed

Ancillary items which are wholly surface mounted may be fitted. The different possibilities are shown below:

Element	Specification
Add a screw fixed element on leaf or panel	Maximum area permitted to be covered by plates/signs is 40% of the clear opening area or 1 m², whichever is the smaller. They should be fixed with maximum 25 mm long screws and a minimum of 200 mm centres along the length of the elements. For double doorsets, elements may be dissimilar.
Add a glued element on leaf or panel	Maximum area permitted to be covered by elements is 40 % of the clear opening area. May be applied to the face of the leaf only, i.e. not the edge of the leaf. For double doorsets, the rule may be applied to each leaf separately.
Add protective composites and plastic elements, face fixed on leaf or panel	Possible providing the elements are fitted within the clear opening width and for class EI doors only. For double doorsets, this may be applied to each leaf separately.

4.11 SUPPORTING CONSTRUCTION

The supporting construction must provide the required level of fire resistance designated for the doorset design and be a suitable medium to permit adequate fixity.

The fire resistance of a doorset tested in a high- or low-density rigid standard supporting construction can be applied to a doorset, mounted in the same manner in a wall provided the density and the thickness of the wall are equal to or greater than that in which the doorset was tested, 100 mm thick and 745 kg/ m^3 density

In addition, for timber door leaves hung in timber frames, the result of the test in a rigid standard supporting construction is applicable to the door assembly in a flexible construction (stud timber wall/plasterboard), with appropriate fixings for timber frame.

5 MOLDED SKIN

5.1 TECHNICAL SPECIFICATION

5.1.1 GENERAL

The technical specification for the proposed door assembly is given in the following sections and is based on the test evidence for the door design, summarised in Appendix A

5.1.2 INTENDED USE

The intended use of the proposed door assembly is summarised below:

A pedestrian doorset including frame, door leaf or leaves which is provided to give a fire resisting capability when used for the closing of permanent openings in fire resisting separating elements, which together with the building hardware and any seals (whether provided for the purpose of fire resistance or smoke control or for other purposes such as draught or acoustics) which form the assembly.
The construction of door leaves covered by this assessment comprises the following specifications

5.1.3 DESCRIPTION OF CONSTRUCTION

Element	Material	Dimensions(mm)	Min. Density (Kg/m^3)
Core	Chipboard	39.2 thick	455
Stiles	Pine wood	39.2 thick x 30 wide	450
Top & bottom rail	Pine Wood	39.2 thick x 30 wide	450
Facing	MDF	3.0 thick	820

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5.2 LEAF SIZES

The approval for increased leaf dimensions is based on the tests listed in appendix A and takes into account the margin of over-performance above 30 minutes integrity for the designs and the characteristics exhibited during test.
Doorsets with reduced dimensions are deemed to be less onerous, any size smaller than specify may be manufactured.

Design	Max. Leaf Height (mm)	Max. Leaf Width (mm)	Max. Area (m^2)
MOLDED SKIN	2426 (at a max width of 1000)	1064 (at a max height of 2200)	2,4

5.3 CONFIGURATIONS AND ORIENTATION

5.3.1 Configurations

This assessment covers the designs listed in section 5.1, for the following configurations:

- Latched, single acting, single doorset (LSASD)

5.3.2 Sense of Exposure

The primary fire resistance tests for this design were all conducted with the doorset hung such that the door leaf opened towards the fire, which is considered the most onerous orientation in terms of fire resistance performance.

5.4 LEAF SIZE ADJUSTEMENT

5.4.1 Closing Bevel

Door leaves other than those detailed in the following table may not be altered post manufacture:

Element	Reduction
Long edges	The dimension stated in section 3.1 may be reduced by 3 mm for fitting purposes

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5.4.2 Trimming of Bottom Rail and Stiles

Based on the testing conducted, , it is permitted to trim up to 3mm from the bottom and stiles of the design detailed in 5.1 No reduction to be made at the head of the door, retention of fire certificate label is essential.

Design	SECTION (mm)	Trim up to
MOLDED SKIN	39.2 thick x 30 wide	3 mm

5.5 DOOR GAPS

For fire resistance performance, door gaps must fall within the following range:

Location	Dimensions
Door edge gaps	Maximum 4 mm
Threshold	10 mm between bottom of leaf and top of floor covering

5.6 LEAF FACING MATERIALS

5.6.1 Primary Facings

The following materials have been tested or for use with the designs covered by this assessment, as shows table below:

Design	Material	Thickness (mm)	Min. Density (Kg/m^3)
MOLDED-SKIN	MDF	3.0	820

5.6.2 Decorative & Protective Materials

The following additional decorative and protective materials on the leaf, panel or frame door are permitted, with the characteristics shown in tables below:

Facing material	permitted thickness
Paint	0 mm to 0.5 mm
Timber veneers	0 mm to 3 mm
Plastic	0 mm to 2 mm
Other decorative materials **with a Reaction to Fire class B-F or a melting point below 660 °C, but no metals**	0 mm to 2 mm
Other decorative materials **with a Reaction to Fire class A1 or A2 and a melting point of 660 °C or above**	Any, providing the total increase in leaf weight is not more than 25 % (see Note 1)

Decorative and /or protective finishes on the edge	Máximum permitted thickness
Paint	0 mm to 0.5 mm
Timber veneers /Plastic	0 mm to 1.5 mm (timber veneers) 0 mm to 0.8 mm (plastic) (see Note 2)
Other decorative materials **with a Reaction to Fire class B-F or a melting point below 660 °C, but no metals**	0 mm to 0.8 mm
Other decorative materials **with a Reaction to Fire class A1 or A2 and a melting point of 660 °C or above**	It's not possible

Notes:

1. Possible providing the total increase in leaf weight is not more than 25 % and providing the decorative and/or protective finish is fixed with adhesive. The intumescent seal remains as tested, but is possible to cover an intumescent seal with paint, veneer or high-pressure laminate and plastic no thicker than 0.8 mm.
2. The leaf to frame gaps remains as section 3.5;
3. In case of uninsulated glass, the decorative and/or protective finishes may not be positioned in places where it can be exposed to radiation through the glass

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5.7 DOOR FRAME

5.7.1 Door Frame Construction

Door frames must be constructed to meet the following specification:

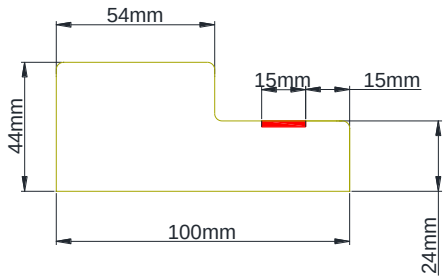
Design	Material	Frame Type Nr	Min. Density (Kg/m³)
MOLDED SKIN	Softwood Hardwood	1,2	450
	MDF	3, 4	730

NOTES:

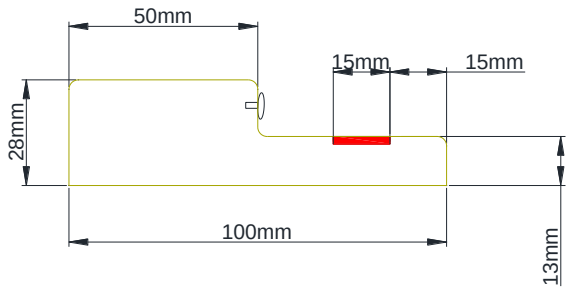
- Intumescent joints should be kept the same as in the type of frame indicated
- possible to change from finger joint and/or laminated timber (not plywood) to solid timber within the same or higher group

Softwood: Wood of trees of the botanical group Gymnosperms. Most commercial softwoods belong to the group "conifers" which is a part of the botanical group Gymnosperms.
Hardwood: wood of trees which represent one group of the Angiosperms knows as the dicotyledons

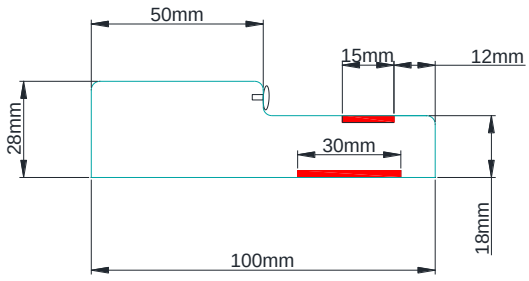
Frame description



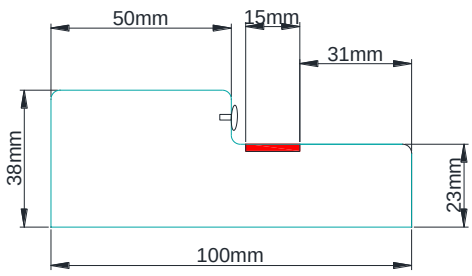
Type 1
Soft Wood, Exitex (EXIFIRE 1.31.0051) 15 x 4 mm
No weather strip



Type 2
Softwood, Palusol PL 15 x 2 mm,
Weather strip ODICE EF BIGW BS



Type 3
MDF, Palusol PL 15 x 2 mm, BIFIRE graphite 30 x 2,
Weather strip INDOPLAST DV-09

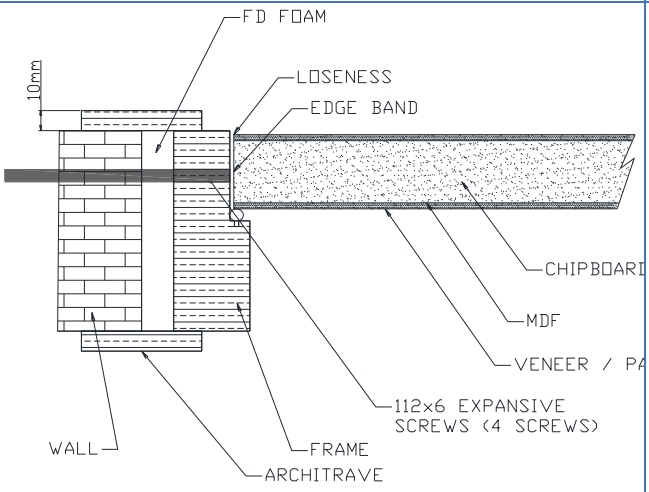
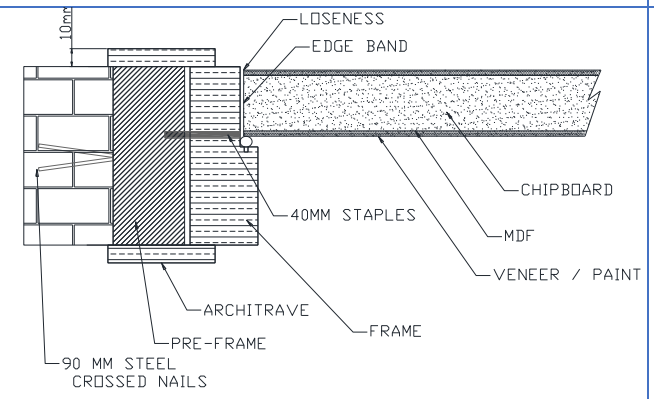


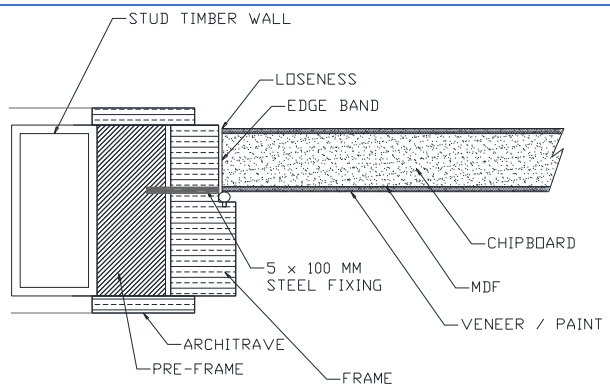
Type 4
MDF, Palusol PL 15 x 2 mm
Weather strip GIESSE-SCHELEGEL Q LON -45

5.7.2 Door Frame Installation

The number of fixings can be increased but not reduced. The distance between fixing centres can be decreased or can be increase up to 15%

The following diagrams indicate acceptable door frame installations:

Type Nr	Frame description
	For type 1 (block wall)The set is fixed to the wall, using 8 metric 6 x 112 mm steel fixing and 10 mm diameter wall plugs, distributed 4 on the side of the hinges and 4 on the side of the strike. The arrangement of the metal fixings on each side is 100 mm from the top and 100 mm from the bottom, at max 600 mm centres The gap at the back of the frame is filled with fire-resistant polyurethane foam, reference: • Blue 60 manufactured by EXITEX, or • Orbafoam Fire-Stop , Quilosa
	For type 2 (wooden subframe) The wooden subframe is fixed to the supporting construction by means of a total of 8 pairs of steel crossed nails, 3 mm thick and dimensions of 13 x 90 mm. The arrangement of the metal fixings on each side is 100 mm from the top and 100 mm from the bottom, at max 600 mm centres The set is fixed to the wooden sub-frame, using 40 mm steel staples distributed 4 on the side of the hinges and 4 on the side of the strike. The arrangement of the metal fixings on each side is 100 mm from the top and 100 mm from the bottom, at max 600 mm centres The gap at the back of the frame is filled with fire-resistant polyurethane foam, reference: • Blue 60 manufactured by EXITEX, or • Orbafoam Fire-Stop , Quilosa



For type 3 (plasterboard wall) The frame is fixed to the timber stud wall using steel fixings 5mm x 100mm, distributed 4 on the side of the hinges and 4 on the side of the strike.

The arrangement of the metal fixings on each side is 100 mm from the top and 100 mm from the bottom, at max 600 mm centres

The gap at the back of the frame is filled with fire-resistant polyurethane foam, reference:

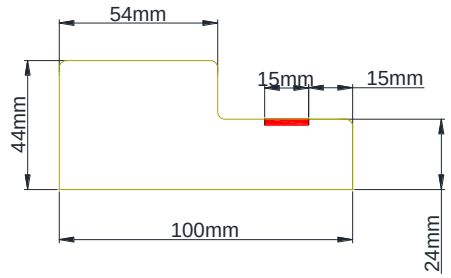
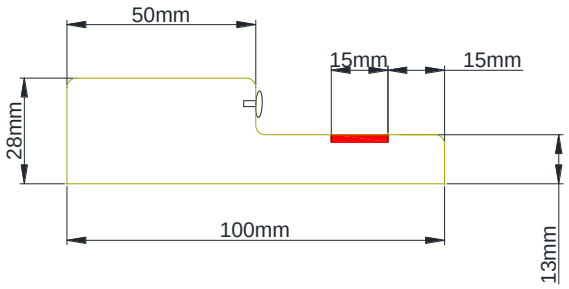
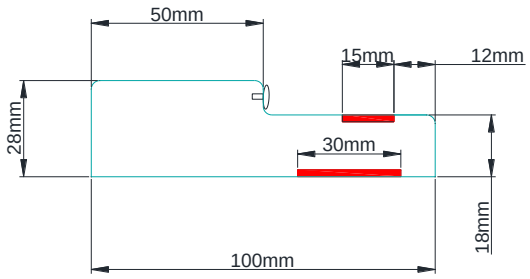
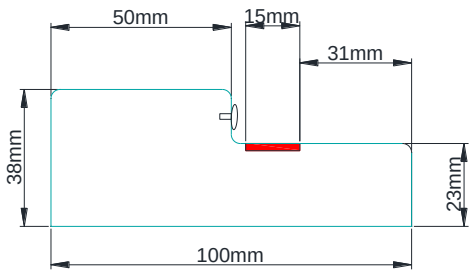
- Blue 60 manufactured by EXITEX, or
- Orbafoam Fire-Stop , Quilosa

5.8 INTUMESCENT MATERIALS

The intumescent materials tested and assessed for these doorset designs are as follows:

5.8.1 *Frame edge seals*

The gaskets are associated with the allowed frame types as shows below:

Frame description	
 ***Type 1*** *Soft Wood, Exitex (EXIFIRE 1.31.0051) 15 x 4 mm* *No weather strip*	 ***Type 2*** *Softwood, Palusol PL 15 x 2 mm,* *Weather strip ODICE EF BI GW QS*
 ***Type 3*** *MDF, Palusol PL 15 x 2 mm, BIFIRE graphite 30 x 2,* *Weather strip INDOPLAST DV-09*	 ***Type 4*** *MDF, Palusol PL 15 x 2 mm* *Weather strip GIESSE-SCHELEGEL Q LON -45*

5.9 TESTED HARDWARE

The following hardware has been tested or assessed for the doorset designs covered in this assessment:

Element	Manufacturer and Product Reference	Intumescent protection
Locks and latches	• One-point lock. ARRONE, Ref. AR910-R-60-SSS • One-point lock. ARRONE, Ref. AR8004-63-SC • One-point lock. LINCE, Ref. 5470 NP-60-323 • One-point lock. LINCE, Ref. 5470 F • One-point lock. TOVER SECURITY SYSTEMS, Ref. 310 RF • Three-point lock. MCM, Ref. 701RF-3	• 1mm AR/INT-DIN_LOCK-60, ARRONE • 1 mm Interdens, ODICE Not needed at strike plate
Hinges	• ARRONE, Ref. AR8182-SSS-A1 • Harrayma, Ref. BRI-3 • MHA. Ref. 474	Not needed
Door Closers	• ARRONE, Ref. AR1500-SE/SE • ARRONE, Ref. AR6800-SE • GEZE, Ref. TS 1000C • LINCE, Ref. CPA 23 • TELESCO, DELTA 1300	Not needed
Concealed door closer	• ARRONE, Ref. AR7383 • RUTLAND, ref. ITS 11204	As manufacturer specifications
Furniture	• Handle AT, Ref. Siena • Handle. AT ARTE TOSCANA, Ref. R071 venice handle & escutcheon PCSC • Handle. HERRAYMA, Ref. Brasilia Ri-403 • Handle. SENELLI, Ref. Pesaro • Handle. TOVER SECURITY SYSTEMS, Ref. MADF • Digital handle (electronic shield). MCM, Ref. easyKEY Adapt • Knob. HERRAYMA, Ref. PI-13 • Panic bars. UCEM, Ref. Exit Combi B150 (active leaf) • Panic bars. UCEM, Ref. Exit Combi BP120C (passive leaf)	Not needed
Eye viewer	• AMIG, Ref. 30-50 UL • FRELAN, Ref. JV942PC	ODICE Flexilodice 8 mm BIFIRE Sealbifire
Threshold Seal	• CCE Ref. TREND • CCE, Series EASY Ref. ASGSFI • EXITEX, Ref. Concealex A8100	As manufacturer specifications
Closer selector	• JUSTOR, Ref. SP 81	Not needed
Flush bolts	• MONVADO, Ref. 382 HN	15 X 2 MM Palusol strip

5.10 ADDITIONAL AND ALTERNATIVE HARDWARE

The following section details the permitted scope and constraints for fitting hardware to these door designs.

The following items of hardware must also bear the CE Mark:

- Latches and Locks: Test Standards EN 12209
- Single Axis Hinges: Test Standard EN 1935
- Controlled Door Closing Devices: Test Standard EN 1154
- Panic Exit Hardware: Test Standard EN 1125
- Door co-ordinators: Test Standard EN 1158

5.10.1 Locks & Latches

The lock must comply with the relevant product standard and have passed a full-size fire test to EN 1634-1 or a small-scale fire test to EN 1634-2. Each of the linear dimensions shall be no larger than tested successfully in the original doorsets, and the latch bolt shall have a similar or greater engagement.

Additionally, for internal locks, the amount of material removed from the door leaf shall be as tested in the original doorsets or less. Any additional component should be metal and the distance between the intumescent protection, if fitted, and the lock forend shall remain as tested, otherwise further test is required.

Locks and latches must either be as tested, or alternatively components with the following specifications are acceptable:

Element	Specification
Maximum forend and strike plate dimensions	240 mm high x 25 mm wide x 3 mm thick
Maximum body dimensions	174 mm high x 90 mm wide x 24 mm thick
Materials	All parts essentials to the locking/latching action (including the latch bolt, forend and strike) to be steel, stainless steel or brass (melting point ≥ 800°C)
Location	1070 mm from the threshold
Latch bolt	Minimum 11 mm
Intumescent protection	See table section 3.11 (hardware protection)

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The following hardware has been assessed for the doorset designs covered in this assessment:

Element	Manufacturer and Product Reference	Intumescent protection
Locks and latches	• One-point lock. ADVANCE PRODUCT ENGINEERING, Ref. 3 Lever sash lock 2.5 (code AC3LSL25/ AC3LSL25R) • One-point lock. ADVANCE PRODUCT ENGINEERING, Ref. 3 Lever sash lock 3.0 (code AC3LSL30/ AC3LSL30R) • One-point lock. ADVANCE PRODUCT ENGINEERING, Ref. 3 Lever bathroom lock 2.5 (code AC3LBL25/ AC3LBL25R) • One-point lock. ADVANCE PRODUCT ENGINEERING, Ref. 3 Lever bathroom lock 3.0 (code AC3LBL30/ AC3LBL30R) • One-point lock. ADVANCE PRODUCT ENGINEERING, Ref. 3 Lever upright latch 2.5 (code AC3LUL25/ AC3LUL25R) • One-point lock. ADVANCE PRODUCT ENGINEERING, Ref. 3 Lever upright latch 3.0 (code AC3LUL30/AC3LUL30R)	• 1 mm Interdens® Not needed at strike plate

5.10.2 Door closer

The door closer must comply with EN 1154, and have passed a full-size fire test to EN 1634-1 or a small-scale fire test to EN 1634-2. The intumescent protection, if fitted, shall be the same as tested.

5.10.3 Concealed Door closer

The door closer must comply with the relevant product standard for that particular type of door closer and has passed a full-size fire test to EN 1634-1 or a small-scale fire test to EN 1634-2. The size of the door closer cannot be greater than tested and the material removed from the door shall be as tested or less. The intumescent protection, if fitted, shall be the same as tested.

Element	Specification
Maximum body dimension	242 mm long x 32 mm deep x 49 mm high
Maximum guide rail dimension	464mm long x 23 mm deep x 15 mm high
Intumescent protection	See table section 3.11 (hardware protection)

5.10.4 Hinges

Door leaves up to 2200mm high must be hung on a minimum of 3 hinges, whilst leaves over this height or with fixed top must fit 4 hinges.

Hinges with the following specification are acceptable:

Element			Specification
Blade height			100 – 102 mm
Blade width (excluding knuckle)			28 – 31 mm
Blade thickness			3 mm
Fixings			Minimum of 3No. steel wood screws per blade Dimensions: those supplied by the manufacturer
Materials			Steel, stainless steel or brass (melting point ≥ 800°C)
Hinge position	Where 3 hinges are fitted or required	Top	120-175 mm from the head of the leaf to the top of the hinge
		2nd	1003-1075 mm from the foot of the leaf to the bottom of the hinge
		Bottom	120-175 from the foot of the leaf to the bottom of the hinge
	Where 4 hinges are fitted or required	Top	120-175 mm from the head of the leaf to the top of the hinge
		2nd	1486-1588 mm from the foot of the leaf to the bottom of the hinge
		3rd	983-1079 mm from the foot of the leaf to the bottom of the hinge
		Bottom	126-258 mm from the foot of the leaf to the bottom of the hinge
Intumescent protection			Not needed

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5.10.5 Push /Pull Plates & Kick Plates

The different possibilities are shown below:

Element	Specification
Add a screw fixed protective plate on leaf or panel	Possible for horizontal plates across the full opening width of the closing face and full leaf width of the opening face to a maximum of 500 mm high. Possible for vertical plates no more than 200 mm wide running the clear opening height on the closing face and full height of the leaf on the opening face. In both cases, maximum area permitted to be covered by plates/signs is 40% of the clear opening area or 1 m², whichever is the smaller. Plate thickness to be limited to 2 mm and fixed with maximum 25 mm long screws and a minimum of 200 mm centres along the length of the plates. For double doorsets, protective plates may be dissimilar. For plates outside these parameters a further test is required.
Add a glued protective plate on leaf or panel	Possible for plates across the full opening size of the closing face and full leaf size of the opening face and up to a maximum of 2 mm thick and not restrained by mechanical means, e.g. by hardware. Maximum area permitted to be covered by plates is 40 % of the clear opening area. May be applied to the face of the leaf only, i.e. not the edge of the leaf. For double doorsets, the rule may be applied to each leaf separately.
Add protective composites and plastic plates, face fixed on leaf or panel	Possible providing the plates are fitted within the clear opening width and for class EI doors only. For double doorsets, this may be applied to each leaf separately.

5.10.6 Panic Hardware

Panic Hardware may be fitted if the device is fully surface mounted and the door leaf is suitable for an unlatched condition.

Alternative Panic Hardware is possible providing all critical components have a melting point ≥ 800°C and the restraint mechanism has a similar or greater engagement. Additionally, the amount of material removed from the door leaf should be as tested or less. The intumescent protection, is to remain as tested (see section 3.11)

The alternative device must be of the same type (surface mounted), complies with the relevant product standard, is suitable for use on the original doorset and has passed a full-size fire test to EN 1634-1 or a small-scale fire test to EN 1634-2 and the latch bolt shall have same or greater engagement.

5.10.7 Drop down Seal

The following types of automatic threshold drop seals may be recessed in to the bottom rail of leaves to these designs without compromising performance:

Manufacturer	Product Reference
EXITEX	Concealex A8100
CCE	EASY ASGSFI
CCE	TREND

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5.10.8 Flush Bolts

Flush bolts may be incorporated centrally into the top and bottom of one meeting edge, providing the following maximum dimensions are not exceeded:

Element	Specifications
Max. dimensions	150 mm high x 12 mm deep x 14 mm wide
Material	Flush bolts must be steel, stainless steel, or brass (melting point ≥800°C), and the mortice must be as tight to the mechanism as is compatible with its operation.
Position	Placed on the passive leaf, embedded in the edge, one at the top and one at the bottom.
Intumescent protection	None required at flush bolt case
Perimeter intumescent	Where flush bolts are included to the top and bottom edge of the secondary leaf, an additional 15 mm by 2 mm thick Palusol strip is to be included in the passive leaf tight against the flush bolt to ensure the intumescent is not interrupted by passes the flushbolt.

5.10.9 Letter Boxes/Plates

Is not possible to add letter boxes/plates without additional test evidence on a representative door leaf and of the same or thinner leaf thickness. The additional test must be performed according to EN 1634-1 or EN 1634-2.

5.10.10 Air transfer Grilles

No site cutting of apertures permitted

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5.10.11 Door Viewers

Door viewers may be fitted into the leaf provided that glass lenses ≤ 15 mm diameter leaf cut out for classification ≤ 30 min, if they are manufactured from metal with a melting point > 800 °C. Viewer shall be a tight fit and within a solid cored leaf, otherwise not possible without specific test evidence in accordance with EN 1634-1 or EN 1634-2.

The following types of Door viewers are permitted in accordance with the requirements stated above, provided they are installed with an intumescent seal graphite base (see section 3.11):

Manufacturer	Product Reference
FRELAN	JV942PC
AMIG	30-50 UL

Possible to change the position of the door viewer within the door leaf, but not closer than 100 mm from door leaf edge or other door viewers.

5.10.12 Coat Hooks and other Surface Mounted Hardware and fire safety directional signed

Ancillary items which are wholly surface mounted may be fitted. The different possibilities are shown below:

Element	Specification
Add a screw fixed element on leaf or panel	Maximum area permitted to be covered by plates/signs is 40% of the clear opening area or 1 m², whichever is the smaller. They should be fixed with maximum 25 mm long screws and a minimum of 200 mm centres along the length of the elements. For double doorsets, elements may be dissimilar.
Add a glued element on leaf or panel	Maximum area permitted to be covered by elements is 40 % of the clear opening area. May be applied to the face of the leaf only, i.e. not the edge of the leaf. For double doorsets, the rule may be applied to each leaf separately.

Element	Specification
Add protective composites and plastic elements, face fixed on leaf or panel	Possible providing the elements are fitted within the clear opening width and for class EI doors only. For double doorsets, this may be applied to each leaf separately.

5.11 SUPPORTING CONSTRUCTION

The supporting construction must provide the required level of fire resistance designated for the doorset design and be a suitable medium to permit adequate fixity.

The fire resistance of a doorset tested in a high- or low-density rigid standard supporting construction can be applied to a doorset, mounted in the same manner in a wall provided the density and the thickness of the wall are equal to or greater than that in which the doorset was tested, 100 mm thick and 745 kg/ m3 density

In addition, for timber door leaves hung in timber frames, the result of the test in a rigid standard supporting construction is applicable to the door assembly in a flexible construction (stud timber wall/plasterboard), with appropriate fixings for timber frame.

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6 CONCLUSION

If the NORMA doorsets designs referred to in section 2 of this assessment., constructed in accordance with the specifications documented herein, were to be tested in the appropriate configuration in accordance with EN 1634-1, it is our opinion that they would provide a minimum or 30-minutes integrity and insulation performance.

7 LIMITATIONS

The following limitations apply to this assessment:

a) This assessment addresses itself solely to the elements and subjects discussed and does not cover any other criteria. All other details not specifically referred to should remain as tested or assessed.
b) This assessment is issued on the basis of test data and information to hand at the time of issue. If contradictory evidence becomes available, ENSATEC reserves the right to withdraw the assessment unconditionally, but not retrospectively.
c) Opinions and interpretations expressed herein are outside the scope of ENAC accreditation.
d) This assessment relates only to those aspects of design, materials and construction that influence the performance of the element(s) under fire resistance test conditions. It does not purport to be a complete specification ensuring fitness for purpose and long-term serviceability. It is the responsibility of the client to ensure that the element conforms to recognised good practice in all other respects and that, with the incorporation of the guidance given in this assessment, the element is suitable for its intended purpose.
e) This assessment represents our opinion as to the performance likely to be demonstrated on a test in accordance with EN 1634-1, on the basis of the test evidence referred to in this report. We express no opinion as to whether that evidence, and/or this assessment, would be regarded by any Building Control authority as sufficient for that or any other purpose. This assessment is provided to the client for its own purposes and we cannot opine on whether it will be accepted by Building Control authorities or any other third parties for any purpose.
f) This document does not represent a type approval or a product certification, either is not valid as classification report

8 VALIDITY

- The assessment is initially valid for five years from the date of issue, after which time it must be submitted to ENSATEC for re-appraisal.

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APPENDIX A: PERFORMANCE DATA SUMMARY

Report No.	Configuration	Leaf Dimension (h x w x t) (mm)	Test Standard	Performance	
244659 (Doorset A)	LSASD	2110 x 930 x 44	EN 1634-1:2014 + A1:2018	E	46 min
244659 (Doorset B)	LSASD	2110 x 930 x 44	EN 1634-1:2014 + A1:2018	E	46 min
				I_1	46 min
				I_2	43 min
246079 (Doorset A)	LSASD	2200 x 860 x 45	EN 1634-1:2014 + A1:2018	E	40 min
				I_1	16 min
				I_2	36 min
246079 (Doorset B)	LSASD	2200 x 860 x 45	EN 1634-1:2014 + A1:2018	E	40 min
				I_1	40 min
				I_2	40 min
242707	LSADD	2110 x (2 x 1100) x 45	EN 1634-1:2014	E	48 min
				I_1	48 min
				I_2	40 min
240673	LSASD	(2030 + 600) x 1100 x 45	EN 1634-1:2010	E	40 min
				I_1	40 min
				I_2	40 min
240674	LSASD	(2030 + 600) x 1100 x 45	EN 1634-1:2010	E	41 min
				I_1	41 min
				I_2	41 min
247969 Doorset A	LSASD	2110 x 930 x 44	EN 1634-1:2010 + A1:2018	E	32 min
247969 Doorset B	LSASD	2110 x 930 x 44	EN 1634-1:2010 + A1:2018	E	42 min
249001	LSASD	2110 x 1000 x 45	EN 1634-1:2014 + A1:2018	E	50 min
				I_1	50 min
				I_2	50 min
14-05459-1 (Doorset A)	LSASD	2700 x 925 x 45	EN 1634-1:2010	E	41 min
				I_1	41 min
				I_2	41 min
14-05459-1 (Doorset B)	LSASD	2110 x1200 x 45	EN 1634-1:2010	E	40 min
				I_1	40 min
				I_2	40 min
066470-002-1 (Doorset B)	LSASD	2110 x 930 x 44	EN 1634-1:2010	E	36 min
				I_1	36 min
				I_2	36 min
066470-001-1-A (Doorset A)	LSASD	2110 x 926 x 45	EN 1634-1:2010	E	42 min
				I_1	42 min
				I_2	42 min
066470-001-1-A (Doorset B)	LSASD	2110 x 926 x 45	EN 1634-1:2010	E	43 min
				I_1	43 min
				I_2	43 min
14-06561-1-a (Doorset A)	LSASD	2110 x 925 x 45	EN 1634-1:2010	E	38 min
				I_1	37 min
				I_2	38 min
14-06561-1-a (Doorset B)	LSASD	2110 x 925 x 45	EN 1634-1:2010	E	38 min
				I_1	38 min
				I_2	38 min
251409	LSADD	2110 x (2 x 1000) x 45	EN 1634-1:2014 + A1:2018	E	36 min
				I_1	36 min
				I_2	36 min

Report No.	Configuration	Leaf Dimension (h x w x t) (mm)	Test Standard	Performance	
252855	LSADD	2110 x (2 x 927) x 45	EN 1634-1:2014 + A1:2018	E	37 min
247820.01	LSADD	2110 x (2 x 1000) x 45	EN 1634-1:2014 + A1:2018	E	47 min
				I_1	42 min
				I_2	42 min
252911.01	LSASD	2200 x 926 x 45	EN 1634-1:2014 + A1:2018	E	52 min
				I_1	52 min
				I_2	52 min
18/17584-1360	LSASD	2110 x 930 x 45	EN 1634-3:2006	S_a S_{200}	

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APPENDIX B:TEST REPORTS

The test evidence summarised below has been generated to support the fire resistance performance of the door design that is the subject of this field of application.
Primary and supplementary test data is based on fire resistance performance to both the EN 1634-1 and EN 1363-1 test standards
Note: dimensions are in mm unless otherwise stated.
Abbreviations: (h) = height; (w) = width; (t) = thickness; (d) = depth.

	Test Report Nr 244659
Date of teste	23/02/2018
Test Body	ENSATEC
Sponsor	NORMA DOORS TECHNOLOGIES
Test Standard	EN 1634-1:2014+A1:2018
Tested Product	Latched, single acting, timber single doorset For the purpose of the test, the doorsets were referenced A and B Doorset A: RF T-30-B Doorset B: RF T-30-B
Leaf Dimensions	Doorset A: 2110 mm x 930 mm x 44 mm Doorset B: 2110 mm x 930 mm x 44 mm
Description	Doorset A: Solid core perimeter framed timber door with stiles and rails 34.2 mm thick. Chipboard core 34.2 mm thick, with MDF facings 5 mm thick. The door leaf was hung in a timber frame 44 mm thick on 3No. steel hinges. Doorset B: Solid core perimeter framed timber door with stiles and rails 34.2 mm thick. Chipboard core 34.2 mm thick, with MDF facings 5 mm thick. The door leaf was hung in a MDF frame 44 mm thick on 3No. steel hinges.
Sense of exposure	Doorset A: Opening towards the fire Doorset B: Opening towards the fire
Performance Doorset A	
Integrity	46 min
Distortion level	low
Performance Doorset B	
Integrity	46 min
Thermal Insulation I2	46 min
Thermal insulation I1	43 min
Distortion level	medium

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Test Report Nr 246079	
Date of teste	26/09/2018
Test Body	ENSATEC
Sponsor	NORMA DOORS
Test Standard	EN 1634-1:2014+A1:2018
Tested Product	Latched, single acting, timber single doorset For the purpose of the test, the doorsets were referenced A and B Doorset A: RF T-30 B Doorset B: RF T-30 B
Leaf Dimensions	Doorset A: 2200 mm x 860 mm x 45 mm Doorset B: 2200 mm x 860 mm x 45 mm
Description	Doorset A: Solid core perimeter framed timber door with stiles and rails 34.2 mm thick. Chipboard core 34.2 mm thick, with MDF facings 5 mm thick and timber veneers 0,5 mm thick. The door leaf was hung in a timber frame 38 mm thick on 3No. steel hinges. Pyrobel 16 EG glazing aperture with a sight size of 1767 (h) x 530 (w). Doorset B: Solid core perimeter framed timber door with stiles and rails 34.2 mm thick. Chipboard core 34.2 mm thick, with MDF facings 5 mm thick and timber veneers 0,5 mm thick. The door leaf was hung in a timber frame 38 mm thick on 3No. steel hinges. Pyrobel 16 EG glazing aperture with a sight size of 1767 (h) x 530 (w).
Sense of exposure	Doorset A: Opening towards the fire Doorset B: Opening away from the fire
Performance Doorset A	
Integrity	40 min
Thermal Insulation I2	36 min
Thermal insulation I1	36 min
Distortion level	low
Performance Doorset A	
Integrity	40 min
Thermal Insulation I2	40 min
Thermal insulation I1	40 min
Distortion level	low

Test Report Nr 242707	
Date of teste	20/03/2017
Test Body	ENSATEC
Sponsor	NORMA DOORS
Test Standard	EN 1634-1:2014/EN1363-1:2015
Tested Product	Latched, single acting, timber double leaf doorset For the purpose of the test, the doorset was referenced A Doorset A: RF T-30 B
Leaf Dimensions	Doorset A: 2110 mm x (2 x 1100) mm x 45 mm
Description	Doorset A: Solid core perimeter framed timber door with stiles and rails 34.2 mm thick. Chipboard core 34.2 mm thick, with MDF facings 5 mm thick and timber veneers 0,5 mm thick. The door leaf was hung in a MDF frame 28 mm thick on 4No. steel hinges.
Sense of exposure	Doorset A: Opening towards the fire
Performance Doorset A	
Integrity	48 min
Thermal Insulation I2	48 min
Thermal insulation I1	40 min
Distortion level	low

Test Report Nr 240673	
Date of teste	23/03/2016
Test Body	ENSATEC
Sponsor	NORMA DOORS
Test Standard	UNE EN 1634-1:2010/EN 1363:2012
Tested Product	Latched, single acting, timber single doorset For the purpose of the test, the doorset was referenced A Doorset A: RF T-30 A
Leaf Dimensions	Doorset A: (2030 mm + overpanel 600 mm) x 1100 mm x 45 mm
Description	Doorset A: Solid core perimeter framed timber door with stiles and rails 45 mm thick. Chipboard core 45 mm thick, with timber veneers 0,5 mm thick. The door leaf was hung in a MDF frame 28 mm thick on 4No. steel hinges.
Sense of exposure	Doorset A: Opening towards the fire
Performance Doorset A	
Integrity	40 min
Thermal Insulation I2	40 min
Thermal insulation I1	40 min
Distortion level	medium

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Test Report Nr 240674	
Date of teste	23/03/2016
Test Body	ENSATEC
Sponsor	NORMA DOORS
Test Standard	EN 1634-1:2014/EN1363-1:2015
Tested Product	Latched, single acting, timber single doorset For the purpose of the test, the doorset was referenced A Doorset A: RF T-30 B
Leaf Dimensions	Doorset A: (2030 mm + overpanel 600 mm) x 1100 mm x 45 mm
Description	Doorset A: Solid core perimeter framed timber door with stiles and rails 34,2 mm thick. Chipboard core 34,2 mm thick, with MDF facings 5 mm thick and timber veneers 0,5 mm thick. The door leaf was hung in a MDF frame 28 mm thick on 4No. steel hinges.
Sense of exposure	Doorset A: Opening towards the fire
Performance Doorset A	
Integrity	41 min
Thermal Insulation I2	41 min
Thermal insulation I1	41 min
Distortion level	high

Test Report Nr 249001	
Date of teste	15/11/2019
Test Body	ENSATEC
Sponsor	NORMA DOORS
Test Standard	EN 1634-1:2014+A1:2018/BS 476-20:1987/BS 476-22:1987
Tested Product	Latched, single acting, timber single doorset For the purpose of the test, the doorset was referenced A Doorset A: T-30 B
Leaf Dimensions	Doorset A: 2110 mm x 1000 mm x 45 mm
Description	Doorset A: Solid core perimeter framed timber door with stiles and rails 39 mm thick. Chipboard core 39,2 mm thick, with MDF facings 3 mm thick and timber veneers 0,5 mm thick. The door leaf was hung in a MDF frame 28 mm thick on 3No. steel hinges.
Sense of exposure	Doorset A: Opening towards the fire
Performance Doorset A	
Integrity	50 min
Thermal Insulation I2	50 min
Thermal insulation I1	50 min
Distortion level	low

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Test Report Nr 247969	
Date of teste	31/05/2019
Test Body	ENSATEC
Sponsor	NORMA DOORS
Test Standard	EN 1634-1:2014+A1:2018 /BS 476-20:1987/BS 476-22:1987
Tested Product	Latched, single acting, timber single doorset For the purpose of the test, the doorsets were referenced A and B Doorset A: RF T-30 B Doorset B: RF T-30 B
Leaf Dimensions	Doorset A: 2110 mm x 930 mm x 44 mm Doorset B: 2110 mm x 930 mm x 44 mm
Description	Doorset A: Solid core perimeter framed timber door with stiles and rails 34,2 mm thick. Chipboard core 34,2 mm thick, with MDF facings 5 mm thick. The door leaf was hung in a MDF frame 28 mm thick on 3No. steel hinges. Pyrostem EW30 glazing aperture with a sight size of 1415 (h) x 155 (w). Doorset B: Solid core perimeter framed timber door with stiles and rails 34,2 mm thick. Chipboard core 34,2 mm thick, with MDF facings 5 mm thick. The door leaf was hung in a MDF frame 28 mm thick on 3No. steel hinges. Pyrobelite EW30 glazing aperture with a sight size of 1415 (h) x 155 (w).
Sense of exposure	Doorset A: Opening towards the fire Doorset B: Opening towards the fire
Performance Doorset A	
Integrity	32 min
Distortion level	low
Performance Doorset B	
Integrity	42 min
Distortion level	low

Test Report Nr 14-05459-1	
Date of teste	26/03/2010
Test Body	TECNALIA
Sponsor	NORMA DOORS TECHNOLOGIES
Test Standard	EN 1634-1:2014/EN1363-1:2015
Tested Product	Latched, single acting, timber single doorset For the purpose of the test, the doorsets were referenced A and B Doorset A: RF T-30-B Doorset B: RF T-30-B
Leaf Dimensions	Doorset A: 2700 mm x 925 mm x 45 mm
	Doorset B: 2110 mm x 1200 mm x 45 mm
Description	Doorset A: Solid core perimeter framed timber door with stiles and rails 39,2 mm thick. Chipboard core 39,2 mm thick, with MDF facings 3 mm thick and timber veneers 0,5 mm thick. The door leaf was hung in a MDF frame 28 mm thick on 5No. steel hinges. Doorset B: Solid core perimeter framed timber door with stiles and rails 39,2 mm thick. Chipboard core 39,2 mm thick, with MDF facings 3 mm thick and timber veneers 0,5 mm thick. The door leaf was hung in a MDF frame 28 mm thick on 4No. steel hinges.
Sense of exposure	Doorset A: Opening towards the fire Doorset B: Opening towards the fire
Performance Doorset A	
Integrity	41 min
Thermal Insulation I2	41 min
Thermal insulation I1	41 min
Distortion level	low
Performance Doorset B	
Integrity	40 min
Thermal Insulation I2	40 min
Thermal insulation I1	40 min
Distortion level	High

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Test Report Nr 066470-002-1	
Date of teste	22/12/2017
Test Body	TECNALIA
Sponsor	NORMA DOORS
Test Standard	EN 1634-1:2014
Tested Product	Latched, single acting, timber single doorset For the purpose of the test, the doorset was referenced B Doorset B: SHAKER DESIGN
Leaf Dimensions	Doorset B: 2110 mm x 930 mm x 44 mm
Description	Doorset B: Solid core perimeter framed timber door with stiles and rails 24,2 mm thick. MDF core 24,2 mm thick, with MDF facings 5 mm thick and timber veneers 5 mm thick. The door leaf was hung in a timber frame 44 mm thick on 3No. steel hinges.
Sense of exposure	Doorset B: Opening towards the fire
Performance Doorset B	
Integrity	36 min
Thermal Insulation I2	36 min
Thermal insulation I1	36 min
Distortion level	medium

Test Report Nr 066470-001-1-A	
Date of teste	27/07/2017
Test Body	TECNALIA
Sponsor	NORMA DOORS
Test Standard	EN 1634-1:2014 /BS 476-20:1987/BS 476-22:1987
Tested Product	Latched, single acting, timber single doorset For the purpose of the test, the doorsets were referenced A and B Doorset A: MOLDED SKIN Doorset B: MOLDED SKIN
Leaf Dimensions	Doorset A: 2110 mm x 926 mm x 45 mm Doorset B: 2110 mm x 926 mm x 45 mm
Description	Doorset A: Solid core perimeter framed timber door with stiles and rails pine wood 39.2 mm thick. Chipboard core 39.2mm thick, with postforming MDF facings 3 mm thick. The door leaf was hung in a MDF frame 28 mm thick on 4No. steel hinges. Doorset B: Solid core perimeter framed timber door with stiles and rails pine wood 39.2 mm thick. MDF fibreboard core 39.2mm thick, with postforming MDF facings 3 mm thick. The door leaf was hung in a MDF frame 28 mm thick on 4No. steel hinges.
Sense of exposure	Doorset A: Opening towards the fire Doorset B: Opening towards the fire
Performance Doorset A	
Integrity	42 min
Thermal Insulation I2	42 min
Thermal insulation I1	42 min
Distortion level	low
Performance Doorset B	
Integrity	43 min
Thermal Insulation I2	43 min
Thermal insulation I1	43 min
Distortion level	low

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Test Report Nr 066470-001-1-A	
Date of teste	27/07/2017
Test Body	TECNALIA
Sponsor	NORMA DOORS
Test Standard	EN 1634-1:2014
Tested Product	Latched, single acting, timber single doorset For the purpose of the test, the doorsets were referenced A and B Doorset A: RF T-30 B Doorset B: RF T-30 B
Leaf Dimensions	Doorset A: 2110 mm x 925 mm x 45 mm Doorset B: 2110 mm x 925 mm x 45 mm
Description	Doorset A: Solid core perimeter framed timber door with stiles and rails pine wood 39.2 mm thick. Chipboard core 39.2mm thick, with MDF facings 3 mm thick and MDF panel 30 mm thick. The door leaf was hung in a MDF frame 28 mm thick on 4No. steel hinges. FR glazing aperture. AGC Pyrobel 16 mm Doorset B: Solid core perimeter framed timber door with stiles and rails pine wood 39.2 mm thick. Chipboard core 39.2mm thick, with MDF facings 3 mm thick and MDF panel 30 mm thick.
Sense of exposure	Doorset A: Opening towards the fire Doorset B: Opening towards the fire
Performance Doorset A	
Integrity	38 min
Thermal Insulation I2	37 min
Thermal insulation I1	38 min
Distortion level	low
Performance Doorset B	
Integrity	38 min
Thermal Insulation I2	38 min
Thermal insulation I1	38 min
Distortion level	High

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Test Report Nr 251409	
Date of teste	03/10/2020
Test Body	ENSATEC
Sponsor	NORMA DOORS
Test Standard	EN 1634-1:2014+A1:2018
Tested Product	Latched, single acting, timber double doorset For the purpose of the test, the doorsets were referenced Doorset A: RF T-30 B double leaf
Leaf Dimensions	Doorset A: 2110 mm x (1000+1000) mm x 45 mm
Description	Doorset A: Solid core perimeter framed timber door with stiles and rails 34,2 mm thick. Chipboard core 39,2 mm thick, with MDF facings 3 mm thick. The door leaf was hung in a solid finger frame 28 mm thick on 3No. steel hinges.
Sample selection:	The test sample has been selected and sent to the laboratory by the applicant. The petitioner has sent the samples and auxiliary material necessary for the verification by the laboratory.
Sense of exposure	Doorset A: Opening towards the fire
Performance Doorset A	
Integrity	36 min
Thermal Insulation I2	36 min
Thermal insulation I1	36 min
Distortion level	low

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Test Report Nr 252855	
Date of teste	28/05/2021
Test Body	ENSATEC
Sponsor	NORMA DOORS
Test Standard	EN 1634-1:2014+A1:2018
Tested Product	Latched, single acting, timber double doorset For the purpose of the test, the doorsets were referenced Doorset A: RF 30 double leaf without lock
Leaf Dimensions	Doorset A: 2110 mm x (927+927) mm x 45 mm
Description	Doorset A: Solid core perimeter framed timber door with stiles and rails 30 mm thick. Chipboard core 39 mm thick, with MDF facings 3 mm thick. The door leaf was hung in a MDF frame 28 mm thick on 3No. steel hinges. Pyroguard EW30 Impact glazing aperture with a sight size of 1415 (h) x 155 (w) Pyrostem EW30 glazing aperture with a sight size of 1415 (h) x 155 (w).
Sample selection:	The test sample has been selected and sent to the laboratory by the applicant. The petitioner has sent the samples and auxiliary material necessary for the verification by the laboratory.
Sense of exposure	Doorset A: Opening towards the fire
Performance Doorset A	
Integrity	37 min
Distortion level	low

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Test Report Nr 247820.01	
Date of teste	25/04/2019
Test Body	ENSATEC
Sponsor	NORMA DOORS
Test Standard	EN 1634-1:2014+A1:2018
Tested Product	Latched, single acting, timber double doorset For the purpose of the test, the doorsets were referenced Doorset A: Acoustic doorset T-30 RAC-45
Leaf Dimensions	Doorset A: 2110 mm x (1000 + 1000) mm x 45 mm
Description	Doorset A: Solid core perimeter framed timber door with stiles and rails 30 mm thick. Chipboard core 39 mm thick, type P2 formed by 4 boards, with MDF facings 3 mm thick. The door leaf was hung in a MDF frame 28 mm thick, type IEP300, on 4No. steel hinges. Pyrobel 16 AG glazing aperture with a sight size of 1000 (h) x 420 (w)
Sample selection:	The test sample has been selected and sent to the laboratory by the applicant. The petitioner has sent the samples and auxiliary material necessary for the verification by the laboratory.
Sense of exposure	Doorset A: Opening towards the fire
Performance Doorset A	
Integrity	47 min
Thermal Insulation I2	42 min
Thermal insulation I1	42 min
Distortion level	low

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Test Report Nr 252911.01	
Date of teste	19/04/2021
Test Body	ENSATEC
Sponsor	NORMA DOORS
Test Standard	EN 1634-1:2014+A1:2018 /BS 476-20:1987/BS 476-22:1987
Tested Product	Latched, single acting, timber single doorset For the purpose of the test, the doorsets were referenced Doorset A: T-30B PAS 24
Leaf Dimensions	Doorset A: 2200 mm x 926 mm x 45 mm
Description	Doorset A: Solid core perimeter framed timber door with stiles and rails 34,2 mm thick. Chipboard core 34,2 mm thick, with MDF facings 5 mm thick. The door leaf was hung in a timber frame frame 44 mm thick on 4No. steel hinges.
Sense of exposure	Doorset A: Opening towards the fire
Performance Doorset A	
Integrity	52 min
Thermal Insulation I2	52 min
Thermal insulation I1	52 min
Distortion level	low

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Test Report Nr 066470-001-1-A	
Date of teste	16/07/2018
Test Body	APPLUS
Sponsor	NORMA DOORS
Test Standard	EN 1634-3:2006
Tested Product	Latched, single acting, timber single doorset For the purpose of the test, the doorsets were referenced A and B Doorset A: RF T-30 B Doorset B: RF T-30 B
Leaf Dimensions	Doorset A: 2110 mm x 930 mm x 45 mm Doorset B: 2110 mm x 930 mm x 45 mm
Description	Doorset A: Solid core perimeter framed timber door with stiles and rails pine wood 34.2 mm thick. Chipboard core 34.2mm thick, with MDF facings 5 mm thick. The door leaf was hung in a MDF frame 28 mm thick on 3o. steel hinges. Doorset B: Solid core perimeter framed timber door with stiles and rails pine wood 34.2 mm thick. Chipboard core 34.2mm thick, with MDF facings 5 mm thick. The door leaf was hung in a MDF frame 28 mm thick on 3o. steel hinges.
Sense of exposure	Doorset A: Opening away the chamber Doorset B: Opening towards the chamber
Performance Doorset A	S_a S_{200}
Performance Doorset B	S_a S_{200}

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