



Laboratory assessed as competent Body under
Annex XI Module H1 of the L.D 2014/33/EU

Fire Laboratory
New Equipment Center
Avenue des Montoires 45504 GIEN Cedex / France

Fire resistance Test of Building Elements

According to the EN 81-58 standard: 2003

RANGE REPORT N° 3711 - 45 – 50_Rev4

Reference tests : See §4

Scope:

A range of lateral opening lift landing door with
two non-insulated & insulated panels.

« PRIMA-PLUS » NF - SF - MRF 100 - MRF 150
Lateral Opening – 2 panels
E 120 / EW 30 / EW 60 / EI 30 / EI 120

Requester :

OTIS
New Equipment Center
Avenue des Montoires
F – 45504 GIEN

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1 OBJECT OF THE REPORT

Qualification of a range of non insulated & insulated landing door, based on a set of classification tests, in compliance with the EN 81-58 standard: 2003 « Safety rules for the construction and installation of lifts – Examination and tests – Part 58: Landing door fire resistance test ».

2 LABORATORY

Nom: Door Test Center – OTIS

Address : Avenue des Montoires
45504 Gien

3 TEST REQUESTER

Nom: OTIS

Address: New Equipment Center
Avenue des Montoires
F-45504 Gien Cedex

4 FIRE RESISTANCE TESTS

Test Nr.	Date		Free passage dimensions
3485-44-50	10 November 2016	MRF 150 TLD	900 x 2100 mm (w x h)
3634-44-50	22 March 2017	MRF 100 TLD	900 x 2100 mm (w x h)
3643-44-50	12 April 2017	MRF 150 CLD	900 x 2100 mm (w x h)
3667-44-50	22 June 2017	MRF150 TLD	900 x 2100 mm (w x h)
3808-44-50	30 May 2018	TRF TLD	900 x 2100 mm (w x h)
3891-44-50	26 February 2019	TRF TLD	900 x 2100 mm (w x h)
4085-44-50	11 December 2019	MRF 150 TLD	900 x 2100 mm (w x h)
4005-44-50	25 September 2019	TRF TLD	900 x 2100 mm (w x h)
4102-44-50	20 May 2020	TRF TLD	900 x 2100 mm (w x h)
4196-44-50	29 June 2020	MRF100 CLD	900 x 2100 mm (w x h)
4443-45-50	13 January 2022	NF / SF	900 x 2100 mm (w x h)

5 REFERENCE

Reference: « PRIMA PLUS » TLD

Provenance: OTIS
New Equipment Center
Avenue des Montoires
F – 45504 GIEN

6 DESCRIPTION

6.1 GENERAL

The elements, objects in this range report are :

-  Non-insulated lift landing doors “PRIMA PLUS - TLD E 120”
-  Insulated lift landing doors “PRIMA PLUS - TLD EI 30”
-  Insulated lift landing doors “PRIMA PLUS - TLD EI 120”

with two lateral opening panels on following configurations :

- ✓ MRF 150 (Panels and peripheral band of 150 mm are only fire exposed)
- ✓ MRF 100 (Panels and peripheral band of 100 mm are only fire exposed)
- ✓ SF facia (Panels and peripheral band of 20 mm are only fire exposed)
- ✓ NF facia (Only panels are fire exposed)

They are composed of:

- A structural frame composed of :
 - ✓ Columns 1.2 mm thick when Stainless steel
 - ✓ Columns 1.5 mm thick when Pre-paint & Steel “Skinplate”
 - ✓ A structural lintel 1.5 mm thick
 - ✓ A threshold support 2.5 mm thick with an aluminium guide rail.
- Two panels in folded metal sheet thickness 1.5 mm hung on the upper side on the header and guided via shoes, sliding in the sill grooves.
- For EI 30 classification, panels are equipped of a 25 mm thickness insulated board (composed of 19 mm Rockwool product + 6 mm of plaster board)

- For EI 120 classification, panels are equipped of a 25 mm thickness insulated board (composed of 19 mm Microtherm product – 300 kg/m³ + 6 mm of plaster board)
- Additional (panels) stiffeners and specific aluminium sill closed profile are used for the anti-vandalism option.
- A leaf drive and locking mechanism assembly.
- An electrical unlocking detection device “**KS**”. (Key Switch Option)
- A additionnal switch device for LDFS option. (Landing door Fire Switch)
- A system “**SUD**” (Single-used Unlocking Device)
- An unlocking device base on a twine option.
- Human interfaces. (call button / button boxes / indicators)

They may be derived in different finishes and fitted with different accessories.

They can be installed on the landing or in the hoistway.

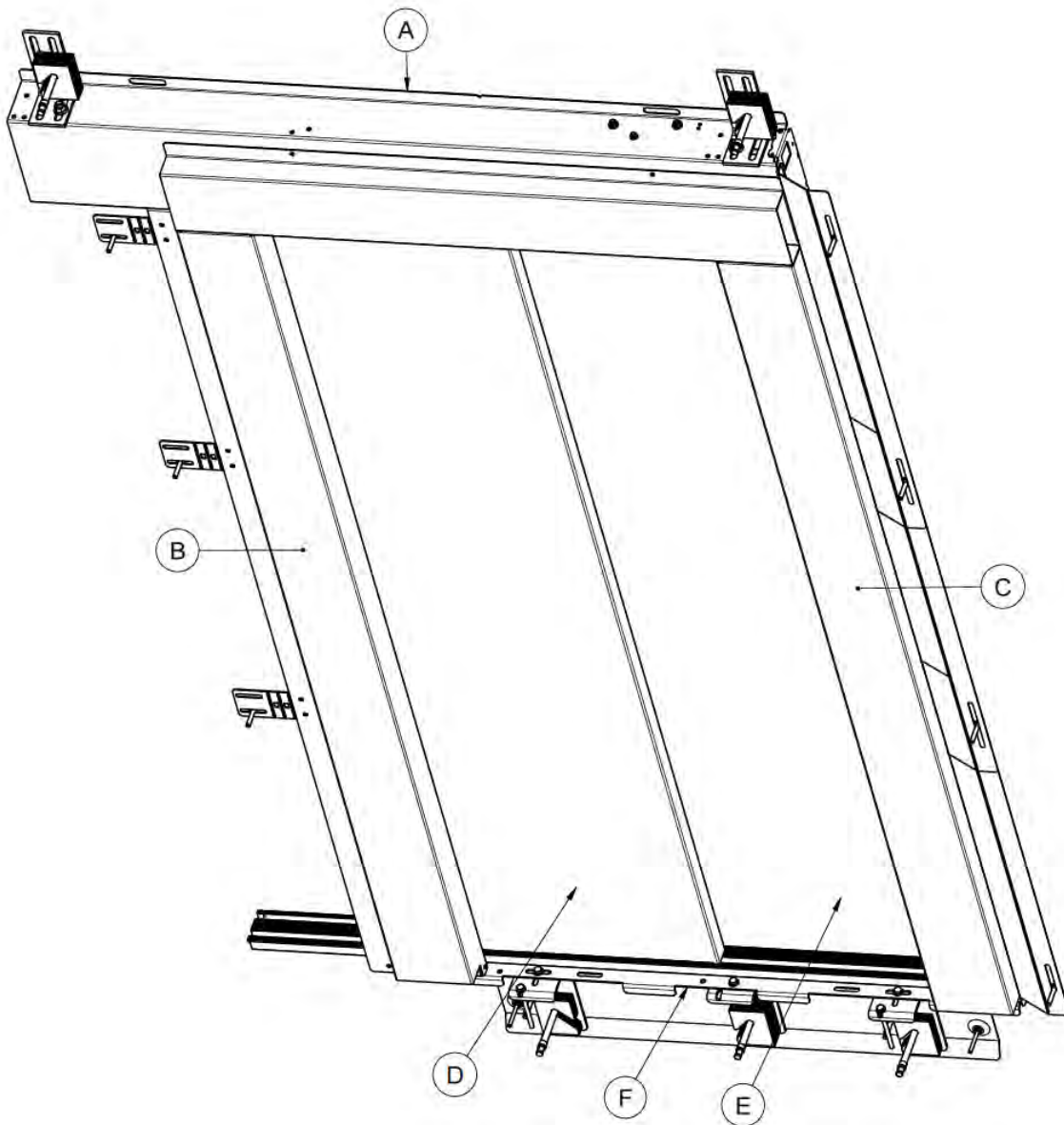
Free height passage of the door will be named OPH.

Free width passage of the door will be named OP.

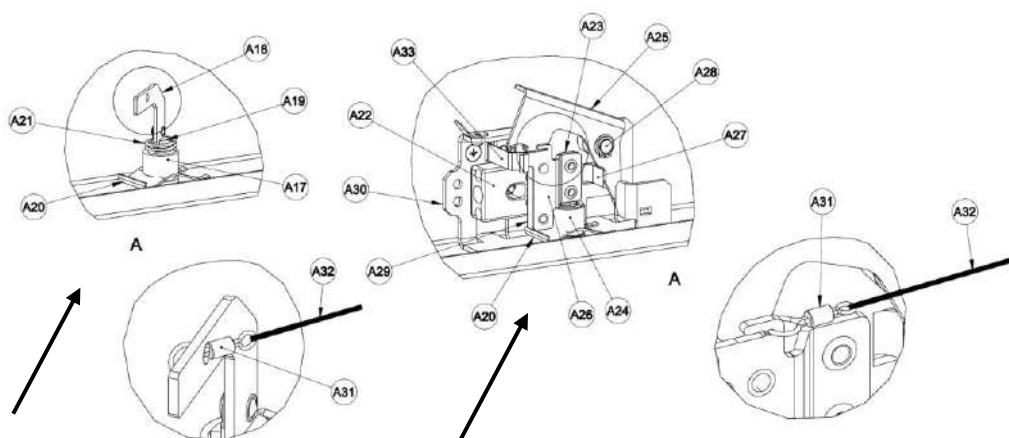
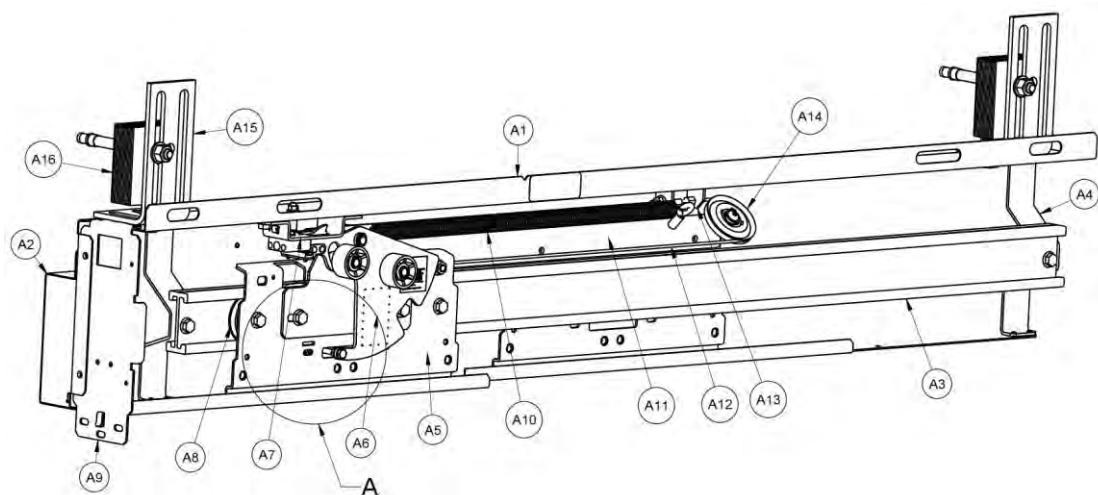
6.2 DETAILED DESCRIPTION

6.2.1 General description

- A: Lintel
- B: Opening column
- C: Closing column
- D: Slow panel
- E: Fast panel
- F: Sill bracket



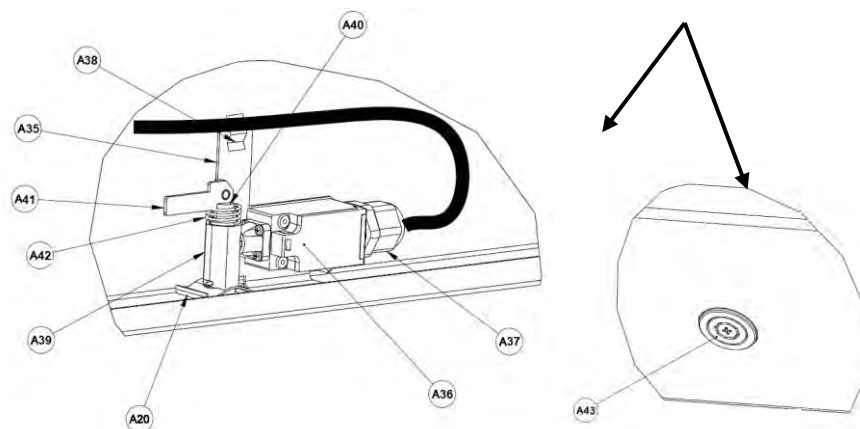
6.2.2 Lintel (A)



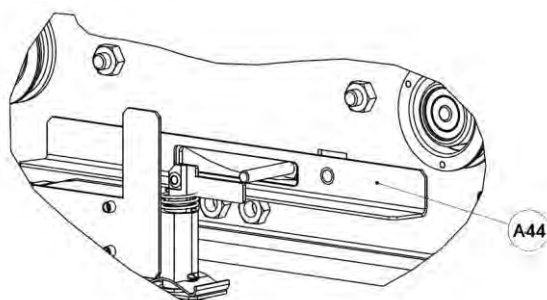
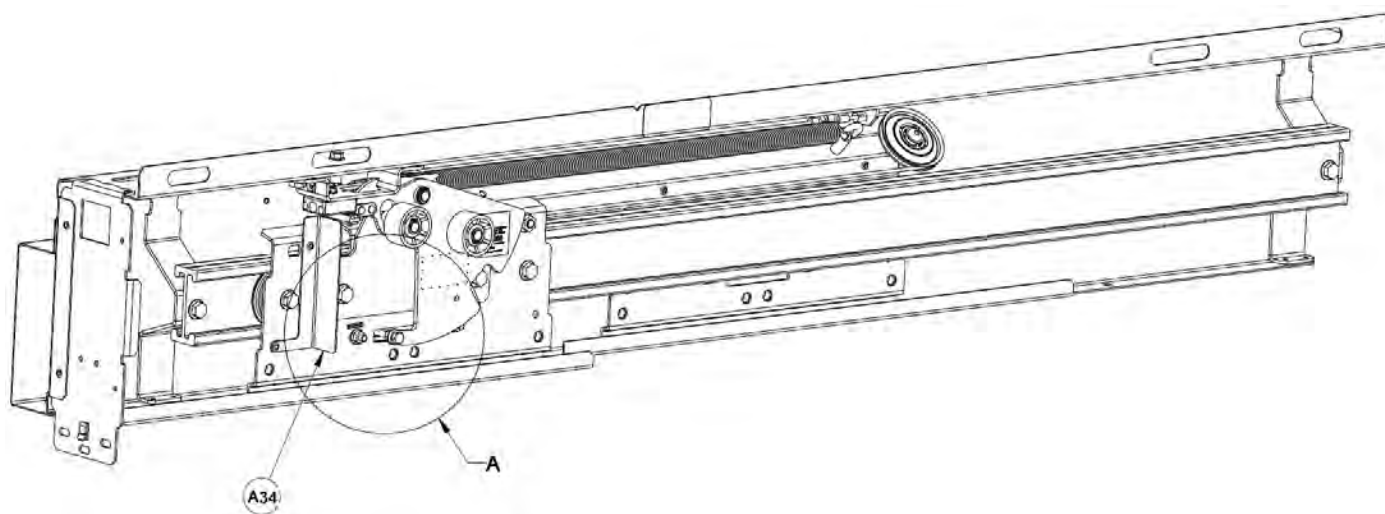
UNLOCKING DEVICE

KEY SWITCH

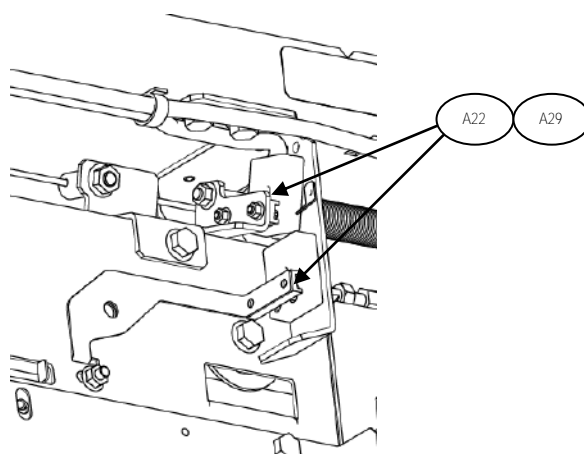
SINGLE-USED UNLOCKING DEVICE



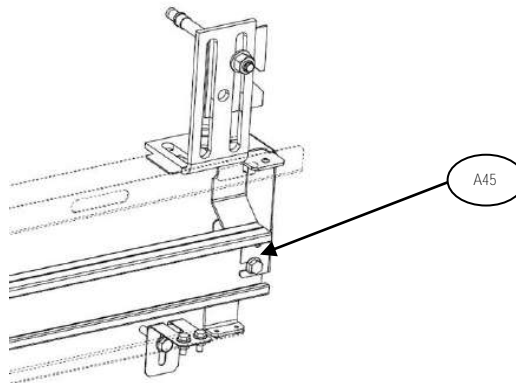
Option available (cover protection)



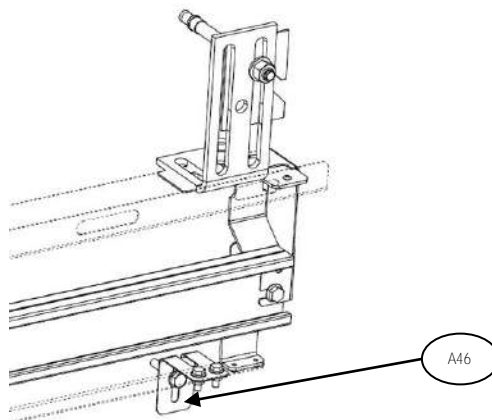
Option available (additional switch - LDFS)



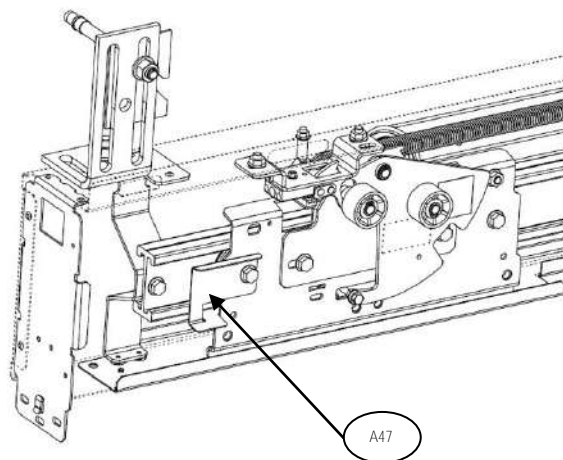
Additional stiffener for EI configurations



Angle for all EI configurations / all SF-NF / OP > 900 mm



Deflector for EI configurations (Not mandatory for EI 30)



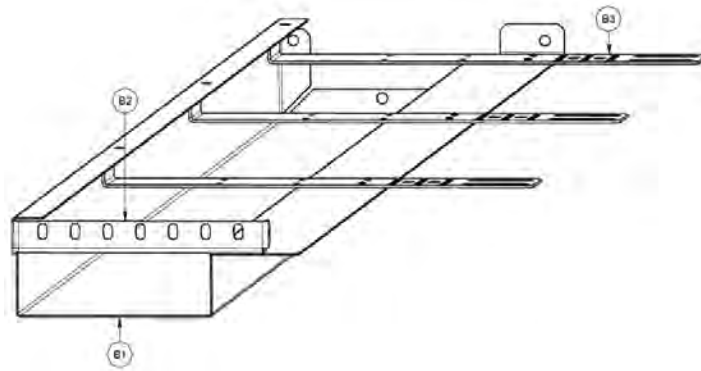
DESIGNATION	DESCRIPTION
A1. Structural lintel Material Thickness Upper angle fastening Column fastening	Galvanized steel 1.5 mm 1 bolt M12 x 30 per angle 3 bolts M6 x 16 per column
A2. Decorative lintel Material Thickness Structural lintel fastening	Stainless steel or Pre-paint steel or Steel "Skinplate" 1.2 or 1.5 mm 4 steel rivets Ø4 mm
A3. Track Material Bracket fastening	Aluminium 1 bolt M8 x 16 per bracket
A4. Track bracket Material Thickness Structural lintel fastening	Galvanized steel 3 mm 5 steel rivets Ø4 mm
A5. Hanger Material Thickness	Quantity = 2 per door Galvanized steel 2.5 mm
A6. Interlock Material Thickness of bracket fastening Thickness of lever Pivots Rollers Shunt bracket Shunt Stop Unlocking screw Fast Hanger fastening	Galvanized steel 3 mm 4 mm Quantity = 3 per interlock Ø10 mm (Steel) Quantity = 2 per interlock Ø38 mm (Plastic PA MB 3000) Thickness = 2 mm (Galvanized steel) ASTRA PA 02 18 (Plastic nylon-V0) Quantity = 1 per interlock (Rubber) Quantity = 1 per interlock ; 1 bolt M6 x 45 2 bolts M8 x 16
A7. Latch Material Thickness of bracket Safety switch Structural lintel fastening Safety switch fastening on latch	Galvanized steel 3 mm ASTRA AS 09 B 2 bolts M8 x 16 1 bolt M4 x 12
A8. Roller Material of tread Material of frame Hanger fastening	Quantity = 2 per hanger Plastic PA MB 3000 Galvanized steel 2 screws M8 x 16
A9. Flange Material Thickness Structural lintel fastening Closing column fastening	Galvanized steel 2 mm 3 steel rivets Ø4 mm 1 bolt M6 x 16
A10. Spring Material Structural lintel & slow hanger fastening	Spring steel 2 pitons bolts M6 x 25
A11. Air cord bracket Material Thickness Slow hanger fastening	Galvanized steel 2 mm 2 steel rivets Ø4 mm

DESIGNATION	DESCRIPTION
A12. Air cord Material Diameter	Steel rope Ø 3.2 mm
A13. Air cord fixed bracket Material Thickness Structural lintel fastening	Galvanized steel 3 mm 2 steel rivets Ø4 mm
A14. Sheave Material Air cord bracket fastening	Galvanized steel 1 bolt M8 x 25
A15. Upper angle Material Thickness Wall fastening Header fastening	Quantity = 2 per door Galvanized steel 6 mm 1 dowel HILTI HSA M12 x145 1 bolt M12 x 30
A16. Shims Material Thickness	Galvanized steel 1 et 2,5 mm
A17. Bushing Material Body diameter Collar diameter	➤ ZAMAK + CHROME finish ➤ Middle steel with electrogalvanized finish 19.8 25 mm
A18. Unlocking lever Material Thickness Triangle axle fastening	Galvanized steel 2 mm 1 steel rivet Ø4
A19. Triangle axle Material Body diameter	Middle steel with electrogalvanized finish Ø9.5 mm
A20. Spring fork Material Bushing fastening	Spring steel Groove
A21. Spring Material Bushing & triangle axle fastening	Spring steel Holes on bushing & triangle axle
A22. Safety switch Material Fixed bracket fastening	ASTRA AS 09 B 1 bolt M4 x 10
A23. Triangle axle Material Body diameter Bushing fastening	Middle steel with electrogalvanized finish Ø9.5 mm Clip Ø8 mm
A24. Bushing Material Body diameter Collar diameter	➤ ZAMAK + CHROME finish ➤ Middle steel with electrogalvanized finish 19.8 25 mm
A25. Locking lever Material Thickness Integrated axle Pivot axle fastening	Galvanized steel 2 mm Ø15mm in middle steel with electrogalvanized finish Clip Ø8 mm
A26. Unlocking lever Material Thickness Triangle axle fastening	Galvanized steel 2 mm 2 steel rivets Ø4 mm

DESIGNATION	DESCRIPTION
A27. Spring languet Material Thickness Pedestal bracket fastening	Spring steel 0.7 mm 2 steel rivets Ø4 mm
A28. Pivot axle Material Body diameter Pedestal bracket fastening	Middle steel with electrogalvanized finish Ø8 mm By snap-riveting
A29. Shunt Material Unlocking lever fastening	ASTRA PA 02 18 2 bolts M4 x 10
A30. Pedestal bracket Material Thickness Pedestal fastening	Galvanized steel 2.5 mm With spring fork ITEM 20 in bushing groove
A31/A32. Unlocking device Material	Middle steel with finish + Wire braid
A33. Spring clip Material Thickness (mm) Pedestal bracket fastening	Spring steel 0.7 mm 2 steel rivets Ø4
A34. Cover Material Thickness Fastening	Galvanized steel 1.5 mm 2x steel rivets Ø4x11
A35. SUD contact bracket Material Thickness	Galvanized steel 1.5 mm
A36. SUD contact Material Fastening Wiring Cable diameter (Hight temperature)	SCHMERSAL TR 236-11z Steel 2x steel rivets Ø4x25 Phlogopit Mica / Nickeled copper or H05RNF Vulcanized rubber 8.1 mm
A37. Cable gland Material Protection	Legrand 0 955 03 Steel IP68
A38. Clip Material	Galvanized steel
A39. Bushing Material	Steel S250PB + electrozinged finish
A40. Unlocking axle Material	Steel S250PB + electrozinged finish
A41. Lever Material Thickness	Galvanized steel 2 mm
A42. Torsion spring Material Wire Ø	STEEL CLASS SH + BEZINAL RETREFILE Finish 1.4 mm
A43. Caps Material	ABS + Black finish
A44. Cover Material Thickness	Galvanized steel 1.5 mm

DESIGNATION	DESCRIPTION
A45. Angle Material Thickness	Galvanized steel 1.5 mm
A46. Stiffener Material Thickness	Galvanized steel 1 mm
A47. Deflector Material Thickness	Galvanized steel 1.2 mm

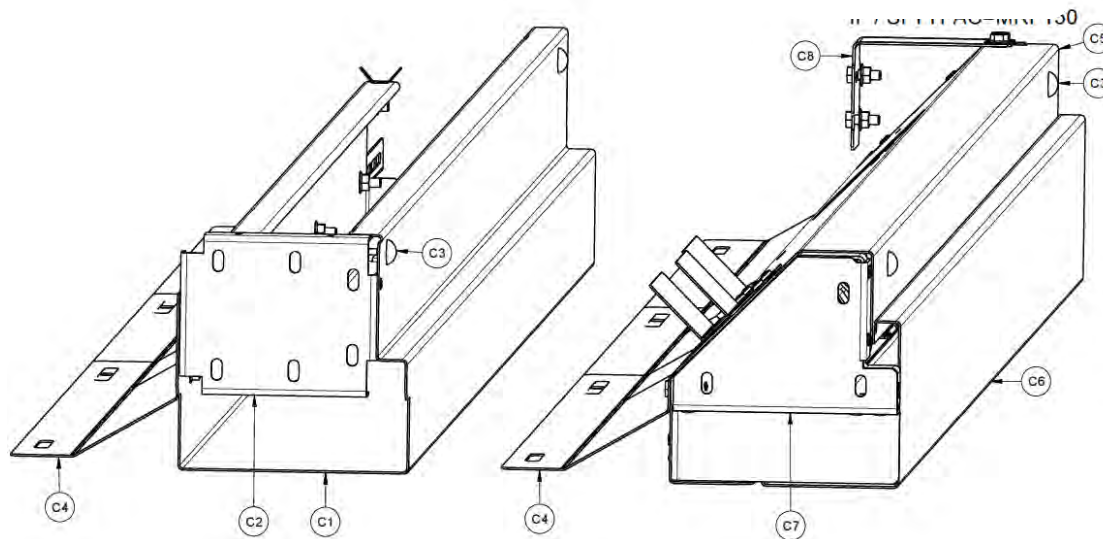
6.2.3 Opening column (B)



DESIGNATION	DESCRIPTION
B1. Opening column Material Thickness Lintel fastening	Stainless steel or Pre-paint steel or Steel "Skinplate" 1.2 or 1.5 mm 3 bolts M6 x 16
B2. Threshold interface bracket Material Thickness Column fastening Threshold fastening	Galvanized steel 2 mm 3 steel rivets Ø4 mm 2 screws M6 x 16
B3. Bracket Material Thickness Column fastening Wall fastening	Quantity = 3 per column Galvanized steel 2 mm 3 steel rivets Ø4 mm 1 screw HUS3-H6x40

6.2.4 Closing column (C)

6.2.4.1 Closing column for E 120 configurations*

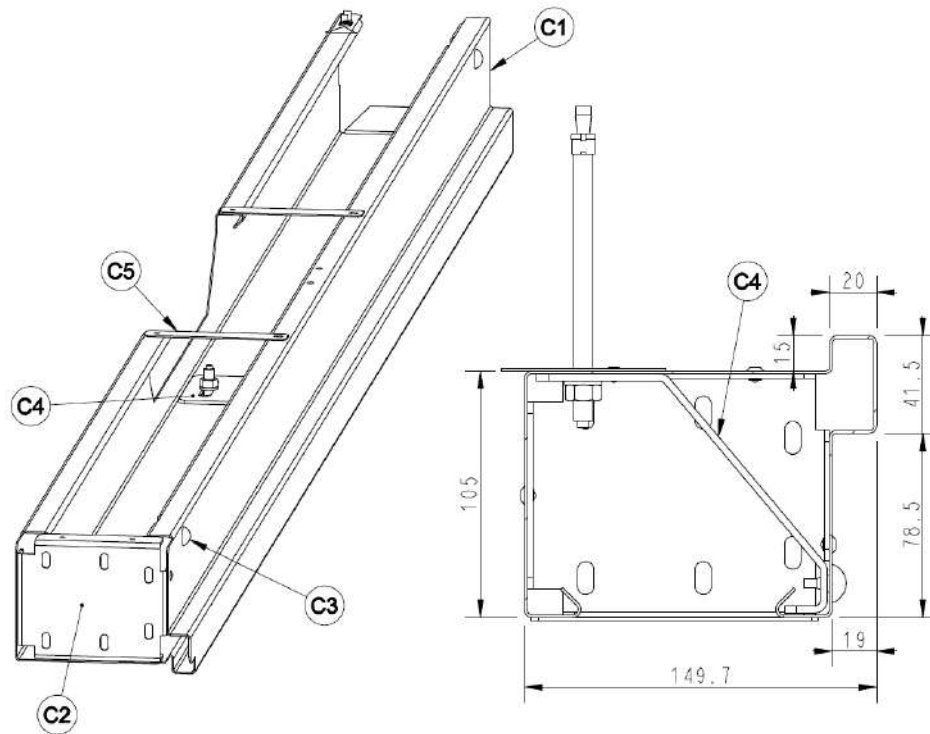


*Configuration without E&I is also authorized for EI 30 configuration

DESIGNATION	DESCRIPTION
C1. Closing column Material Thickness Lintel fastening Cheek fastening	Stainless steel or Pre-paint steel or Steel "Skinplate" 1.2 or 1.5 mm 3 bolts M6 x 16 1 bolt M6 x 16
C2. Threshold interface bracket Material Thickness Column fastening Threshold fastening	Galvanized steel 2 mm 3 steel rivets Ø4 mm 3 screws M6 x 16
C3. Stop Material	Quantity = 2 per column Rubber
C4. Sealing bracket (Only if facia MRF150 & Hoistway mounting) Material Thickness Wall fastening Column or E&I panel fastening	Quantity = 3 per door Galvanized steel 1.2 mm 4 screws HUS3-H6x40 4 bolts M6 x 16
C5. Body of E&I panel (Option only in facia MRF150) Material Thickness Lintel fastening	Stainless steel or Pre-paint steel or Steel "Skinplate" 1.2 or 1.5 mm 3 bolts M6 x 16

DESIGNATION	DESCRIPTION
C6. Door of E&I panel (Option only in facia MRF150) Material Thickness	Stainless steel or Pre-paint steel or Steel "Skinplate" 1.2 or 1.5 mm
C7. Threshold interface bracket (Option only in facia MRF150) Material Thickness E&I fastening Threshold fastening	Galvanized steel 2 mm 7 steel rivets Ø4 mm 3 screws M6 x 16
C8. Cheek bracket (Option only in facia MRF150) Material Thickness E&I fastening Cheek fastening	Galvanized steel 1.5 mm 2 screws M6 x 16 2 bolts M6 x 16

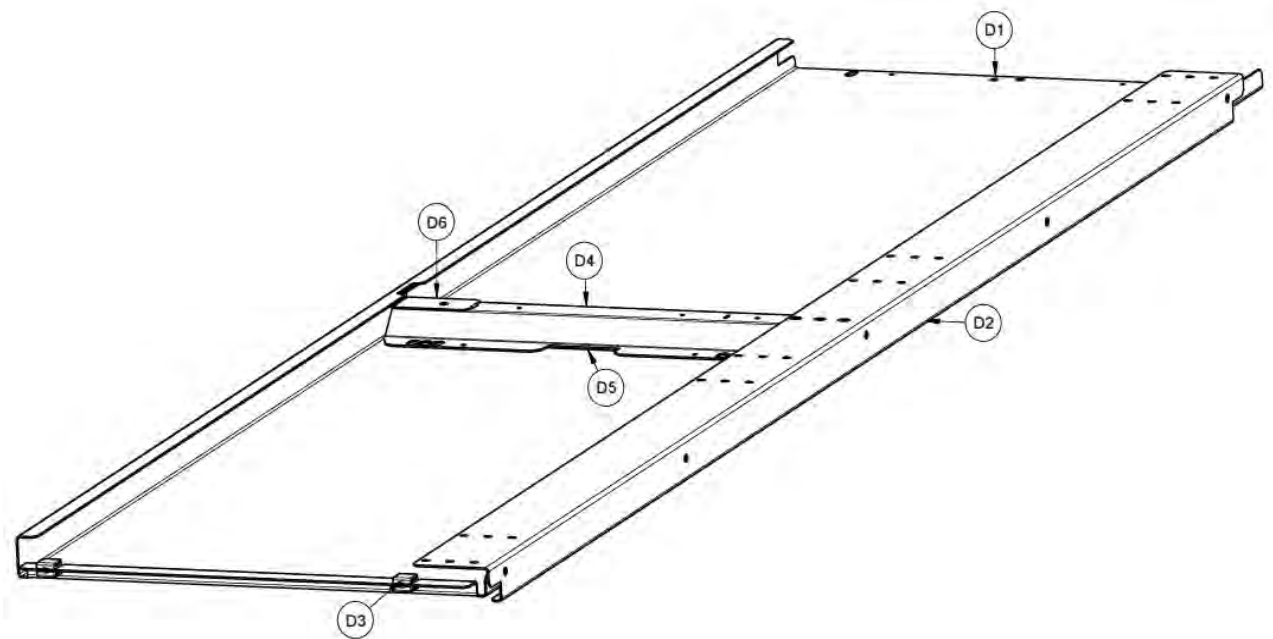
6.2.4.2 Closing column for all EI configuration (NF & SF)



DESIGNATION	DESCRIPTION
C1. Closing column Material Thickness Lintel fastening Cheek fastening	Stainless steel or Pre-paint steel or Steel "Skinplate" 1.2 or 1.5 mm 3 bolts M6 x 16 1 bolt M6 x 16
C2. Threshold interface bracket Material Thickness Column fastening Threshold fastening	Galvanized steel 2 mm 3 steel rivets Ø4 mm 3 screws M6 x 16
C3. Stop Material	Quantity = 2 per column Rubber
C4. Column reinforcement Material Thickness Column fastening Wall fastening	Galvanized steel 3 mm 2 steel rivets Ø4 mm 1 dowel M8
C5. Column stiffener Material Thickness Column fastening	Galvanized steel 1.2 mm 2 steel rivets Ø4 mm

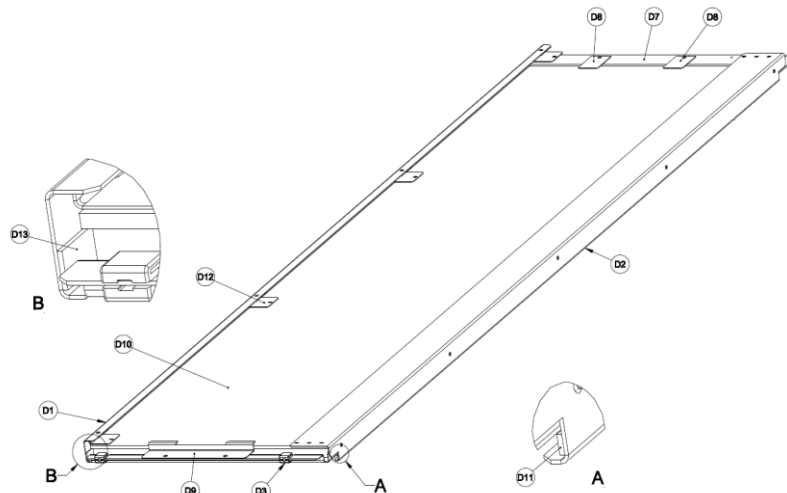
6.2.5 Slow panel (D)

6.2.5.1 Non-insulated panel



DESIGNATION	DESCRIPTION
D1. Slow panel Material Thickness Hanger fastening	Stainless steel or Pre-paint steel or Steel "Skinplate" 1.2 or 1.5 mm 3 screws M8 x 16 + locking with 2 steel rivets Ø4 mm
D2. Labyrinth Material Thickness Panel fastening Stiffener fastening	Galvanized steel 1.5 mm 5 steel rivets Ø4 mm 1 steel rivet Ø4 mm
D3. Guide shoe Material	Quantity = 2 per panel Plastic PA Pebax
D4. Stiffener Material Thickness Bracket fastening	Quantity = variable => 0 to 3 Galvanized steel 1.5 mm 1 steel rivet Ø4 mm
D5. Double-faced adhesive Material Thickness	Quantity = 2 x L=75 per stiffener 3M VHB (TM) 5958 FR or TESA45001 1mm
D6. Bracket Material Thickness Stiffener fastening	Quantity = variable => 0 to 1 Galvanized steel 1.2 mm 1 steel rivet Ø4 mm

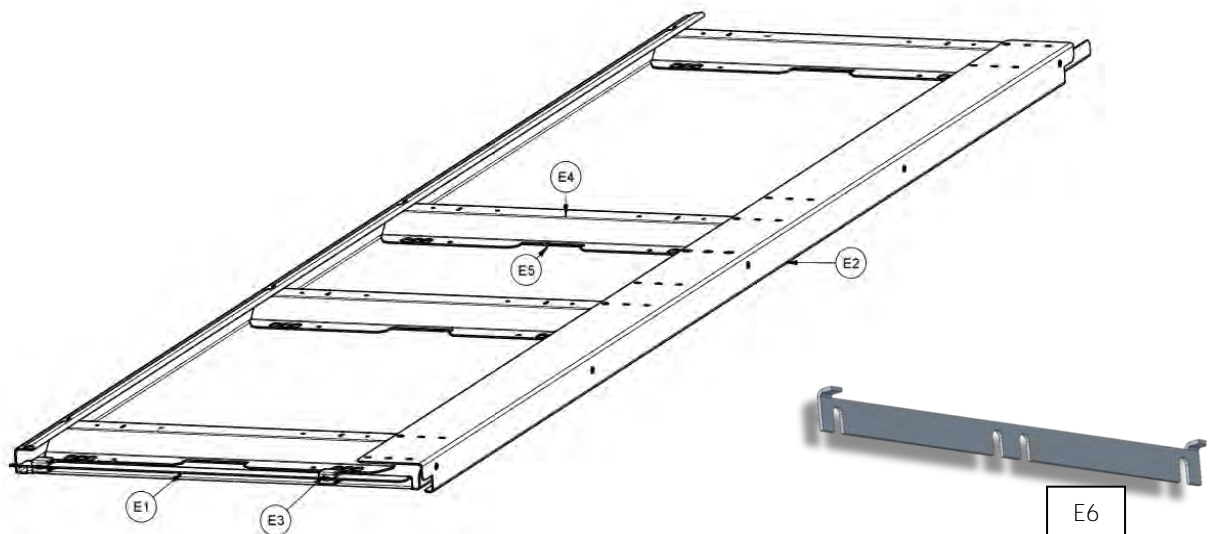
6.2.5.2 Insulated panel configuration



DESIGNATION	DESCRIPTION
D7. Stiffener Material Thickness Fasteners	Galvanized steel 1.5 mm 2 steel rivets Ø4x9
D8. Retainer Material Thickness Fasteners	X 2 Galvanized steel 1.5 mm 1 steel rivets Ø4x11
D9. Insulating bracket (Bottom) Material Thickness Fasteners	Galvanized steel 1.5 mm 2 steel rivets Ø4x9
D10. Insulating Material for EI 30 classification Thickness Material for EI 120 classification Thickness	19 mm Rockwool + 6 mm Plasterboard 25 mm (19+6 mm) 19 mm Microtherm high density 300kg/m³ + 6 mm Plasterboard 25 mm (19+6 mm)
D11. Intumescent joint (optional for EI30 – Not used for EI 120) Material Thickness Fasteners	Thermal intumescent 2 mm thick x 8 mm width Pasted
D12. Insulating bracket (Noze) Material Thickness Fasteners	x4 Galvanized steel 1.2 mm 1 steel rivets Ø4x9
D13. Intumescent joint Material Thickness Fasteners	Thermal intumescent 2 mm thick x 15 mm width Pasted

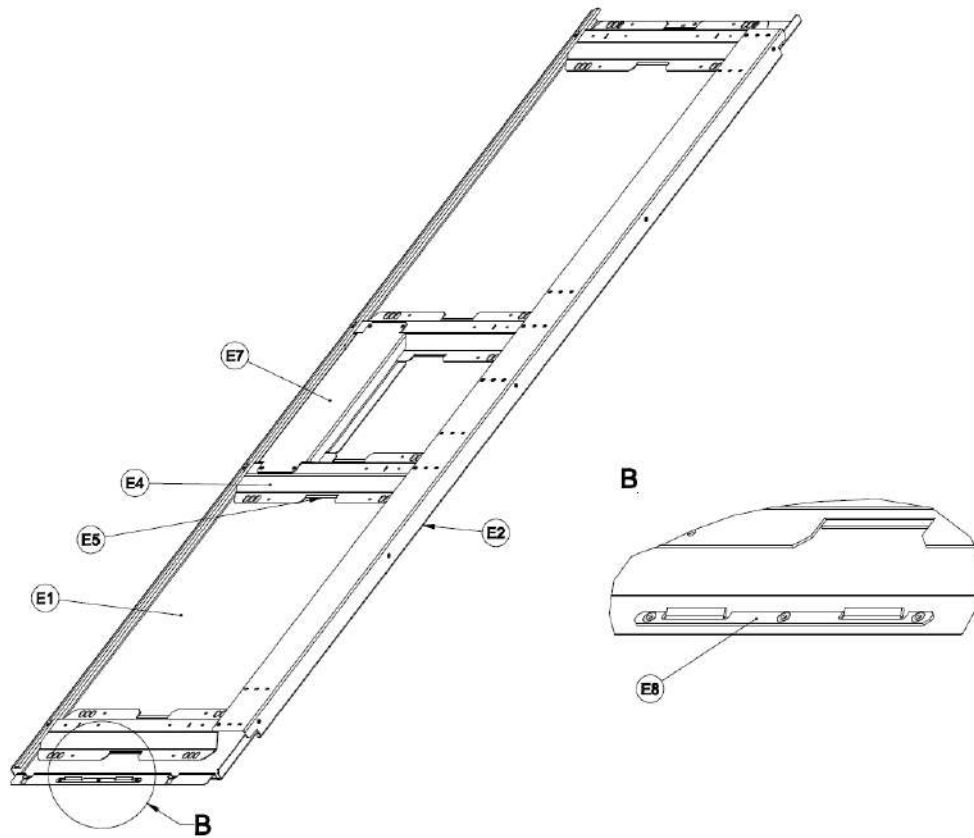
6.2.6 Fast panel (E)

6.2.6.1 Non-insulated panels – Standard configuration



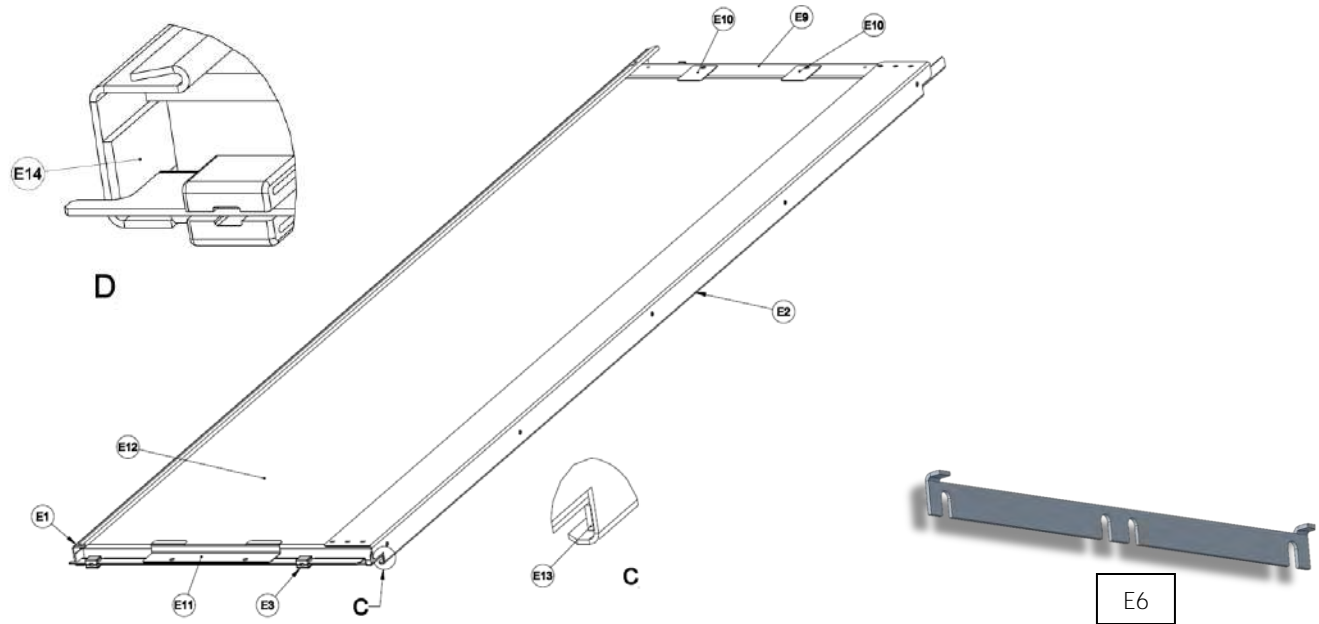
DESIGNATION	DESCRIPTION
E1. Fast panel Material Thickness Hanger fastening →	Stainless steel or Pre-paint steel or Steel "Skinplate" 1.2 or 1.5 mm → 3 screws M8 x 10 + locking with 2 steel rivets Ø4x11 → Or 3 screws M8 x 16 with item E6 + locking with 2 steel rivets Ø4x14
E2. Labyrinth Material Thickness Panel fastening Stiffener fastening	Galvanized steel 1.5 5 steel rivets Ø4 1 steel rivet Ø4 per stiffener
E3. Guide shoe Material	Quantity = 2 per panel Plastic PA PEBAX
E4. Stiffener Material Thickness Panel fastening	Quantity = variable => 0 to 5 Galvanized steel 1.5 mm 1 steel rivet Ø4 per stiffener
E5. Double-faced adhesive Material Thickness	Quantity = 2 x L=75 per stiffener 3M VHB (TM) 5958 FR or TESA45001 1
E6. Panel shim (OPTIONAL) Material Thickness Condition	Galvanized steel 3 mm For OP≥1000

6.2.6.2 Reinforced configuration / Non insulated panels



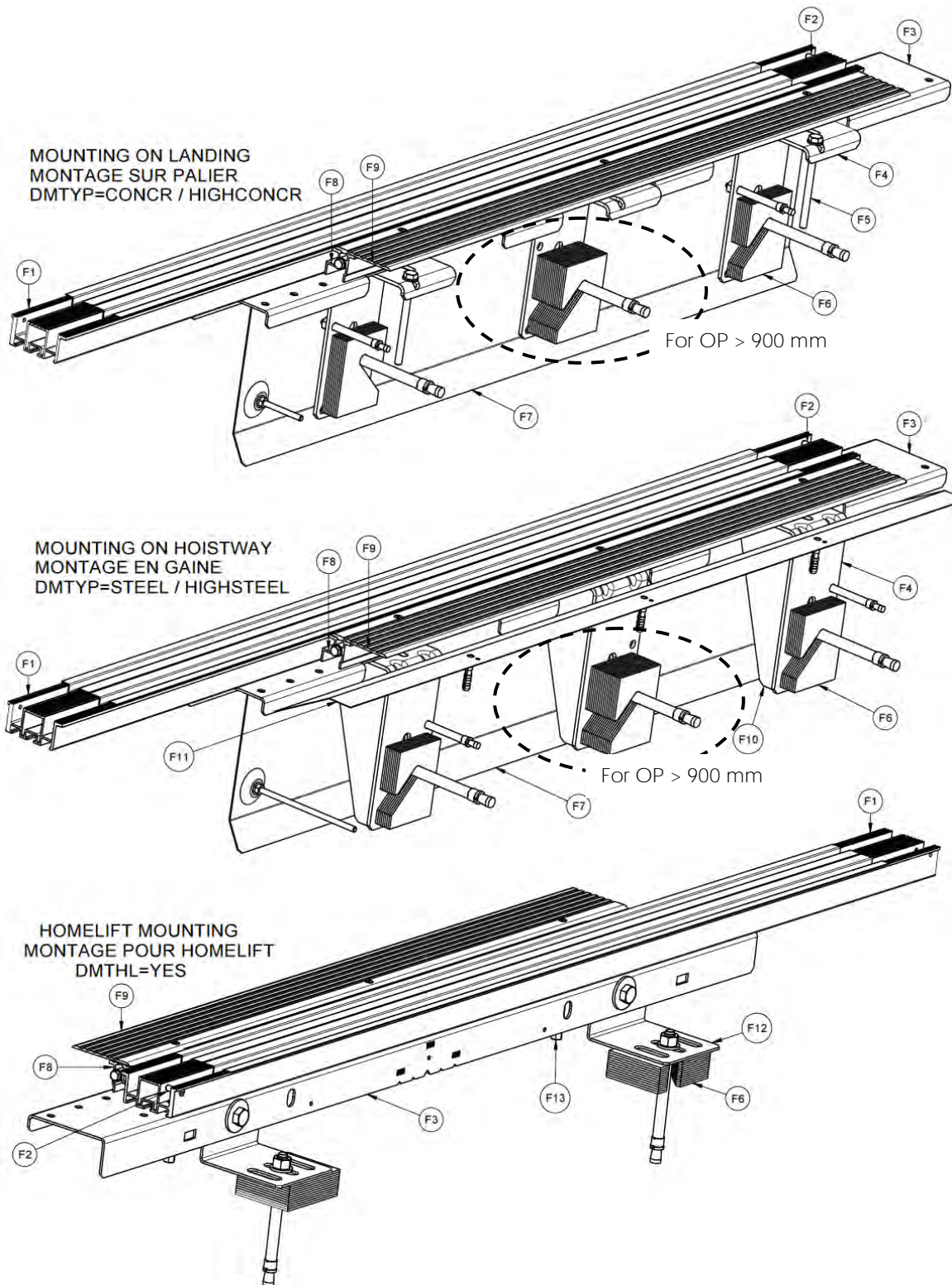
DESIGNATION	DESCRIPTION
E7. Stiffener Material Thickness Fasteners	Galvanized steel 1.5 mm 4 steel rivets Ø4x11
E8. Retainer Material Thickness Fasteners	Galvanized steel 1.5 mm 3 steel rivets Ø4

6.2.6.3 Insulated panels



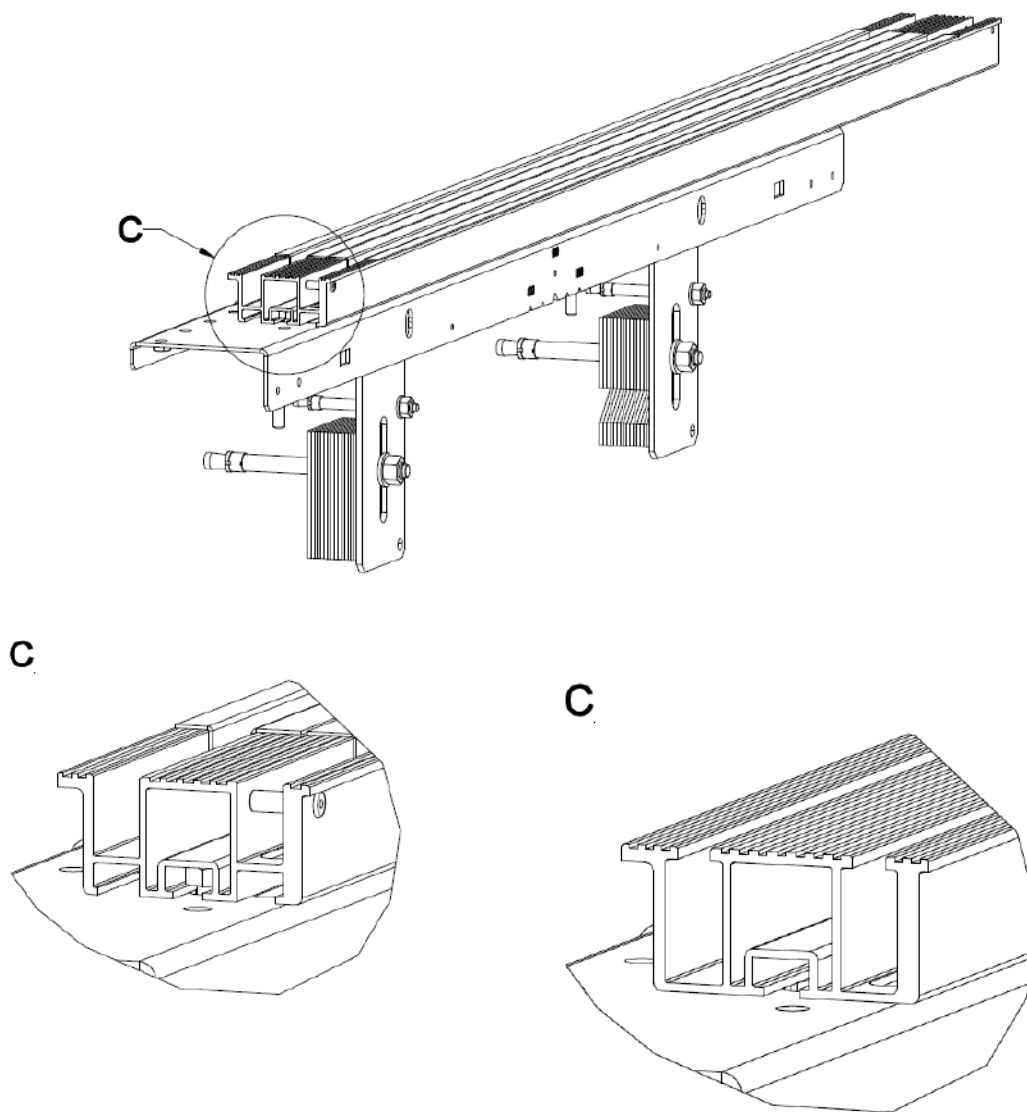
DESIGNATION	DESCRIPTION
E6.Shim (between panel and hanger) (not visible) Material Thickness	Quantity = 1 Galvanized steel 3mm
E9. Stiffener Material Thickness Fasteners	Galvanized steel 1.5 mm 2 steel rivets Ø4x11
E10. Retainer Material Thickness Fasteners	X2 Galvanized steel 1.5 mm 1 steel rivets Ø4x11
E11. Insulating bracket (Bottom) Material Thickness Fasteners	Galvanized steel 1.5 mm 2 steel rivets Ø4x9
E12. Insulating Material for EI 30 classification Thickness Material for EI 120 classification Thickness	19 mm Rockwool + 6 mm Plasterboard 25 mm (19+6 mm) 19 mm Microtherm high density 300kg/m ³ + 6 mm Plasterboard 25 mm (19+6 mm)
E13. Intumescent joint (optional for EI30 – Not used for EI 120) Material Thickness Fasteners	Thermal intumescent 2 mm thick x 8 mm width Pasted
E14. Intumescent joint Material Thickness Fasteners	Thermal intumescent 2 mm thick x 15 mm width Pasted

6.2.7 Threshold bracket (F)

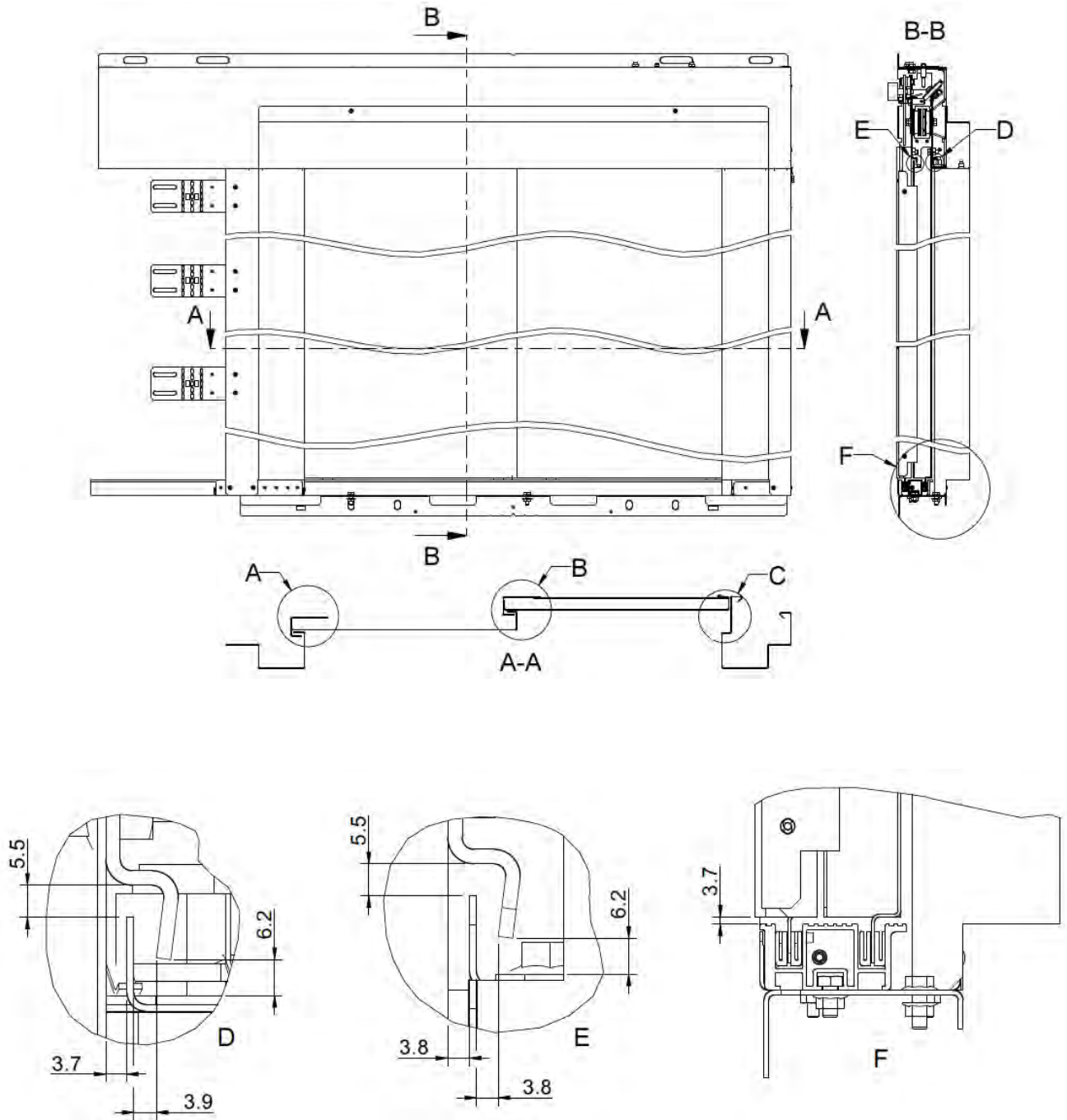


DESIGNATION	DESCRIPTION
F1. Threshold Material Threshold bracket fastening	Aluminium 4 bolts M8 x 16
F2. Mechanical stop Material Thickness Threshold fastening	Middle steel with electrogalvanized finish 0.8 mm 1 steel rivet Ø4 mm
F3. Threshold bracket Material Thickness	Galvanized steel 2.5 mm
F4. Lower angle Material Thickness Wall fastening Threshold bracket fastening Locking fastening	Quantity = 2 or 3 Galvanized steel 4 mm 1 dowel HILTI HSA M12 x145 1 bolt M8 x 20 2 dowels HILTI HSA M8 x 85 on extremes angles
F5. Rear wall locking (Hoistway mounting) Material	Quantity = 2 2 screws HUS3-H6x100
F6. Shims Material Thickness	Galvanized steel 1 et 2,5 mm
F7. Toe guard Material Thickness Threshold bracket fastening Wall supporting	Galvanized steel 1.2 mm 3 steel rivets Ø4 mm 2 bolts M6 x 150
F8. Additive threshold option Material Columns fastening	Aluminium 2 screws M6 x 16
F9. Additive threshold option Material Threshold fastening on item F8	Aluminium 3 bolts M4 x 10
F10. Angle stiffener (Hoistway mounting) Material Thickness	Quantity = 2 or 3 per threshold bracket Galvanized steel 4 mm
F11. Sealing sheet steel (hoistway mounting) Material Thickness Fastening	Galvanized steel 0.5 mm 3 plastic dowels & screws
F12. Angle (Home lift mounting) Material Thickness Threshold bracket fastening	Quantity = 2 per threshold bracket Galvanized steel 2.5 mm 2 bolts M12 x 25 + 2 bolts M8 x 65
F13. Threshold bracket support (Home lift mounting) Material	Quantity = 2 per threshold bracket 2 extension nuts M8 x 50

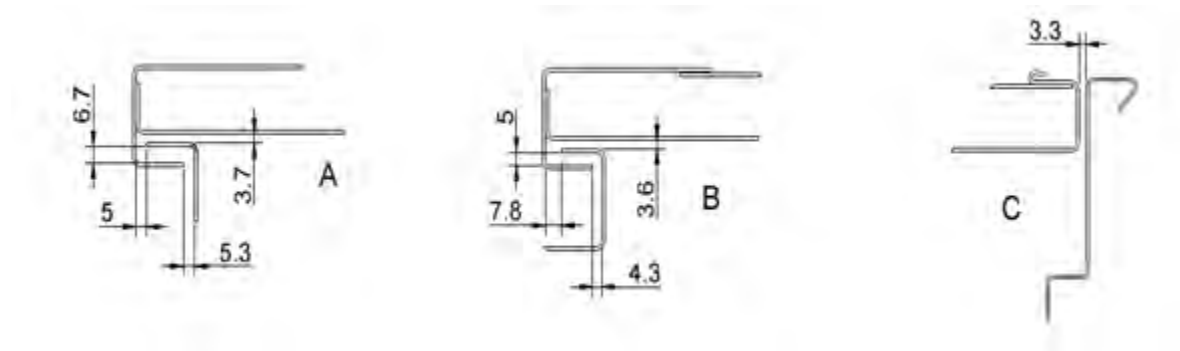
Sill aluminium profile option when reinforced panels configuration



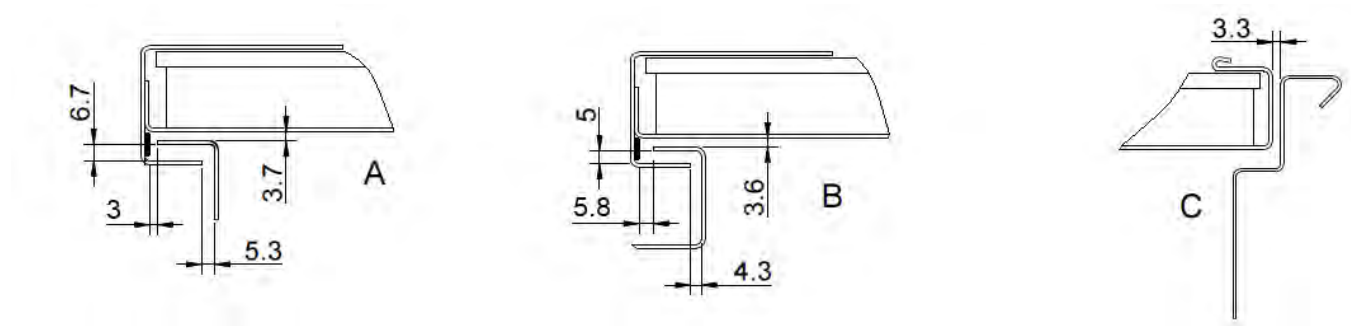
6.3 DOOR CLEARANCES AND LABYRINTH (Nominal dimensions)



With non-insulated panels configuration:

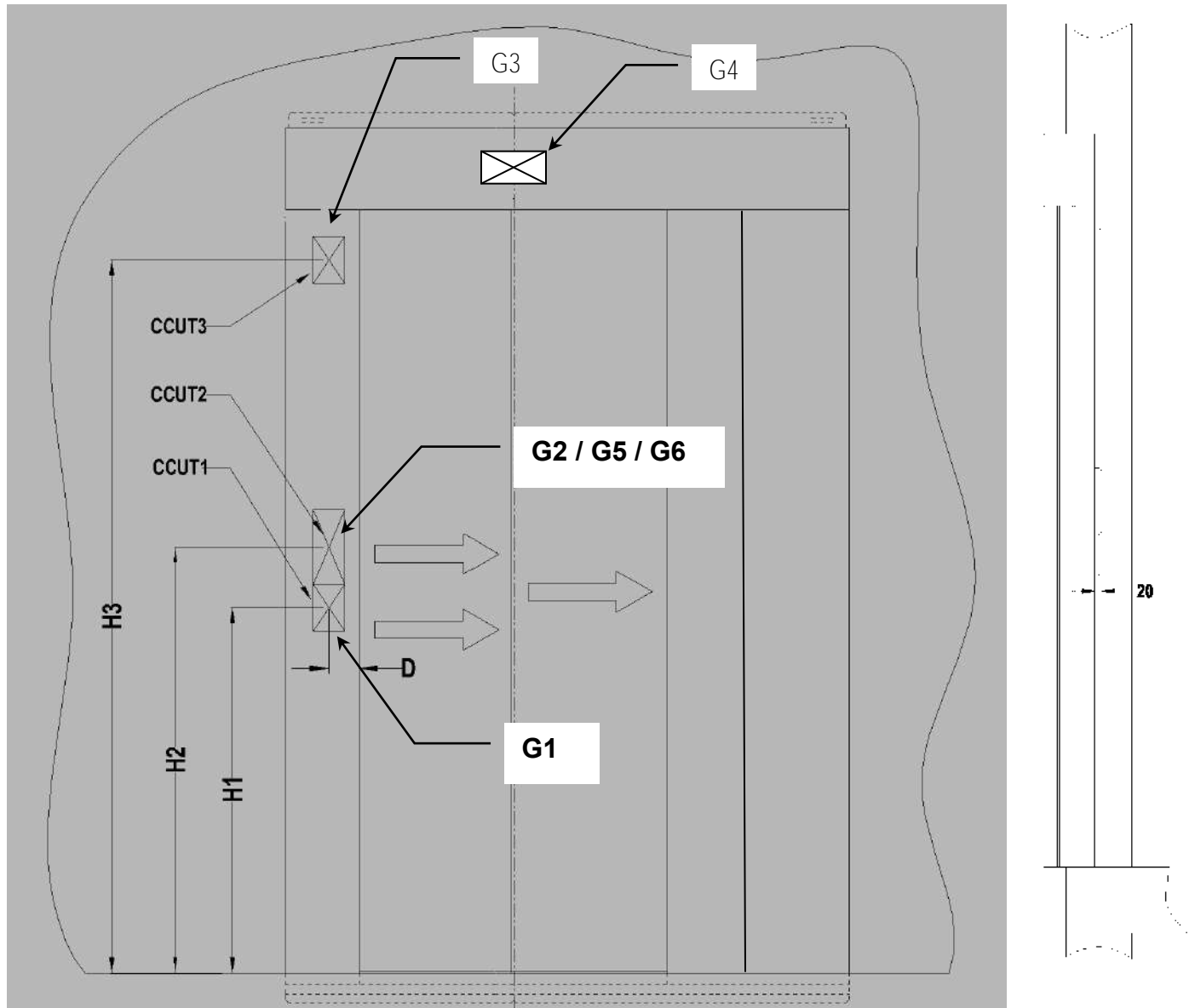


With insulated panels configuration:



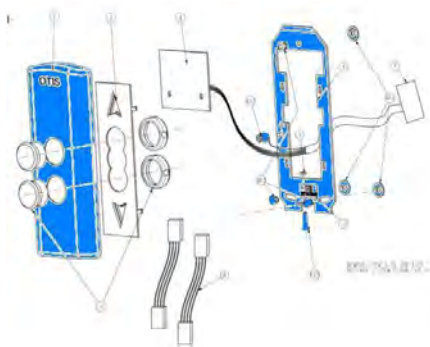
6.4 OPTIONS

6.4.1 Human interfaces (G)

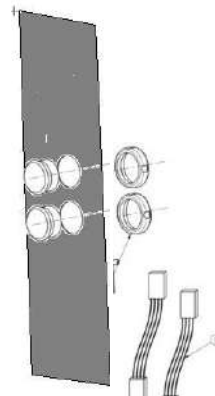


The H1 / H2 / H3 distances are variable, as related with different normative criteria.

DESIGNATION	DESCRIPTION
G1. Optional button box Cover finish Dimensions Fastening to the column	Steel Stainless 83 x 123 x 20 mm 3 rivets Steel Ø 4.8 x 8.5 or 3 bolts HM5 x 12
G2. Call button (Box or integrated) Cover finish Dimensions Fastening to the column	Steel Stainless 83 x 203 x 20 mm 3 rivets Steel Ø 4.8 x 8.5 or 3 bolts HM5 x 12
G3. Optional vertical position indicator Cover finish Dimensions Fastening to the column	Steel Stainless 83 x 123 x 20 mm 4 rivets Steel Ø 4.8 x 8.5 or 4 bolts HM5 x 12
G4. Optional vertical position indicator Cover finish Dimensions Fastening to the column	Steel Stainless 220 x 111 x 30 mm 4 self tapping screws Ø 3.5 x 9.5
G5. Call button 28mm (Integrated) Dimensions Fastening to the column	Button Ø 28 mm identical to the box option. Directly fixed to the column
G6. Call button 36mm (Integrated) Button Structural material Button protection guard Dimensions Fastening to the column	Ø 36 mm – PC (Polycarbonate) / BST ABS + Stainless steel SUS 304 Galvanised steel 96 x 80 x 145, thickness 0.8 mm Directly fixed to the column

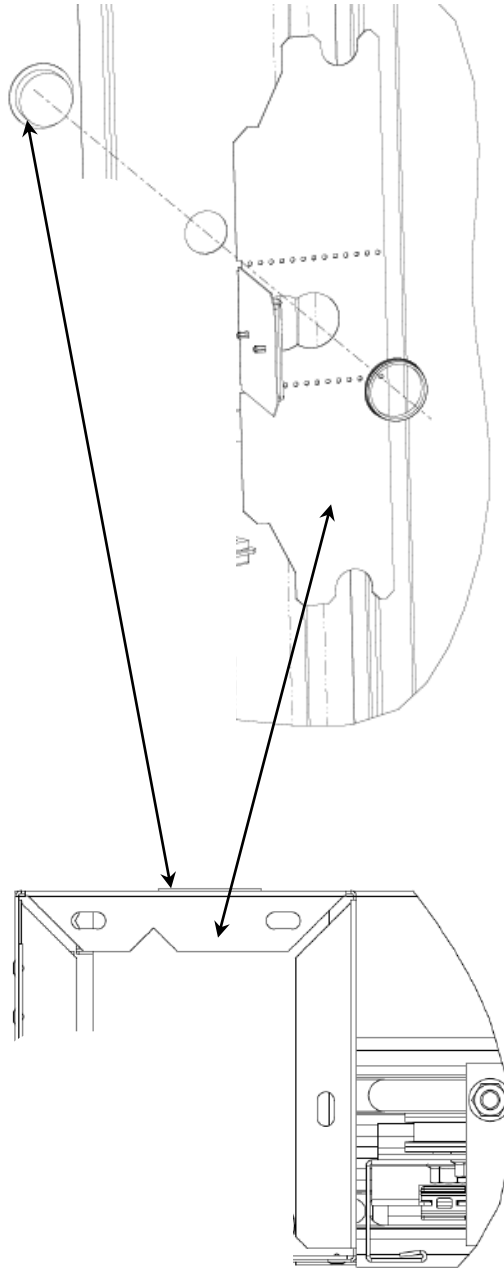


Option with buttons box
(Item G2)



Option with buttons integrated
to the column (Item G5)

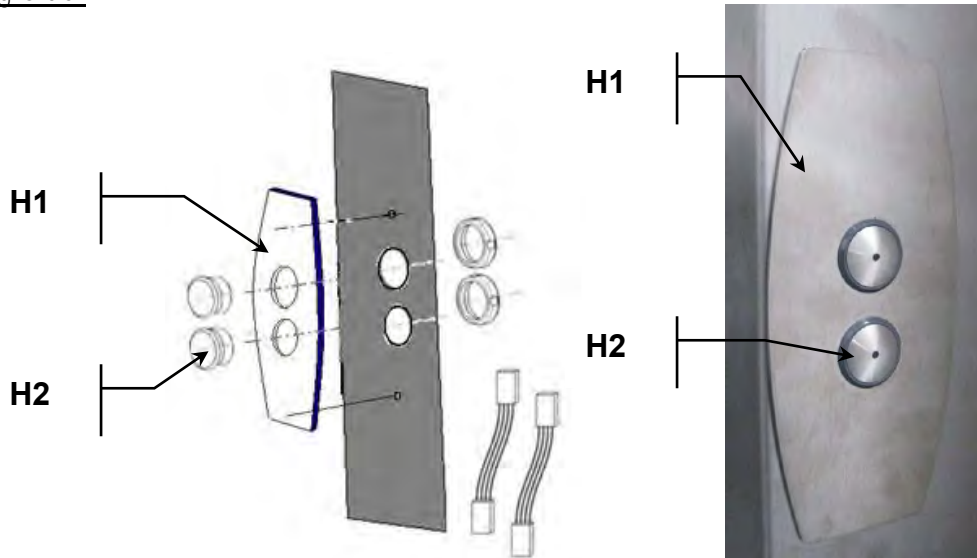
Option with integrated button to the
column (Item G6)



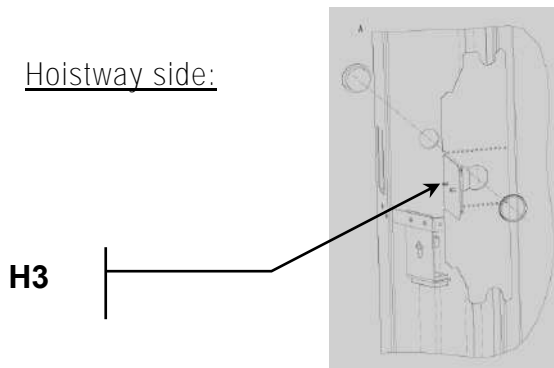
6.4.2 Human interfaces / S-LINE Aesthetic (H)

6.4.2.1 Integrated buttons

Landing side:



Hoistway side:

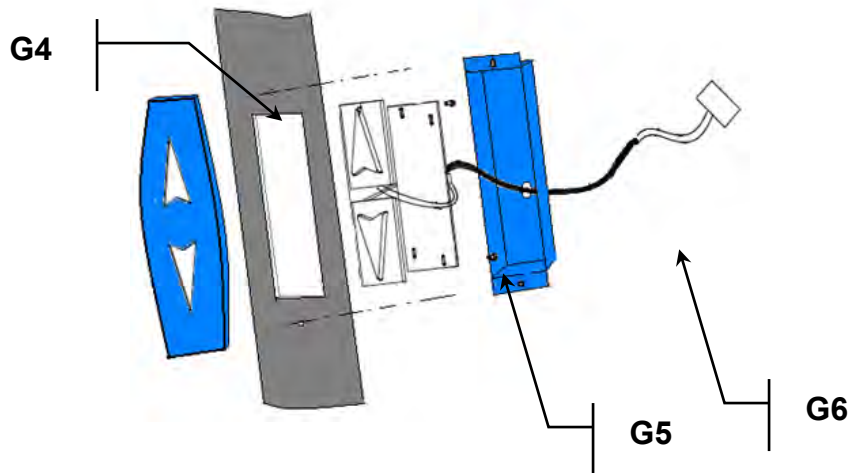


DESIGNATION	DESCRIPTION
H1. Aesthetic plate Cover finish Thickness Fastening to the column	Steel Stainless 2 mm Between button and column
H2. Call button 28 mm Dimensions Fastening to the column	Button Ø28 mm Directly fixed to the column
H3. Cover and button electrical interface board support Cover finish Dimensions Fastening to the column	Mild steel Foldable part / thickness 1 mm Directly fixed to the column

6.4.2.2 Landing display. (SHL)

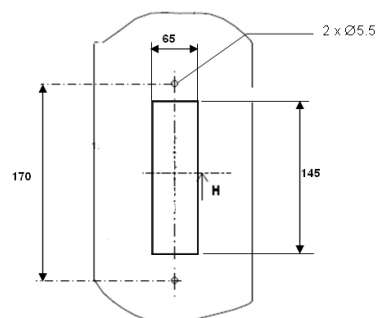
A metallic cover (Item G6) is used for display protection and to prevent leakage effect during fire test, due to important column cut-out. (Fixing by the 2 welded pins M5)

Exposed side of landing door panels (Leaves located at the landing side) can be covered by a steel plate (Steel lining for specifics jobsite aesthetic needs) whose thickness limited by:

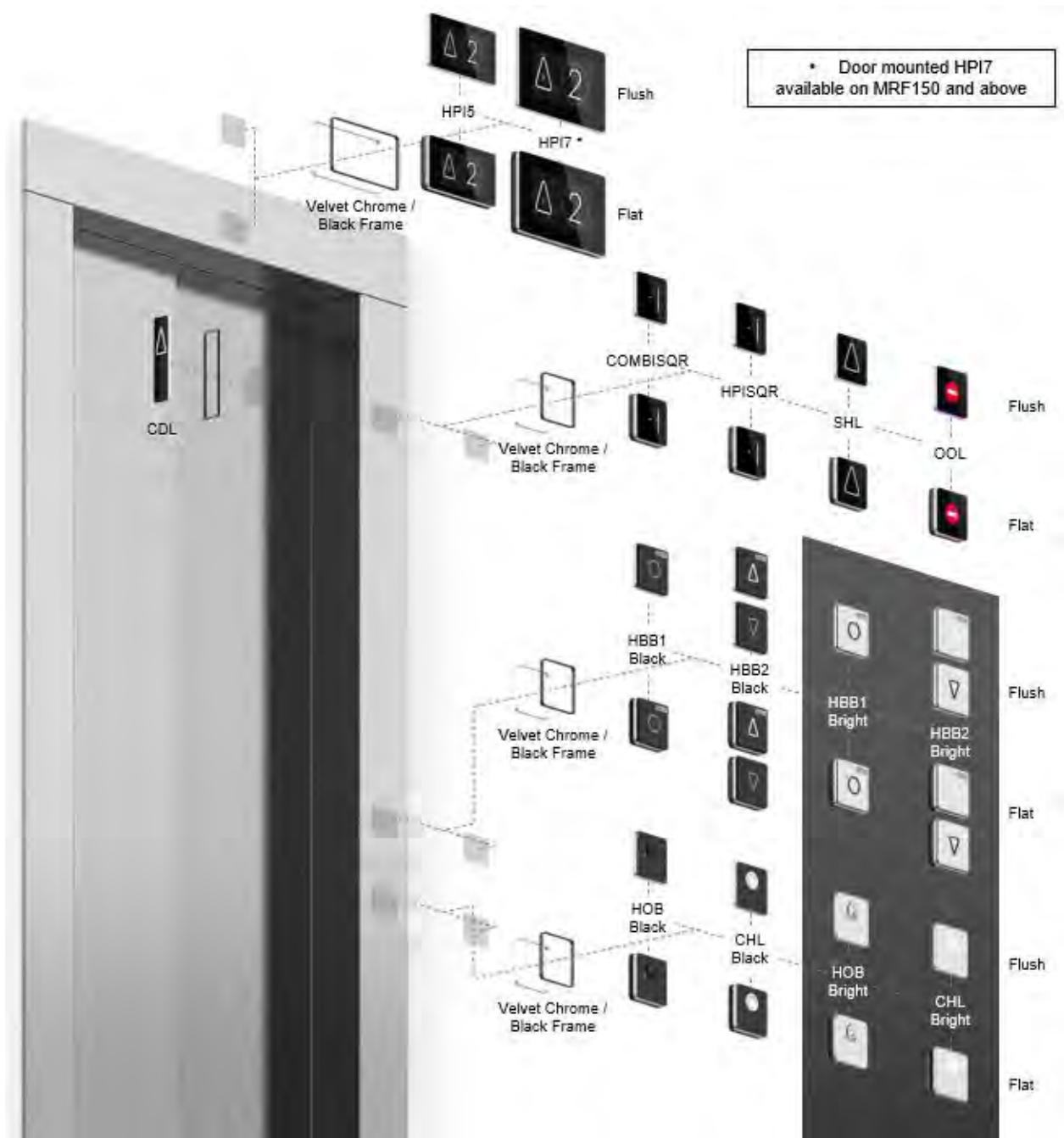


DESIGNATION	DESCRIPTION
H4. Aesthetic plate Cover finish Thickness Fastening to the column	Steel Stainless 2 mm 2 welded pins M5
H5. Arrows Finish Fastening to the column	Plastic material 2 welded pins M5
H6. Cover Cover finish Fastening to the column	Mild steel thickness 1 mm 2 welded pins M5

A door column cut-out 65x145 is necessary for the landing display PCB integration.
Column display position is unchanged.



6.4.3 Ambiance options

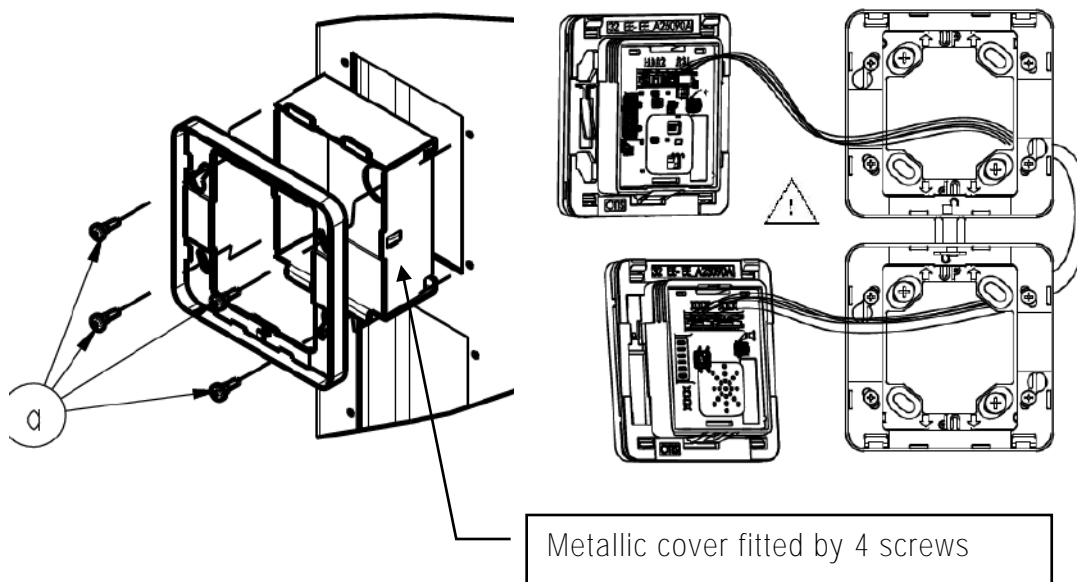


It exists a lot of configurations requested by codes requirements and **customer's** needs.

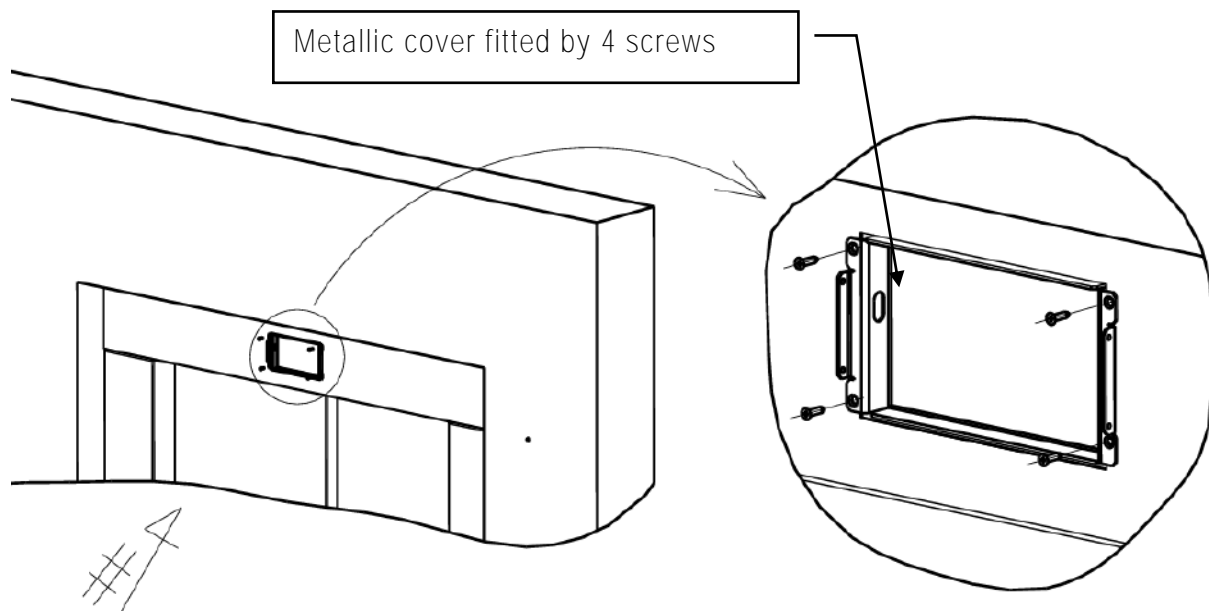
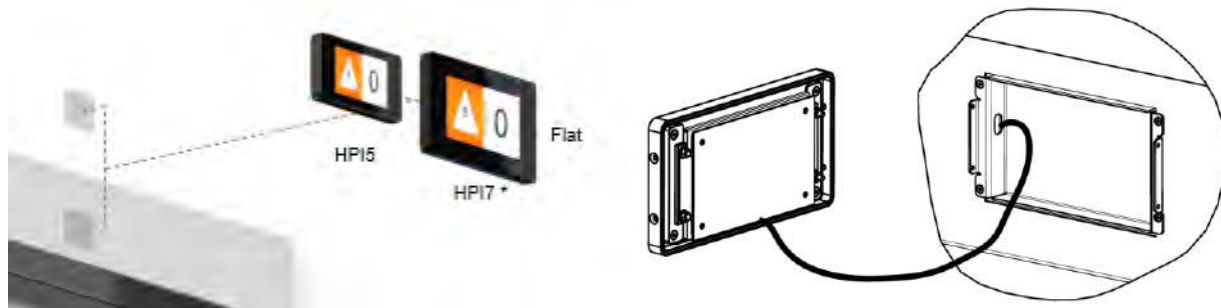
6.4.3.1 Hall buttons



All these options are installed in the door column. The integrity remains valid when a metallic cover is installed in the door column to close the necessary cut-out and support the requested button, display or key options

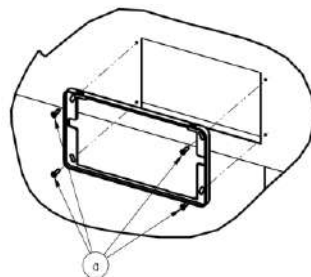


6.4.3.2 Display

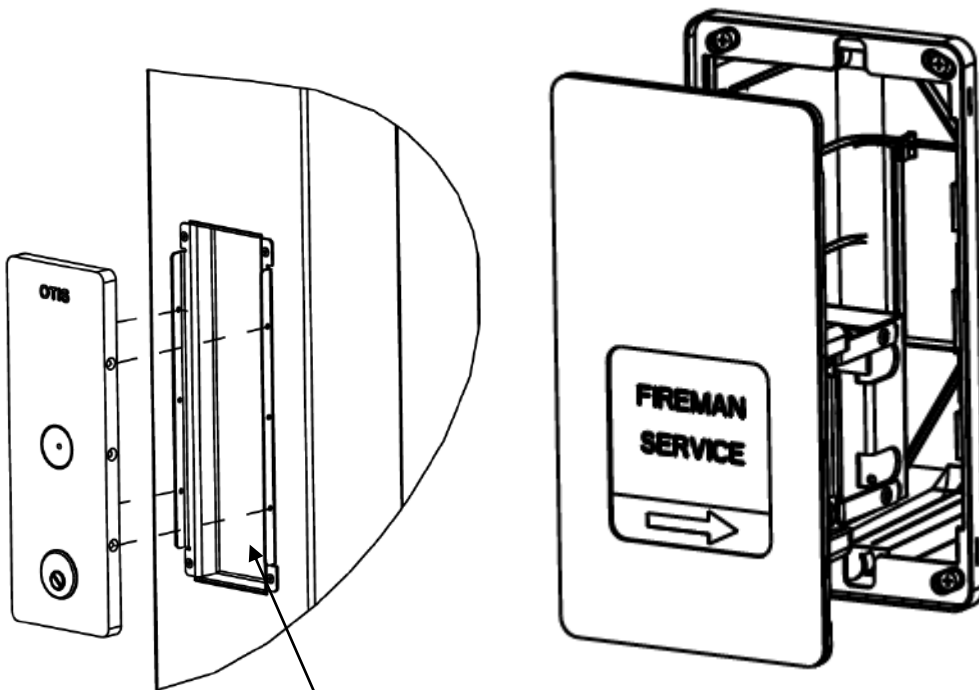
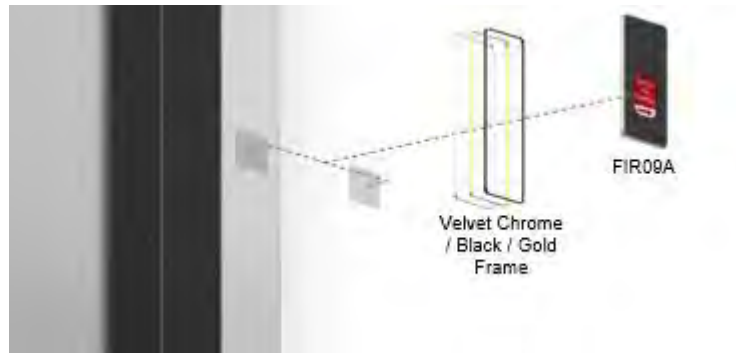


All these options are installed in the door column. The integrity remains valid when a metallic cover is installed in the door lintel to close the necessary cut-out and support the requested display options. (Size and type)

It exists a single configuration where no metallic cover is needed.
In this specific case MRF 100, the decorative lintel has the same protection level as the cover.



6.4.3.3 Others



Metallic cover fitted by minimum 4 screws

All these options are installed in the door column. The integrity remains valid when a metallic cover is installed in the door column to close the necessary cut-out and support the requested options. (Size and type)

6.4.4 Cladding option (Adding of a steel lining)

Fire exposed side (landing side) of the door panels (Leaves located at the landing side) can be covered by a steel plate (Steel lining for local customer aesthetic needs) fixed by glue CONTACT 21 (ALPHA), at an approximate rate of 0.3 l/m², whose thickness limited by:

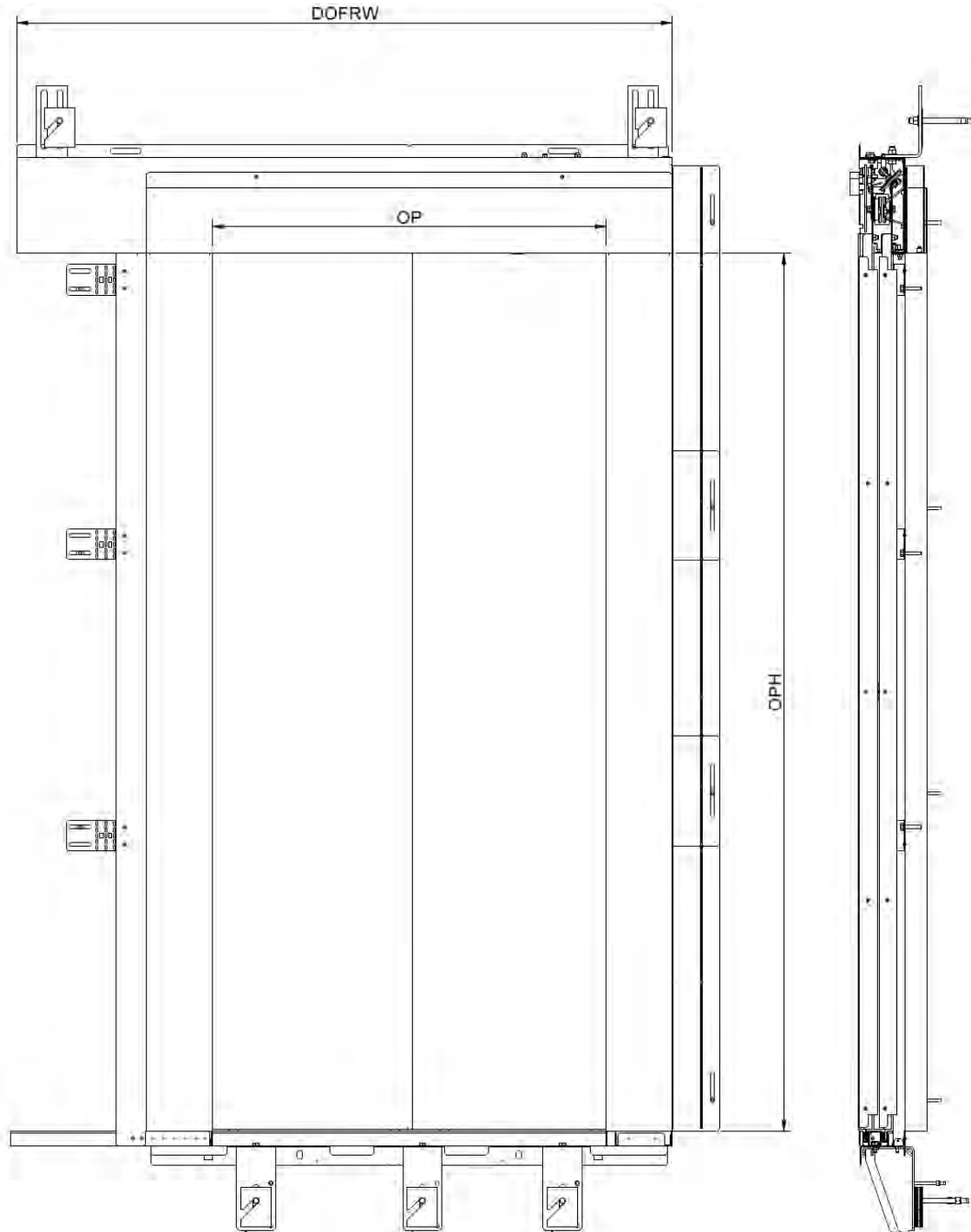
- Total panel weight shall not exceed 35 kg (Structural panel + additional aesthetic steel cladding part), based on PRIMA Plus locking device L.D. 2014/33/UE CE certification scope.
- Self closing shall be guaranteed in order to have correct closing and locking landing door operation when manually open. The steel plate shall not have excessive thickness in contradiction with normal operation and self closing requirement, as requested by EN81-20:2014 §5.3.9.3.4

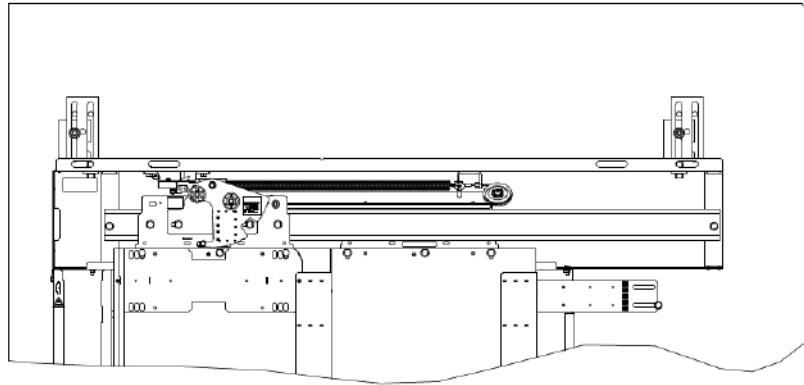
Indeed, the glue CONTACT 21 (ALPHA) loses its adhesive skills at 70°C approximately. The steel plate is fixed on the exposed side of the door (landing side), and will fall down during the first minutes of test.

Consequently, the adding of the steel plate will not modify the fire behavior of the doors. (E & EI configurations)

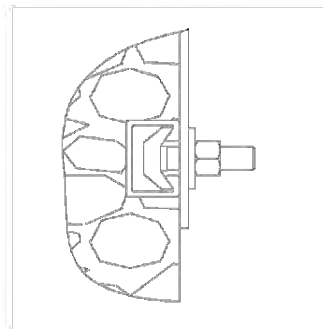
6.5 DOOR BUILDING INTERFACES

6.5.1 General description

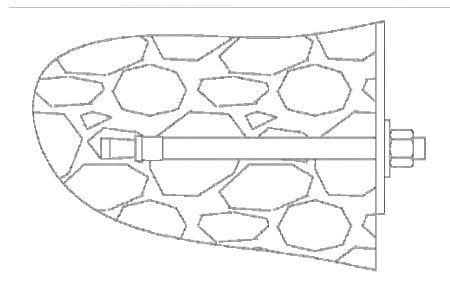




The angle pieces are fastened to the building either by M12x145 dowels, or JORDAHL M12x80 screws, according to the views below.



JORDHAL SCREW / VIS JORDHAL



DOWEL / CHEVILLE

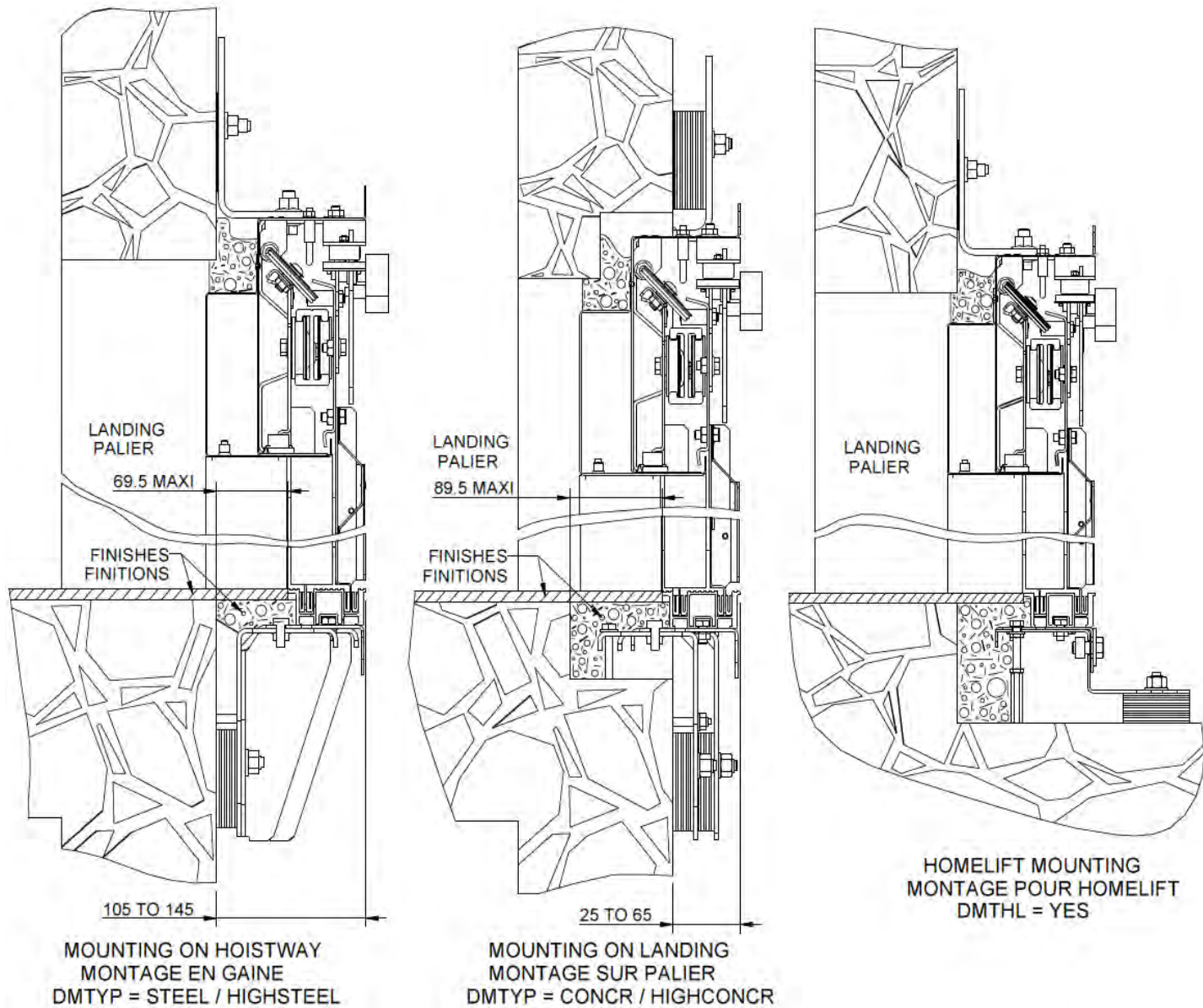
Fire resistance integrity of the PRIMA PLUS E120 door is validated based on building interfaces mounting limits described below.

According to the building gaps, that implies to have a peripheral finition being able to be made out of plaster, mortar, cement, concrete or other materials of same densities (See following pictures representing a completion minimum) being located between line [A;B] and the edge external of the column, that within the authorized limits maximum.

6.5.2 Building interfaces

3 types of angle pieces are possible for fastening the sill:

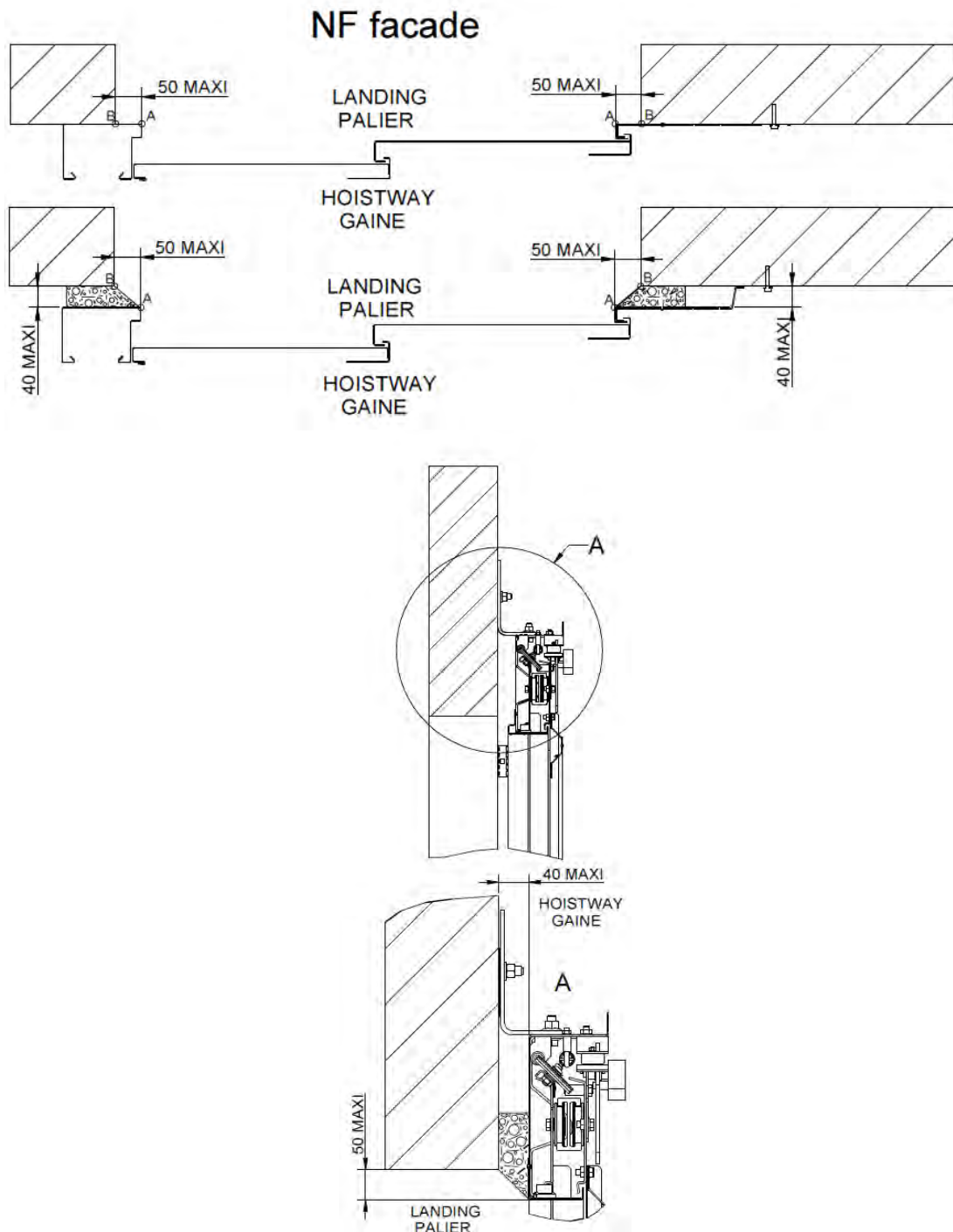
- Sill angle + shim for mounting on landing.
- Sill angle + stiffener + shim for mounting in hoistway.
- Sill angle + shim for specific mounting for homelift.



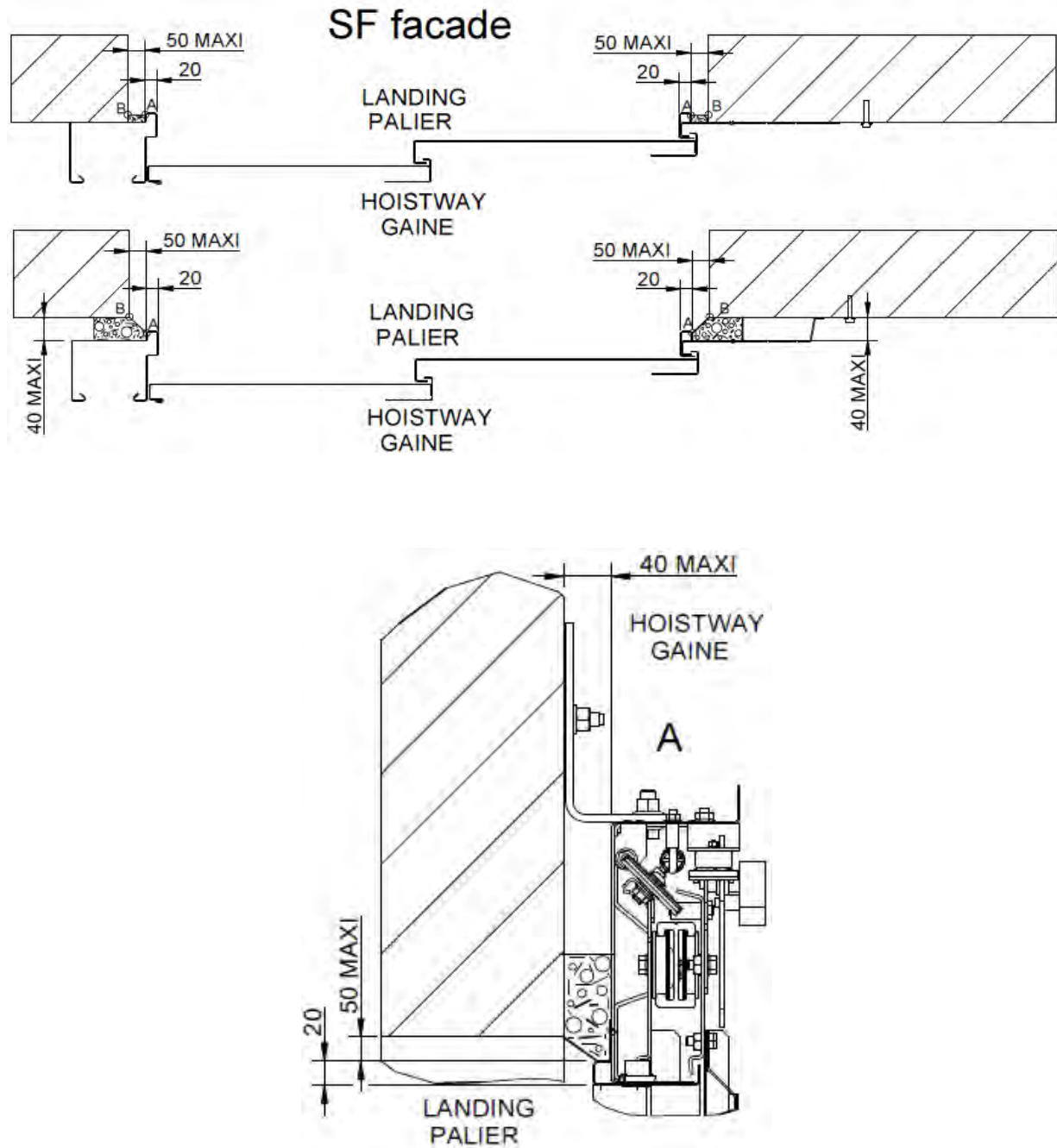
6.5.3 Facades & finishing details

6.5.3.1 Hoistway mounting

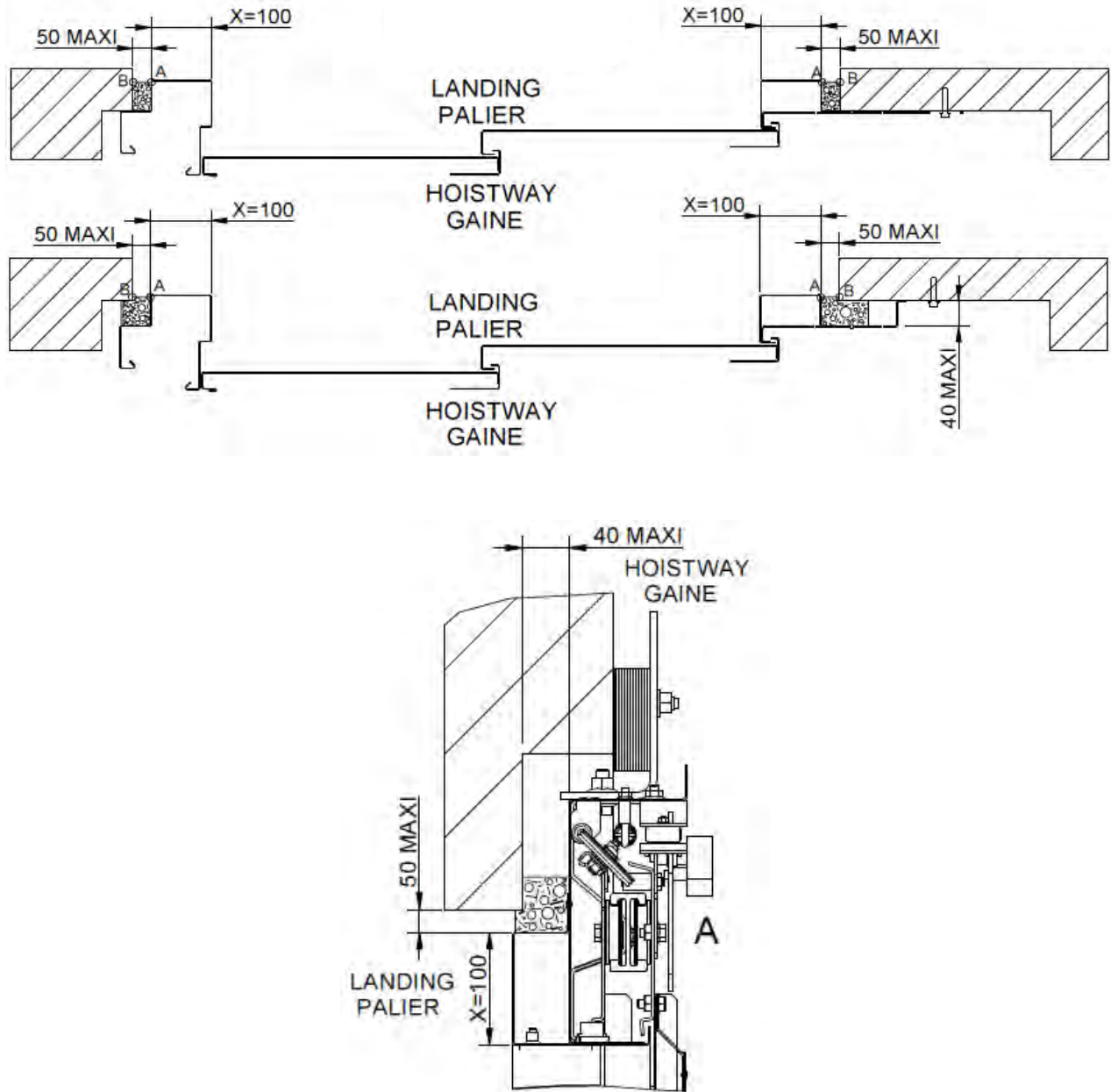
6.5.3.1.1 NF facia



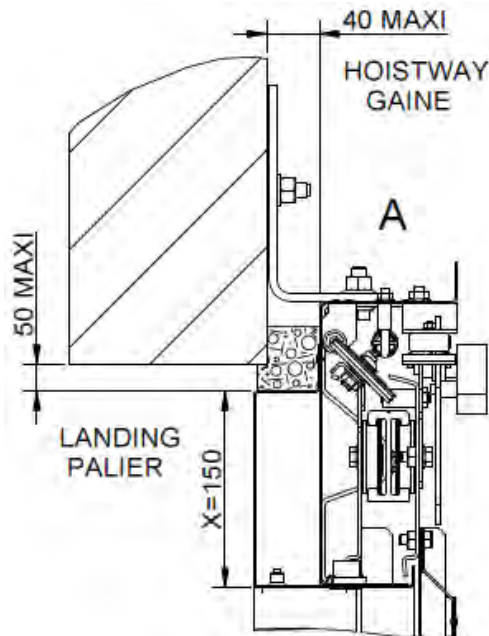
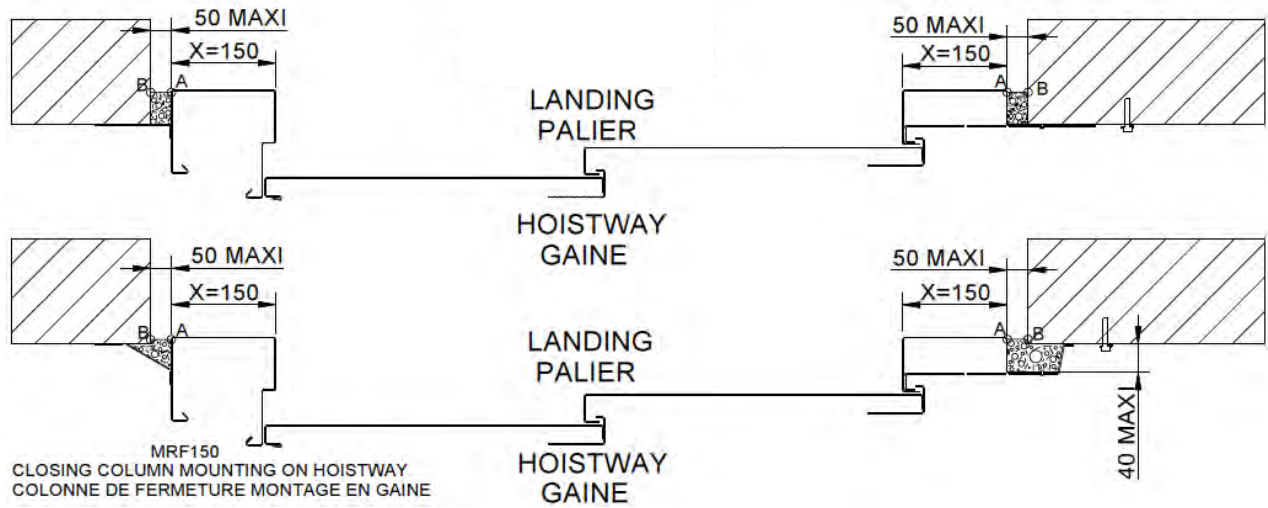
6.5.3.1.2 SF facade



6.5.3.1.3 MRF 100 facia

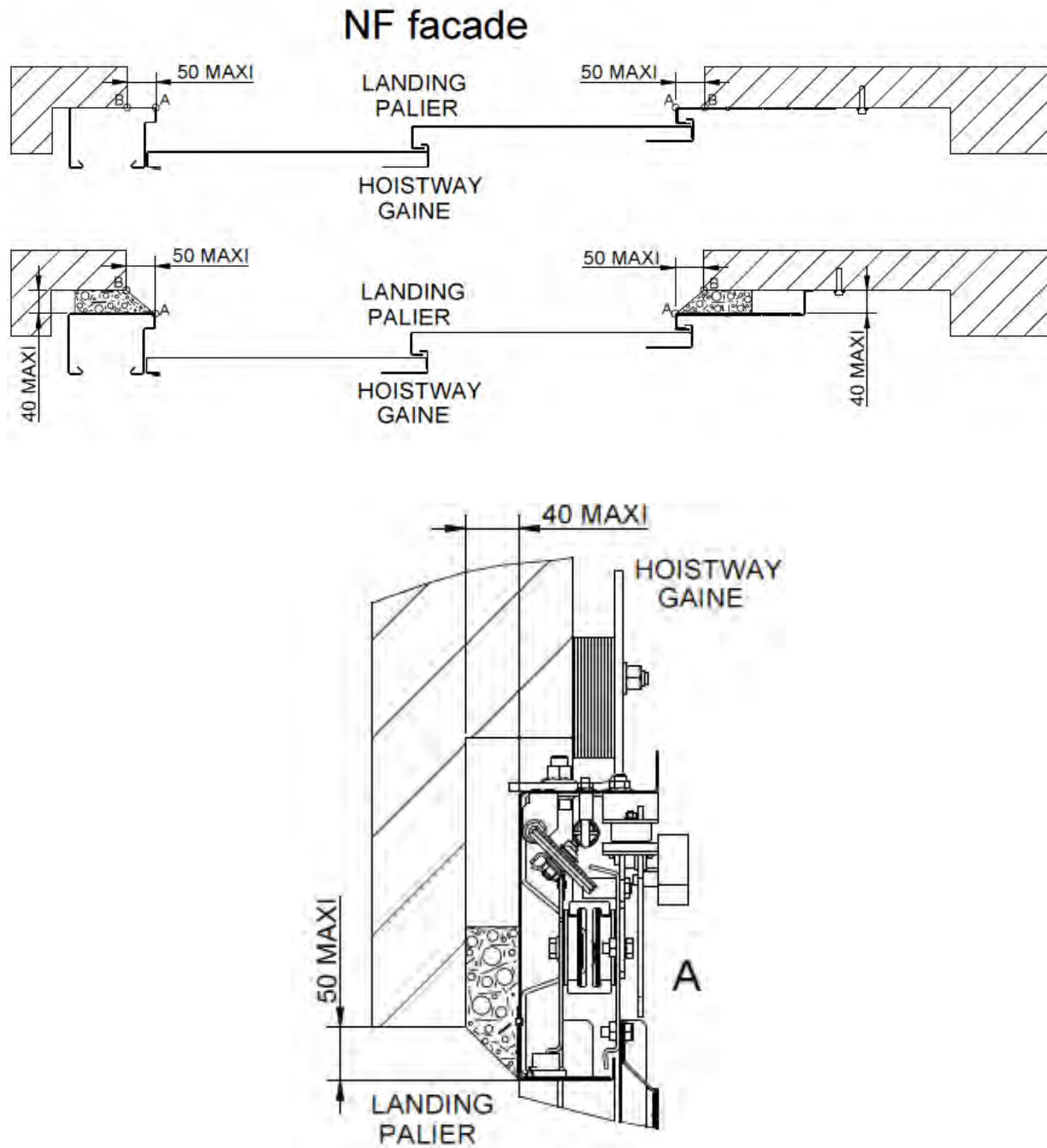


6.5.3.1.4 MRF 150 facia

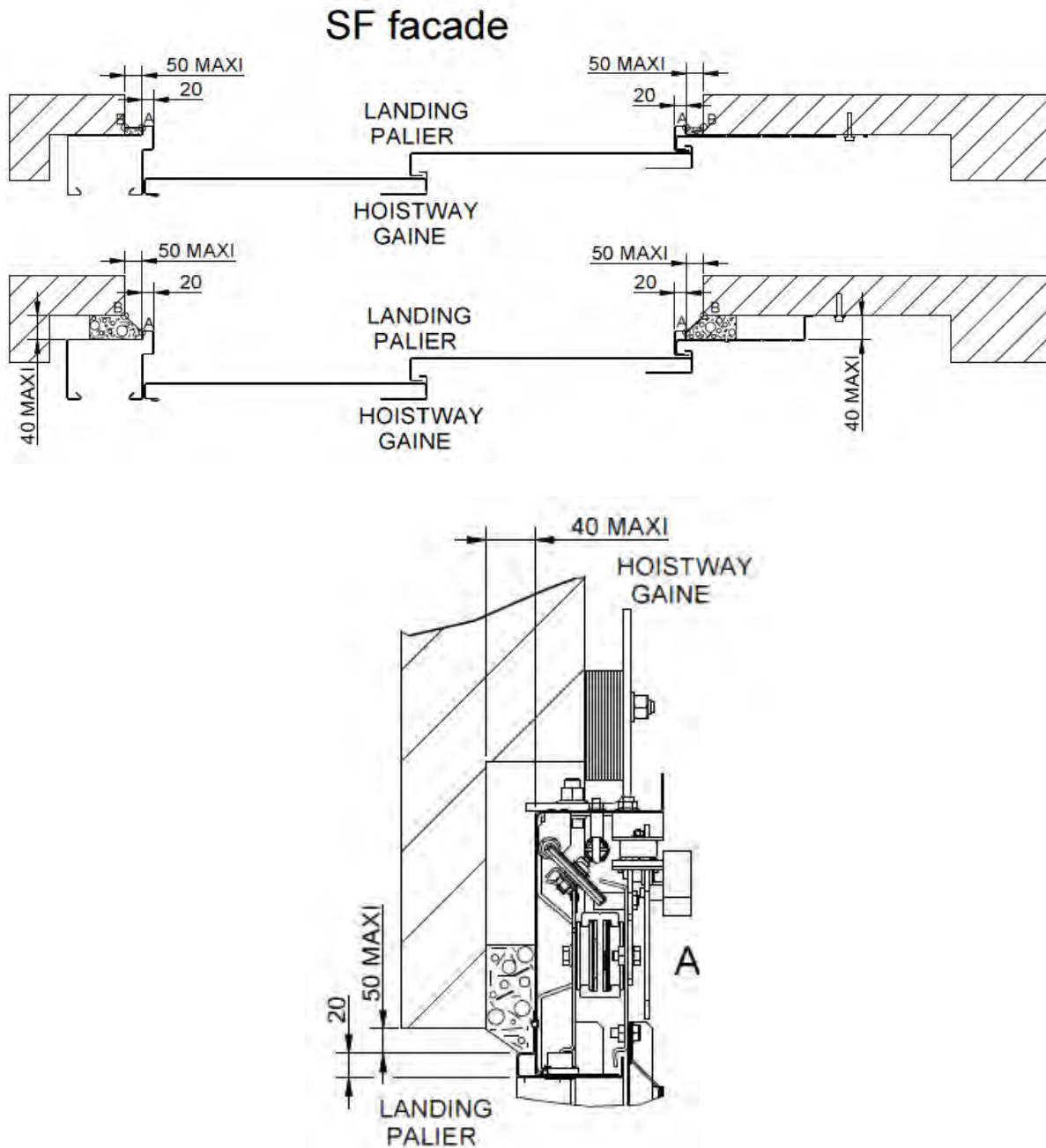


6.5.3.2 Landing mounting

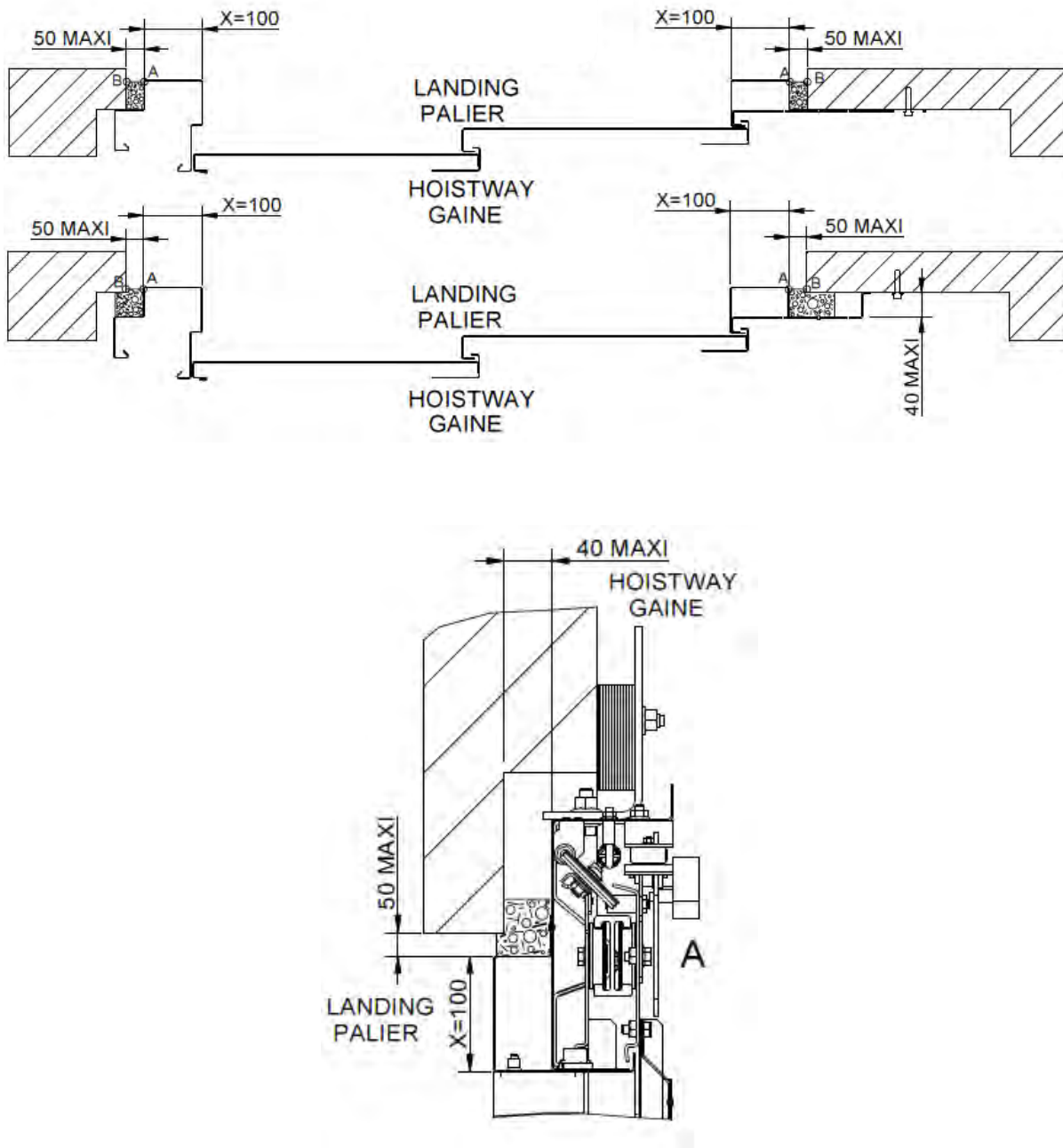
6.5.3.2.1 NF facia



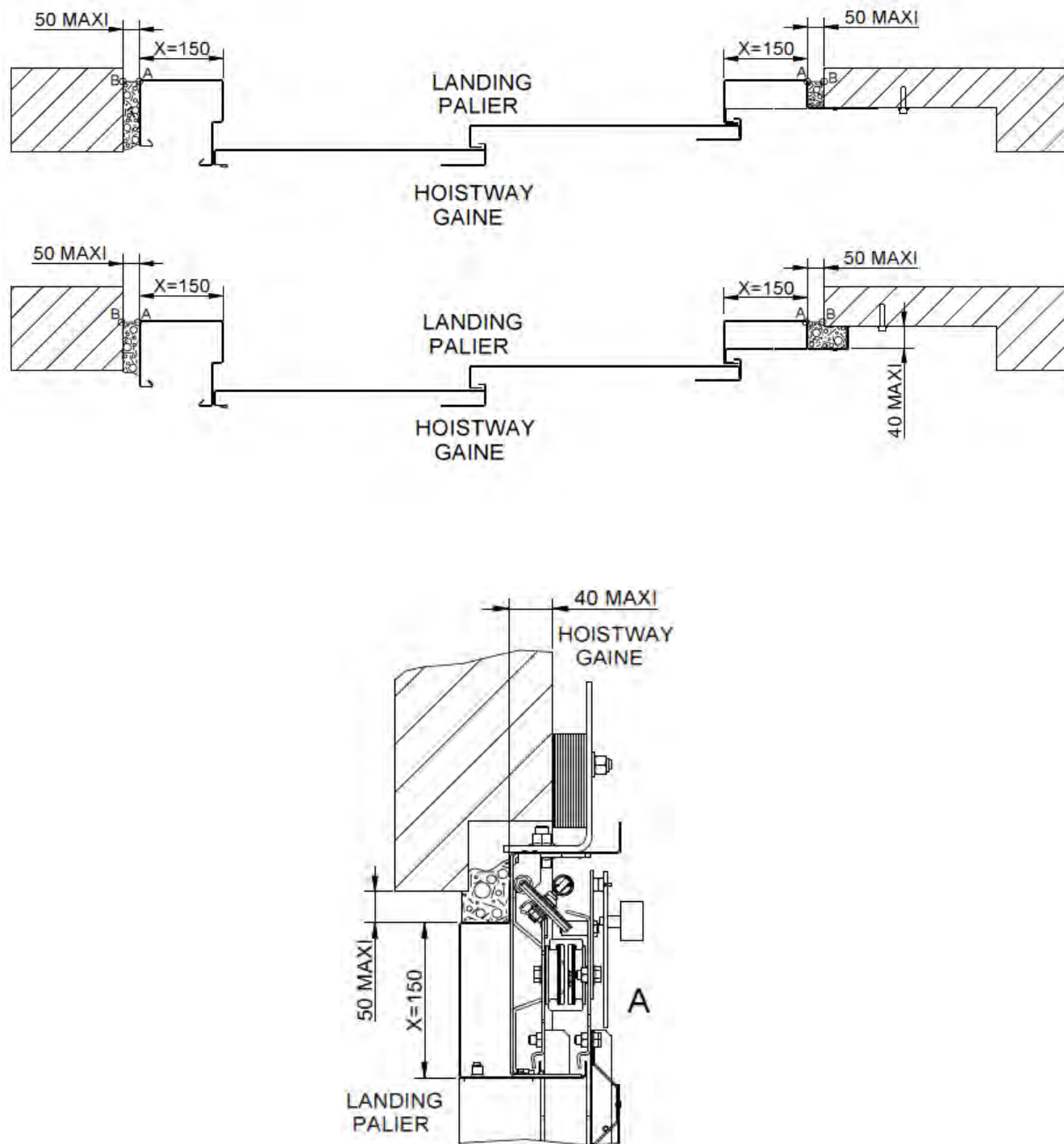
6.5.3.2.2 SF facia



6.5.3.2.3 MRF 100 facia



6.5.3.2.4 MRF 150 facia



7 RESULTS

7.1 TEST N°3485-44-50

7.1.1 Integrity

7.1.1.1 Measured leakage rate. (on door with OPH 2100)

Duration : ONE HUNDRED AND TWENTY ONE MINUTES. (121 min)
Cause of the limitation Test stopped by Requester

7.1.1.2 Extrapolated leakage rate.

Maximum authorized (15%) : Vertical opening passage = 2 415 mm

After correction factor defined in §16 of EN81-58:2003 / Direct field of application.

7.1.1.1 Sustained inflammation

Duration : ONE HUNDRED AND TWENTY ONE MINUTES. (121 min)
Cause of the limitation Test stopped by Requester

7.1.1 Thermal insulation

Time : NONE
Cause of the limitation Element not ensuring thermal insulation.

7.1.2 Radiation

Duration : ONE HUNDRED AND TWENTY ONE MINUTES. (121 min)
Cause of the limitation Test stopped by Requester

These results were obtained based on maximum levels.

For the description and results of this test, refer to the classification report N° 3485-44-50.

7.2 TEST N°3634-44-50

7.2.1 Integrity

7.2.1.1 Measured leakage rate. (on door with OPH 2100)

Duration : ONE HUNDRED AND TWENTY ONE MINUTES. (121 min)
Cause of the limitation : Test stopped by Requester

7.2.1.2 Extrapolated leakage rate.

Maximum authorized (15%) : Vertical opening passage = 2 415 mm

After correction factor defined in §16 of EN81-58:2003 / Direct field of application.

7.2.1.3 Sustained inflammation

Duration : ONE HUNDRED AND TWENTY ONE MINUTES. (121 min)
Cause of the limitation : Test stopped by Requester

7.2.2 Thermal insulation

Time : SEVENTY NINE MINUTES. (79 min)
Cause of the limitation : Average temperature elevation > 140°C

7.2.3 Radiation

Duration : NONE
Cause of the limitation : Not measured

These results were obtained based on maximum levels.

For the description and results of this test, refer to the classification report N° 3634-44-50.

7.3 TEST N°3643-44-50

7.3.1 Integrity

7.3.1.1 Measured leakage rate. (on door with OPH 2100)

Duration : ONE HUNDRED AND TWENTY ONE MINUTES. (121 min)
Cause of the limitation Test stopped by Requester

7.3.1.2 Extrapolated leakage rate.

Maximum authorized (15%) : Vertical opening passage = 2 415 mm

After correction factor defined in §16 of EN81-58:2003 / Direct field of application.

7.3.1.3 Sustained inflammation

Duration : ONE HUNDRED AND TWENTY ONE MINUTES. (121 min)
Cause of the limitation Test stopped by Requester

7.3.2 Thermal insulation

Time : NONE
Cause of the limitation Element not ensuring thermal insulation.

7.3.3 Radiation

Duration : ONE HUNDRED AND TWENTY ONE MINUTES. (121 min)
Cause of the limitation Test stopped by Requester

These results were obtained based on maximum levels.

For the description and results of this test, refer to the classification report N° 3643-44-50.

7.4 TEST N°3667-44-50

7.4.1 Integrity

7.4.1.1 Measured leakage rate. (on door with OPH 2100)

Duration : ONE HUNDRED AND TWENTY ONE MINUTES. (121 min)
Cause of the limitation : Test stopped by Requester

7.4.1.2 Extrapolated leakage rate.

Maximum authorized (15%) : Vertical opening passage = 2 415 mm

After correction factor defined in §16 of EN81-58:2003 / Direct field of application.

7.4.1.3 Sustained inflammation

Duration : ONE HUNDRED AND TWENTY ONE MINUTES. (121 min)
Cause of the limitation : Test stopped by Requester

7.4.2 Thermal insulation

Time : NONE
Cause of the limitation : Element not ensuring thermal insulation.

7.4.3 Radiation

Duration : ONE HUNDRED AND TWENTY ONE MINUTES. (121 min)
Cause of the limitation : Test stopped by Requester

These results were obtained based on maximum levels.

For the description and results of this test, refer to the classification report N° 3667-44-50.

7.5 TEST N°3808-44-50

7.5.1 Integrity

7.5.1.1 Measured leakage rate. (on door with OPH 2100)

Duration : ONE HUNDRED AND TWENTY THREE MINUTES. (123 min)
Cause of the limitation Test stopped by Requester

7.5.1.2 Extrapolated leakage rate.

Maximum authorized (15%) : Vertical opening passage = 2 415 mm

After correction factor defined in §16 of EN81-58:2003 / Direct field of application.

7.5.1.1 Sustained inflammation

Duration : ONE HUNDRED AND TWENTY THREE MINUTES. (123 min)
Cause of the limitation Test stopped by Requester

7.5.2 Thermal insulation

Time : NONE
Cause of the limitation Element not ensuring thermal insulation.

7.5.3 Radiation

Duration : NONE
Cause of the limitation Not measured

These results were obtained based on maximum levels.

For the description and results of this test, refer to the classification report N° 3808-44-50.

7.6 TEST N°3891-44-50

7.6.1 Integrity

7.6.1.1 Measured leakage rate. (on door with OPH 2100)

Duration : ONE HUNDRED AND TWENTY THREE MINUTES. (123 min)
Cause of the limitation : Test stopped by Requester

7.6.1.2 Extrapolated leakage rate.

Maximum authorized (15%) : Vertical opening passage = 2 415 mm

After correction factor defined in §16 of EN81-58:2003 / Direct field of application.

7.6.1.3 Sustained inflammation

Duration : ONE HUNDRED AND TWENTY THREE MINUTES. (123 min)
Cause of the limitation : Test stopped by Requester

7.6.2 Thermal insulation

Time : NONE
Cause of the limitation : Element not ensuring thermal insulation.

7.6.3 Radiation

Duration : NINETY FOUR MINUTES. (94 min)
Cause of the limitation : 15 kW/m² acceptance criteria reached

These results were obtained based on maximum levels.

For the description and results of this test, refer to the classification report N° 3891-44-50.

7.7 TEST N°4005-44-50

7.7.1 Integrity

7.7.1.1 Measured leakage rate. (on door with OPH 2100)

Duration : ONE HUNDRED AND TWENTY TWO MINUTES. (122 min)
Cause of the limitation : Test stopped by Requester

7.7.1.2 Extrapolated leakage rate.

Maximum authorized (15%) : Vertical opening passage = 2 415 mm

After correction factor defined in §16 of EN81-58:2003 / Direct field of application.

7.7.1.3 Sustained inflammation

Duration : ONE HUNDRED AND TWENTY TWO MINUTES. (122 min)
Cause of the limitation : Test stopped by Requester

7.7.2 Thermal insulation

Time : NONE
Cause of the limitation : Element not ensuring thermal insulation.

7.7.3 Radiation

Duration : HEIGHTY SIX MINUTES. (86 min)
Cause of the limitation : Test stopped by Requester

These results were obtained based on maximum levels.

For the description and results of this test, refer to the classification report N° 4005-44-50.

7.8 TEST N°4085-44-50

7.8.1 Integrity

7.8.1.1 Measured leakage rate. (on door with OPH 2100)

Duration : ONE HUNDRED AND TWENTY TWO MINUTES. (122 min)
Cause of the limitation Test stopped by Requester

7.8.1.2 Extrapolated leakage rate.

Maximum authorized (15%) : Vertical opening passage = 2 360 mm

After correction factor defined in §16 of EN81-58:2003 / Direct field of application.

7.8.1.3 Sustained inflammation

Duration : ONE HUNDRED AND TWENTY TWO MINUTES. (122 min)
Cause of the limitation Test stopped by Requester

7.8.2 Thermal insulation

7.8.2.1 Average temperature level

Time : THIRTY-SIX MINUTES (36 min)
Cause of the limitation Average temperature rise > 140°C reached

7.8.2.2 Maximal temperature level

Time : THIRTY EIGHT MINUTES (38 min)
Cause of the limitation Maximal temperature rise > 180°C reached

7.8.3 Radiation

Duration : ONE HUNDRED AND TWENTY TWO MINUTES. (122 min)
Cause of the limitation 15 kW/m² acceptance criteria not reached

These results were obtained based on maximum levels.
For the description and results of this test, refer to the classification report N° 4085-44-50.

7.9 TEST N°4102-44-50

7.9.1 Integrity

7.9.1.1 Measured leakage rate. (on door with OPH 2100)

Duration : ONE HUNDRED AND TWENTY THREE MINUTES. (123 min)
Cause of the limitation : Test stopped by Requester

7.9.1.2 Extrapolated leakage rate.

Maximum authorized (15%) : Vertical opening passage = 2 220 mm

After correction factor defined in §16 of EN81-58:2003 / Direct field of application.

7.9.1.3 Sustained inflammation

Duration : ONE HUNDRED AND TWENTY THREE MINUTES. (123 min)
Cause of the limitation : Test stopped by Requester

7.9.2 Thermal insulation

Time : NONE
Cause of the limitation : Element not ensuring thermal insulation.

7.9.3 Radiation

Duration : Not measured
Cause of the limitation : None

These results were obtained based on maximum levels.

For the description and results of this test, refer to the classification report N° 4102-44-50.

7.10 TEST N°4196-44-50

7.10.1 Integrity

7.10.1.1 Measured leakage rate. (on door with OPH 2100)

Duration : ONE HUNDRED AND TWENTY TWO MINUTES. (122 min)
Cause of the limitation : Test stopped by Requester

7.10.1.2 Extrapolated leakage rate.

Maximum authorized (15%) : Vertical opening passage = 2 415 mm

After correction factor defined in §16 of EN81-58:2003 / Direct field of application.

7.10.1.3 Sustained inflammation

Duration : ONE HUNDRED AND TWENTY TWO MINUTES. (122 min)
Cause of the limitation : Test stopped by Requester

7.10.2 Thermal insulation

Time : NONE
Cause of the limitation : Element not ensuring thermal insulation.

7.10.3 Radiation

Time : Not measured
Cause of the limitation : NONE

These results were obtained based on maximum levels.

For the description and results of this test, refer to the classification report N° 4196-44-50.

7.11 Range report N°4443-45-50

7.11.1 Integrity

7.11.1.1 Measured leakage rate. (on door with OPH 2100)

Duration : ONE HUNDRED AND TWENTY TWO MINUTES. (122 min)
Cause of the limitation : Test stopped by Requester

7.11.1.2 Extrapolated leakage rate.

Maximum authorized (15%) : Vertical opening passage = 2 415 mm

After correction factor defined in §16 of EN81-58:2003 / Direct field of application.

7.11.1.3 Sustained inflammation

Duration : ONE HUNDRED AND TWENTY TWO MINUTES. (122 min)
Cause of the limitation : Test stopped by Requester

7.11.2 Thermal insulation

7.11.2.1 Average temperature level

Duration : ONE HUNDRED AND TWENTY TWO MINUTES. (122 min)
Cause of the limitation : Average temperature rise > 140°C not reached

7.11.2.2 Maximal temperature level

Duration : ONE HUNDRED AND TWENTY TWO MINUTES. (122 min)
Cause of the limitation : Maximal temperature rise > 180°C not reached

7.11.3 Radiation

Duration : ONE HUNDRED AND TWENTY TWO MINUTES. (122 min)
Cause of the limitation : 15 kW/m² acceptance criteria not reached

These results were obtained based on maximum levels.

Resultats based on an intermediate range report, refer to the range report N° 4443-45-50.

8 ANALYSIS

Upon completion of the different classification tests performed to cover any variability in this range, the following comments were issued:

- This range concerns non-insulated and insulated doors in the TLD configuration, with 2 lateral opening leaves, NF, SF, MRF100 and MRF150 façade.

- ✓ For EI 30 classification:

Reference test N°4085-44-50 was performed with a MRF 150 façade. This MRF 150 version was chosen by the laboratory as the most unfavorable Vs smaller façade.

Nevertheless, EI 30 is not available for MRF150 façade. (Insulation is need when column width is > 100 mm)

In this case with insulated panels equipped of Rockwool, the EW 60 classification is also obtained based on radiation mesurement performed during the test of reference N°4085-44-50.

- ✓ For EI 120 classification:

The EI 120 classification was obtained based on a specific test plan (10 tests of references) mentionned into the intermediate range report N°4443-45-50.

EI 120 classification was obtained by using insulated panels based on Microtherm 19 mm (density 300kg/m³) + Plaster board 6 mm.

A specific closing colum with reinforced part and additional fixing to the wall improve global door behaviour. Indeed, less gaps means less hot gazes to the insulated board.

Based on this improvement, for design rationalisation aspect, this colum design could also be used for EI 30 door configuration.

A specific deflector is also introduced in order to avoid potentiel bad fire behaviour from roller material. It could be also be used for EI 30 door configuration.

- ✓ For EW 60 classification when door finishish is stainless steel:

Many reference tests were performed on stainless steel finish. (Panels without insulation) Radiation level limits are far beyond expectation EW 60.

- ✓ For EW 60 classification when door finishes are pre-paint steel or Steel "Skinplate":

Reference test N°4085-44-50 was performed on pre-peint finish. Thanks to the insulated panels configuration, radiation value is really low and allow EW 60 in all cases. The MRF 150 version was chosen by the laboratory as the most unfavorable Vs smaller façade.

- ✓ For E 120 classification:

Reference test N°3634-44-50 was performed on MRF100 façade.

Reference tests N°3485-44-50 and N°3667-44-50 were performed on MRF150 façade.

These version were chosen by the laboratory as the most unfavorable Vs NF and SF façade.

(Indeed, MRF150 and MRF100 are the worse case because more fire exposed. MRF 100 building interfaces are the same as NF and SF façade)

- Closing colum (mainly metal sheeted) could also containing all lift electrical commands & control functions. (MRF150 only) These version was also chosen by the laboratory as an unfavorable configuration. This version was performed in order to confirm E 120 fire classification. (Reference test N°3667-44-50) All the descriptions, combustible masses, cables outputs and detailed descriptions will hence not be repeated in this range report. (See range report N°2614-45-50 attached to the PRIMA TLD 900-R door range, also addendum N°2710-46-50 attached to the PRIMA-S TLD MRF 150 door range)
- Building fixing types, landing (Door inside the wall thickness) and steel (Door installed in the Hoistway) mounting give us the same mecanical resisting towards door. The hoistway mounting representing the majority of door mounting, we have decided to privilege it for tests. Additionnaly, fire resistance tests, following laboratory recommandation, were performed on worse building interfaces cases.
The test of refence N°3643-44-50 was performed with the worse installation case. (40 mm from the wall, maximum gaps with sealing finition)
- 3 different types of finish are available: Stainless steel, pre-peint steel and Skinplate steel. Stainless Steel has a higher temperature expansion coefficient than steel (approximately $17 \times 10^{-6} \text{ K}^{-1}$ vs. $12 \times 10^{-6} \text{ K}^{-1}$). Therefore, during a fire, stainless steel expanding more than steel, greater constraints will be created within the structure **(Labyrinth, screws, etc...)** During the reference fire resistance tests carried out on stainless steel landing doors, satisfactory leakage levels were reported. Additionnaly, a test reference N°4085-44-50 was performed in pre-prepoint finish and no issue has been observed. This leads us to believe that the same level of leakage will be reached with all pre-peint steel and Skinplate steel doorsets.
- The key switch option (door unlocking detection) which requires the uses of an additional electrical switch was tested in the reference test N°3667-44-50.
- The single-used unlocking device option (SUD) which requires the uses of an additional electrical switch was tested in the reference test N°3808-44-50 (Zamak version + fire resistant cable) and N°3891-44-50 (Nylon V0 and HO5RNF cable). These door configurations were a TRF. (panels, lintel and columns are full fire exposed and judged more defavorable) . Due to the metallic design and the good behaviour during the test, it has been not necessary to perform anothers test with insulated configuration.
- The unlocking device based on a twine option was tested in the orientation test N°3684-38-50. (Unsignificant combustible mass)
- Option of an additionnal switch (LDFS) was tested on the reference test N°4258-44-50 and is available only for insulated configuration.
- Many tests performed previously by Door Test Center and EFECTIS France laboratories in similar configurations in Pre-paint steel or Skinplate steel, have shown that this type of steel radiates more

than stainless steel. This observation requires to limit the classification obtained by this range of doors according to the different finishes possible (refer to § 9)

In order to allows EW 60 when Pre-paint steel or Skinplate steel is used, a configuration with insulated panels is used and was tested in the test of reference N°4085-44-50. Indeed, radiation level obtained was really low. Radiation was tested with Rockwool configuration.

- Based on radiation measurements results analized on mentionned references tests in this report and Laboratory data base from the last 12 years, it is possible to extend the W criteria defined in §16 of EN81-58:2003 / Direct field of application also for same door dimension extension autorized for E and I criteria.
- Both types of fasteners of the door units: by JORDAHL screws and rails and by expansion dowels, as well as the different fastening brackets described in paragraph 6.2.1.were tested on door units with similar configurations during the previous tests. No noticeable difference in mechanical behaviour was noted on these levels until the end of the tests, i.e. 122 minutes.
- All the landing door fixtures are identical to the PRIMA TLD E120 door range (See range report N° 07-A-114 / EFECTIS France). The E120 fixture types were successfully fire rated up to 120min.
- Call integrated button options (Ø 28 & Ø 36) are identical to the PRIMA TLD E120 (Addendum N° 09/2 – EFECTIS France) and SENCIA door range. (Range report N° 2746-45-50) The E120 fixture types were successfully fire rated up to 120min.
- S-Line 2 aesthetic option (buttons & display) was performed on an identical door range MRF 150 (See Addendum N°2762-46-50) The E120 fixture types were successfully fire rated up to 120min.
- Cladding option (additional steel lining fixed by glue on the fire exposed side of the leaves doors) remains valid if applied following recommendation described in the §6.4.4 of this present document.
- For Ambiance aesthetic option including buttons, keys, displays or firefighting boxes, door integrity remains valid when the door column & lintel cut-out is close by a metallic cover fixed by screws. See tests of references 4005-44-50 for buttons & display integration, see test of reference 4102-44-50 for fire-fighting boxes integration

For the specific case of MRF 100 which has a structural lintel + a decorative lintel, no metallic cover is needed. Door integrity has been tested and remains valid. See test of reference 4196-44-50.

- Low and stable leakage rates measured on the whole tests of reference.

The goods results of leakage rates obtained during these different tests with non insulated panels configurations allow to validate the OPH door up to 2 415mm, based on correction factor defined in §16 of EN81-58:2003 / Direct field of application.

The result of leakage rates obtained during test with insulated panels EI 30 configuration allow to validate the OPH door up to 2 360mm, based on correction factor defined in §16 of EN81-58:2003 / Direct field of application.

In order to simplify §10 of this range report and because this door range is available up to OPH 2300 mm, maximum clear opening height is voluntary limited at 2360 mm.

The reference fire resistance tests described within this appraisal report as well as the analysis written above, lead us to conclude to the classification integrity performance, as noted in § 9 within this appraisal report.

9 CLASSIFICATION

9.1 CLASSIFICATION REFERENCE

This rating was made in compliance with paragraph 17 of the EN81-58:2003 standard.

9.2 CLASSIFICATION

Based on classification tests performed, combinations of performance and class parameters are the following:

9.2.1 With non-insulated panels – EW 30 / EW 60 / E 120

Pre-painted steel or Skinplate doors

E	I	W		(t)
E	-	W		30
E	-	-		120

Stainless steel doors

E	I	W		(t)
E	-	W		60
E	-	-		120

9.2.2 With insulated panels – EI 30 / EW 60 / E 120

All finishes – Insulated panels – Rockwool configuration

E	I	W		(t)
E	-	W		60
E	I	-		30
E	-	-		120

9.2.3 With insulated panels – EI 120 / EW 60 / E 120

All finishes – Insulated panels – Microtherm configuration

E	I	W		(t)
E	-	W		60
E	I	-		120
E	-	-		120

10 DIRECT FIELD OF APPLICATION

10.1 DIMENSIONAL VARIATIONS AUTHORIZED

Based on §8 Analysis, following rules are also available for the radiation criterion. (W)

Following door dimensions are authorized :

	Door's clear opening dimensions	
	Minimum	Maximum
Width (mm) OP for all classifications	630	1170
Height (mm) OPH for all classifications	≤ 2360	2360

10.2 SUPPORTING CONSTRUCTION

According to paragraph 16 of the EN 81-58:2003 standard, the classifications indicated in paragraph 12 of this range report are valid for all supporting constructions made of concrete blocks, masonry or homogeneous concrete having a density equal or greater than 600 kg/m³ and thickness equal or greater than 100 mm.

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