

## **CLASSIFICATION REPORT no. EFR-14-000443-RC**

---

In accordance with EN 13501-2:2016

<b>Issued</b>	28 July 2021 by EFFECTIS France/Notified body no. 1812
<b>Concerning</b>	A range of wooden single swinging-leaf doorsets, of types "PREMAFEU", "CLIMAFEU", "SPF", "PREMAFEU MATERNELLE", "PREMAFONE 30" and "CLIMAFONE 30".
<b>Applicant</b>	KEYOR 22 rue d'Artagnan F - 33100 BORDEAUX

*DISCLAIMER: The current document is a translation of the corresponding and official French version. In all situations where the meaning of the current document is unclear or ambiguous, the French document should be used for purposes of disambiguation.*

**MODIFICATIONS HISTORY**

<b>Revision level</b>	<b>Date</b>	<b>Modification(s)</b>	<b>Author</b>
0	28 July 2021	Initial version of classification report	MHU

## 1. INTRODUCTION

Fire resistance classification report defining the classification given to a range of wooden single swinging-leaf doorsets of types "PREMAFEU", "CLIMAFEU", "SPF", "PREMAFEU MATERNELLE", "PREMAFONE 30" and "CLIMAFONE 30", in accordance with the operating procedures set out in standard EN 13501-2:2016 "Fire classification of construction products and building elements - Part 2: Classification using data from fire resistance tests excluding products used in ventilation systems".

## 2. NOTIFIED BODY

Efectis France  
Voie Romaine  
F - 57280 MAIZIERES-LES-METZ

Notified body: 1812

## 3. REFERENCE AND SOURCE OF THE ELEMENTS STUDIED

Reference: "PREMAFEU", "CLIMAFEU", "SPF", "PREMAFEU MATERNELLE",  
"PREMAFONE 30" and "CLIMAFONE 30"

Source: KEYOR  
22 rue d'Artagnan  
F - 33100 BORDEAUX

## 4. REFERENCE DOCUMENTS

List of principal test reports:

Report no.	Test laboratory	Product tested	Durati on E (min)	Durati on El <sub>1</sub> (min)	Durati on El <sub>2</sub> (min)	Test standard
11-V-598	EFFECTIS FRANCE	PREMAFEU wooden doorset with one swinging leaf. -Leaf: 1230 x 2640 x 39.6 mm (w x h x th) - Direction of fire: Fire on hinge side  Wall in cellular concrete	37 min	37 min	37 min	EN 1634-1
13-V-313  Wooden frame	EFFECTIS FRANCE	PREMAFEU/PREMAF ONE 30 metal doorset with one swinging leaf. -Leaf: 1030 x 2240 x 39.6 mm (w x h x th) - Direction of fire: Fire on hinge side  Wall in concrete	41 min	41 min	41 min	EN 1634-1

Report no.	Test laboratory	Product tested	Durati on E (min)	Durati on $EI_1$ (min)	Durati on $EI_2$ (min)	Test standard
13-V-313 Metal frame	EFFECTIS FRANCE	PREMAFEU/PREMAF ONE 30 metal doorset with one swinging leaf. -Leaf: 1030 x 2240 x 39.6 mm (w x h x th) - Direction of fire: Fire on hinge side  Wall in concrete	30 min	30 min	30 min	EN 1634-1
13-V-513	EFFECTIS FRANCE	PREMAFEU/PREMAF ONE 30 RENOVATION metal doorset with one swinging leaf. -Leaf: 1017 x 2233 x 39.6 mm (w x h x th) - Direction of fire: Fire on hinge side  Wall in concrete	32 min	32 min	32 min	EN 1634-1
13-V-513	EFFECTIS FRANCE	CLIMAFONE 39 BS metal doorset with one swinging leaf. -Leaf: 930 x 2040 x 39.6 mm (w x h x th) - Direction of fire: Fire on hinge side  Wall in concrete	21 min	21 min	21 min	EN 1634-1
11-H-355 Metal frame	EFFECTIS FRANCE	PREMAFEU metal doorset with one swinging leaf. -Leaf: 930 x 2040 x 39.6 mm (w x h x th) - Direction of fire: Fire on hinge side  Associated wall	33 min	33 min	33 min	EN 1634-1
11-H-355 Wooden frame	EFFECTIS FRANCE	PREMAFEU metal doorset with one swinging leaf. -Leaf: 1130 x 2040 x 39.6 mm (w x h x th) - Direction of fire: Fire on hinge side  Associated wall	33 min	33 min	33 min	EN 1634-1

Report no.	Test laboratory	Product tested	Durati on E (min)	Durati on $EI_1$ (min)	Durati on $EI_2$ (min)	Test standard
12-V-362	EFFECTIS FRANCE	PREMAFEU metal doorset with one swinging leaf. -Leaf: 930 x 2040 x 39.6 mm (w x h x th) - Direction of fire: Fire on hinge side  Wall in cellular concrete	32 min	32 min	32 min	EN 1634-1
12-V-362	EFFECTIS FRANCE	MAG 30 EV metal doorset with one swinging leaf. -Leaf: 930 x 2040 x 39.6 mm (w x h x th) - Direction of fire: Fire on hinge side  Wall in cellular concrete	21 min	21 min	21 min	EN 1634-1
11-V-742 Metal frame	EFFECTIS FRANCE	PREMAFEU wooden doorset with one swinging leaf. -Leaf: 930 x 2040 x 39.6 mm (w x h x th) - Direction of fire: Fire on hinge side  Wall in concrete	42 min	42 min	42 min	EN 1634-1
11-V-742 Wooden casing	EFFECTIS FRANCE	PREMAFEU wooden doorset with one swinging leaf. -Leaf: 930 x 2040 x 39.6 mm (w x h x th) - Direction of fire: Fire on hinge side  Wall in cellular concrete	36 min	36 min	36 min	EN 1634-1
13-V-313 Wooden frame	EFFECTIS FRANCE	PREMAFEU/PREMAF ONE 30 wooden doorset with one swinging leaf. -Leaf: 1030 x 2240 x 39.6 mm (w x h x th) - Direction of fire: Fire on hinge side  Wall in concrete	41 min	41 min	41 min	EN 1634-1

Report no.	Test laboratory	Product tested	Durati on E (min)	Durati on $EI_1$ (min)	Durati on $EI_2$ (min)	Test standard
13-V-313 Metal frame	EFFECTIS FRANCE	PREMAFEU/PREMAF ONE 30 wooden doorset with one swinging leaf. -Leaf: 1030 x 2240 x 39.6 mm (w x h x th) - Direction of fire: Fire on hinge side  Wall in concrete	30 min	30 min	30 min	EN 1634-1
13-V-757	EFFECTIS FRANCE	PREMAFEU wooden doorset with one swinging leaf. -Leaf: 930 x 2040 x 39.6 mm (w x h x th) - Direction of fire: Fire on hinge side  Wall in cellular concrete	41 min	41 min	41 min	EN 1634-1
13-V-757	EFFECTIS FRANCE	CLIMAFONE 39 BS wooden doorset with one swinging leaf. -Leaf: 930 x 2040 x 39.6 mm (w x h x th) - Direction of fire: Fire on hinge side  Wall in cellular concrete	50 min	50 min	50 min	EN 1634-1
07-V-281	EFFECTIS FRANCE	PREMAFEU wooden doorset with one swinging leaf. -Leaf: 1230 x 2040 x 39 mm (w x h x th) - Direction of fire: Fire on hinge side  Wall in concrete	31 min	31 min	31 min	EN 1634-1
07-V-281	EFFECTIS FRANCE	PREMAFEU wooden doorset with one swinging leaf. -Leaf: 930 x 2040 x 39 mm (w x h x th) - Direction of fire: Fire on hinge side  Wall in concrete	27 min	27 min	27 min	EN 1634-1

Report no.	Test laboratory	Product tested	Durati on E (min)	Durati on $EI_1$ (min)	Durati on $EI_2$ (min)	Test standard
13-V-1007 Wooden casing	EFFECTIS FRANCE	PREMAFONE 30 wooden doorset with one swinging leaf. -Leaf: 930 x 2040 x 39.6 mm (w x h x th) - Direction of fire: Fire on hinge side  Wall in cellular concrete	36 min	33min	36 min	EN 1634-1
13-V-1007 Metal frame	EFFECTIS FRANCE	HUISSERIE FIN DE CHANTIER EASYMETAL ET PORTE BOIS wooden doorset with one swinging leaf. -Leaf: 930 x 2040 x 39.6 mm (w x h x th) - Direction of fire: Fire on hinge side  Associated wall	32 min	26 min	32 min	EN 1634-1
10-V-580	EFFECTIS FRANCE	PREMAFEU wooden doorset with one swinging leaf. -Leaf: 930 x 2240 x 39.2 mm (w x h x th) - Direction of fire: Fire on hinge side  Wall in cellular concrete	41 min	37 min	40 min	EN 1634-1
10-V-580	EFFECTIS FRANCE	PREMAFEU wooden doorset with one swinging leaf. -Leaf: 930 x 2040 x 40 mm (w x h x th) - Direction of fire: Fire on hinge side  Wall in cellular concrete	27 min	11 min	11 min	EN 1634-1

Report no.	Test laboratory	Product tested	Durati on E (min)	Durati on $EI_1$ (min)	Durati on $EI_2$ (min)	Test standard
06-V-404 BP 1	EFFECTIS FRANCE	PREMAFEU wooden doorset with one swinging leaf. -Leaf: 930 x 2040 x 40 mm (w x h x th) - Direction of fire: Fire on hinge side  Wall in cellular concrete	29 min	24 min	29 min	EN 1634-1
06-V-404 BP 2	EFFECTIS FRANCE	PREMAFEU wooden doorset with one swinging leaf. -Leaf: 930 x 2040 x 40 mm (w x h x th) - Direction of fire: Fire on hinge side  Wall in cellular concrete	36 min	36 min	36 min	EN 1634-1

**5. PRINCIPLE OF ASSEMBLY**

---

**5.1. TYPE OF FUNCTION**

Doorsets with swinging leaves are defined as a "non-load-bearing element". Their function is to resist fire, as specified in the fire resistance performance characteristics given in section 5 of standard EN 13501-2: 2016.

**5.2. GENERAL**

The subject of this classification report is a range of single-leaf wooden doorsets.

5.2.1. Permitted dimensional variations (of leaf)

Overall dimensions of leaf - doorset with a single swinging leaf on a wooden frame:

	Minimum	Maximum
Width (mm)	Unlimited	1414
Height (mm)	Unlimited	3036
The surface are of the leaf may not however exceed 3.9 m <sup>2</sup> .		

Overall dimensions of leaf - doorset with a single swinging leaf on a wooden lining frame:

	Minimum	Maximum
Width (mm)	Unlimited	1185
Height (mm)	Unlimited	2576
The surface are of the leaf may not however exceed 2.8 m <sup>2</sup> .		

Overall dimensions of leaf - doorset with a single swinging leaf on a metal frame:

	Minimum	Maximum
Width (mm)	Unlimited	1070
Height (mm)	Unlimited	2346
The surface are of the leaf may not however exceed 2.3 m <sup>2</sup> .		

Overall dimensions of leaf - doorset with a single swinging leaf on a metal lining frame:

	Minimum	Maximum
Width (mm)	Unlimited	1030
Height (mm)	Unlimited	2240

Overall dimensions of leaf - doorset with a single swinging leaf on a metal renovation frame:

**Valid only for fire on hinge side**

	Minimum	Maximum
Width (mm)	Unlimited	1017
Height (mm)	Unlimited	2233

### 5.2.2. Maximum permitted operational gap

#### Maximum authorised operating clearance:

- On top rail: 3 mm
- Vertically, hinge side: 3 mm
- Vertically, lock side: 3 mm (2 mm in SPF configuration)
- At sill: 10 mm

Minimum engagement: 10 mm.

## 5.3. DETAILED DESCRIPTION OF ELEMENTS

### 5.3.1. Structure / frames

#### 5.3.1.1. Structure / Wooden frames

##### 5.3.1.1.1. Wooden casing

The casing comprises two uprights and a top rail produced in joined glulam of minimum theoretical mean bulk density 480 kg/m<sup>3</sup>, or in solid wood of minimum theoretical mean bulk density 700 kg/m<sup>3</sup> from the wood species defined at Illustration 1 and of minimum overall section 67 x 53 mm (cf. Drawing 2010-06 50).

The casing elements form a rebate of 43 x 16 mm to 48 x 19 mm. A brickwork groove of minimum dimensions 52 x 10 mm and/or a reveal groove of maximum dimensions 10 x 6 mm may be made on the frame.

On an overall section of minimum 67 x 60 mm, a brickwork rebate of 50 x 20 mm may be made as well as a reveal groove of 30 x 5.5 mm minimum, on the side away from the hinges, intended to accept the tongue of a counter-frame. The counter-frame profiles have an overall section of 34.5 x 38 mm minimum, forming a tongue of dimensions 4 x 30 mm (see drawing 2010-06 39).

An isophonic joint reference TV 103 B (INDOPLAST) of overall section 15.8 x 8.5 mm, or 1W048 (FIT) of overall section 14.7 x 13 mm, or TV 103 D (INDOPLAST) of overall section 15.8 x 8.5 mm, or an EPDM based item reference AP2 (ETANCHEITE JUNG), may be placed at the bottom of the groove in the frame elements, on the 48 mm flange, in a recess 3 x 6 mm, or glued-in F3 (DUAL) of overall section 13 x 13 mm.

The uprights and rail may also comprise a casing and counter-frame made of either solid or reconstituted (laminated - glued - butt-jointed) wood of theoretical mean bulk density greater than 650 kg/m<sup>3</sup>. The casing's wooden profiles are of minimum overall section 92 x 62 mm, having a brick rebate of dimensions 44.5 x 12 mm intended to receive the leaf and a brick rebate of dimensions 74 x 30 mm; they also have on the side away from the opening machinings intended to receive the counter-frame. The counter-frame's wooden profiles are of overall section 9 x 50 mm having a groove 6.5 x 6 mm; they may be connected to an intermediate element of the same nature of minimum overall section 32.8 x 32 mm, with various machinings intended to mate with the casing and counter-frame.

Where a counter-frame is used, the latter is assembled using PVA sealant adhesive. In every case, the gap remaining after assembly, in the reveal groove, is filled with either correctly-dimensioned battens of MDF wood fibre or wood, or with mineral wool of minimum bulk density 64 kg/m<sup>3</sup> or firestop polyurethane foam (in the case of a peripheral gap between 6 and 17 mm).

The casing elements are cut square and assembled at each corner by:

- 17 mm tenon and mortise, as well as, optionally, two spikes  $\varnothing$  0.5 x 57 mm or screws;
- double tongue-and-groove with 9 mm and 12 mm tenon and mortise, as well as, optionally, two spikes  $\varnothing$  0.5 x 57 mm or screws;
- double tongue-and-groove with 17 mm tenon and mortise, as well as, optionally, two spikes  $\varnothing$  0.5 x 57 mm or screws;
- double tongue-and-groove with 10 and 12 mm tenon and mortise, as well as, optionally, two spikes  $\varnothing$  0.5 x 57 mm or screws;
- single counter-profile as per operating method MECANIX (MOUNIE) in the corners: assembly by two steel screws  $\varnothing$  6 x 110 mm through a steel sleeve  $\varnothing_{\text{ext}}$  9.2 x  $\varnothing_{\text{int}}$  6.5 x 35 mm, positioned in holes  $\varnothing$  9.3 x 23 mm and  $\varnothing$  9.3 x 15 mm, made respectively at the end of the uprights and at the ends of the top rail.

The casing elements may also be mitre-cut at 45° and assembled using two wooden pins dimensions  $\varnothing$  12 x 50 mm and two screws  $\varnothing$  5 x 60 mm.

The casing elements may also be mitre-cut at 45° and assembled using one or two tenons, as well as, optionally, two spikes dimensions  $\varnothing$  0,5 x 57 mm or screws.

Wooden framed doorsets may be fitted back-to-back (cf. drawing EO 2010-06 1). The frame then has a minimum section of 134 x 53 mm and is installed in a lightweight partition of type SAD (*Séparatives d'Appartements à ossature Double* - Double-framed Apartment Dividers) (BPB PLACO) having total thickness between 120 mm and 260 mm. This configuration is valid only for two fire-resistant doorsets. The performances of the assembly are those indicated at section 6 and not the sum of the performances of each doorset.

Juxtaposition of several doorsets: Doorsets on wooden frames may be juxtaposed side by side (cf. drawing EO 2010-06 34). The doorsets are assembled together using a wooden batten of the same timber species as the casings and of section adapted to the frame's brickwork groove, at the frame's uprights. The assembly is secured by adhesive and steel screws diameter 5 X 60 mm distributed offset between the casings at maximum intervals of 500 mm.

Adjoining doorsets may have a continuous rail. In that case, the upright/rail joint is adapted to suit.

The intermediate mullions between the two doorsets (comprising the two frame uprights side by side) may be replaced by a single profiled post of minimum section 106 x 67 mm.

#### 5.3.1.1.2. Wooden lining frames (see drawing EO 2010-06 50, 43, 44 and 46)

The lining frame comprises two uprights and a top rail produced in joined glulam of minimum theoretical mean bulk density 480 kg/m<sup>3</sup>, or in solid wood of minimum theoretical mean bulk density 700 kg/m<sup>3</sup> from the wood species defined at Illustration 1 and of minimum overall section 67 x 56 mm.

The frame elements comprise a brickwork groove of minimum dimensions 52 x 10 mm and form a rebate of minimum dimensions 48 x 16 mm. These elements are assembled by single or double tongue and groove in the corners.

An isophonic joint reference TV 103 B (INDOPLAST) of overall section 15.8 x 8.5 mm, or 1W048 (FIT) of overall section 14.7 x 13 mm, or TV 103 D (INDOPLAST) of overall section 15.8 x 8.5 mm, or an EPDM based item reference AP2 (ETANCHEITE JUNG), may be placed at the bottom of the groove in the frame elements, on the 48 mm flange, in a recess 3 x 6 mm, or glued-in F3 (DUAL) of overall section 13 x 13 mm.

The frame is installed in a rigid high-density structure of minimum thickness 100 mm. The frame is fixed to the support structure by brackets reference STD (PREMDOR BATIMETAL) formed of 20/10 mm thick sheet steel of overall dimensions 65 x 'a' mm, six brackets per upright, where 'a' is adapted to the thickness of the frame. The upright's brackets are located at the bottom of the upright, and at 95 mm, 615 mm, 1060 mm from the bottom of the upright, and at 103 mm and 658 mm from the top of the upright. For a leaf of width greater than 930 mm, a fixing bracket is added onto the frame's rail at its mid-point. Each bracket is fixed to the frame by one VBA screw  $\varnothing$  4 x 40 mm and to the supporting structure by one FFS screw (FISCHER)  $\varnothing$  7.5 x 72 mm. The joint between the supporting structure and lining frame is insulated on the uprights and top rail by two thicknesses of SUPERWOOL X607 (ODICE) of dimensions 15 x 4 mm. At the upper corners of the frame Néfalit paperboard (P.B.I.) having dimensions (frame width - 18) x 800 x 2 mm is stapled into the brickwork groove.

The thickness of the lining partition is at least 50 mm. This is glued onto a concrete wall by pads of adhesive and comprises one skin of plasterboard of minimum thickness 10 mm, and an insulation comprising polystyrene or glass fibre or polyurethane.

A bottom rail may be incorporated in the frame so as to produce a four-sided frame. This rail will then have the same sealing properties as the frame's top rail.

#### 5.3.1.2. Casing/ Metal frames

##### 5.3.1.2.1. Metal poured-in-place frames (see drawing EO 2010-06 40, 41 and 10)

The frame comprises two uprights and a top rail produced from 15/10 mm sheet steel profiles reference PB, PBI, HB or HBI with minimum overall dimensions of 75 x 44 mm.

The frame elements form a rebate of dimensions between 43 x 15 mm and 49 x 18 mm. They are mitred to 45° and welded in the corners or screwed. In the latter case, an inter-facings steel plate 25 x 2.5 mm is welded into each corner. These plates are bolted using two bolts HM6 x 20 mm.

An isophonic joint 1U554 (FIT) or 66.20.0021.B (FRANCEM) or A1U554 (HUTCHINSON) or 1T442 (FIT) may be implemented around the periphery of the casing elements, on one or other flange of the rebate.

The frame is built into a high-density rigid supporting structure using three anchoring straps per upright.

##### 5.3.1.2.2. Metal lining frames (see drawing EO 2010-06 40, 10, 42, 43, 44 and 45)

The lining frame comprises two uprights and a top rail produced from 15/10 mm sheet steel profiles reference T, TI, P, PI and D (PREMDOR BATIMETAL) with minimum overall dimensions of 75 x 44 mm. The thickness of the frame is adapted to the thickness of the lining.

The frame elements form a rebate of dimensions minimum 43 x 15 mm. They are mitred to 45° and welded in the corners or screwed. In the latter case, an inter-facings steel plate 25 x 2.5 mm is welded into each corner. These plates are bolted using two bolts HM6 x 20 mm.

The frame is insulated internally by two strips of mineral wool reference INSULFRAX S (P.B.I.) 25 mm thick in the interior of the frame profile.

An isophonic joint reference 66.20.0022.B (FRANCEM) or 66.20.0021.B (FRANCEM) of overall section 13.5 x 7 mm, or A1U554 (HUTCHINSON), or 1T442 (FIT), may be placed on the uprights and top rail of the frame, in a recess 7 x 3.4 mm.

The lining frame is mounted in a high-density rigid supporting structure. The frame is fixed to the supporting structure by 30/10 mm thick sheet steel fixing tabs having overall dimension adapted to the thickness of the lining, at five tabs per upright. The fixing tabs are located at 83 mm, 816 mm, 1229 mm from the bottom of the upright and at 101.5 mm, 729,5 mm from the top of the upright. Two supplementary tabs 123 x 20 x 1 mm and 10/10 mm thick are positioned at the base of the frames, one per upright. Each tab is welded to the interior profile of the frame and fixed to the supporting structure by one FFS (FISCHER) screw  $\varnothing$  7.5 x 72 mm. The tabs located at 1229 mm from the bottom of the upright are reinforced by a gusset made from 30/10 mm thick sheet steel, of section 130 x 25 mm, welded to the fixing tab.

Two intumescent seals KERAFIX FLEXPRESS 100 (KUHN-GLUSKE) of section 12 x 1.5 mm are placed one on top of the other on the top rail and on the uprights, at the junction with the supporting structure.

A finishing silicone seal reference FIRE SILICONE B1 FR (SOULDAL) may be implemented at the joint between the frame and the supporting structure.

The thickness of the lining partition is between 53 mm and 158 mm. This is glued onto a concrete wall by pads of adhesive and comprises one skin of plasterboards of minimum thickness 10 mm, and an insulation comprising polystyrene or mineral wool glass fibre or polyurethane.

#### 5.3.1.2.3. Renovation casing (see drawing EO 2010-06 04, 05, 06, 07, 08 and 09)

The existing frame comprises two uprights and one top rail produced from 15/10 mm thick folded sheet steel, forming a rebate of dimensions 43 to 49 x 15 to 18 mm, with or without a recess for an isophonic joint, intended to receive the renovation casing.

The existing frame may also comprise two uprights and a top rail produced from European fir wood or from the timber species given at Illustration 1, of minimum theoretical mean bulk density 450 kg/m<sup>3</sup> and of minimum section 67 x 55 mm, forming a rebate of dimensions 43 to 49 x 15 to 19 mm, with or without groove for an isophonic joint, intended to receive the renovation casing.

The existing frames are clinched into a rigid supporting structure of minimum 100 mm thickness.

The renovation casing comprises two uprights and a top rail formed from 15/10 mm thick folded sheet steel profiles, of minimum overall dimensions 50 x 79 mm, forming a rebate of dimensions 48 x 15 to 18 mm to receive the leaf. These elements are mitred at 45° and welded in the corners.

Before installation of the renovation casing, all isophonic joint present in the existing frame is removed.

The renovation casing is insulated internally by 30 mm diameter rolls of rock wool reference BOURRELET ROCKLAINE 511 (ISOVER).

An isophonic joint reference 1T442 (FIT) of section 13.5 x 7 mm or A1U554 (HUTCHINSON) or 66.20.0021.B (FRANCEM) or 66.20.0022.B (FRANCEM) may be positioned on the uprights and top rail of the renovation casing, in a recess of dimensions 7 x 3.4 mm.

Fixing of the renovation casing onto the existing frame is by any of: (*cf. drawings EO 2010-06 04, 05, 06, 07, 08 and 09*)

Version 1 (installation on fixing plates):

- 3 plates of 15/10 steel of dimensions 59 x 100 (w x l) per upright fixed onto the existing metal frame by two screws SFS FBSK 72 x 7.5 or onto the existing wooden frame by two screws TF 70 x 6.5;
- 3 self-tapping screws 22 x 4.8 fixing the renovation casing to the steel plate;
- 4 screws per upright SFS FBSK 100 x 7.5 fixing the renovation casing onto the front of the existing metal frame and TF 5 x 60 onto the existing wooden frame.

Version 1 A (installation on J-profile fixing plates):

- 3 plates of 20/10 steel, folded into a J-profile, per upright fixed onto the existing metal frame by one screw SFS FBSK 42 x 7.5 or onto the existing wooden frame by one screw SFS FBSK 72 x 7.5;
- 3 self-tapping screws 22 x 4.8 fixing the renovation casing to the steel plate, in the rebate;
- 3 self-tapping screws 22 x 4.8 fixing the renovation casing to the front of the steel plate.

Version 2 (installation with adjusters):

- The casing has 3 steel adjusters per upright into each of which is inserted a screw TF 70 x 6.5 for installation on existing wooden frames, or a screw SFS FBSK 72 x 7.5 for an existing metal frame;
- 4 fixing screws SFS FBSK 100 x 7.5 fixing the renovation casing onto the front of the metal frame, and TF 5 x 60 onto the wooden frame.

Version 3 (installation with setting shims):

- 3 setting shims in 15/10 steel of dimensions 59 x 100 (w x l) per upright fixed onto the existing frame by one self-tapping screw 22 x 4.2
- 4 screws SFS FBSK 100 x 7.5 fixing the renovation casing into the rebate for the existing metal frame or 4 screws TF 70 x 6.5 for the existing wooden frame, per upright;
- 4 screws per upright SFS FBSK 100 x 7.5 fixing the renovation casing onto the front of the existing metal frame or 4 TF 5 x 60 onto the existing wooden frame.

5.3.1.2.4. Metal clinched casing (see drawings EO 2010-06 40, 10, 31 and 41)

The frame comprises two uprights and a top rail produced from 15/10 mm sheet steel profiles W, W- I or W-Y with minimum overall dimensions of 70 x 44 mm.

The frame elements form a rebate of dimensions 43 to 49 x 15 to 18 mm. They are mitred to 45° and welded in the corners.

An isophonic joint 1U554 (FIT) or 66.20.0021.B (FRANCEM) or A1U554 (HUTCHINSON) or 1T442 (FIT) may be implemented around the periphery of the casing elements.

The casing is clinched into a rigid supporting structure of minimum thickness 100 mm, using three anchoring tabs per upright, welded to the interior profile of the casing.

5.3.1.2.5. Metal clinched casing or sealed into masonry rebate (see drawings EO 2010-06 40, 10, 31 and 41)

The frame comprises two uprights and a top rail produced from 15/10 mm sheet steel profiles reference PB, PBI, T or TI with minimum overall dimensions of 75 x 44 mm.

The frame elements form a rebate of dimensions 43 to 49 x 15 to 18 mm. They are mitred to 45° and welded in the corners or screwed. In the latter case, an inter-facings steel plate 25 x 2.5 mm is welded into each corner. These plates are bolted using two bolts HM6 x 20 mm.

An isophonic joint 1U554 (FIT) or 66.20.0021.B (FRANCEM) or A1U554 (HUTCHINSON) or 1T442 (FIT) may be implemented around the periphery of the casing elements.

The frame is clinched into a rigid supporting structure of minimum thickness 100 mm, using three welded or movable anchoring tabs per upright.

5.3.1.2.6. Metal frame installed into opening (see drawing EO 2010-06 40, 10, 31 and 41)

The frame comprises two uprights and a top rail produced from 15/10 mm sheet steel profiles reference PB, PBI, T or TI with minimum overall dimensions of 75 x 44 mm.

The frame elements form a rebate of dimensions 43 to 49 x 15 to 18 mm. They are mitred to 45° and welded in the corners or screwed. In the latter case, an inter-facings steel plate 25 x 2.5 mm is welded into each corner. These plates are bolted using two bolts HM6 x 20 mm.

An isophonic joint 1U554 (FIT) or 66.20.0021.B (FRANCEM) or A1U554 (HUTCHINSON) or 1T442 (FIT) may be implemented around the periphery of the casing elements.

The doorset frame is positioned within the opening of a masonry partition of minimum thickness 100 mm and is fixed by concrete screws  $\varnothing 7.5 \times 92$  mm. The fixings are distributed at maximum intervals of 655 mm approx. on the uprights and 540 mm approx. on the rail. Supalux S (ODICE) sand-lime blocks or steel shims are previously set in place perpendicular to the fixing points to wedge and adjust the position of the casing.

The frame profile is filled with two 25 mm thick blankets of INSULFRAX (P.B.I.) bio-soluble fibre. Peripheral sealing is provided by stuffing with INSULFRAX mineral wool or rolls of ROCKLAINE until full.

#### 5.3.1.2.7. Metal partition frames (see drawing EO 2010-06 40, 10, 31 and 33)

The frame comprises two uprights and a top rail produced from 15/10 mm sheet steel profiles reference P, PI, D, T or TI with minimum overall dimensions of 75 x 44 mm.

The frame elements form a rebate of dimensions 43 to 49 x 15 to 18 mm. They are mitred to 45° and welded in the corners or screwed. In the latter case, an inter-facings steel plate 25 x 2.5 mm is welded into each corner. These plates are bolted using two bolts HM6 x 20 mm.

An isophonic joint 1U554 (FIT) or 66.20.0021.B (FRANCEM) or A1U554 (HUTCHINSON) or 1T442 (FIT) may be implemented around the periphery of the casing elements.

The frame is installed in a flexible partition of minimum thickness 72 mm, produced in accordance with a currently-valid procès-verbal and declared minimum classification EI60. The thickness of the frame is adapted so as to wrap the partition.

Around the frame, the uprights and rail of the partition are reinforced (dual uprights or box rails). The plasterboards of the partition are notched perpendicular to the casing and enclosures so as to butt-up against the frame.

To the back of the frames are clipped or welded mounting brackets of 15/10 mm thick sheet steel folded into a "top-hat" profile. Three of these are used per upright. The frames are fixed to the partition framework by self-tapping screws  $\varnothing 3.5 \times 30$  mm through the mounting brackets. They are also fixed at the bottom to the concrete floor by two 10/10 thick sheet steel brackets using polyethylene plugs and screws  $\varnothing 6 \times 50$  mm.

#### 5.3.1.2.8. Finishing metal frame

The frame comprises two uprights and a top rail produced from two folded 15/10 mm thick sheet steel profiles of overall dimensions 68 x 65 mm and 75 x "A" (where "A" varies as a function of the thickness of the supporting structure).

The profiles are assembled together by their 15 mm and 19.5 mm flanges respectively using screws  $\varnothing 3.5$  by 35 mm spaced at intervals of approx. 650 mm.

Uprights and rail are mitred and assembled by welding.

The support fixings are 30/10 mm sheet steel and of overall dimensions "B" x 40 x 32 mm, and are welded to the frame profile along with "combs" of 15/10 mm sheet steel. A minimum of 4 are used per upright, distributed at maximum intervals of 690 mm.

To permit adjustment of the frame, at least one adjuster is welded to each support.

The frame may be equipped with a welded sill.

The frame profiles form a rebate of 48 x 15 mm. The rebate may offer a recess of dimensions 7 x 3.4 mm on the 48 mm flange. An isophonic joint 1U554 (FIT) or 66.20.0021.B (FRANCEM) or A1U554 (HUTCHINSON) or 1T442 (FIT) may be implemented around the periphery of the casing elements.

Fixing of the frame to the supporting structure is done through the adjusters by 7.5 x 82 mm screws, or by mechanical expansion bolts 6 x 80 mm after interposition of a steel shim offset on the hinge side in a rigid supporting partition, or 4.8 x 70 mm screw on a flexible supporting partition.

The space remaining between the casing and the supporting structure, having a maximum gap of 12 mm, is filled by stuffing until full with rock wool Insulfrax (P.B.I.) or Bourrelet 511 (ISOVER).

A bottom rail may be incorporated into the frame defined above so as to produce a 4-sided frame, with or without an apron.

For implementing partition frames poured-in-place, clinched, or in-opening, two doorsets may be positioned back-to-back in order to form an SAS. The resulting frame is obtained using a single metal profile (see drawing EO 2010-06 1). The two leaves implemented must then both possess EI30 performance.

### 5.3.2. Leaf

The leaf has a thickness of  $40 \pm 1$  mm.

#### 5.3.2.1. Frame

The framing of the leaf comprises two uprights and two rails, produced in joined glulam, or glulam, or solid wood from among the timber species listed at Illustration 2 of theoretical mean bulk density of  $450 \text{ kg/m}^3$  and of minimum overall edged section  $31 \times 33.5$  mm.

In the case of the "Kindergarten" doorset, the section of the uprights is raised to  $67 \times 33.5$  mm.

The section of the bottom rail of the leaf may be reduced to a minimum of  $21 \times 33.5$  mm.

Juxtaposed to the uprights can be added two laminated wood stiffeners KERTO S (FINNFOREST) or CH 85+ (TABSAL) or CH 65 (TABSAL) of minimum bulk density  $550 \text{ kg/m}^3$  and section  $50 \times 33.5$  mm.

These elements are cut square and assembled using two staples in each corner.

A  $3^\circ$  bevel may be made on the thickness of the leaf on each upright.

#### 5.3.2.2. Core

The core of the leaf comprises three panels of maximum thickness 33.5 mm arranged horizontally, in:

- flax chipboard reference V335M1UFE1A (UNILIN) or SANOPAN (DE SUTTER) or NORMAPORTE (LINEX) and of theoretical bulk density  $400 \text{ kg/m}^3$ ;
- wood chipboard reference L335LDUFE1A (UNILIN) of theoretical bulk density  $400 \text{ kg/m}^3$ .

#### 5.3.2.3. Facing

The facings are produced from two panels of thickness 2.8 mm in pre-painted MDF wood fibre, reference BBHA (ISOROY) or HOMADUR (HOMANIT) or pre-painted MDF (FINSAL) and having theoretical bulk density of  $780 \text{ kg/m}^3$ . The facings may be arranged horizontally.

The facings are fully glued onto the assembly formed by the encasing of the core, using:

- PVA glue reference DORUS MD 072 (HENKEL) or FOLCO-LIT D3 W91 (FOLLMANN & CO) or RAKOLL ECO 3 (HB FULLER) or EWB0301 (HB FULLER) or 3356 (AKZO NOBEL) or 3050 (NATIONAL), applied at  $100 \text{ g/m}^2$ ;
- urea formaldehyde adhesive DYNORIT L 110 + H434 (TRADE) applied at  $80 \text{ g/m}^2$ .

The facing may be replaced by an ALUKLIMA (HOMANIT) facing, of bulk density  $1241 \text{ kg/m}^3$  and minimum thickness 3.6 mm.

This facing may be formed of a panel of European solid beech or oak of theoretical mean bulk density of respectively  $680 \text{ kg/m}^3$  and  $710 \text{ kg/m}^3$  and of thickness between 2.8 and 3 mm.

Facings in wood fibre may be given an additional thickness in the form of a veneer of fine wood species 5/10 mm to 7/10 mm in thickness.

A decorative grooving of grooves of maximum dimensions 10 x 2 mm, which may or not reach the edges of the leaf, may be made on the facings.

Grooving of maximum dimensions 2.5 x 4 mm (w x d) may be made on one or both faces of the facing, with the fitting of a PVC clip ref. SV 251 (INDOPLAST).

#### 5.3.3. Transom (see drawings EO 2010-06 24, 25, 26 and 27)

The doorset may accept a transom, with or without intermediate rail. The frame uprights are continuous over the full height (leaf + transom). The intermediate rail is of the same composition as the frame's top rail.

The transom is of identical composition to the leaf if it is of height less than or equal to 275 mm.

The core may comprise 2 panels arranged vertically.

The height of the transom may be increased to 985 mm. In this case the transom must have a double framing of section (31 + 36) x 33.5 mm, comprising profiles of wood of minimum bulk density 650 kg/m<sup>3</sup>.

A counter-rebate of 10 x 15 mm is made in the bottom transom rail to mate with the top rail of the leaf, which has an opposing rebate of 30 x 15 mm, in the case where there is no intermediate rail.

The transom interfaces with a lath of hardwood or softwood of minimum bulk density 440 kg/m<sup>3</sup> and section 14.5 x 14.5 mm, in the case of wooden framing, or of sheet steel in the case of metal frames, fixed to the top rail of the frame using appropriate screws, or onto concrete.

The transom is retained by two recessed latches reference 9475 (BRICARD) or G-21001-16-0-3 (FERCO), located at each end of the bottom rail of the transom.

Where the transom is not removable, the recessed latches are omitted and the transom is screwed to the frame using appropriate screws to ensure at least 25 mm of engagement in the leaf at intervals of 275 mm maximum.

#### 5.3.4. Fire sealing between opener and frame

The different sealing configurations are set out in drawings EO 2010-06 15, 16, 17, 18, 28, 29, 35, 36, 55.

An intumescent seal reference KERAFIX FLEXPAN 200 L of section 15 x 1.5 mm or KERAFIX FLEXPRESS 100 (KHUN-GLUSKE), of section 12 x 1.5 mm (metal frame installed in lightweight partition) or 15 x 1.5 mm, is placed in a groove of the same dimensions formed on the leaf uprights and top rail, offset on the side away from hinges or centred in the leaf thickness; or glued onto the frame's flange, offset on the side away from hinges (see drawing 2010-06 28 and 36).

##### 5.3.4.1. Metal frame version poured-in-place / clinched and wooden frame:

In this case, leaf sealing may be assured by:

1/ (see drawing EO 2010-06 55, 28 and 36)

- On the upright on the closing side, an intumescent seal reference PALUSOL 100 (ODICE) thickness 1.9 mm interposed in the upright between two profiles of section 14.5 x 33.5 mm and 20.5 x 33.5 mm retained by PVA glue reference RAKOLL ECO 3 (HB FULLER) applied at 100 g/m<sup>2</sup>.
- On the upright on the hinged side, there is no fire sealing.
- On the top rail, an intumescent seal reference KERAFIX FLEXPRESS 100 (KHUN-GLUSKE) of section 12 x 1.5 mm or 15 x 1.5 mm or KERAFIX FLEXPAN 200 L of section 15 x 1.5 mm, positioned in a groove of the same dimensions formed on the side away from hinges of the top rail of the leaf.

2/ (see drawing EO 2010-06 55, 28 and 36)

- On the uprights, an intumescent seal reference PALUSOL 100 (ODICE) thickness 1.9 mm is interposed in the upright between two profiles of section 14.5 x 33.5 mm and 20.5 x 33.5 mm retained by PVA glue reference RAKOLL ECO 3 (HB FULLER) applied at 100 g/m<sup>2</sup>.
- On the top rail, an intumescent seal reference KERAFIX FLEXPRESS 100 (KHUN-GLUSKE) of section 12 x 1.5 mm or 15 x 1.5 mm or KERAFIX FLEXPAN 200 L of section 15 x 1.5 mm, positioned in a groove of the same dimensions formed on the side away from hinges of the top rail of the leaf.

3/ (see drawing EO 2010-06 28 et 36)

- On the uprights, an intumescent seal reference PALUSOL 100 (ODICE) 1.9 mm in thickness interposed between the upright and the core of the door.
- On the top rail, an intumescent seal reference KERAFIX FLEXPRESS 100 (KHUN-GLUSKE) of section 12 x 1.5 mm or 15 x 1.5 mm or KERAFIX FLEXPAN 200 L of section 15 x 1.5 mm, positioned in a groove of the same dimensions formed on the side away from hinges of the top rail.

#### 5.3.4.2. Wooden frame version:

In the case of a wooden frame, hot sealing of the leaf may be substituted by: (see drawing EO 2010-06 28)

- An intumescent seal reference KERAFIX FLEXPAN 200 L or KERAFIX FLEXPRESS 100 (KHUN-GLUSKE) or 2115205 (MARVON), of section 15 x 2 mm, is positioned in a groove of the same dimensions formed on the casing uprights and in the top rail, offset on the side away from hinges.

#### 5.3.4.3. Lining frame version, wood or metal: (see drawing EO 2010-06 15 and 16)

In this case, leaf sealing is provided by an intumescent seal reference INTUMEX LSK (PROMAT), of section 30 x 2.5 mm or KERAFIX FLEXPRESS 100 (KHUN-GLUSKE), of section 30 x 3 mm, located in a groove of the same dimensions formed centrally on the uprights and top rail of the leaf.

On a wooden lining frame, the seals on the uprights may be relocated onto the frame in a groove made at 3 mm from the frame facing.

#### 5.3.4.4. Renovation frame and finishing frame version: (see drawing EO 2010-06 17 and 18)

In this case, hot sealing is provided by:

- On the leaf, a rebate of dimensions 5 x 30 mm is formed on the top rail on the side away from the hinges. An intumescent seal reference KERAFIX FLEXPRESS 100 (KHUN-GLUSKE) of section 12 x 1.5 mm or 15 x 1.5 mm placed in a groove of the same dimensions formed on the uprights and top rail of the leaf, on the side away from hinges or centrally in the leaf thickness.
- For the casing, a self-adhesive intumescent seal reference PALUSOL PM SA (ODICE), of section 25 x 2.8 mm is positioned on the top rail of the renovation casing.

#### 5.3.4.5. Version without locking point: (see drawing EO 2010-06 28 and 36 "astragal SPF")

If the door has no locking point, sealing on the upright on the astragal side is replaced by an intumescent seal PALUSOL EFDL 6 (ODICE) of section 30 x 4 mm, placed in a groove of dimensions 30.5 x 4.2 mm, centred in the thickness of the leaf. In the bottom rail of the leaf is positioned an intumescent seal reference PALUSOL PM SA (ODICE), of section 15 x 2.8 mm, in a groove of the same dimensions.

#### 5.3.4.6. Removable transom version with or without intermediate rail: (see drawings EO 2010-06 28, 29, 35 and 36)

In this case, sealing at the top rail of the leaf is provided by a seal reference KERAFIX FLEXPAN 200 L (KHUN-GLUSKE) and of section 15 x 1.5 mm or KERAFIX FLEXPRESS 100 (KHUN-GLUSKE) of section 15 x 1.5 mm or 12 x 1.5 mm positioned in a groove of the same dimensions, offset from the side away from hinges.

In the top rail of the transom a groove 15.5 x 16 mm is made receiving a self-adhesive intumescent seal reference KERAFIX FLEXPAN 200 L (KUHN-GLUSKE) of section 15 x 1.5 mm. In the bottom rail of the transom, an isophonic joint reference PREM HB 1T082 (FIT) or TV 103 B (INDOPLAST) of overall section 15.8 x 8.5 mm or 1W048 (FIT) of overall section 14.7 x 13 mm or TV 103 D (INDOPLAST) of overall section 15.8 x 8.5 mm is placed at the bottom of the rebate of the frame elements, on the 48 mm flange, in a recess 3 x 6 mm; or F3 (DUAL) of overall section 13 x 13 mm glued, may be placed in a recess of dimensions 3 x 6 mm. In this case, the rebate in the top rail is increased to 13.6 x 15 mm.

#### 5.3.4.7. Maternelle doorset version: (see drawing E235-13 02)

In the case of a maternelle doorset, peripheral sealing of the leaf is unchanged. On the hinged and closing side, over a maximum height of 1200 mm from the bottom of the leaf, a finger protection joint reference 1004 (AGRIPSOL) of section 40 x 38 mm is implemented in a machining of width 38 mm, over the whole leaf thickness. It is equipped internally with two self-adhesive intumescent seals reference Palusol P (ODICE) of section 15 x 6 mm. The finger protection joint is retained by steel screws Ø3 x 25 mm distributed at regular intervals of approx. 200 mm over the height of the joint, simultaneously retaining the intumescent seal.

#### 5.3.4.8. 4-Sided frame version

If the doorset comprises a 4-sided frame, the bottom rail of the leaf receives the same sealing as was previously applied to the top rail or a seal FLEXPAN 200 L KUHN-GLUSKE) of section 15 x 1.5 mm, glued onto the surface, centred on the bottom rail of the leaf.

### 5.3.5. Oculi

The leaf may be equipped with an oculus in glazing PYROSTOP 30-10 (PILKINGTON), Pyrobelite 7 EG (A.G.C.), or Pyrobelite 10 (A.G.C.), or Pyrobel 16 (A.G.C.), Pyrodur 30-10 (Pilkington), Pyrodur 30-201 (Pilkington) and Pyrodur 30-251 (Pilkington)

The precise composition of the glazings is on file in the laboratory.

The oculus may be rectangular of maximum dimensions 1200 x 500 mm, circular or semi-circular of maximum diameter 406 mm, or triangular in form of maximum dimensions 400 x 600 mm. If the glazing exhibits performance inferior to that of the doorset in which it is installed, the doorset takes on the performance of the installed glazing.

The edge of the leaf cut-out is protected around its full periphery by an intumescent seal Interdens 15 SA (ODICE) 1 mm in thickness and 38 mm in width.

#### 5.3.5.1. Rectangular oculus

##### 5.3.5.1.1. Wood beading:

The leaf may be fitted with a rectangular oculus of maximum dimensions 1200 x 500 mm.

Implementation is as follows:

- A cut-out is made in the leaf of dimensions (glass dimensions) + 6 mm. The cut-out is made at a minimum of 212 mm from the lateral edge and a minimum of 237 mm from the top rail.
- The fitted glazing is maintained by a double bead formed from profiles in solid wood or reconstituted solid wood (by lamination / abutting / gluing) of Moabi, Sapelli or beech of minimum overall section 25.5 x 30 mm having a rebate of dimension variable depending on the thickness of the glazing (see drawing P TEC O MON 015\_B). The beadings are fitted with strips of mineral fibre Superwool X607 (ODICE) or FLAMISEAL FDJ 2012 (ETANCHEITE JUNG) of section 15 x 3 mm and are screwed to the leaf using steel screws Ø 5 x 70 mm distributed at intervals of approx. 350 mm.

The wood beadings accept a cawling of steel or stainless steel 1 mm to 1.5 mm thick (see drawing EO 2010-06 32).

Engagement in rebate of the glazing: 10 mm and minimum 18 mm for glazings reference Pyrobelite 7 EG, Pyrobelite 10, Pyrobel 16 and Pyrodur 30-201.

Clearance at bottom of the rabbet: 2 mm

5.3.5.1.2. Metal beadings (valid only for PYROSTOP 30-10 glazing)

The leaf may be fitted with a rectangular oculus of glazing dimensions maximum 280 x 432 mm or 229 x 1194 mm (w x h).

Implementation is as follows:

- Cut-out made in leaf of dimensions (dimensions of glass + 25 mm (w x h). The cut-out is made a minimum of 102 mm from the leaf edge and a minimum of 100 mm from the top rail;
- The fitted glazing is maintained by a double bead formed from profiles in folded 10/10 mm thick sheet steel (ANEMOSTAT), of overall section 44 x 38 mm. The beads are mitred and fixed by screws Ø 4 x 38 mm or Ø 4 x 40 mm distributed at maximum intervals of 305 mm, following the interposition of a strip of mineral fibres SUPERWOOL X607 (ODICE) of section 15 x 4 mm.
- Shims of SUPALUX S (PROMAT) of section 11 x 12 mm are implemented around the periphery of the glazing.

Engagement in rebate of the glazing: 12 mm

Gap at bottom of rebate: 12 mm

5.3.5.2. Circular oculus (valid only for PYROSTOP 30-10 glazing)

The leaf can accept a circular oculus of maximum glazing diameter Ø 432 mm.

Implementation is as follows:

- A cut-out is made in the leaf of dimensions Ø (glass dimensions) + 25 mm. The cut-out is made at a minimum of 102 mm from the edge on the closing side and at 100 mm minimum from the top rail;
- The fitted glazing is maintained by a double bead formed from profiles in folded 10/10 mm thick sheet steel (ANEMOSTAT), of overall section 44 x 38 mm. The beads are fixed by screws Ø 4 x 38 mm or Ø 4 x 40 mm distributed at maximum intervals of 240 mm, following the interposition of a strip of mineral fibres SUPERWOOL X607 (ODICE) of section 15 x 4 mm. On the hinge side a second strip of mineral fibres implemented.
- Shims of SUPALUX S (PROMAT) of section 11 x 12 mm are implemented around the periphery of the glazing.

Engagement in rebate of the glazing 12 mm

Gap at bottom of rebate: 12 mm

5.3.5.3. Triangular oculus

The leaf may be fitted with a triangular oculus of maximum dimensions 400 x 600 mm.

Implementation is as follows:

- A cut-out is made in the leaf of dimensions (glass dimensions) + 6 mm. The cut-out is made at a minimum of 150 mm from the edge of the leaf on the closing side and from the top rail.
- The fitted glazing is maintained by a double bead of joined beech, of section 30 x 25.5 mm having a rebate of dimension variable depending on the thickness of the glazing (see drawing P TEC O MON 015\_B). The beads are fixed by eight screws Ø 5 x 70 mm, following the interposition of a strip of mineral fibres SUPERWOOL X607 (ODICE) of section 15 x 3 mm.

Engagement in rebate of the glazing: 16 mm and minimum 18 mm for glazings reference Pyrobelite 7 EG, Pyrobelite 10, Pyrobel 16 and Pyrodur 30-201.

Clearance at bottom of the rebate: 2 mm

Several oculi (up to four) may be fitted simultaneously on the same leaf but, in this case, the maximum clear area of the glazing may not exceed 48 dm<sup>2</sup> and the oculi must be separated by at least 150 mm.

The glazings may receive an adhesive film of fire reaction classification M0 or M1 on the face exposed, or not exposed, to fire. Application of these films is limited to the following classifications: E30, EI<sub>1</sub>30 or EI<sub>2</sub>30.

Finishing of the glazing implementation may be by a silicone firestop of type FLAMISEAL SCF 15991 (ETANCHEITE JUNG) or equivalent.

### 5.3.6. Hinging

#### 5.3.6.1. Hinges

The leaf hinges on three or four steel hinges UNI 130x86 (MONIN) or 110x55 or 140x55 (AMI) or 140x70 or 140x80 or 160x80 (CLEMENSON INDUSTRIE) or blade hinges 80x80 stainless steel, fixed to the leaf and frame by TF screws Ø 4 x 25 mm. In the case of a metal frame, the male hinges may be welded to the frame, or screwed to housings welded to the frame.

In the case of a wooden or metal lining frame, the notched hinge blades are insulated by an intumescent seal reference INTERDENS 15 SA (ODICE) of thickness 1 mm.

The hinges are centred in accordance with professional rules for fittings.

In the case of a leaf having a width greater than or equal to 930 mm and/or height greater than or equal to 2240 mm, a fourth hinge is centred at 165 mm from the topmost hinge.

The hinges may be fitted with a POM sleeve and ABS hinge concealer.

On leaves with finger protection joints APD 1004 (AGRIPSOL), the hinges to the height of the finger protection joint are elbow hinges.

For metal frames with UNI screwed hinges, the fixing screws of the male hinge may be replaced by a threaded anti-unhinging device. The female hinge is then indented.

#### 5.3.6.2. Concealed hinges on wooden frame

For a wooden door casing, the leaf may be hinged by three or four built-in hinges references INVISIBLE SMALL or INVISIBLE MEDIUM or NEO S-5 or NEO M-6 (RENSON ARGENTAT).

Built-in hinges reference INVISIBLE SMALL have overall dimensions 23 x 95 x 30 mm and are placed in cut-outs 26 x 98 x 33 mm made at the bottom of the rebate of the wooden frame and on the edge of the hinged side of the leaf.

Built-in hinges reference INVISIBLE MEDIUM have overall dimensions 29 x 111 x 35 mm and are placed in cut-outs 32 x 114 x 38 mm made at the bottom of the rebate of the frame and on the edge of the hinged side of the leaf.

Built-in hinges reference NEO S-5 have overall dimensions 25 x 120 x 26.5 mm and 25 x 120 x 30 mm and are placed in cut-outs respectively of 28 x 123 x 29.5 mm and 28 x 123 x 33 mm made at the bottom of the rebate of the frame and on the edge of the hinged side of the leaf.

Built-in hinges reference NEO M-6 have overall dimensions 28 x 140 x 30 mm and 28 x 140 x 32 mm and are placed in cut-outs respectively of 31 x 141 x 33 mm and 31 x 143 x 35 mm made at the bottom of the rebate of the frame and on the edge of the hinged side of the leaf.

The end hinges are centred at 175 mm from the top end of the leaf and at 185 mm from the bottom end; where three hinges are used, the intermediate one is centred midway between the end hinges; where a fourth hinge is used, this is centred at 200 mm from the upper end hinge.

The hinge bodies are protected by an intumescent seal reference INTERDENS 15 (ODICE) of thickness 1 mm and fixed by two screws Ø 4 x 25 mm.

### 5.3.7. Closure

Closure of the leaf may be achieved via:

- A single lateral closing point mortice lock reference **670 (EURO ELZETT)**, centred at 40 or 50 mm.

The lock casing, of dimensions 145 x 14 x 66 (centre at 40) or 76 (centre at 50) mm, is fitted into a mortice of dimensions 164 x 85 (centre at 50) or 75 (centre at 40) x 16 mm made in the leaf, using two screws VBA Ø 4 x 25 mm.

- A single lateral closing point mortice lock reference **667 (EURO ELZETT)**, centred at 40 or 50 mm.

The lock casing, of dimensions 145 x 14 x 66 (centre at 40) or 76 (centre at 50) mm is fitted into a mortice of dimensions 180 x 85 x 16 mm made in the leaf, using two screws VBA Ø 4 x 25 mm.

- A single lateral closing point mortice lock reference **665 (EURO ELZETT)**, centred at 40 or 50 mm.

The lock casing, of dimensions 145 x 14 x 66 (centre at 40) or 76 (centre at 50) mm is fitted into a mortice of dimensions 180 x 85 x 16 mm made in the leaf, using two screws VBA Ø 4 x 25 mm.

- A single lateral closing point mortice lock reference **672 (EURO ELZETT)**, centred at 40 or 50 mm.

The lock casing, of dimensions 145 x 14 x 66 (centre at 40) or 76 (centre at 50) mm is fitted into a mortice of dimensions 180 x 85 x 16 mm made in the leaf, using two screws VBA Ø 4 x 25 mm.

- A single lateral closing point mortice lock reference Centr'axe (METALUX), centred at 300 - 465 mm (lever type, locking lever type, or latch bolt and dead bolt).

The lock casing, of dimensions 329 (centred at 300) to 494 (centred at 465) x 195 x 15 mm is implemented in a case of linseed particle board of bulk density 400 kg/m<sup>3</sup> or of wood chipboard of bulk density 400 kg/m<sup>3</sup> or of solid wood of minimum bulk density 400 kg/m<sup>3</sup>. Overall dimensions of the case are 'l2' x 280 x 33,5 mm (w x h x th), where 'l2' depends on the constitution of the core and is such that the length between the centre of the lever handle and the bottom of the case is 41.5 mm. The case provides an opening for the lock casing of dimensions 197 x 17 mm (w x th) over the full length of the case. The case may be a single element or comprise multiple elements (two faces of variable thickness and two interface battens 17 mm in thickness glued between them).

The lock casing is inserted into the case (with no thermal protection) through an opening 210 x 17 mm made through the full depth of the upright on the locking side of the leaf's internal frame and any components forming part of the core design.

The dimensions of the case opening may be increased from 197 x 17 to 207 x 17 mm over the full length of the case; the length of the case is then increased by 5 mm, giving a length between the handle centre and the bottom of the case of 46.5 mm. In this configuration the lock's main casing is thermally protected on the top, rear and bottom edges by an intumescent seal reference FXL 200 (KUHN-GLUSKE) or reference Interdens 15 SA (ODICE) of section 12 x 1 mm. The lock casing is then fixed by two screws VBA Ø 4 x 25 mm.

- A single lateral closing point mortice lock of the PMR *Pack accessibilité* range (**DENY**), centred at 120 mm.  
  
The lock casing of dimensions 145 x 14 x 180 mm is fixed into a mortice, of dimensions 146 x 16 x 182 mm made in the leaf, by two screws VBA Ø 4 x 25 mm.
- A single lateral closing point mortice lock of the **D45 range (VACHETTE)**, centred at 40 to 120 mm.  
  
The lock casing, of dimensions 149 x 'a' x 15 mm is fixed into a mortice of dimensions 164 x 'a'+3 x 16 mm made in the leaf. 'a' is variable depending on the lock centre.
- A single lateral closing point mortice lock of the **900 (BRICARD)** range, centred at 50 mm.  
  
The lock casing is fitted into an opening of dimensions 164 x 85 x 16 mm made in the leaf.
- A single lateral closing point mortice lock reference **FA7250 (MARQUES)**, centred at 50 mm.  
  
The lock casing, of overall dimensions 148 x 78 x 14 mm, is fixed into a mortice of dimensions 168 x 85 x 18 mm made in the leaf by two screws VBA Ø 4 x 25 mm. The lock may be protected by an intumescent seal reference INTERDENS 15 SA (ODICE) thickness 1 mm. The bolt engages in a steel strike reference 19 15 521 (BRICARD) fixed onto the casing upright.
- A single lateral closing point mortice lock reference 1106 (**MARQUES**), centre 60 mm.  
  
The lock casing, of dimensions 160 x 89.5 x 13.2 mm is fixed into a mortice of dimensions 164 x 97 x 15 mm made in the leaf.
- A single closing point and triple lateral locking point mortise lock reference **AMAZONE or AMAZONE+ (METALUX) or TRILOGIA 2S or TRILOGIA 2 A2P (EURO ELZETT)** ±, centre 50 mm.  
  
The main casing, of dimensions 145 x 70 x 12.75 mm, and secondary casings of dimensions 120 x 44.5 x 9 mm, are placed in mortises of respective dimensions 160 x 85 x 16 mm and 135 x 75 x 16 mm. They are retained by a rod of section 18 x 3 mm, fixed over the full height of the leaf by ten screws VBA ø 4 x 25 mm.
- A single closing point and triple lateral locking point mortise lock reference **Centr'axe 3 points (METALUX)**, centred between 300 and 465 mm.  
  
The main lock casing, of dimensions 349 (centred at 300) to 494 (centred at 465) x 195 x 15 mm is implemented in a case of linseed particle board of bulk density 400 kg/m<sup>3</sup> or of wood chipboard of bulk density 400 kg/m<sup>3</sup> or of solid wood of minimum bulk density 400 kg/m<sup>3</sup>. Overall dimensions of the case are 'l2' x 280 x 33,5 mm (w x h x th), where 'l2' depends on the constitution of the core and is such that the length between the centre of the lever handle and the bottom of the case is 41.5 mm. The case provides an opening for the lock casing of dimensions 197 x 17 mm (w x th) over the full length of the case. The case may be a single element or comprise multiple elements (two faces of variable thickness and two interface battens 17 mm in thickness glued between them). The lock casing is inserted into the case (with no thermal protection) through an opening 210 x 17 mm made through the full depth of the upright on the locking side of the leaf's internal frame and any components forming part of the core design.

A second opening of dimensions 286 x 16 x 19 mm, centred on the previous opening, houses the operating mechanism for the secondary casings. The lock faceplate is placed into a groove of dimensions 18 x 'h' x 3 mm, where 'h' corresponds to the leaf height.

The secondary casings, of dimensions 120 x 44.5 x 15 mm, are fitted into two openings of dimensions 135 x 47 x 16 mm made in the leaf. The secondary casings are fitted into a mortice of dimensions 47 x 135 x 16 mm, centred at 676 mm and 724 mm from the handle centre. The secondary housings are linked to the main housing by a rod housed below the continuous faceplate of the lock, in a groove of dimensions 13 x 9 mm; they are not protected thermally. The bolts can engage in strikes reference G370 (METALUX).

The dimensions of the case opening may be increased from 197 x 17 to 207 x 17 mm over the full length of the case; the length of the case is then increased by 5 mm, giving a length between the handle centre and the bottom of the case of 46.5 mm. In this configuration the lock's main casing is thermally protected on the top, rear and bottom edges by an intumescent seal reference FXL 200 (KUHN-GLUSKE) or reference Interdens 15 SA (ODICE) of section 12 x 1 mm.

- A mortice lock having a single lateral closing point by latch bolt and multiple locking points by dead bolts, reference **5000 Range (ASSA ABLOY - VACHETTE)**, centre 50 to 120 mm.

The main casing, of maximum dimensions 148 x 149 x 15 mm, and secondary casings of maximum dimensions 45 x 160 x 15 mm, are placed in mortises of respective dimensions 160 x 150 x 16 mm and 50 x 175 x 16 mm. They are retained by a rod of section (16 to 18) x 3 mm, fixed over the full height of the leaf by ten screws VBA  $\varnothing$  4 x 25 mm. The locks can optionally be fitted with a built-in opening restrictor. The casing of the opening restrictor, of dimensions 90 x 68 x 15 mm, is positioned in a mortise of dimensions 105 x 73 x 16. The edges of the opening restrictor casing are then protected by intumescent seal INTERDENS 15 SA (ODICE) of section 10 x 1 mm. The bolt of the restrictor engages in a strike reference G ENT5 CD (ASSA ABLOY) of dimension 138 x 30 x 15 mm positioned in the frame.

- A mortice lock having a single lateral closing point by latch bolt and multiple locking points by dead bolts, reference **8150/8151/8152 range (BRICARD)**, centre at 50 mm.

The main casing, of maximum dimensions 148 x 76 x 14 mm, and secondary casings of maximum dimensions 124 x 45 x 14 mm, are placed in mortises of respective dimensions 160 x 85 x 16 mm and 135 x 77 x 16 mm. They are retained by a rod of section (16 to 18) x 3 mm, fixed over the full height of the leaf by ten screws VBA  $\varnothing$  4 x 25 mm.

- A mortice lock having a single lateral closing point by latch bolt and three locking points by dead bolts, reference **736 range (MARQUES)**, centre 50 mm.

The main casing, of dimensions 148 x 78 x 14 mm, and secondary casings of dimensions 120 x 40.5 x 14 mm, are placed in mortises of respective dimensions 160 x 85 x 17 mm and 135 x 75 x 17 mm and are insulated by an intumescent seal INTERDENS 15 SA (ODICE) of thickness 1 mm. They are retained by a rod of section 18 x 3 mm, fixed over the full height of the leaf by ten screws VBA  $\varnothing$  4 x 25 mm.

- Motorised mechanical locks, controlled handle and DAS controlled handle, range 160, 360, 520, 560 and KEL DAS, centre 50 and 60 mm.

The lock casing of maximum dimensions 168.5 x 88 x 16.5 mm is fixed into a mortice, of dimensions 195 x 130 x 18 mm made in the leaf, by two screws VBA  $\varnothing$  4 x 25 mm.

In the case where a DCF frame is being implemented, the monopoint and multipoint lock casings are thermally protected with 1 mm thick Interdens 15 (ODICE) or KERAFIX FXL 200 (KUHN – GLUSKE).

The lock is linked to its supplier strike(s) and fixed by a minimum of two steel screws  $\varnothing$  4 x 25 mm. It may also be linked to a 20/10 mm thick steel strike, of dimensions 20 x 175 mm, with extended tongue. It is retained by at least two steel screws  $\varnothing$  4 x 25 mm.

Minimum engagement of the lock is 9 mm.

- In the case of implementing on a wooden frame, a single lateral closing point mortice lock reference 1200 (NEMEF), centre at 50 mm.

The lock casing, of dimensions 122 x 17 x 77.3 mm (h x w x d) is inserted into a mortice of dimensions 130 x 17 x 82.5 mm (h x w x d). It is fixed by means of its faceplate, which is positioned in an opening of dimensions 174 x 20 x 2.5 mm ((h x w x d) , by two steel screws Ø 4 x 25 mm.

The moving bolt engages in a steel strike of dimensions 172 x 31 x 2 mm (h x w x th). The strike is inserted into a mortice and fixed by means of its faceplate by three steel screws Ø 4 x 25 mm.

Minimum engagement of the lock is 11 mm.

The electronic locks shown below may be installed with the card reader on the side away from hinges and the side away from fire.

- A lock with single lateral locking point from the SAFLOK range: QUANTUM RFID, **QUANTUM MT, QUANTUM 2 RFID, MT RFID (KABA)**, centre 70 mm, casing ASM or ESM.

The lock housing is placed in an opening of maximum dimensions 165 x 115 x 29 mm made in the leaf and fixed by two screws VBA Ø 4 x 25 mm. The opening is protected by an intumescent seal reference INTERDENS 15 SA (ODICE) of dimensions 340 x 130 x 1 mm. In the case of a wooden frame, the bolt engages in a strike (SAFLOK) of dimensions 124 x 48 x 12 mm fixed to the frame by two screws VBA Ø 4 x 25 mm.

- A lock with single lateral locking point from the ILCO range: 790 E, 790 K, 760 E, 760 K, 770 K, 660 E, 660 F, 660 K, RT RFID and **RT RFID option MESSENGER (KABA)**, casing ASM or ESM centre 70 mm.

The lock casing, of dimensions 148 x 106 x 22 mm, is placed in an opening of dimensions 170 x 112 x 24 mm made in the leaf, and fixed by two screws VBA Ø 4 x 25 mm. For a wooden door casing, the bolt engages in a 24/10 mm thick strike of overall dimensions 46 x 124 mm, inserted into a cut-out of dimensions 40.5 x 124.5 x 2.7 mm machined into the frame, and fixed by two screws VBA Ø 4 x 25 mm.

- A single lateral closing point lock reference HT 24/28 casing EURO, HT RFID casing EURO, ADVANCE RFID and ADVANCE MAG-DUAL (**ONITY**), centre 50 to 70 mm.

The lock casing, of dimensions 175 x 89 x 16 mm, is placed in an opening of dimensions 193 x 105 x 18 mm made in the leaf, and fixed by two screws VBA Ø 4 x 25 mm. In the case of a wooden frame, the bolt engages with a 20/10 mm thick steel strike, of overall dimensions 24 x 184 mm, inserted into a cut-out of the same dimensions machined into the door casing, and fastened by two screws VBA Ø 4 x 25 mm.

- A single lateral closing point lock reference DONNA 600 EURO or ANSI casing.

The lock casing, of dimensions 150 x 105 x 22 mm for the ANSI casing and 175 x 93 x 16 mm for the EURO casing, is placed in an opening of respective dimensions 165 x 110.5 x 24 mm and 192 x 98 x 18 mm, made in the leaf and fixed by two screws VBA Ø 4 x 25 mm. The casing is thermally protected by an intumescent seal reference INTERDENS 15 (ODICE) 1 mm thickness on all the built-in faces. In the case of a wooden frame, the bolt engages with a 20/10 mm thick steel strike, of overall dimensions 255 x 35 mm, inserted into a cut-out of the same dimensions machined into the door casing, and fastened by two screws VBA Ø 4 x 25 mm.

- A lock with single lateral locking point reference VINGCARD ELECTRONIQUE (VINGCARD).

The lock casing, of dimensions 160 x 110 x 24 mm, is placed in an opening of dimensions 170 x 115 x 26 mm made in the leaf, and fixed by two screws VBA Ø 4 x 25 mm. The casing is protected by an intumescent seal reference INTERDENS 15 SA (ODICE) 1 mm thickness arranged on all the built-in faces of the lock casing.

- A lock with single lateral locking point reference WAVE MODE and WAVE MODE EVOLUTION (CISA / BRICARD).

The lock casing, of dimensions 116 x 170 x 16 mm, is placed in an opening of dimensions 120 x 186 x 18 mm made in the leaf, and fixed by two screws VBA Ø 4 x 25 mm. The casing is protected by an intumescent seal reference INTERDENS 15 SA (ODICE) 1 mm thickness arranged on all the built-in faces of the lock casing.

The casings of all the locks are thermally protected with the exception of locks of the ILCO range. In the case where a DCF frame is being implemented, the lock casing is thermally protected with 1 mm thick Interdens 15 (ODICE) or 1 mm thick KERAFIX FXL 200 (KUHN – GLUSKE).

The locks above have a lock centre at 1020 mm from the bottom of the leaf.

When these are used on the maternelle doorset, the lock centre is raised to 1270 mm from the bottom of the leaf.

On metal door casing, engagement is through appropriate cut-outs made in the metal profile, aligned to the locking bolts and latches. A sheet steel strike bracket is welded-in at the location of the cut-outs, inside the profile (to avoid any flexing of the partition connectors).

The locks may be equipped with APERIO (ASSA ABLOY) controlled handles with APERIO cylinders (ASSA ABLOY). Or SMARTAIR (ASSA ABLOY) or PEGASYS (CISA).

### 5.3.8. Fitments

#### 5.3.8.1. Built-in door closer

The doorset, swinging on a frame of joined glulam wood from the wood species set-out at Illustration 1 of minimum theoretical mean bulk density 480 kg/m<sup>3</sup> and minimum overall sections 68 x 53 mm, may be equipped with a built-in door closer reference:

- ITS 96 (DORMA)

The section of the frame rail is raised to 80 x 59 mm minimum. This section may be obtained using a wood profile, of the same nature as the frame, fitted into the brickwork groove of the frame's top rail. This profile may itself have a brickwork groove. The frame rail has a groove of dimensions 31 x 3.2 mm, located on the bigger flange of the rebate, at 4 mm from the frame facing. This groove receives a FLEXPRESS 100 (KUHN-GLUSKE) seal of section 30 x 3 mm.

The built-in door closer reference ITS 96 (EN 2-4 (DORMA)) is located across the doorset. It is centred at around 244 mm from the upright on the hinge side of the frame.

On the top rail of the frame is made a groove of dimensions 33 x 339 x 7.2 mm (w x l x d) then a mortice of dimensions 35 x 286 x 50 mm (w x l x d) which receive respectively the faceplate and the casing of the door closer. The casing is fixed by four steel screws Ø 4 x 25 mm.

On the top rail of the opener is made a groove of dimensions 20.5 x 466 x 3 mm (w x l x d) then a mortice of dimensions 22.5 x 450 x 13 mm (w x l x d) which receive respectively the faceplate and the casing of the door closer slider. The slider is fixed by two steel screws Ø 4 x 25 mm. In addition, the top rail of the opener is counter-rebated over a width of 30 mm and a depth of 5 mm to permit the articulation / travel of the door closer arm.

The door closer casing is thermally protected by an intumescent seal Kerafix FXL 200 (GLUSKE) thickness 1 mm or by an intumescent seal Interdens type 15 (ODICE) thickness 1 mm, covering the back of the door closer together with the two faces parallel to the leaf facings. The faceplate is then covered by an intumescent seal Flexpress (GLUSKE) of section 30 x 3 mm located in a groove of dimensions 31 x 3.2 mm, having the necessary openings for setting of the door closer.

The three faces of the door closer slider are thermally protected by an intumescent seal Kerafix FXL 200 (GLUSKE) thickness 1 mm or by an intumescent seal Interdens type 15 (ODICE) thickness 1 mm. Additionally, an intumescent seal Kerafix FLEXPAN 200 L (KUHN-GLUSKE) of section 15 x 1.5 mm is fitted into a groove of dimension 15.5 x 1.7 mm made in the counter-rebate of the opener, off-centre from the side away from hinges.

- BOXER (GEZE)

The implementation of the built-in door closer reference Boxer EN 2-4 (GEZE) is identical to that of built-in door closer reference ITS 96 EN 2-4 (DORMA), except that the slider is located in an opening of dimensions 22.5 x 459 x 13 mm (w x l x d).

- ITS MULTI GENIUS EN 1-4 and EN 2-5 (ECO-SCHULTE)

In the case of a built-in door closer ITS Multi Genius (ECO-SCHULTE / IMPAR), the door closer is associated either with a single closing slider reference B (ECO-SCHULTE / IMPAR) built-in to the top rail of the frame, or with an electromagnetic strip without selection of the slider closing reference EF (ECO-SCHULTE / IMPAR), built-in to the top rail of the frame.

• Built-in door closer reference ITS Multi Genius EN 1-4 and ITS Multi Genius EN 2-5

A mortise of dimensions 345 x 33 x 66.5 mm (l x w x d) is made in the top rail of the leaf, centred in the thickness starting at 54.5 mm from the edge on the hinge side, in order to receive the built-in door closer and its thermal protection. The latter comprises an intumescent seal KERAFIX FXL 200 (GLUSKE) 1 mm in thickness covering the back of the door closer together with the two faces parallel to the leaf facings.

A second machining of dimensions 378 x 31 x 8 mm (l x w x d), centred on the mortise, is designed to receive the door closer faceplate and a hole  $\varnothing$  18 x 74 mm is made centred in the leaf thickness at 187 mm from the edge of the hinge side, in order to receive the shaft of the door closer.

Also, in order to house the door closer arm when the leaf is closed, a partial counter-rebating of the top rail of the leaf, of dimensions 35 x 5 mm and 520 mm in length, is made, starting from 38 mm from the edge of the hinge side. Over the full length of the counter-rebate and on the faceplate of the built-in door closer, two intumescent seals KERAFIX FXL 200 (GLUSKE) of section 12 x 1 mm are placed juxtaposed and centred on the leaf thickness (these are interrupted at the point of the door closer shaft and at the location of the closing speed adjusting screw).

Furthermore, the addition of a built-in door closer also necessitates the grooving of parts of the leaf top rail which are not counter-rebated. The groove of dimensions 30.5 x 2.2 mm is centred in the leaf thickness. This receives two intumescent seals Flexpan 200 L (GLUSKE) of section 15 x 2 mm, juxtaposed, or a single intumescent seal Flexpan 200 L (GLUSKE) of section 30 x 2 mm.

• Built-in slider reference B

The slider is built-in to the top rail of the frame, facing the door closer. It is implemented in a groove of dimensions 517 x 23 x 21 mm (l x w x d) made at 72 mm from the bottom of the frame rebate on the hinge side.

The slider is protected over its full length by three intumescent seals KERAFIX FXL 200 (GLUSKE) of section 12 x 1 mm (one seal on each face).

Furthermore, the implementation of a built-in slider also necessitates grooving of the frame top rail. The groove of dimensions 15.5 x 2.2 mm is centred at 22 mm from the facing on the hinge side frame. This receives an intumescent seal Flexpan 200 L (GLUSKE) of section 15 x 2 mm.

• Built-in electromagnetic strip without selection of the slider closing reference EF

The strip is built-in to the top rail of the frame. It is implemented in a groove of dimensions 552 x 35 x 23 mm (l x w x d) starting at 22 mm from the bottom of the frame rebate on the hinge side.

The strip is protected over its full length by three intumescent seals KERAFIX FXL 200 (GLUSKE) of section 12 x 1 mm (one seal on each face).

Furthermore, the implementation of a built-in strip also necessitates grooving of the frame top rail. The groove of dimensions 15.5 x 2.2 mm is centred at 22 mm from the facing on the hinge side frame. This receives an intumescent seal Flexpan 200 L (GLUSKE) of section 15 x 2 mm.

Variant: In the "hochkant" configuration the implementation is unchanged; however, the dimensions of the groove receiving the strip become 552 x 25 x 32.5 mm (l x w x d).

- R100 (PERKO POWERMATIC®):

The built-in door closer Perko Powermatic (SAMUEL HEALTH / SEVAX) is available under three different commercial references: R100 with a polished brass finish, R100.CP, with a brilliant chrome finish, or R100.SCP with a satin chrome finish.

The built-in door closer Perko Powermatic® (SAMUEL HEALTH / SEVAX) is positioned on the doorset upright, on the hinge side. It is centred at around 610 mm minimum from the top rail of the frame.

On the upright of the frame are made a groove of dimensions 28.5 x 140.5 x 5 mm (w x h x d), then a mortise of dimensions 28.5 x 105 x 22.5 mm (w x h x d) which receive respectively the faceplate and the casing of the door closer's counterpart. The counterpart is fixed by six steel screws Ø 4 x 25 mm.

On the upright of the opener are made a groove of dimensions 28.5 x 140.5 x 6 mm (w x h x d), then a mortise of dimensions 28.5 x 105 x 178 mm (w x h x d) which receive respectively the faceplate and the casing of the door closer. The casing is fixed by six steel screws Ø 4 x 25 mm.

The door closer casing is thermally protected by an intumescent seal Kerafix FXL 200 (GLUSKE) thickness 1.5 mm or by an intumescent seal Interdens type 15 (ODICE) thickness 1 mm.

#### 5.3.8.2. Surface-mounted door closer

The doorset may be fitted with surface-mounted door closers references FL 96 or HL 80 or HL 83 or HL 100 or HL 105 or IL 10 or IL 50 or IL 300 or IL 305 (ISEO-LEVASSEUR) or reference TS 1500 or TS 2000 or TS 3000 or TS 4000 or TS 5000 or TS 5000 L or TS Wood (GEZE), TS 61 EN or TS 51 EN or TS 41 EN or TS 31 EN or TS 50 EN or TS 20 EN (ECO) DC 120 or DC 130 or DC 140 or DC 200 or DC 300 or DC 340 or DC 347 DC 640 or DC 500 or the DC 700 range (with slider G460 or G461 or G462 or G464 optional) (ABLOY), together with the corresponding strips reference BCS 2000 (ISEO), ISM or E or LE (GEZE).

#### 5.3.8.3. Electric strikes

Only electric strikes under current are authorized.

The doorset may be equipped with an electric strike reference 332 (EFF EFF).

The body of the strike is fitted in an opening of dimensions 117.5 x 23 x 32 mm made in the door casing, centred at 135 mm from the bottom of the rebate on the astragal side.

The doorset may be equipped with an electric strike reference 1 -8 (EFF EFF).

The body of the strike is fitted in an opening of dimensions 90 x 20 x 30 mm machined in the door casing and fixed by two screws Ø 4 x 25 mm.

The doorset may be equipped with an electric strike reference -31 (EFF EFF), having a casing of dimensions 134 x 39 x 23.1 mm and fixed by two screws Ø 4 x 25 mm.

The doorset may be equipped with an electric strike reference -42 (EFF EFF), having a casing of dimensions 112 x 28.5 x 21 mm and fixed by two screws Ø 4 x 25 mm.

The doorset may be equipped with an electric strike reference -43 (EFF EFF), having a casing of dimensions 78.5 x 27.5 x 20 mm and fixed by two screws Ø 4 x 25 mm.

The opening for the strike body is made in the door casing, centred at 135 mm minimum from the top corner on the astragal side, where the strike is installed with counterpart reference 807-10 (EFF EFF), or facing the lock, replacing the traditional strike.

A counterpart reference 807-10 (EFF EFF) may be implemented facing the electric strike, in an opening of dimensions 88 x 21 x 45 mm.

The strike casing and any counterpart are protected by an intumescent seal reference INTERDENS 15 SA (ODICE) thickness 1 mm.

#### 5.3.8.4. Micro-scanner

The leaf may be equipped with a micro-scanner reference 11 MINOS 170° (Ets JEAN JOURJON), of diameter 10 mm and centred at 1495 mm from the bottom of the leaf. The hole made for the micro-scanner is protected by an intumescent seal reference INTERDENS 15 SA (ODICE) thickness 1 mm.

The leaf may be equipped with a microscanner reference 21 SUPER MAJOR 200° MINOS 170° (Ets JEAN JOURJON), of diameter 10 mm and centred at 1495 mm from the bottom of the leaf. The hole made for the micro-scanner is not protected.

#### 5.3.8.5. Drop seals

The leaf may be equipped with a drop seal reference PA J 600 (JUNG ETANCHEITE) of footprint 20 x 12 mm. This seal is installed in an opening of dimensions 23 x 15 mm made in the bottom rail of the leaf and is protected by an intumescent seal reference FXL 200 (GLUSKE) of section 12 x 1 mm.

A drop seal reference SCHALL-EX L-15/30 OS (ATHMER) of section 29 x 14.8 mm may be inserted into the recess of section 30 x 15 mm made in the bottom rail. It is fixed to the bottom rail by four screws Ø 3 x 20 mm.

#### 5.3.8.6. Feed-through

For electrically-powered locks, it is necessary to implement a mortice feed-through reference 10312 (EFF EFF) or EA280 (ASSA ABLOY) or EA281 (ASSA ABLOY).

The cable passage may be a through-element in the leaf. In this case, an opening of dimensions 10 x 10 mm is made, either by arrangement in the core, over the full height of the leaf, to the height of the lock mortise, or by a through-hole of diameter 10 mm. This opening is provided with a seal Interdens 15 SA (ODICE) or KERAFIX FXL 200 (KUHNS – GLUSKE) of section 10 x 1 mm. The hinge side is mortised for the cable passage at the height corresponding to the exit from the internal opening in the core.

The cable passage may be around the leaf edge (top or bottom) (see drawing 2010-06 30). In the rail, a groove of 11.5 x 10.5 mm is then made fitted with an intumescent seal Interdens 15 SA (ODICE) or KERAFIX FXL 200 (KUHNS – GLUSKE) of section 10 x 1 mm. This groove is then covered by a seal PALUSOL PM SA (ODICE) of section 15 x 2.8 mm in a groove of equivalent section. The frame uprights, on the inner side of the leaf, have a groove of dimensions 11.5 x 10.5 receiving a seal Interdens 15 SA (ODICE) or KERAFIX FXL 200 (KUHNS – GLUSKE) of section 10 x 1 mm. On the upright of the leaf on the hinge side a hole is made to pass the cable into the feed-through mortised into the leaf upright. The groove on the rail may also be "deepened". In this case, at the bottom of the opening is placed an intumescent seal Interdens 15 SA (ODICE) or KERAFIX FXL 200 (KUHNS – GLUSKE) of section 10 x 1 mm. The groove is then re-filled by a wooden strip of the same nature as the body of the leaf, in such a way that the section of groove not re-filled is of maximum dimension 11.5 x 10.5 mm.

#### 5.3.8.7. Anti-unhinging devices

The doorset may be equipped with anti-unhinging devices reference DOUILLE FEMELLE ACIER POUR ADG SUR HUIS and PION ANTIDEGONDABLE POUR HUISSERIE BOIS (SAVFIMA) or steel equivalent.

#### 5.3.8.8. Position contact

The doorset may be equipped with position contacts 10405 (EFF EFF) or 10400 (EFF EFF).

#### 5.3.8.9. Back-plates

The leaf may be equipped with back-plates for door retainers, having a fixing plate of dimensions 55 x 55 mm, in steel or plastic, fixed to the leaf by 4 screws diameter 5 x 35 mm maximum, of the following references:

- 9163525 and 9163225 (MECALECTRO)
- 1800 Z (OPERA)

#### 5.3.8.10. Attachment systems and insert panels

The leaf may be equipped with a panel in wood, MDF or plywood attached to the leaf face on the side away from hinging. The panel is fixed to the leaf face using a steel attachment system DUO 30 or DUO 35 (KNAPP). Six DUO are then positioned on the leaf, in areas where the material has been removed of respective diameters 30 or 35 mm and 3 mm in depth. The DUO systems are then screwed on using screws of maximum length 35 mm. The insert panel has a maximum weight of 24 kg. The same DUO systems are screwed into openings of respective diameters 30 or 35 mm by 3 mm in depth.

A protective panel of 10/10 mm thick steel with dimensions 930 x 300 mm and 930 x 900 mm (w x h) may be fixed respectively onto the side away from hinges and the hinge side by four vertical strips of double-sided adhesive reference "69657553" (LEROY MERLIN) and width 50 mm. The end strips are flush with the edges of the sheet. The panel may be positioned up to 1140 mm from the top of the leaf on the hinge side and up to 1454 mm from the top of the leaf on the side away from hinges.

#### 5.3.8.11. Protection, door edges

The doorset may be fitted with door protection in PVC of type ECOCHOC (SPM) or ACROVYN (CS France) or rigid PVC 2 mm thick, on one or both faces of the doorset. The maximum overall dimension of these panels is the width of the door by 900 mm high, and they are glued as additional facing thickness using their respective supplier's acrylic glue.

- In the case where implementation is on the face away from hinges, the end of these panels on the upright side is folded at 90° in accordance with drawing EO 2010-06 59. A rebate of 2.5 x 7.5 is made on the edge of the upright in which to insert the panel fold, and so obtain protection that is flush with the edge of the leaf. In this situation, hot sealing on the rebated upright is either on the frame, or centred on the thickness of the leaf (defined in the section Sealing).
- In the case of implementation on the face on the hinge side or the side away from hinges, the panels may be implemented so as to trim the edge of the leaf.

### 5.3.9. Supporting structure

#### 5.3.9.1. Rigid support structure

The doorsets may be installed within a rigid support structure of minimum bulk density 650 kg.m<sup>3</sup> and minimum thickness 100 mm.

The doorsets may be installed in rigid support structures of cinder block, cellular concrete, clay bricks only for wooden frames or in gypsum blocks produced in accordance with a currently-valid procès-verbal stating fire resistance performances of EI60 minimum.

### 5.3.9.2. Flexible support structure

The doorsets may be installed in a flexible support structure; flexible support structures are then metal-framed lightweight partitions with single or multiple skins in plasterboard having a total thickness of 72 mm minimum.

Aside from the internal reinforced header, the lightweight partitions are produced in accordance with a currently-valid fire resistance procès-verbal pronouncing a classification of EI 60 minimum.

The lightweight partition is reinforced by producing an internal header permitting the doorset to be installed. The header (full-height uprights and full-width rail) comprises either two metal box profiles, or a solid wood profile of minimum bulk density 650 kg/m<sup>3</sup> et de section 'e' x 40 mm (where 'e' is equal to the thickness of the internal frame of the partition support).

The header edges may be left bare or may be covered with one or two thicknesses of minimum 13 or 25 mm of screwed-on laths of plasterboard (BA13 or BA18 or BA25). In this case, this assembly forms a bay intended to receive the doorset (see drawing EO 2010-06 51).

Implementation of the doorset requires the interruption of the uprights of the lightweight partition's internal framework. For the bay intended to receive the doorset, the facings are cut out to suit the bay dimensions.

The maximum peripheral gap between partition and door casing is 11 mm.

### 5.3.9.3. Installations (see drawing EO 2010-06 52, 53 and 54)

#### Installation configuration 1: Frames

The frame of the doorset is positioned within the opening of a rigid support structure and fixed by:

- steel screws of minimum dimensions Ø 6 x 140 mm
- screw/plug assemblies Ø 7 x 165 mm and plastic plugs Ø 10 x 160 mm type (OUTIFIX),
- screws type FFS (FISCHER) of minimum dimensions Ø 7.5 x 92 mm
- plugs type KGS 08x60 (RAWL)
- frame fixings type F10M92 (FISCHER) of dimensions Ø 10 x 92 mm at four per upright and two in the top rail
- plugs Ø 10 mm reference TURBO K6 (FISCHER) arranged at intervals of 525 mm

The fixings are distributed at maximum intervals of around 613 mm on the uprights and around 730 mm on the rail.

The wooden door casing is fixed to a flexible support structure by screws Ø 3,5 x 55 mm, at 2 x 5 screws per upright and 2 x 3 screws in top rail, distributed at maximum intervals of 500 mm or Ø 5 x 80 or Ø 6 x 120.

Sealing of the gap between the wooden door casing and support structure is by:

- stuffing with mineral wool reference INSULFRAX (PBI) or SUPERWOOL X607 (ODICE)
- a bead of polyurethane foam reference FIREFOAM 1C (ODICE)

#### Installation configuration 2: Frame (variant)

The doorset frame is a frame of minimum section 'b' x 53 mm, where 'b' is equal to the total thickness of the supporting structure increased by 16 mm. The frame has a brickwork groove such as is defined in the section Casing/Frame.

The doorset frame is positioned within the opening, the supporting structure fitting into the brickwork groove, then, if not clinched, is fixed as described in the configuration for installation 1.

Peripheral sealing for the flexible supporting structure is provided as described in Installation configuration 1.

Where the frame is clinched into the rigid supporting structure it is equipped with clinching tabs or masonry nails, the space between the frame and the partition being filled by building-up the partition using stuffing with the binders used for the assembly of the latter.

#### Installation configuration 3: Structure / frames

The frame for the doorset is a casing or frame of minimum section 59 x 53 mm.

The doorset's casing is positioned within the opening and fixed in the same way as described in configuration 1.

For a frame, peripheral sealing is provided by stuffing until full with mineral wool or rock wool or plaster or firestop polyurethane foam 1/2H.

For a casing, peripheral sealing is provided by stuffing until full with mineral wool or the placement of two seals Interdens 15 SA (ODICE) or KERAFIX FXL 200 (KUHN – GLUSKE) of section 10 x 1 mm, glued to the back of the frame, at the interface with the supporting partition.

A joint cover can be applied to both sides of the frame/supporting structure.

#### Installation configuration 4: Casing/frame (Variant)

The doorset frame is a casing of minimum section 59 x 53 mm. The casing has a brickwork rebate of dimensions 'c' x 12 mm, where 'c' is equal to the width of the profile of the frame reduced by 8 mm.

The doorset's casing is positioned within the opening, offset from the thickness of the supporting structure so that the flange acts as the joint cover, then is fixed as described in configuration of installation 3.

Peripheral sealing is provided as described in Installation configuration 3.

A joint cover can be applied to the frame/supporting structure junction..

#### Installation configuration 5: Casing/Frame (Variant 2)

Where the doorset frame described at configuration 4 has a brickwork groove, defined in section Casing/Wood frame, this latter receives one or more profiles in solid wood or reconstituted wood or MDF fibreboard suitably dimensioned to allow covering of the reveal. The whole is assembled using wood glue.

Positioning of the doorset casing, fixing of the casing and peripheral sealing are unchanged with respect to those described for Installation configuration 4.

#### Installation in sub-frame version:

The doorset may be mounted on a sub-frame. This comprises panels in MDF, hardwood, softwood or plywood of minimum bulk density 480 kg/m<sup>3</sup> and of minimum section the width of the frame by thickness of 15 mm.

The sub-frame is fixed to the partition using masonry nails or clinching tabs. The gap between the partition and sub-frame is filled using the binder employed in the partition's construction. The wood frame is then fixed to the sub-frame using screws Ø5 x 70.

Peripheral sealing of the casing / sub-frame is provided by stuffing until full with mineral wool or rock wool of firestop polyurethane foam 1/2H.

5.3.10. Variants

5.3.10.1. Variant 1

“Maternelle” doorset configurations are excluded.

**a) Modification to dimensional scope of validity**

Where the doorsets comprise a metal casing or metal frame (except in renovation implementation or in installation taking up lining), the dimensional scope of validity of the doorsets is modified. The overall dimensions of the leaf become as follows:

**Version 1:**

*For fire direction on the side away from opening only:*

	Minimum	Maximum
Width	No limit	1184 mm
Height	No limit	2576 mm
		The total surface area of the leaf must nevertheless not exceed 2.76 m <sup>2</sup>

*For direction of fire immaterial:*

	Minimum	Maximum
Width	No limit	1230 mm
Height	No limit	2240 mm

No modification can be made in the design and production of the doorsets. The peripheral fire sealing system is provided, on the four sides, by a self-adhesive intumescent seal reference Kerafix Flexpress 100 (KUHN-GLUSKE) of section 12 x 1.5 mm or 15 x 1.5 mm, implemented in a groove of dimensions 12.5 x 1.7 mm or 15.5 x 1.7 mm made on the uprights and rails of the leaf and offset on the side away from opening.

**Version 2:**

The overall dimensions of the leaf may also become as follows:

*For fire direction on the opening side only:*

	Minimum	Maximum
Width	No limit	1230 mm
Height	No limit	2576 mm

For fire direction on the side away from opening or for direction of fire immaterial:

	Minimum	Maximum
Width	No limit	1184 mm
Height	No limit	2576 mm
		The total surface area of the leaf must nevertheless not exceed 2.76 m <sup>2</sup>

No modification can be made in the design and production of the doorsets. The peripheral fire sealing system is then provided by:

- on the top rail and on the upright on the hinge side of the leaf, a self-adhesive intumescent seal reference Kerafix Flexpress 100 (KUHN-GLUSKE) of section 12 x 1.5 mm or 15 x 1.5 mm, implemented in a groove of dimensions 12.5 x 1.7 mm or 15.5 x 1.7 mm made offset on the side away from opening;
- on the lower rail of the leaf, a self-adhesive intumescent seal reference Kerafix Flexpress 100 (KUHN-GLUSKE) of section 12 x 1.5 mm or 15 x 1.5 mm implemented in a groove of dimensions 12.5 x 1.7 mm or 15.5 x 1.7 mm offset on the side away from opening in configuration with closing point, or reference Palusol PM (ODICE) of section 15 x 2.8 mm implemented in a groove of dimensions 15.5 x 3 mm made centred in the leaf thickness in configuration without closing point (only for direction of fire on the opening side);
- on the upright on the side away from leaf hinging, an intumescent seal reference Palusol P (ODICE) of section 30 x 4 mm in configuration with closing point, or reference Palusol EFDL6 (ODICE) of section 30 x 4 mm - for which the sleeve is combined with a double-lipped seal - in configuration without closing point (only for direction of fire on the opening side), implemented in a groove of dimensions 30.5 x 4 mm made centred in the leaf thickness.

**For both versions:**

- Where the doorsets are installed in lightweight partitions, these are of minimum thickness 98 mm and are produced in accordance with a currently valid classification procès-verbal stating a minimum performance of EI 60.

At the same time, the reinforced header of the lightweight partitions is modified. This is obtained by:

- on both sides of the bay, a full-height upright comprising two M48 box profiles, or one M48 profile that is capped with an R48 profile then an additional R48 profile is abutted and assembled to the whole;
- in the top of the bay, a full-width rail made up of two assemblies each comprising two M48 box profiles, or one M48 profile that is capped with an R48 profile then an additional R48 profile is abutted and assembled to the whole;
- in the transom, an upright section in M48 profile is abutted to the full-height uprights of the header and affixed to this, and additional upright sections comprising two M48 box profiles are arranged at maximum intervals of 600 mm.

The M and R profiles are adapted to the dimensions of the lightweight partition's metal framework (M48 and R48 being given for the case of a lightweight partition of type "98/48").

- Where the frame of the leaf is in softwood, then the uprights and rail of the frame may be in glulam or joined glulam but may not be in solid wood or joined solid wood.
- Doorsets may not contain a transom panel above the leaf (with or without intermediate rail).
- The doorset leaf is hinged on four hinges.

- Authorised maximum operating clearances between opener and frame are: 1.5 mm on top rail, 2.0 mm laterally on the hinge side and 2.0 mm on the closing side.
- In configuration without closing point, only direction of fire on the opening side is authorised.

**b) Modification of the fire integrity principle**

Where the doorsets comprise a casing or clinched or cast-in-place metal frame, the peripheral fire integrity system between opener and frame may be modified: the intumescent seals required on the leaf uprights may be deleted and only the self-adhesive intumescent seal reference Kerafix Flexpan 200 L (KUHN-GLUSKE) of section 15 x 1.5 mm implemented on the top rail is retained.

In this case, the dimensional scope of validity of the doorsets is limited, the overall dimensions of the leaf becoming as follows:

	Minimum	Maximum
Width	No limit	930 mm
Height	No limit	2040 mm

- Authorised maximum operating clearances between opener and frame are: 2.7 mm on top rail, 1.0 mm laterally on the hinge side and 1.7 mm on the closing side.
- An isophonic joint is obligatory, and is implemented on the doorset's metal frame where the fire direction sought is either on the side away from opening, or is indeterminate.

5.3.10.2. Variant 2

**a) Modifications to wooden frame**

The wooden frame may be produced in solid exotic wood or solid-joined or glulam or joined glulam of hevia (rubber tree) of theoretical mean bulk density 650 kg/m<sup>3</sup>.

**b) Modifications to leaf/leaves**

The leaf frame may receive a core comprising a woodchip panel reference V335M1UFE1A (UNILIN) or reference Sanopan (DE SUTTER) of theoretical bulk density 300 kg/m<sup>3</sup> and of thickness 33.5 mm.

The assembly resulting from the frame and core of the leaf/leave may be covered, on each side, with:

- a facing of pre-painted MDF fibreboard (from among the references indicated in the reference description) of theoretical bulk density 780 kg/m<sup>3</sup> and for which the unit thickness is reduced to 2.5 mm;
- a facing in plywood reference 314-1-MR (HERMANOS) of theoretical bulk density 500 kg/m<sup>3</sup> and unit thickness 2.7 mm.

The facing panels are fully hot-glued under pressure using PVA adhesive (for which references are given in the reference description) applied at 100 g/m<sup>2</sup>.

The decorative grooves made in the leaf facing(s), of dimensions 10 x 2 mm (w x d) or 2.5 x 4 mm (w x d), may receive PVC strip profiles reference SV 251 (INDOPLAST) and 808 (STILLEMANS); the strip profiles are retained by a self-adhesive coating.

The leaf frame may be produced in solid exotic wood or solid-joined or glulam or joined glulam of hevia (rubber tree) of theoretical mean bulk density 650 kg/m<sup>3</sup>.

For single-leaf doorsets only, the leaf frame may comprise two uprights and two rails, the designated overall section of which is reduced to 33.5 x 25 mm minimum where the frame is of wood or to 33.5 x 28 mm minimum where the frame is metal.

When the modifications at point b) are applied:

- with the substitute core panel, the authorised maximum overall dimensions of the leaf/leaves are 1230 x 2240 mm (w x h) / (930 + 930) x 2040 mm (w x h); for unequal leaves, the ratio “width of semi-active leaf / width of active leaf” shall be greater than or equal to 0.5;
- with the substitute core panel, if an electric lock or electric strike is used, then the routing of the electrical power cable is made around the leaf and so does not go through the leaf;
- with uprights and rails of the leaf frame between 33.5 x 25 mm and 33.5 x 28 mm (wooden frame), the wooden profiles forming the door frame and leaf frame are made from one wood species (from among those permitted) of which the theoretical mean bulk density is 650 kg/m<sup>3</sup> minimum;
- with uprights and rails of the leaf frame of minimum 33.5 x 28 mm (metal frame), renovation casings and lining frames are excluded;
- with uprights and rails of the leaf frame of minimum 33.5 x 25 mm (wooden frame), the authorised overall maximum dimensions of the leaf are 1070 x 2346 mm (w x h), the surface of the leaf not exceeding 2.27 m<sup>2</sup>;
- with uprights and rails of the leaf frame of minimum 33.5 x 28 mm (metal frame), the authorised overall maximum dimensions of the leaf are 930 x 2040 mm (w x h) for fire direction away from opening or immaterial, and 1070 x 2346 mm (w x h), the surface of the leaf not exceeding 2.27 m<sup>2</sup>, for fire direction on opening side only;
- with uprights and rails of the leaf frame of minimum 33.5 x 25 mm (wooden frame), peripheral fire integrity between opener and frame is provided by an intumescent seal reference Kerafix Flexpan 200 L of section 15 x 1.5 mm on the three sides of the frame or opener;
- with uprights and rails of the leaf frame of minimum 33.5 x 28 mm (metal frame), peripheral fire integrity between opener and frame is provided as a minimum by an intumescent seal reference Kerafix Flexpan 200 L of section 15 x 1.5 mm implemented on the top rail of the opener;
- with uprights and rails of the leaf frame of minimum 33.5 x 28 mm (metal frame), the maximum operating clearances between leaf and casing are 3.0 mm on top rail, 2.0 mm on closing side and 2.0 mm on hinged side;
- with uprights and rails of the leaf frame between 33.5 x 25 mm minimum or 33.5 x 28 mm minimum, the doorsets may not have a transom panel above the leaf;
- with uprights and rails of the leaf frame between 33.5 x 25 mm minimum or 33.5 x 28 mm minimum, the doorsets may not have configuration “Without Closing Point” and “Maternelle”;
- with non-rebated 50 mm leaf/leaves, installation using a renovation doorset is excluded.

### **c) Closing of sill gap**

Where the gap at the sill exceeds that required, a sheet in solid wood of minimum theoretical bulk density 450 kg/m<sup>3</sup> is implemented beneath the bottom rail of the frame(s) of the leaf/leaves.

The wood sheet, of section between ‘a’ x 6 mm and ‘a’ x 20 mm [where ‘a’ is equal to the thickness of the leaf] (the thickness between 6 mm and 20 mm is dependent upon the initial gap at the sill to be reduced), is fixed by steel screws Ø 4 x 30 mm arranged at intervals of around 300 mm.

An intumescent seal reference Flexpan 200 L (KHUN-GLUSKE) of section 15 x 1.5 mm is implemented beforehand in a groove of dimensions 15.2 x 1.7 mm made on the upper edge of the sheet.

See Annex, Page 85.

If an intumescent seal is implemented on the uprights of the leaf, this is then extended onto the sheet closing the applicable gap; this extension may not be made by a very short piece of seal, but must be obtained by replacing the intumescent seal by a seal of the same reference and section, but continuous.

#### **d) Modification of hot sealing**

For single leaf doorsets only, peripheral hot sealing may be obtained by a self-adhesive intumescent seal reference Flexilodice (ODICE) of section 15 x 2 mm minimum implemented in a groove of dimensions 15.2 x 2.2 mm minimum made in the rebate of the wooden casing and offset from the side away from opening.

For double leaf doorsets of type "Prémafeu SPF" only, at the junction of the leaves, the leaves are square-edged and may be fitted with a finger protection joint reference VVEK (AGRIPSOL) full height of dimensions 40 x 43 mm; the tabs opposite the lips are located in rebates of dimensions 12.5 x 3 mm made on both sides of the leaf. A self-adhesive intumescent seal reference PALUSOL PM (ODICE) of section 30 x 2.8 mm is applied to each finger protection joint, between the two lips, then the assembly is fixed by steel screws Ø 3,5 x 25 mm.

See Annex, Page 86

When the modifications at point d) are applied:

- the doorsets may not have a transom panel above the leaf/leaves;
- for single-leaf doorsets, the frame is in wood but may not be in softwood, so is in hardwood having a theoretical mean bulk density of 650 kg/m<sup>3</sup> minimum;
- for single-leaf doorsets, the frame is in wood but cannot be in softwood, so is in hardwood having a theoretical mean bulk density of 650 kg/m<sup>3</sup> minimum;
- for single-leaf doorsets, if the frame and/or opener frame is of European Beech hardwood, then the minimum section of the intumescent seal reference Flexilodice is 20 x 2 mm;
- for single-leaf doorsets, the maximum operating clearances between leaf and wooden casing are 1.6 mm on top rail, 2.0 mm on closing side and 2.5 mm on hinged side;
- for single-leaf doorsets, the authorised maximum overall dimensions of the leaf are 930 x 2040 mm (w x h);
- for double leaf doorsets, the leaf frame cannot be in softwood, so is in hardwood having a theoretical mean bulk density of 600 kg/m<sup>3</sup> minimum;
- for double leaf doorsets, the maximum operating clearance at the junction of the leaves is 2.0 mm;
- for double leaf doorsets, only fire direction on the opening side is authorised.

#### **e) Modification of sealing**

Sealing between wood frame and support wall, at the installation gap of 8 mm maximum, may be provided by stuffing until full with rock wool reference Rocklaine 511 (ISOVER), of diameter 30 mm.

f) **Juxtaposition of doorset with a fixed glazed lateral part and/or superposition of doorset with a fixed glazed top transom**

Doorsets having wooden frames may be juxtaposed with a fixed glazed lateral part and/or be topped with a fixed glazed top transom, the fixed glazed lateral or upper frames being framed in wood and covered by document Efectis France no. 10 - A - 449 - Version 1 (and classification extensions no. 11/1 - Version 2 or 12/4) stating performances E 30, EW 30 and EI 30 (and E 30, EW 30 and EI 0) or by document Efectis France no. 09 - A - 074 stating performances E 60, EW 60 and EI 60.

The frame profiles of glazed partitions and those of the doorset frames are of European Beech wood of theoretical mean bulk density 680 kg/m<sup>3</sup>.

The profiles of the doorset frames have overall section of 67 x 53 mm raised to 72 x 53 mm for doorsets associated with a glazed fixed part covered by document Efectis France no. 10 - A - 449 - Version 1 and its classification extensions and to 98 x 53 mm for doorsets associated with a glazed fixed part covered by document Efectis France no. 09 - A - 074. At the same time, the peripheral profiles of the doorset frames have their minimum overall section of 72 x 56 mm reduced to 72 x 54 mm for a glazed fixed part covered by document Efectis France no. 10 - A - 449 - Version 1 and its classification extensions and of 98 x 57 mm reduced to 98 x 54 mm for a glazed fixed part covered by document Efectis France no. 09 - A - 074.

Assembly of the doorsets with glazed fixed parts is obtained using a biscuit joiner (of the same wood species as the doorset frame profiles and as the frame profiles of the fixed parts) positioned in a groove made at the time in the doorset frame profiles and the frame of the fixed part, following which the assembly is locked by steel screws Ø 4,5 x 50 mm minimum arranged in a staggered pattern at maximum intervals of 300 mm. The groove is centred in the profile thickness. For doorsets associated with a fixed part covered by document Efectis France no. 10 - A - 449 - Version 1 and its classification extensions, the section of the biscuit joiner is 56 x 16 mm and the dimensions of the grooves to receive it are 56 x 8 mm; for doorsets associated with a glazed fixed part covered by document Efectis France no. 09 - A - 074, the section of the biscuit joiner is 82 x 16 mm and the dimensions of the grooves receiving it are 82 x 8 mm.

See Annex, Page 87

When the modifications at point F) are applied:

- the wooden profiles of the doorset frame and the framework of the fixed glazed frame are made of the same species of wood (Beech) and are in every case of the same minimum thickness;
- the width of the biscuit joiner is determined by the thickness of the doorset frame and the framework of the glazed fixed framework and is in every case equal to this less 16 mm;
- the permitted dimensions for the doorset and for the glazing of the associated fixed framework remain those authorised.

#### 5.3.10.3. Variant 3

The modifications cited below may be made independently of each other or simultaneously; where that at a) is made simultaneously with those at b), c), d) and/or e), then a cut-out is made in the trim panel and the retention system for the oculus and/or ventilation grille remains as described, in other words this is made through the thickness of the leaf only and not through the thickness of the leaf plus trim.

**a) Implementation of steel door protection**

The facing of the leaf/leaves may be given protection in the form of 10/10 mm thick sheet steel, the weight of which may not exceed 25% of the weight of the leaf itself, applied as an additional thickness glued-on using double-sided adhesive or PVA glue. The protection is implemented on the lower part of the doorset; on the side away from opening this is located outside the engagement in the rebate. It is of maximum height 900 mm so is positioned beneath the lock or is cut away around the lock trim.

**b) Implementation of a rectangular oculus - steel or stainless steel beading**

The leaf/leaves may be equipped with a rectangular oculus having glazing reference Pyrobel 16 (AGC) of nominal thickness 17.3 mm. The precise composition of this glazing is on file in the laboratory.

Variant 1:

A rectangular hole is made in the leaf of maximum dimensions 305 x 457 mm (w x h), to allow the fitting of a rectangular glazing element of maximum dimensions 279 x 432 mm (w x h), giving maximum dimensions of the glazing's viewing area of 254 x 406 mm (w x h).

The glazing is maintained by double beading formed of folded sheet steel or folded sheet stainless steel of thickness 10/10 mm:

- reference LoPro-BB1-xxxx-GLV or LoPro-BB1-xxxx-SS (ANEMOSTAT) and leaf thickness 40 mm,
- reference LoPro-AB1-xxxx-GLV or LoPro-AB1-xxxx-SS (ANEMOSTAT) and leaf thickness 50 mm.

The beadings are fixed together by steel screws  $\varnothing$  4 x 50 mm at two screws on each side. The beadings are beforehand fitted with mineral fibre strips reference Superwool X607 (ODICE) 15 x 5 mm.

An intumescent joint reference Interdens 15 SA (ODICE) of section 38 x 1 mm is fitted around the peripheral edge of the cut-out in the leaf, facing the glazing.

The glazing is fitted without shimming (flat installation).

- Gap at bottom of rebate: 11.5 mm
- Engagement in rebate: 13 mm

See Annex, Pages 88 and 89

Variant 2:

A rectangular hole is made in the leaf of maximum dimensions 332 x 432 mm (w x h), to allow the fitting of a rectangular glazing element of maximum dimensions 300 x 400 mm (w x h), giving maximum dimensions of the glazing's viewing area of 200 x 380 mm (w x h).

The glazing is retained by double beading formed of folded sheet stainless steel reference Creainox (CREA'DIF) of thickness 25/10 mm:

- of overall dimensions 35 x 10.5 mm on both sides for a leaf of thickness 40 mm,
- of overall dimensions 35 x 17.5 mm on both sides for a leaf of thickness 50 mm.

The beadings are fixed together by steel screws M4 x 40 mm, arranged at maximum intervals of 250 mm and locating in M4 studs welded to the beadings. The beadings are beforehand fitted with mineral fibre sealing strips:

- reference Superwool X607 (ODICE) of section 15 x 5 mm for a leaf of thickness 40 mm,
- reference Superwool X607 (ODICE) of section 15 x 3 mm for a leaf of thickness 55.5 mm.

An intumescent joint reference Interdens 15 SA (ODICE) of section 40 x 1 mm is fitted around the peripheral edge of the cut-out in the leaf, facing the glazing.

The glazing is fitted without shimming (flat installation).

- Gap at bottom of rebate: 6 mm
- Engagement in rebate: 10 mm

See Annex, Pages 90 and 91

### **c) Production of a circular oculus - wooden beading**

The leaf/leaves may be equipped with a circular oculus reference Pyrobel 16 (AGC) of nominal thickness 17.3 mm. The precise composition of this glazing is on file in the laboratory.

On the leaf, a circular opening of maximum diameter 406 mm ( $\emptyset$ ) is made to permit the implementation of a circular glazing of maximum diameter 400 mm ( $\emptyset$ ), to give a maximum clear glazing area of 354 mm ( $\emptyset$ ).

The glazing is retained by a double beading in solid European Beech wood of theoretical mean bulk density 680 kg/m<sup>3</sup> or solid exotic wood Sapelli of theoretical mean bulk density 680 kg/m<sup>3</sup> or exotic wood Moabi of theoretical mean bulk density 860 kg/m<sup>3</sup>, and of overall section 33 x 40 mm forming a rebate of dimensions 10.5 x 16 mm for a leaf of thickness 40 mm and of 15.5 x 16 mm for a leaf of thickness 50 mm. The beadings are fixed by steel screws  $\emptyset$  4 x 40 mm arranged at maximum angular intervals of 90°. The beadings are beforehand fitted with mineral fibre strips reference Superwool X607 (ODICE) 15 x 3 mm.

The glazing is fitted without shimming (flat installation).

- Gap at bottom of rebate: 3 mm
- Engagement in rebate: 21 mm

See Annex, pages 92 and 93.

### **d) Production of a circular oculus - steel beading**

The leaf/leaves may be equipped with a circular oculus reference Pyrobel 1 (AGC) of nominal thickness 17.3 mm. The precise composition of this glazing is on file in the laboratory.

On the leaf, a circular opening of diameter 304 mm or 457 mm ( $\emptyset$ ) is made to permit the implementation of a circular glazing of diameter 279 mm or 432 mm ( $\emptyset$ ), to give a clear glazing area of 253 mm or 406 mm ( $\emptyset$ ).

The glazing is retained by double beading formed of folded sheet steel profiles of thickness 10/10 mm:

- reference LoFP-BB1-12-GLV-SL (ANEMOSTAT) for glass of diameter 304 mm ( $\emptyset$ ) and a leaf of thickness 40 mm,
- reference LoFP-BB1-18-GLV-SL (ANEMOSTAT) for glass of diameter 432 mm ( $\emptyset$ ) and a leaf of thickness 40 mm,
- reference LoFP-AB1-12-GLV-SL (ANEMOSTAT) for glass of diameter 304 mm ( $\emptyset$ ) and a leaf of thickness 50 mm,
- reference LoFP-AB1-18-GLV-SL (ANEMOSTAT) for glass of diameter 432 mm ( $\emptyset$ ) and a leaf of thickness 50 mm.

The beadings are fixed together by steel screws  $\emptyset$  4 x 50 mm arranged at angular intervals of 90°. The beadings are beforehand fitted with mineral fibre strips reference Superwool X607 (ODICE) 15 x 5 mm.

An intumescent joint reference Interdens 15 SA (ODICE) of section 38 x 1 mm is fitted around the peripheral edge of the cut-out in the leaf, facing the glazing.

The glazing is fitted without shimming (flat installation).

- Gap at bottom of rebate: 11.5 mm
- Engagement in rebate: 13 mm

See Annex, pages 94 and 95.

#### **e) Implementation of a ventilation grille**

The doorset leaf/leaves may be equipped with:

- an intumescent ventilation grille reference Ventilodice V40 or Ventilodice V50 (ODICE) of thickness 40 mm for a leaf of thickness 40 mm or of thickness 50 mm for a leaf of thickness 50 mm and of maximum dimensions 300 x 300 mm (w x h).

The ventilation grill is positioned in an opening of the same dimensions centred in the width of the leaf, with the upper edge positioned at a maximum of 800 mm from the bottom of the leaf, and is retained by steel screws Ø 4 x 25 mm (two per vertical side). A bead of intumescent acrylic sealant reference Acrylodice F (ODICE) is applied around the complete periphery between the ventilation grill and edge of the opening.

- an intumescent ventilation grill reference GZ 60 (VIM) of thickness 55 mm and of maximum dimensions 350 x 150 mm (w x h).

The ventilation grill is positioned in an opening of the same dimensions, centred in the width of the leaf, with the upper edge positioned at a distance of 650 mm from the bottom of the leaf. It is assembled to the leaf by adhesive sealant BCM (VIM) then is retained on both sides of the leaf by an aluminium finishing grille reference GZ KF, part of the intumescent grille, with reference GZ KV (VIM), assembled to the intumescent grille by adhesive sealant reference BCM (VIM).

See Annex, Pages 96 and 97

The cut-out intended to receive the ventilation grille is positioned a minimum of 200 mm from the lateral edges and bottom of the leaf.

#### **f) Implementing a precautionary measure**

##### **Precautionary measure for lock**

It is possible to make a temporary opening in the leaf (active) on its closing side edge, in order to ultimately equip it with a mortice lock. The opening, of maximum dimensions 85 x 164 x 16 mm (w x h x th), is then filled completely with a piece of European Beech wood LCA of theoretical mean bulk density 680 kg/m<sup>3</sup>, retained by a dummy faceplate in wood of dimensions 20 x 230 x 3 mm (w x h x th) screwed and potentially coated with sealant reference Sintobois (SINTO).

At the same time, on the wooden frame (for single-leaf doorsets) or on the closing side edge of the semi-active leaf (for double-leaf doorsets), two temporary openings are made intended to ultimately accept the latch bolt and dead-bolt of a mortise lock. The openings, of maximum dimensions 15 x 58 x 15 mm (w x h x th) and 25 x 61 x 15 mm (w x h x th), are also filled with a piece of European Beech wood LCA of theoretical mean bulk density 680 kg/m<sup>3</sup>, retained by a screwed dummy strike in wood of dimensions 18 x 175 x 2 mm.

Ultimately, the wooden shim on the leaf is removed and replaced by one of the approved locks. Those on the wooden frame or semi-active leaf are similarly removed, and a strike compatible with the lock used is fitted.

See Annex, Page 98

Only the opening for the lock casing is made, in other words the holes for the travel of the square shaft, the cylinder and the assembly screws for the trims are not made.

These doorsets may be in an SPF (*"Sans Point de Fermeture"* - without closing point) configuration, and implemented as per this configuration and (the intumescent seal(s) on the closing side is/are continuous and uninterrupted over the height of the leaf), or in an APF (*"Avec Point de Fermeture"* - with closing point) configuration and implemented as per this configuration and so have a means of closing the leaf.

The lock used should be employed with its associated strike and the minimum engagement required should be respected.

#### **Precautionary measure for strike or electric latch**

It is possible to plan for emergency escape locking or for controlled access achieved by a morticed electric strike or morticed electric lock from those already approved.

In this case, a temporary opening is made in the the top rail of the wooden frame in order to ultimately be fitted with an electric strike or electrical latch . The opening, of maximum dimensions 136 x 43 x 25 mm (w x h x th), is then filled completely with a piece of European Beech wood LCA of theoretical mean bulk density 680 kg/m<sup>3</sup>, screwed and potentially coated with sealant reference Sintobois (SINTO).

At the same time, in the top rail of the leaf to be locked or controlled a groove is made of maximum dimensions 150 x 25 x 5 mm (l x w x th), intended to ultimately accept the counterpart of the electric strike or electric latch, temporarily filled by a screwed steel plate of the same dimensions.

Ultimately, the wooden shim on the frame is removed and replaced by one of the approved electric strikes or electric latches . The steel plate on the leaf is similarly removed and the the counterpart of the electric strike or electric latch employed is fitted.

See Annex, Page 98

Only wooden frames are authorized; however those in softwood are excluded.

#### **g) Use of a surface-mounted access control latch**

A surface-mounted electric latch reference VE1000 (JPM) or reference TV100 or TV600 (DORMA) or reference Vcan (PERJES) offering access control of the doorset's active leaf may be employed. The body and strike of the latch are fixed respectively to the frame and opener.

Non-clinched metal frames are excluded.

#### **h) Use of a built-in access control strike**

A morticed electric strike reference 351 M80 (ASSA ABLOY), allowing access to be controlled of the (active) leaf of the doorset, may be employed. The body is fitted into a mortice of dimensions 136 x 43 x 25 mm (l x h x th) made in the top rail of the wooden frame and the strike's counterpart is fitted in a groove of dimensions 150 x 25 x 5 mm (l x w x th) made in the top rail of the leaf; the body and strike are fixed to the frame and opener by two steel screws Ø 3 x 30 mm.

Only wooden frames are authorized; however those in softwood are excluded.

**i) Replacement of position contacts**

For single-leaf doorsets, the closed position of the leaf/leaves may be controlled by a position contact reference Ball Contact CDVI (DIGIT).

**j) Modification of the condition of use of electric strikes**

This report authorises only the use of electric strikes under current. This restriction is only applicable to electric strikes associated with the principal lock ensuring the lateral closure of the (active) leaf.

## 5.3.10.4. Variant 4

**a) Reduction in the number of means of hinging**

The number of hinges providing hinging of the leaf/leaves may be reduced to two for a leaf of height less than or equal to 1200 mm.

**b) Replacement of the means of hinging**

Hinging of the leaf/leaves may be achieved by three or four stainless steel hinges reference Loutre Sedan (TORBEL) of dimensions 140 x 70 mm.

Hinging of the leaves may also be achieved by three or four concealed hinges reference Tectus 340 3D (SIMONSWERK). The hinges, located in mortices made in the wooden frame and opener, are fixed by steel screws Ø 4 x 25 mm. No thermal protection is provided at the built-in hinges.

See Annex, page 99.

- *where built-in hinges are employed, the frame cannot be metal;*
- *where built-in hinges are employed, the wooden frame cannot be in softwood.*

**c) Replacement of the means of returning to the secure position**

The return to the secure position (closed position) of the leaf/leaves can be ensured by the surface-mounted installation of a door closer reference TS1000 (GEZE) or reference DC110 or DC135 (VACHETTE – ASSA ABLOY) or reference IS60 or IS65 or IS110 or IS115 (ISEO – LEVASSEUR), positioned on the opening side or side away from opening.

**d) Use of a surface-mounted door opener**

A surface-mounted door opener (drive mechanism) reference FD-20 (GILGEN) may be implemented on the doorsets.

This is located on the side away from opening. The body is fixed to the supporting structure by six fixings (type and dimensions of the fixings appropriate to the nature of the support); the quadrant arm is fixed to the leaf by two steel screws Ø 4 x 40 mm.

### e) Replacement of the means of closing

Closing of the (active) leaf may be assured via:

#### Surface-mounted anti-panic locks

- a surface-mounted anti-panic lock reference Modulo-Push Bar (ANTIPANIC), one lateral closing point or three closing points lateral, vertical top and vertical bottom;
- a surface-mounted anti-panic lock reference 1610 BM (VACHETTE – ASSA ABLOY) one lateral closing point;
- a surface-mounted anti-panic lock reference 1630 BM (VACHETTE – ASSA ABLOY), three closing points lateral, vertical top and vertical bottom;
- a surface-mounted anti-panic lock reference 1640 BM (VACHETTE – ASSA ABLOY) lateral closing points;
- a surface-mounted anti-panic lock reference 1910 PE BM (VACHETTE – ASSA ABLOY) one lateral closing point;
- a surface-mounted anti-panic lock reference 1930 PE BM (VACHETTE – ASSA ABLOY), three closing points lateral, vertical top and vertical bottom;
- a surface-mounted anti-panic lock reference 1940 PE BM (VACHETTE – ASSA ABLOY) lateral closing points;
- a surface-mounted anti-panic lock reference 6510 BM (VACHETTE – ASSA ABLOY) one lateral closing point;
- a surface-mounted anti-panic lock reference 6530 BM (VACHETTE – ASSA ABLOY), three closing points lateral, vertical top and vertical bottom;
- a surface-mounted anti-panic lock reference 6540 BM (VACHETTE – ASSA ABLOY) lateral closing points;
- a surface-mounted anti-panic lock reference 6810 PE BM (VACHETTE – ASSA ABLOY) one lateral closing point;
- a surface-mounted anti-panic lock reference 6830 PE BM (VACHETTE – ASSA ABLOY), three closing points lateral, vertical top and vertical bottom;
- a surface-mounted anti-panic lock reference 6840 PE BM (VACHETTE – ASSA ABLOY) lateral closing points.

The bodies of the surface-mounted anti-panic locks are fixed to the leaf by steel screws Ø 4 x 40 mm.

#### Mechanical mortice locks

- A mechanical mortice lock reference D458.A20.1 or D458.A25.1 or D778.A20.1 or D778.A25.1 (VACHETTE) or reference 8458.A20.1 or 8458.A25.1 or 8778.A20.1 or 8778.A25.1 (ASSA ABLOY), centred at 50 mm, one closing point and one locking point. The lock casing of overall dimensions 78 x 148 x 15 mm (w x h x th) is fitted into a mortice of dimensions 81 x 164 x 16 mm (w x h x th). The lock casing is associated with a faceplate of dimensions (20 or 25) x 250 x 3 mm (w x h x th).
- A mechanical mortice lock reference LE7 (SALTO), centred at 65 mm, one closing point and one locking point. The lock casing of dimensions 95 x 166 x 15.5 mm (w x h x th) is fitted into a mortice of dimensions 100 x 170 x 16 mm (w x h x th). The lock casing is associated with a faceplate of dimensions 24 x 235 x 3 mm (w x h x th).
- A mechanical mortice lock reference 8120 PMR or 8121 PMR (BRICARD - ALLEGION), centred at 120 mm, one lateral closing point and five lateral locking points of which one is a rectangular bolt and two are round bolts. The main casing of the lock of dimensions 146 x 148 x 14 mm (w x h x th) is fitted into a mortice of dimensions 155 x 160 x 16 mm (w x h x th).

#### Electromechanical mortice locks

- An electromechanical mortice lock reference KMP564 or KMP565 (ASSA ABLOY), centred at 50 mm, one lateral closing point and three lateral locking points. The secondary casings of the lock, of dimensions 36 x 123 x 14.5 mm (w x h x th), are placed in a mortise of dimensions 67 x 135 x 17 mm (w x h x th).

#### Motorised mortice locks

- A motorised mortice lock reference KMP520 or KMP524 (ASSA ABLOY), centred at 50 mm or at 55 mm or 60 mm, one lateral closing point and three lateral locking points. The secondary casings of the lock, of dimensions 36 x 123 x 14.5 mm (w x h x th), are placed in a mortise of dimensions 67 x 135 x 17 mm (w x h x th).

#### Electronic mortice locks

- An electronic mortice lock reference eSigno (BRICARD - CISA), with casing APH3, centred at 60 mm, one latch bolt closing point and one dead bolt locking point. The lock casing has dimensions 96 x 170 x 16 mm (w x h x th) and is fitted into a mortise of dimensions 100 x 186 x 18 mm. The lock casing is associated with a faceplate of dimensions 22 x 240 x 3 mm (w x h x th). The lock casing is protected on all its faces by an intumescent seal reference Interdens type 15 (ODICE) of thickness 1 mm.
- An electronic mortice lock reference eGo (BRICARD - CISA), with Euro casing, centred at 55 mm, one latch bolt closing point and one dead bolt locking point. The lock casing has dimensions 78.5 x 154 x 18 mm (w x h x th) and is fitted into a mortise of dimensions 85 x 174 x 20 mm. The lock casing is associated with a faceplate of dimensions 22 x 240 x 3 mm (w x h x th). The lock casing is protected on all its faces by an intumescent seal reference Interdens type 15 (ODICE) of thickness 1 mm.
- An electronic mortice lock reference Essence RFID (VINGCARD), with Euro casing centred at 65 mm or ANSI casing centred at 70 mm, one latch bolt closing point and one dead bolt locking point.

The Euro casing centred at 65 mm has overall dimensions 155 x 150 x 17.5 mm (w x h x th) and is fitted into a mortise of overall dimensions 175 x 160 x 19.5 mm. The lock casing is associated with a faceplate of dimensions (20 or 22 or 24) x (225 or 235) x 3 mm (w x h x th). The ANSI casing centred at 70 mm has overall dimensions 105 x 150 x 22 mm (w x h x th) and is fitted into a mortise of overall dimensions 115 x 160 x 24 mm. The lock casing is associated with a faceplate of dimensions (20 or 22 or 24) x (225 or 235) x 3 mm (w x h x th). The auxiliary casing has overall dimensions 108 x 105 x 21 mm (w x h x th) and is associated with option reference Online, of overall dimensions 38 x 70 x 16 mm (w x h x th). The assembly is placed into a mortise of overall dimensions 155 x 115 x 25 mm (w x h x th). The lock's auxiliary casing is associated with a faceplate of dimensions 24 x 150 x 5.6 mm (w x h x th).

The principal and auxiliary casings are offset on the opening side, that of the auxiliary being positioned above the principal casing (a gap of around 50 mm separates the two casings). The two mortises are linked by an oblique  $\varnothing$  12 mm hole made at an angle of around 53° allowing for the passage of a connecting wire. A blind  $\varnothing$  10 mm hole is made at the auxiliary casing, on the side away from opening, at 45 mm from the lateral edge of the leaf, to allow the fitting of an LED showing the location of the RFID card reader.

The various casings are thermally protected on all faces by an intumescent seal reference Interdens type 15 (ODICE) of thickness 1 mm.

See Appendix, illustrations 100 to 103.

- *where locks reference Modulo-Push Bar, 1610 BM, 1630 BM, 1640 BM, 6510 BM, 6530 BM and 6540 BM are employed, the surface-mounted anti-panic closure must be located on the side away from fire, the direction of fire therefore being limited to fire on the opening side except where doorsets are in SPF configuration with no closing point in which case there is no restriction on the direction of fire;*

- where locks reference 1910 PE BM, 1930 PE BM, 1940 PE BM, 6810 PE BM, 6830 PE BM and 6840 PE BM are employed on double leaf doorsets, the surface-mounted anti-panic closure must be located on the side away from fire, the direction of fire therefore being limited to fire on the opening side except where doorsets are in SPF configuration with no closing point in which case there is no restriction on the direction of fire;
- engagement of the closing point in surface mount is 5.0 mm minimum for surface-mounted anti-panic closures of brand VACHETTE – ASSA ABLOY and 7.0 mm minimum for those of brand ANTIPANIC;
- surface mounted anti-panic closures are employed with their associated strikes being fixed by steel screws Ø 4 x 40 mm;
- where locks reference eSigno and eGo are employed, the electronic lock's card reader, situated on the side away from opening, is located on the side away from fire;
- where locks reference Essence RFID are employed, only single-leaf doorsets are affected;
- where locks reference Essence RFID are employed, where the frame of the doorsets is in wood, it is achieved by wood profiles of minimum theoretical mean bulk density 600 kg/m<sup>3</sup>;
- where locks reference Essence RFID are employed, the frame of the leaf of the doorsets is produced in wood of minimum theoretical mean bulk density 600 kg/m<sup>3</sup>;
- where locks reference Essence RFID are employed the electronic lock's card reader, situated on the side away from opening, is located on the fire side.

#### f) Use of an electronic door-handle plate assembly

The various mechanical mortice locks authorised may be equipped with an electronic door handle assembly:

- reference XS4 (SALTO), in which the two door handle plates are fixed together by two M5 steel screws through two Ø 14 mm holes made in the leaf. Through the upper hole is also run the electrical cable connecting, on one side, the electronic contactless card reader unit located on the side away from opening, to the battery-powered supply on the opening side.
- reference Confidant RFID (KABA), in which the two door handle plates are fixed together by two M3 steel screws through two holes Ø 10 mm made in the leaf. The door handle plate on the side away from opening comprises both the electronic contactless card reader unit and the battery-powered supply.

With this device, in control mode the handle on the side away from opening is de-coupled (so is non-functional); reading of a valid badge allows the handle to be re-coupled (so again becoming functional for a limited period of time). The handle on the opening side is always functional.

The card reader for the electronic assembly, situated on the side away from opening, is located on the side away from fire.

#### g) Modification of the operating means associated with a lock

Approved mechanical mortice locks may be associated with a surface-mounted anti-panic bar reference Morty 10 or Crossbar 89 (JPM – ASSA ABLOY). The main casing for the surface-mounted anti-panic bar is assembled to the opposing trim, as either a handle or knob sub-assembly, by two steel screws M3 x 40 mm.

##### 5.3.10.5. Variant 5

An identification plate dimensions 100 x 30 mm (w x h) in 10/10 mm stainless steel or 8/10 mm Dilophane or 5/10 mm or 10/10 mm aluminium may be applied on the hinge side using double-sided adhesive:

- in the rebate of the metal or wooden frame where an intumescent seal is placed on the edge of the leaf;
- on the edge of the leaf, where an intumescent seal is placed in the rebate of the wooden or metal frame.

This identification plate is positioned at a maximum height (top of the identification plate) of 500 mm from the ground.

The plate is positioned at maximum 500 mm from the ground.

## 6. FIRE RESISTANCE CLASSIFICATIONS

### 6.1. CLASSIFICATION REFERENCES

This classification procedure was performed in accordance with Section 7.5.5. of Standard EN 13501-2:2016

### 6.2. CLASSIFICATIONS

The element is classified in accordance with the following combinations of performance and classification parameters.

The PRODUCT IS classified for direction of fire **IMMATERIAL** except for doorsets installed in a renovation situation and "SPF" doorsets with no closing point for which the direction of fire is ON HINGE SIDE ONLY.

Doorset with an oculus reference PYROBELITE 7EG (AGC), PYROBELITE 10 (AGC), PYRODUR 30-10 (PILKINGTON), PYRODUR 30-201 (PILKINGTON) or PYRODUR 30-251 (PILKINGTON):

R	E	I	W		t	-	M	C	S	G	K
	<b>E</b>				<b>30</b>						

Doorset with an oculus reference PYROSTOP 30-10 (PILKINGTON), PYROBEL 16 (AGC) or without oculus with a wooden frame:

R	E	I	W		t	-	M	C	S	G	K
	<b>E</b>	<b>I1</b>			<b>30</b>						
	<b>E</b>	<b>I2</b>			<b>30</b>						
	<b>E</b>				<b>30</b>						

Doorset with an oculus reference PYROSTOP 30-10 (PILKINGTON), PYROBEL 16 (AGC) or without oculus with a metal frame:

R	E	I	W		t	-	M	C	S	G	K
	<b>E</b>	<b>I1</b>			<b>15</b>						
	<b>E</b>	<b>I2</b>			<b>30</b>						
	<b>E</b>				<b>30</b>						

## 7. SCOPE OF DIRECT APPLICATION OF THE RESULTS

---

The struck-through sections and text are not applicable to the element forming the subject of this classification report.

### 7.1. GENERAL

The scope of direct application of the results is limited to doorsets. The regulations for the scope of direct application for opening windows and opening fabric shutters are not currently available. The scope of direct application sets out the permitted changes to the test element following a successful fire resistance test. These modifications may be made automatically without the sponsor having to request a test, calculation or supplementary approval.

**Note:** Once the required sizes concerning the dimensions of the product are planned, the dimensions of certain elements of the element tested may be less than the actual dimensions in order to maximise the extrapolation of test results by modelling the interaction between elements at the same scale.

### 7.2. MATERIALS AND CONSTRUCTIONS

#### 7.2.1. General

Unless otherwise stated in the text below, the materials and construction of the doorset must be identical to those of the test. The number of leaves and operating method (for example, sliding, swinging or pivoting, one- or two-way) may not be modified.

#### 7.2.2. Specific restrictions on the materials and construction

##### 7.2.2.1. Wooden constructions

The thickness of the leaf or leaves may not be reduced, but can be increased. For multi-leaved doorsets, this increase must be identical for each leaf.

It is permitted to increase the thickness of the leaf and/or its bulk density provided that the total increase in weight is not more than 25%.

For wood-based panels (for example, chipboard, plywood etc.) the composition (for example, the type of resin) may not be changed with respect to that submitted for the test. The Bulk density may not be reduced, but can be increased.

The cross-sectional dimensions and/or bulk density of the wooden frames (including rebates) may not be reduced but can be increased.

##### 7.2.2.2. Metal constructions

It is permitted to increase the dimensions of metal coverings around the frames to accept thicker support structures. It is permitted to increase the thickness of the steel by a maximum of 25%.

The type of metal cannot be different to that submitted for the test.

The number of stiffening elements for doorsets without thermal insulation and the number and type of their fixings in the production of the panel may be increased proportionally to the increase in dimensions but may not be reduced.

##### 7.2.2.3. Glazed constructions

The type of glass and means of edge retention, including the type and number of fixings per metre of edge, may not be changed with respect to those submitted for test.

The number of glazed bays and each of the dimensions (width and height) of the glass of each glazing integrated into a test element may be:

— reduced proportionally to the reductions in size of the door or

Consequently, the overall dimensional variations of the authorised glazings may be:

	Minimum	Maximum
Width (mm)		
Length (mm)		

— reduced by a maximum of 25% for fireproof doorsets only and/or protection against radiation and for doorsets that satisfy thermal insulation criteria where the temperature of the non-exposed surface of the opener and of the glazing has been maintained throughout the classification duration or  
Consequently, the overall dimensional variations of the authorised glazings may be:

	Minimum	Maximum
Diameter (mm)		

— reduced without restriction on condition that the total surface of the glazing(s) submitted for test is less than 15% of the surface of the opener or of the lateral or upper panel.

The number of glazed bays and each of the dimensions of the glass of each glazing included in the test element must not be increased.

The distance between the edge of the glazing and the perimeter of the leaf or the distance between the glazed windows must not be reduced with respect to those incorporated into the test element. Other positioning within the opener may only be modified if it does not entail the removal or re-positioning of structural elements related to the glazing.

#### 7.2.2.4. Decorative finishes

##### 7.2.2.4.1. Paint

Where the finishing paint is not supposed to contribute to the doorset's fire resistance, other paints are acceptable and these may be added to openers or to openers for which unfinished test elements were submitted to test. ~~Where the paint finish does contribute to the fire resistance of the doorset (for example, intumescent paints) no change is permitted.~~

##### 7.2.2.4.2. Decorative laminates

Decorative laminates and wood veneers up to 1.5 mm thick may be added to the faces (but not the edges) of swinging doorsets satisfying the thermal insulation criteria (normal or supplementary operating mode).

~~Decorative laminates and wood veneers applied to doorsets which do not satisfy thermal insulation criteria (normal or supplementary operating mode) and/or of thickness greater than 1.5 mm must be submitted for test as part of the test element. For all doorsets submitted for test with decorative laminate faces, the only permitted variations must remain with the limits and types and thicknesses for analogous materials (for example, colour, graphic, manufacturer).~~

#### 7.2.3. Fixings

The number of fixings employed to fix the fire resistant doorsets onto the support structure may be increased but not reduced, and the distance between fixings may be reduced but not increased.

7.2.4. Construction hardware

The number of hinges and anti-unhinging devices may be increased, but not reduced.

NOTE 1: The number of movement limiters, such as locks, is not covered by the direct application.

Where a door unit is subject to testing with a door closer, but with the retention force released in accordance with paragraph 10.1.4 of standard EN 1634-1 + A1: 2018, the door unit may be supplied with or without this closing system, i.e. when automatic closing characteristics are not required.

NOTE 2: Changing the construction hardware is not covered by the scope of direct application.

7.3. PERMITTED DIMENSIONAL VARIATIONS

7.3.1. General

~~Doorsets having different dimensions to those of the test elements submitted to testing are permitted within certain limits but the variations depend on the type of product and satisfactory duration of the performance criteria.~~

~~The increase or decrease of dimensions allowed by the direct scope of application are applicable to the overall dimensions of each opening part of each lateral panel, of each transom and of each top panel independently, including all the rabbets which can be found on the opening part or the panel.~~

~~The rules setting out the permitted dimensional variations are given in Appendix B of standard EN 1634-1+A1:2018.~~

In accordance with section 13.3.1 of standard EN 1634-1 + A1: 2018, the dimensions of all glazing may not be increased.

~~7.3.2. Dimensional variations with respect to type of product (overall for the leaf)~~

	Category "A"		Category "B"	
	Minimum	Maximum	Minimum	Maximum
Width (mm)				
Height (mm)				

7.3.3. Other modifications

For doorsets of lesser dimensions, the relative positioning of devices limiting movements (for example, hinges, catches etc.) must remain identical to that submitted for test or all modifications to the distances between them will be limited to the same percentage reduction as that of the dimensional reduction of the test element.

For doorsets of larger dimensions the following rules must be applied equally:

- The height of the catch above the ground must be greater than or equal to that of the test and this increase in height must be at least proportional to the increase in height of the door;
- The distance between the top hinge and the height of the opener must be equal to or less than that of the test;
- The distance between the bottom hinge and the bottom of the opener must be equal to or less than that of the test;
- Where three hinges or anti-warping devices are used, the distance between the bottom of the opener and the central securing element must be greater than or equal to that of the test.

#### 7.3.3.1. Lateral panels and transoms

The rules for variation with respect to test elements for lateral panels and transoms are identical to those generally applicable to swinging or pivoting doorsets. Where a single lateral panel may be submitted to test due to the dimensional limitations of the furnace, a second panel having at the most the same dimensions may be added from the other side, provided that it has exceeded the classification time for type "B". Where a supplementary lateral panel should be added to a doorset submitted for test, the panel submitted for test should then be located on the catch side.

The addition of a second lateral panel is excluded for doorsets satisfying the radiation criterion only if they equally satisfy the thermal insulation criterion.

#### 7.3.3.2. Wooden constructions

The number, dimensions, positioning and orientation of all the seals may not be modified on a wooden frame.

Where decorative wooden veneers of thickness greater than or equal to 1.5 mm or other coatings which themselves enhance the construction form part of the test element, they may not be replaced by others having a lesser thickness or resistance.

### 7.4. DIRECTION OF EXPOSURE TO FIRE

#### 7.4.1. General

Standard EN 1363-1 states that, for separating elements for which two fire resistant sides are required, it is necessary to submit two test elements to testing (one in each direction) unless the element is perfectly symmetrical, i.e. the construction of the doorset is identical on both sides of a median line through the thickness of the opener when this is viewed from above. In certain cases however, it is possible to define rules whereby the fire resistance of a non-symmetrical doorset tested in one fire direction may be applied for the other direction of exposure to fire. The possibility of defining such rules increases where the study is limited to certain types of doorset and certain applicable criteria, for example the fireproofing of doors.

#### 7.4.2. Authorised direction of exposure to fire

In accordance with section 13.4.2 of standard EN 1634-1 + A1: 2018, given the nature of the casing and the opening of the doorset tested on one hand and the direction of exposure applied during the test on the other hand, the fire performances indicated in paragraph 6 of this document may be valid for the following directions of exposure to fire:

- Fire integrity: Fire on the side away from to opening and fire on the opening side.
- Thermal insulation: Fire on the side away from to opening and fire on the opening side.

### 7.5. SUPPORTING STRUCTURES

#### 7.5.1. General

The fire resistance of a doorset submitted to test in a form of standardised support structure is or is not applicable once installed in other types of construction. In general, rigid and flexible types are not interchangeable; the rules regulating the scope of direct application with regard to each group are given in paras 13.5.2. to 13.5.3. of standard EN 1634-1 + A1: 2018. In certain cases however, it may be the case that the result of a test on a particular type of doorset tested in a standardised form of support structure is applicable to this doorset installed in a standardised support structure of a different type. Specific rules are given in section 13.5.4. of standard EN 1634-1 + A1: 2018.

7.5.2. ~~Authorised support structures~~

In accordance with the ~~specific~~ rules given in section 13.5 of standard EN 1634-1: 2012, the performances indicated in section 6 of this documents are also valid for doorsets installed in:

- a) ~~reinforced concrete vertical walls having a bulk density of at least 2200 kg/m<sup>3</sup> and a thickness of at least 200 mm.~~
- b) ~~Block walls of concrete, in masonry or in homogenized concrete having a bulk density of at least 850 kg/m<sup>3</sup> and a thickness of at least 200 mm.~~
- c) ~~block walls of concrete, in cellular concrete having a bulk density of at least 650 kg/m<sup>3</sup> (proven density) and a thickness of at least 200 mm.~~
- d) ~~of flexible structures such as described in section 7.2.2.4 of the standard EN 1363-1 and whose characteristics are defined in the table below:-~~

Predicted fire resistance	Nominal depth of steel posts [mm]			Plaster panels type F, EN 520		Thermal insulation; mineral wool	
	Group A	Group B	Group C	Number of layers each side	Thickness of panels [mm]	Thickness [mm]	Bulk density [kg/m <sup>3</sup> ]
EI 30	44-55	56-75	76-100	1	12.5	40-50	30-60
EI 60	44-55	56-75	76-100	2	12.5	40-50	30-60
EI 90	44-55	56-75	76-100	2	12.5	40-50	85-115
EI 120	62-70	71-75	76-100	2	15	60-70	85-115

In accordance with the ~~specific~~ rules given in section 13.5 of standard EN 1634-1: 2014 + A1: 2018, a test performed using a certain depth of upright, defined in groups A, B or C applies to constructions using the range of upright depths defined for the respective groups.

A test result performed with a construction conforming to group A applies to the uprights of groups A, B and C. A test result performed with a construction conforming to group B applies to the posts of groups B and C. A test result performed with a construction conforming to group C applies only to the posts of groups C.

- e) ~~associated supporting structures as described in this documents.~~

Fixing methods employed in each type of supporting structure are always adapted to this.

## 8. RESTRICTIONS

---

This classification report does not confer type approval or element certification.

Maizières-lès-Metz, 28 July 2021

X   
\_\_\_\_\_

Project leader  
Signé par : Maxime HUBERT

X   
\_\_\_\_\_

Supervisor  
Signé par : Jerome VISSE

## Illustrations APPENDIX

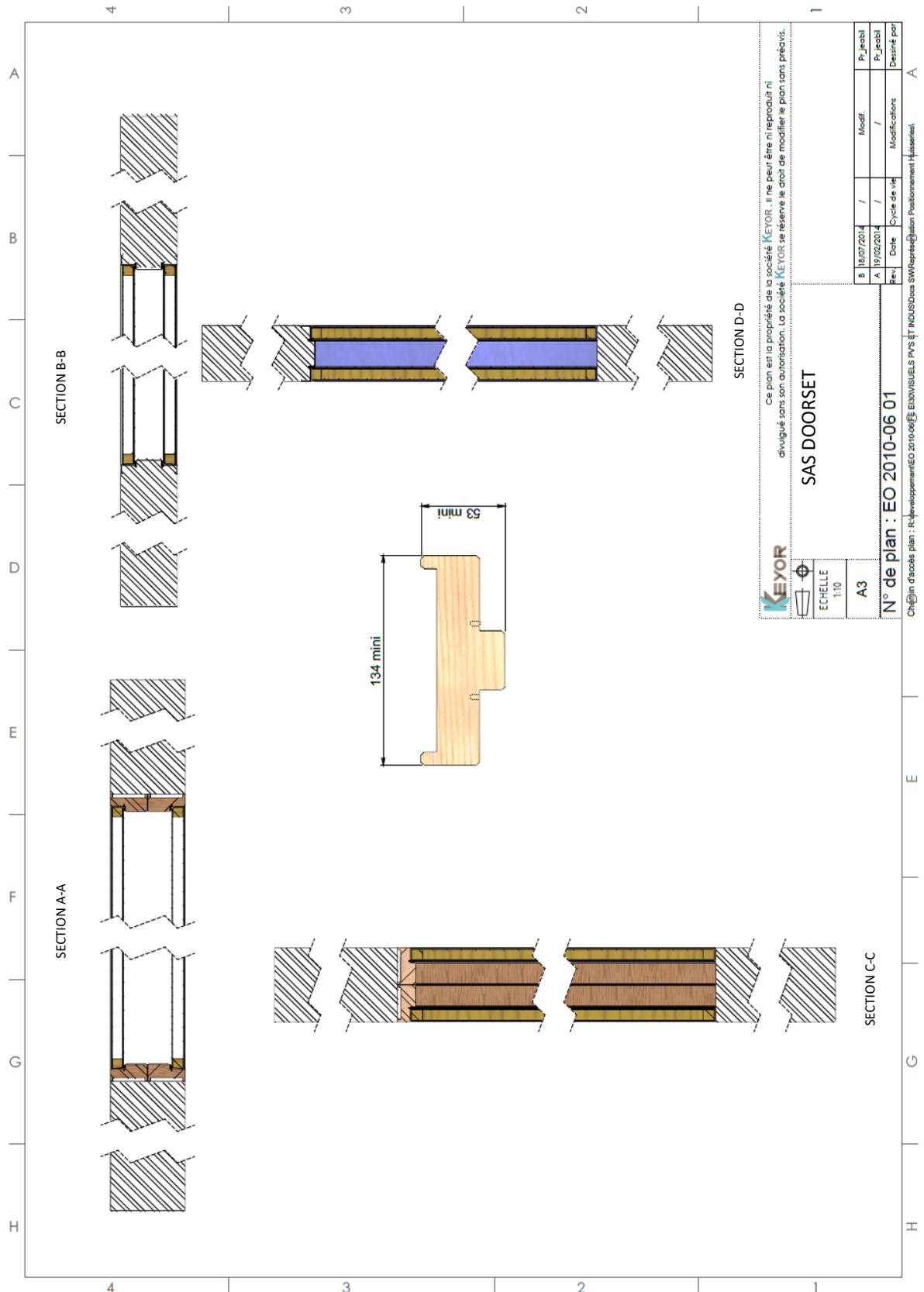
---

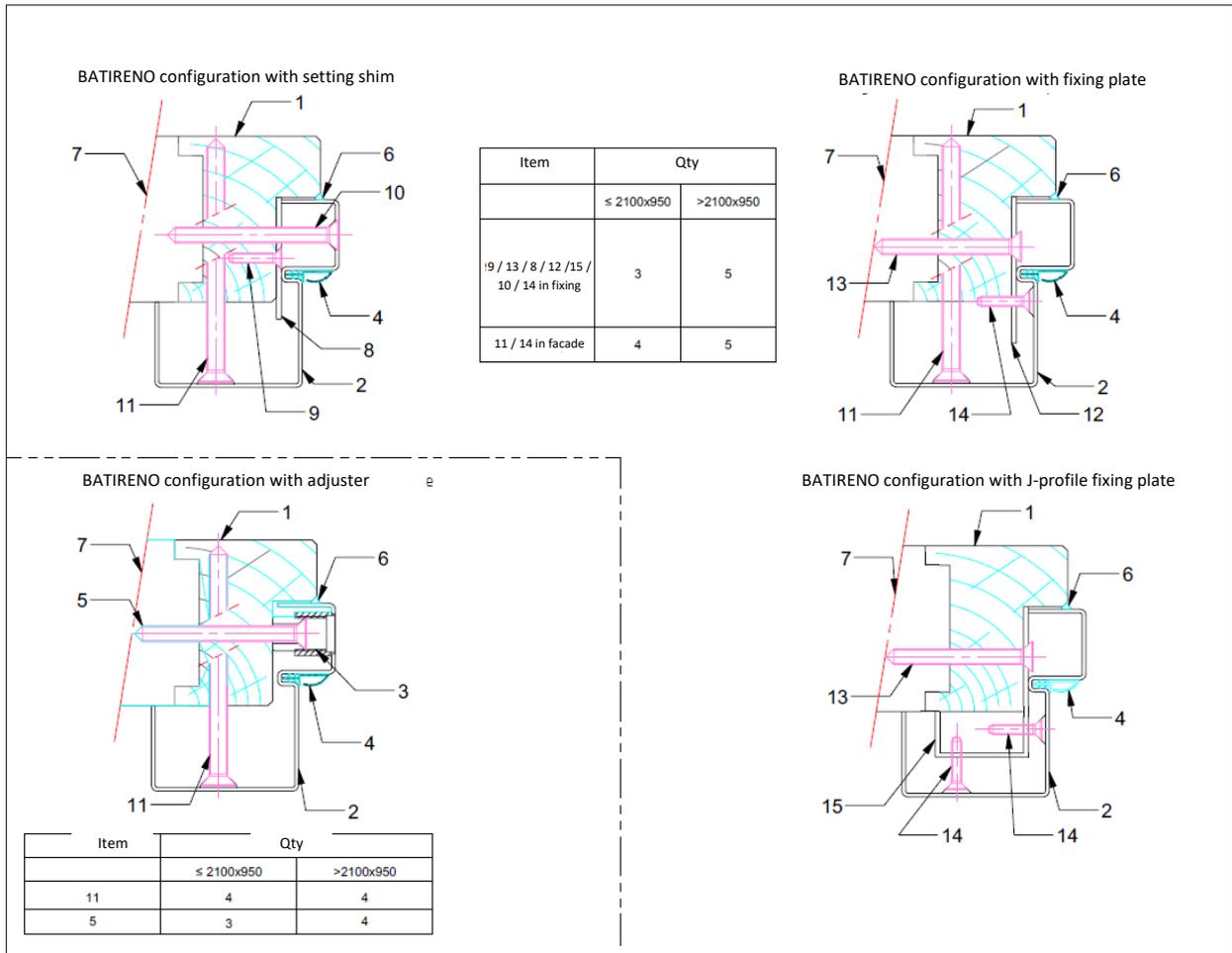
### Illustration 1: Wood species permitted for the door casing

Softwood of minimum theoretical bulk density 480 kg/m<sup>3</sup>  
or poplar of theoretical bulk density 480 kg/m<sup>3</sup>  
or mahogany of theoretical bulk density 530 kg/m<sup>3</sup>  
or meranti of theoretical bulk density 550 kg/m<sup>3</sup>  
or birch of theoretical bulk density 600 kg/m<sup>3</sup>  
or plane of theoretical bulk density 600 kg/m<sup>3</sup>  
or tauari of minimum theoretical bulk density 620 kg/m<sup>3</sup>  
Sapelli of theoretical bulk density 650 kg/m<sup>3</sup>  
or eucalyptus of theoretical bulk density 650 kg/m<sup>3</sup>  
or chestnut of theoretical bulk density 650 kg/m<sup>3</sup>  
or nyatoh of minimum theoretical bulk density 650 kg/m<sup>3</sup>  
or curupixa of theoretical bulk density 650 kg/m<sup>3</sup>  
or kapur of theoretical bulk density 650 kg/m<sup>3</sup>  
or lauan of minimum theoretical bulk density 650 kg/m<sup>3</sup>  
or niangon of theoretical bulk density 650 kg/m<sup>3</sup>  
or nyatoh of minimum theoretical bulk density 650 kg/m<sup>3</sup>  
or merbau of theoretical bulk density 650 kg/m<sup>3</sup>  
or palapi of minimum theoretical bulk density 650 kg/m<sup>3</sup>  
or oak of theoretical bulk density 700 kg/m<sup>3</sup>  
or ash of theoretical bulk density 700 kg/m<sup>3</sup>  
or beech of theoretical bulk density 710 kg/m<sup>3</sup>  
or keruing of theoretical bulk density 720 kg/m<sup>3</sup>  
or acacia of theoretical bulk density 750 kg/m<sup>3</sup>  
or moabi of theoretical bulk density 860 kg/m<sup>3</sup>

**Illustration 2: Wood species permitted for the door leaf frame**

Softwood of minimum theoretical bulk density 450 kg/m<sup>3</sup>  
or poplar of theoretical bulk density 480 kg/m<sup>3</sup>  
or mahogany of theoretical bulk density 530 kg/m<sup>3</sup>  
or birch of theoretical bulk density 600 kg/m<sup>3</sup>  
or plane of theoretical bulk density 600 kg/m<sup>3</sup>  
or tauari of minimum theoretical bulk density 620 kg/m<sup>3</sup>  
or Sapelli of theoretical bulk density 650 kg/m<sup>3</sup>  
or chestnut of theoretical bulk density 650 kg/m<sup>3</sup>  
or eucalyptus of theoretical bulk density 650 kg/m<sup>3</sup>  
or kapur of theoretical bulk density 650 kg/m<sup>3</sup>  
or nyatoh of minimum theoretical bulk density 650 kg/m<sup>3</sup>  
or curupixa of theoretical bulk density 650 kg/m<sup>3</sup>  
or lauan of minimum theoretical bulk density 650 kg/m<sup>3</sup>  
or niangon of theoretical bulk density 650 kg/m<sup>3</sup>  
or merbau of theoretical bulk density 650 kg/m<sup>3</sup>  
or palapi of minimum theoretical bulk density 650 kg/m<sup>3</sup>  
or meranti of theoretical bulk density 670 kg/m<sup>3</sup>  
or oak of theoretical bulk density 700 kg/m<sup>3</sup>  
or ash of theoretical bulk density 700 kg/m<sup>3</sup>  
or beech of theoretical bulk density 710 kg/m<sup>3</sup>  
or keruing of theoretical bulk density 720 kg/m<sup>3</sup>  
or acacia of theoretical bulk density 750 kg/m<sup>3</sup>  
or moabi of theoretical bulk density 860 kg/m<sup>3</sup>





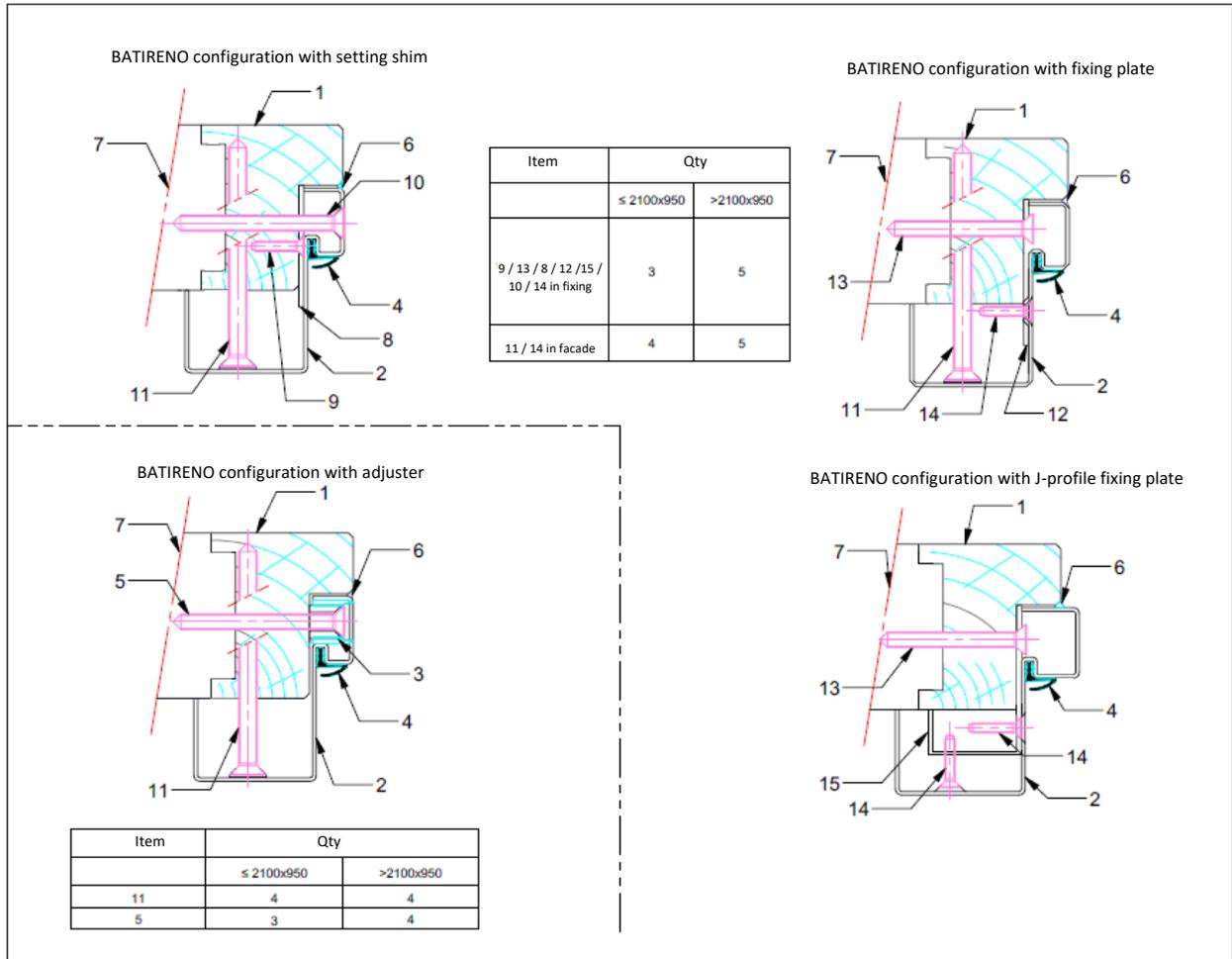
Item	Qty	
	≤ 2100x950	>2100x950
9 / 13 / 8 / 12 / 15 / 10 / 14 in fixing	3	5
11 / 14 in facade	4	5

Item	Qty	
	≤ 2100x950	>2100x950
11	4	4
5	3	4

15	J-profile fixing plate	BATIMETAL / RABILLON
14	Self-tapping screw 22 x 4.8	Trade
13	Screw SFS FBSK 72 x 7.5	Trade
12	Fixing plates	BATIMETAL / RABILLON
11	Screw TF 5 x 60	Trade
10	Screw SFS FBSK 9 2x 7.5	Trade
9	Self-tapping screw 22 x 4.2	Trade
8	Setting shims	BATIMETAL / RABILLON
7	Rock wool	/
6	Sealing bead of fire sealant	/
5	SFS FBSK 72 x 7.5	Trade
4	ISO Seal	/
3	Adjuster	BATIMETAL / RABILLON
2	BATIRENO	BATIMETAL / RABILLON
1	Existing wooden frame	/
Item	Designation	Supplier

This drawing is the property of Keyor. It may be neither reproduced nor divulged without authorisation. Keyor reserves the right to amend the drawing without notice.

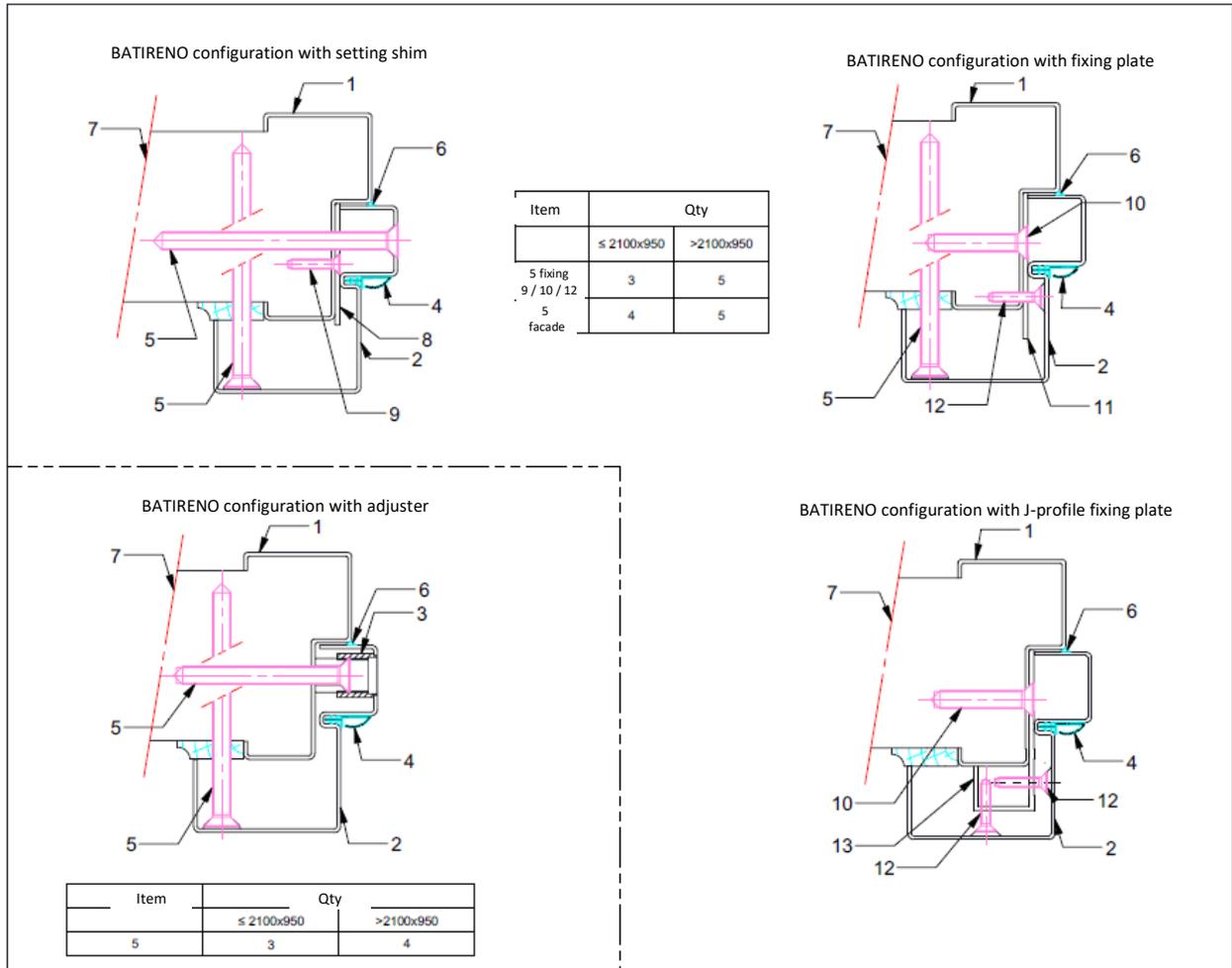
<b>Keyor</b>				Validation
Detail drawing of BATIRENO configurations on existing wooden frame				Département R&D
Drawing no.: EO 2010-06 4				Approbation
				Département R&D
				Dessiné par J.BILLEROT
B	01.07.14	Modifications	JB	
A	03.03.14	Création	JB	
Ind.	Date	Nature de la modification	Nom	



15	J-profile fixing plate	BATIMETAL / RABILLON
14	Self-tapping screw 22 x 4.8	Trade
13	Screw SFS FBSK 72 x 7.5	Trade
12	Fixing plates	BATIMETAL / RABILLON
11	Screw TF 5 x 60	Trade
10	Screw SFS FBSK 9 2x 7.5	Trade
9	Self-tapping screw 22 x 4.2	Trade
8	Setting shims	BATIMETAL / RABILLON
7	Rock wool	/
6	Sealing bead of fire sealant	/
5	SFS FBSK 72 x 7.5	Trade
4	ISO Seal	/
3	Adjuster	BATIMETAL / RABILLON
2	BATIRENO	BATIMETAL / RABILLON
1	Existing wooden frame	/
Item	Designation	Supplier

This drawing is the property of Keyor. It may be neither reproduced nor divulged without authorisation. Keyor reserves the right to amend the drawing without notice.

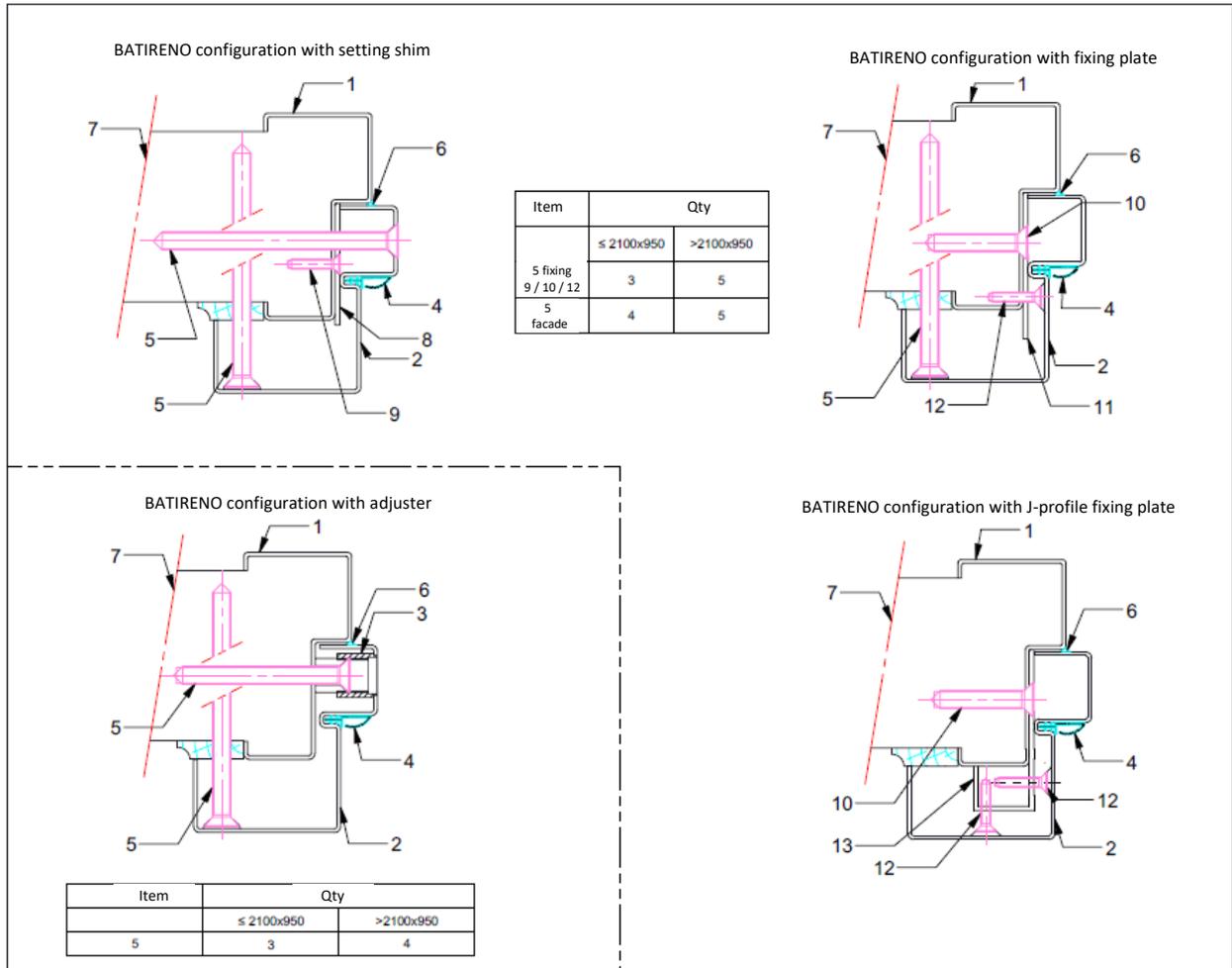
				<b>KEYOR</b>		Validation	
				Detail drawing of BATIRENO configurations on existing wooden frame  Drawing no.: EO 2010-06 5		Département R&D Keyor	
						Approbation	
						Département R&D KEYOR	
B	02.07.14	Modifications	JB			Dessiné par J.BILLEROT	
A	03.03.14	Création	JB				
Ind.	Date	Nature de la modification	Nom				



13	J-profile fixing plates	BATIMETAL / RABILLON
12	Self-tapping screw 22 x 4.8	Trade
11	Fixing plates	BATIMETAL / RABILLON
10	Screw SFS FBSK 42 x 7.5	Trade
9	Self-tapping screw 22 x 4.2	Trade
8	Setting shims	BATIMETAL / RABILLON
7	Rock wool	/
6	Sealing bead of fire sealant	/
5	SFS FBSK 9 2 x 7.5	Trade
4	ISO Seal	/
3	Adjuster	BATIMETAL / RABILLON
2	BATIRENO	BATIMETAL / RABILLON
1	Existing metal frame	/
Item	Designation	Supplier

This drawing is the property of Keyor. It may be neither reproduced nor divulged without authorisation.  
Keyor reserves the right to amend the drawing without notice.

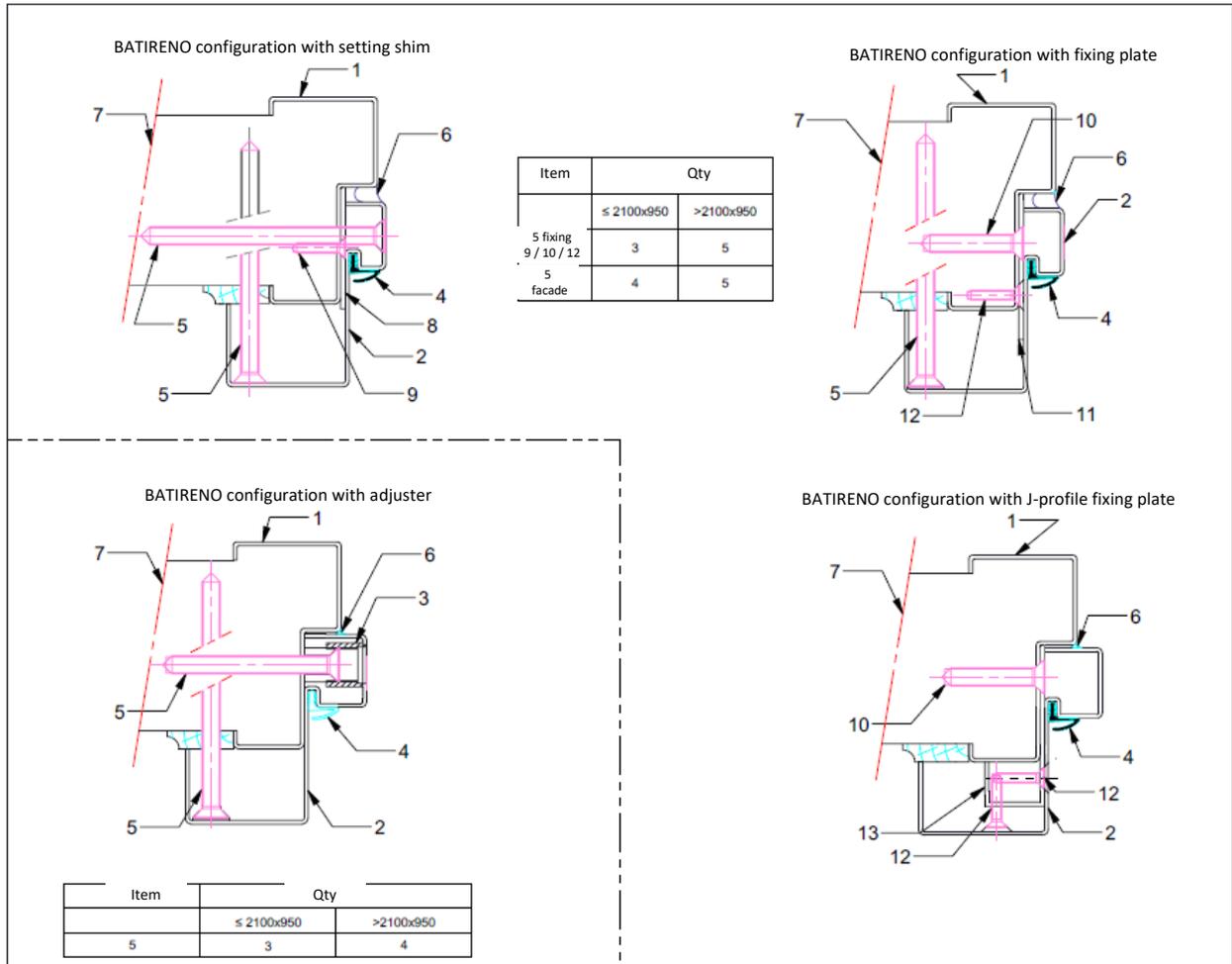
<b>Keyor</b>				Validation
Detail drawing of BATIRENO configurations on existing metal frame				Département R&D Keyor
				Approbation
				Département R&D Keyor
				Dessiné par J.BILLEROT
B	02.07.14	Modifications	JB	
A	03.03.14	Création	JB	
Ind.	Date	Nature de la modification	Nom	Drawing no.: EO 2010-06 6



13	J-profile fixing plates	BATIMETAL / RABILLON
12	Self-tapping screw 22 x 4.8	Trade
11	Fixing plates	BATIMETAL / RABILLON
10	Screw SFS FBSK 42 x 7.5	Trade
9	Self-tapping screw 22 x 4.2	Trade
8	Setting shims	BATIMETAL / RABILLON
7	Rock wool	/
6	Sealing bead of fire sealant	/
5	SFS FBSK 9 2 x 7.5	Trade
4	ISO Seal	/
3	Adjuster	BATIMETAL / RABILLON
2	BATIRENO	BATIMETAL / RABILLON
1	Existing metal frame	/
Item	Designation	Supplier

This drawing is the property of Keyor. It may be neither reproduced nor divulged without authorisation.  
Keyor reserves the right to amend the drawing without notice.

<b>Keyor</b>				Validation
Detail drawing of BATIRENO configurations on existing metal frame				Département R&D Keyor
				Approbation
Drawing no.: EO 2010-06 6				Département R&D Keyor
				Dessiné par J.BILLEROT
B	02.07.14	Modifications	JB	
A	03.03.14	Création	JB	
Ind.	Date	Nature de la modification	Nom	



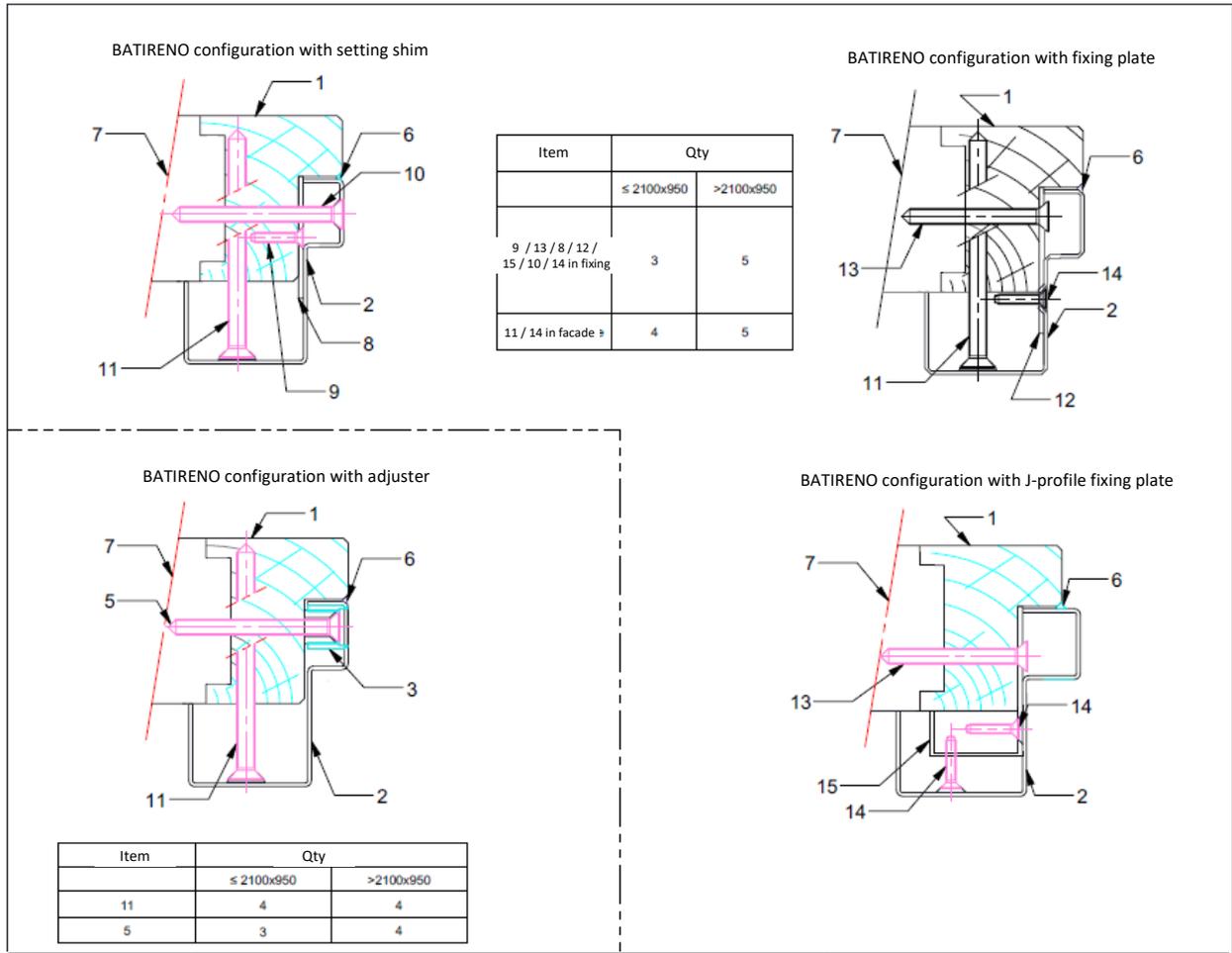
Item	Qty	
		≤ 2100x950 >2100x950
5	3	4

13	J-profile fixing plates	BATIMETAL / RABILLON
12	Self-tapping screw 22 x 4.8	Trade
11	Fixing plates	BATIMETAL / RABILLON
10	Screw SFS FBSK 42 x 7.5	Trade
9	Self-tapping screw 22 x 4.2	Trade
8	Setting shims	BATIMETAL / RABILLON
7	Rock wool	/
6	Sealing bead of fire sealant	/
5	SFS FBSK 9 2 x 7.5	Trade
4	ISO Seal	/
3	Adjuster	BATIMETAL / RABILLON
2	BATIRENO	BATIMETAL / RABILLON
1	Existing metal frame	/
Item	Designation	Supplier

This drawing is the property of Keyor. It may be neither reproduced nor divulged without authorisation. Keyor reserves the right to amend the drawing without notice.

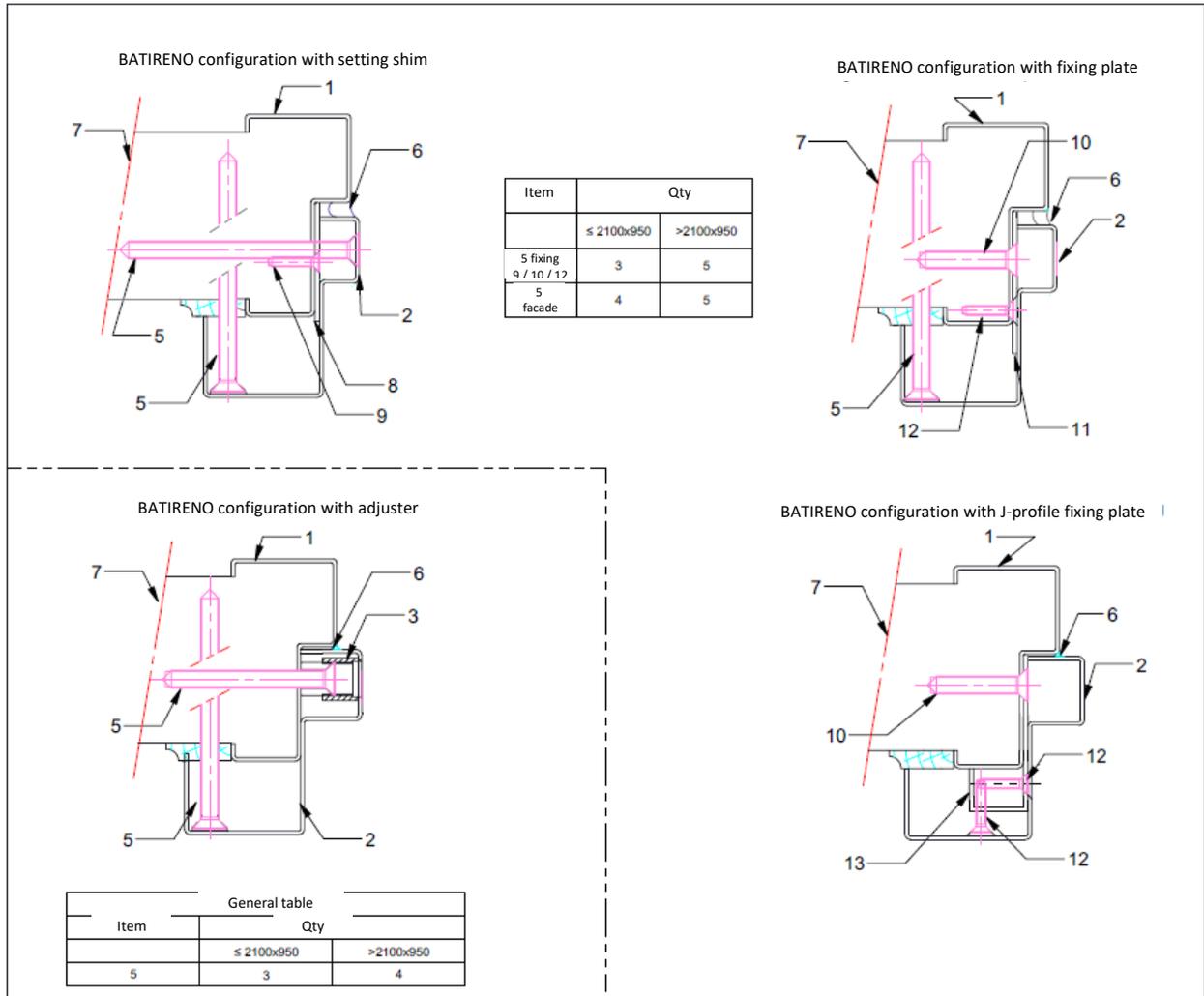
<b>Keyor</b>				Validation
Detail drawing of BATIRENO configurations on existing metal frame				Département R&D
Drawing no.: EO 2010-06 7				Approbation
B	02.07.14	Modifications	JB	Département R&D
A	03.03.14	Création	JB	
Ind.	Date	Nature de la modification	Nom	Dessiné par J.BILLEROT



15	J-profile fixing plates	BATIMETAL / RABILLON
14	Self-tapping screw 22 x 4.8	Trade
13	Screw SFS FBSK 9 2 x 7.5	Trade
12	Fixing plates	BATIMETAL / RABILLON
11	Screw TF 5 x 60	Trade
10	Screw SFS FBSK 9 2x 7.5	Trade
9	Self-tapping screw 22 x 4.2	Trade
8	Setting shims	BATIMETAL / RABILLON
7	Rock wool	/
6	Sealing bead of fire sealant	/
5	SFS FBSK 72 x 7.5	Trade
3	Adjuster	BATIMETAL / RABILLON
2	BATIRENO	BATIMETAL / RABILLON
1	Existing wooden frame	/
Item	Designation	Supplier

This drawing is the property of Keyor. It may be neither reproduced nor divulged without authorisation. Keyor reserves the right to amend the drawing without notice.

<b>Keyor</b>				Validation
Detail drawing of BATIRENO configurations on existing wooden frame (without ISO joint)				Département R&D
Drawing no.: EO 2010-06 8				Approbation
B	02.07.14	Modifications	JB	Département R&D
A	03.03.14	Création	JB	
Ind.	Date	Nature de la modification	Nom	Dessiné par J.BILLEROT



General table		
Item	Qty	
	≤ 2100x950	>2100x950
5	3	4

13	J-profile fixing plates	BATIMETAL / RABILLON
12	Self-tapping screw 22 x 4.8	Trade
11	Fixing plates	BATIMETAL / RABILLON
10	Screw SFS FBSK 42 x 7.5	Trade
9	Self-tapping screw 22 x 4.2	Trade
8	Setting shims	BATIMETAL / RABILLON
7	Rock wool	/
6	Sealing bead of fire sealant	/
5	SFS FBSK 9 2 x 7.5	Trade
3	Adjuster	BATIMETAL / RABILLON
2	BATIRENO	BATIMETAL / RABILLON
1	Existing metal frame	/
Item	Designation	Supplier

This drawing is the property of Keyor. It may be neither reproduced nor divulged without authorisation.  
Keyor reserves the right to amend the drawing without notice.

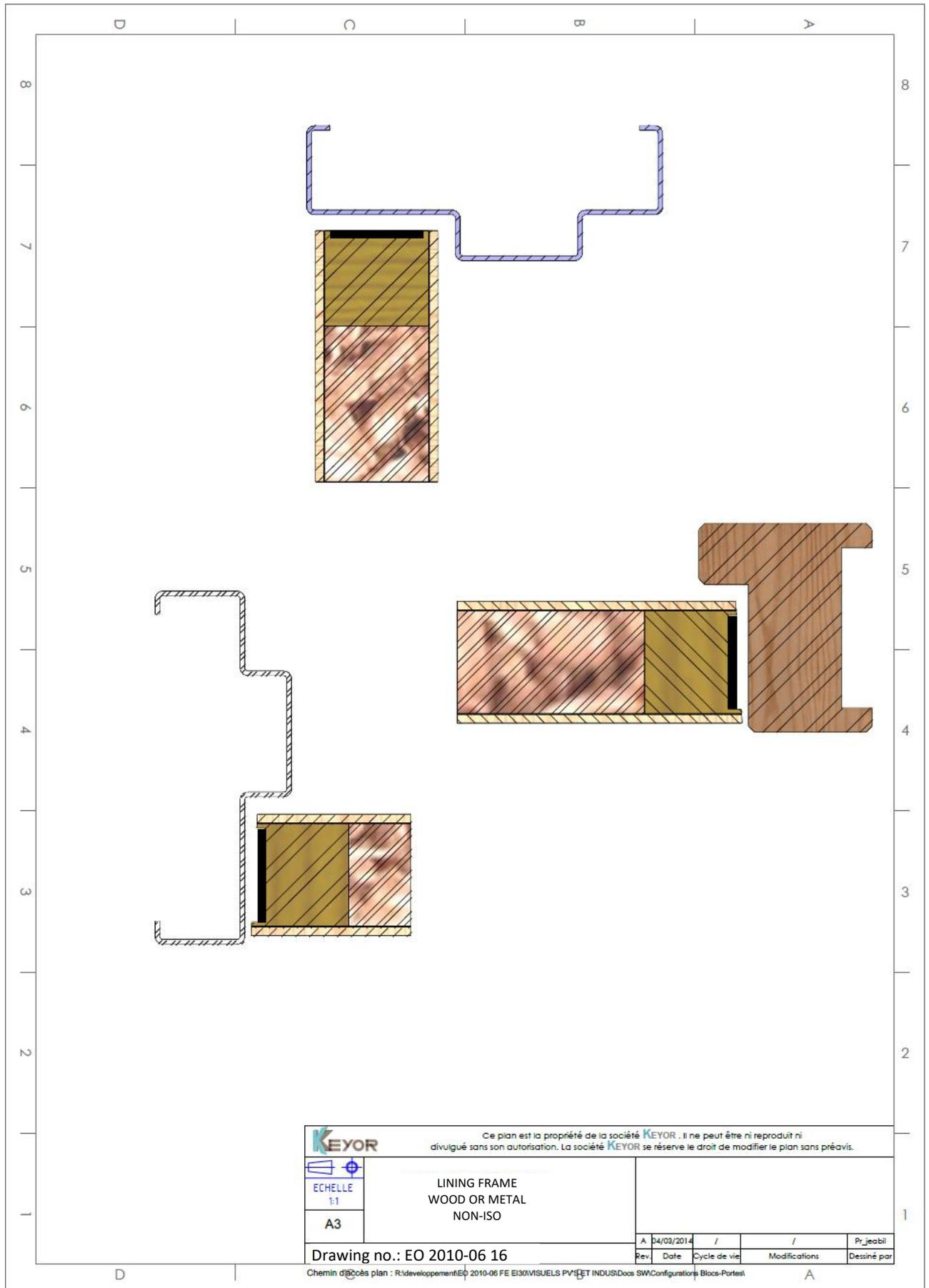
<b>Keyor</b>				Validation
Detail drawing of BATIRENO configurations on existing wooden frame (without ISO joint)				Département R&D
Drawing no.: EO 2010-06 9				Approbation
B 02.07.14 Modifications JB				Département R&D
A 03.03.14 Création JB				Dessiné par J.BILLEROT
Ind.	Date	Nature de la modification	Nom	

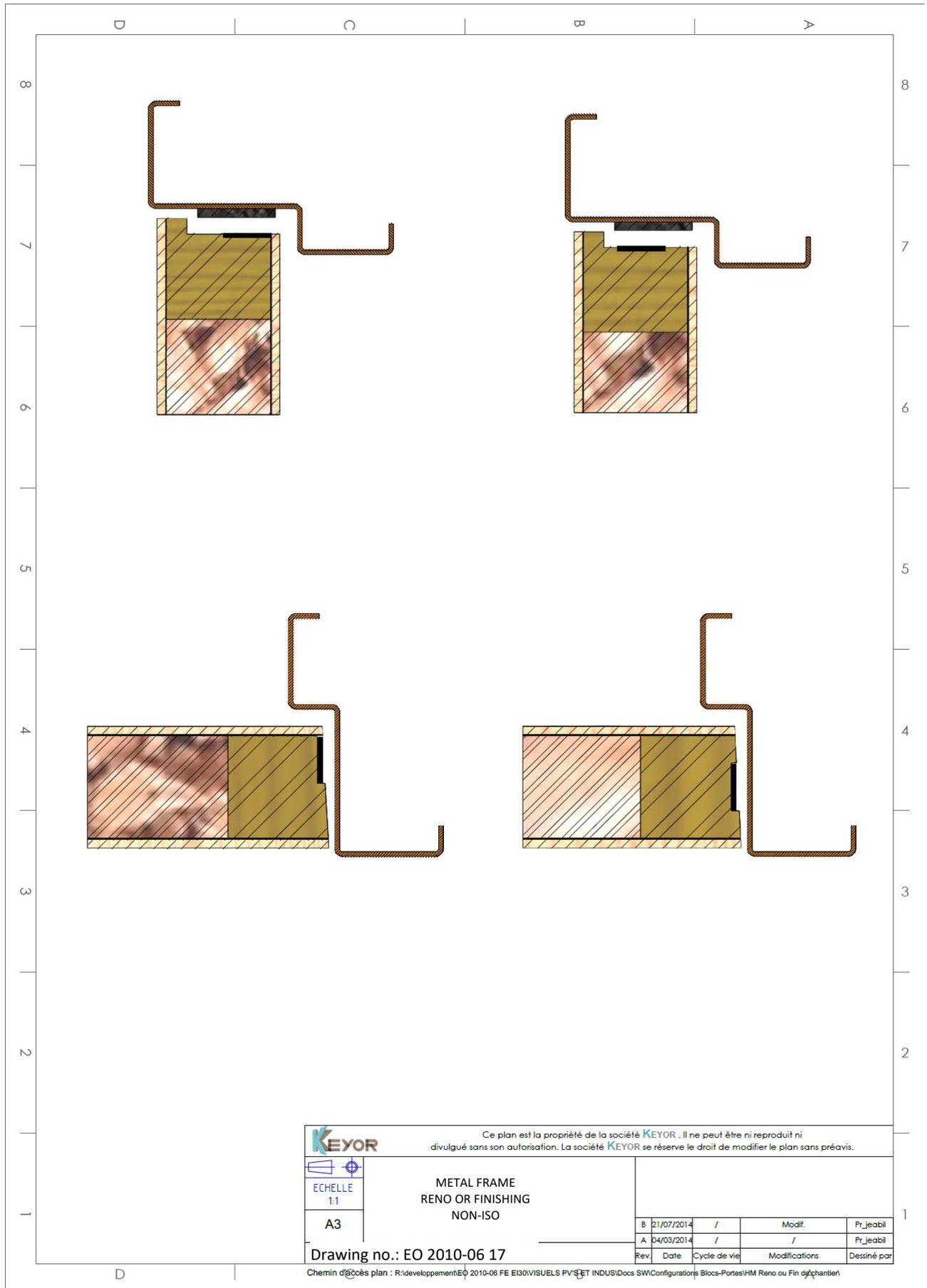


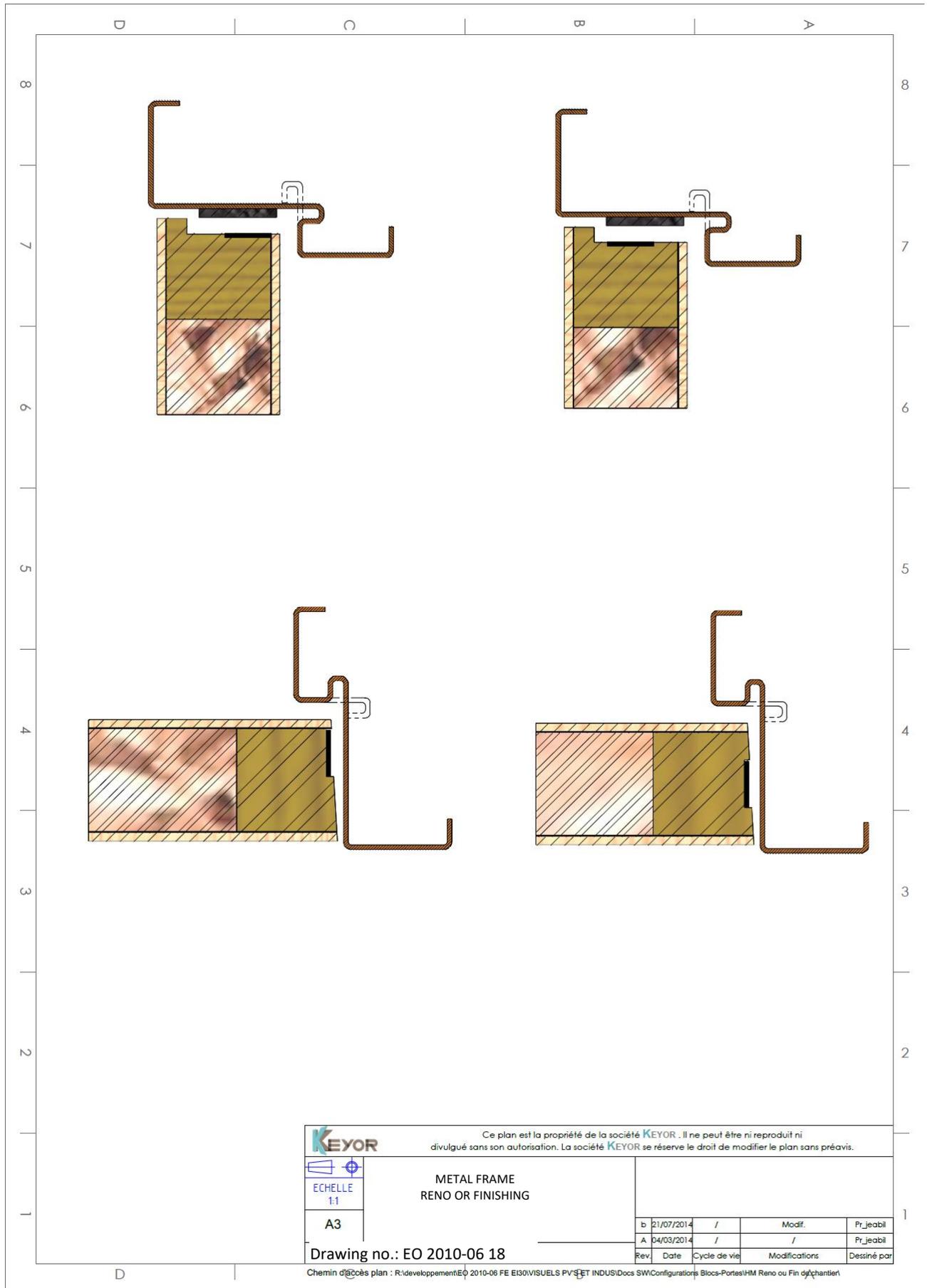


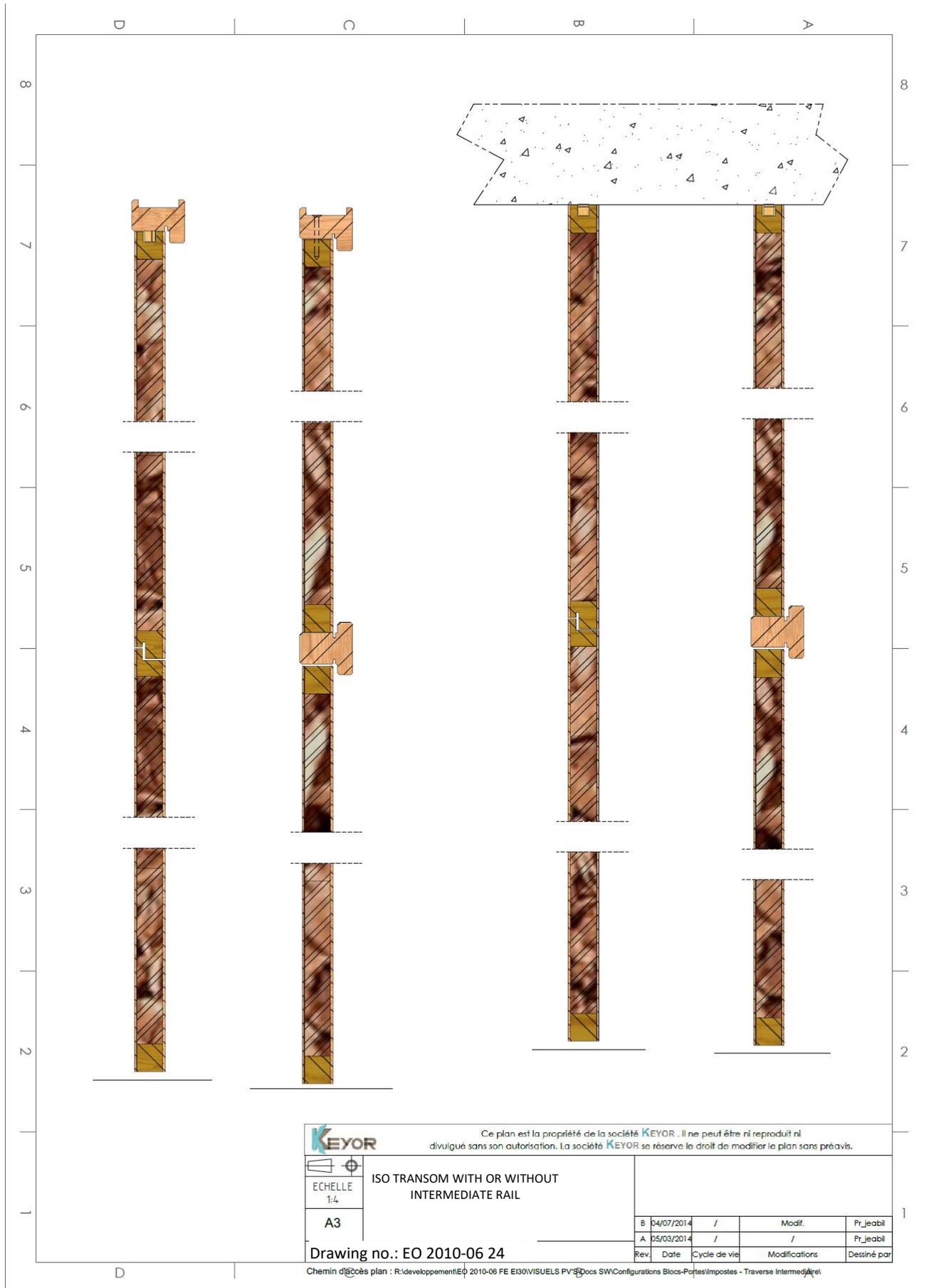
<p>Ce plan est la propriété de la société KEYOR. Il ne peut être ni reproduit ni divulgué sans son autorisation. La société KEYOR se réserve le droit de modifier le plan sans préavis.</p>				
<p>ECHELLE 1:1</p>	<p>LINING FRAME WOOD OR METAL</p>			
A3	<p>Drawing no.: EO 2010-06 15</p>		<p>A 04/03/2014 / /</p>	<p>Pr_jeabil</p>
	Rev.	Date	Cycle de vie	Modifications
				Dessiné par

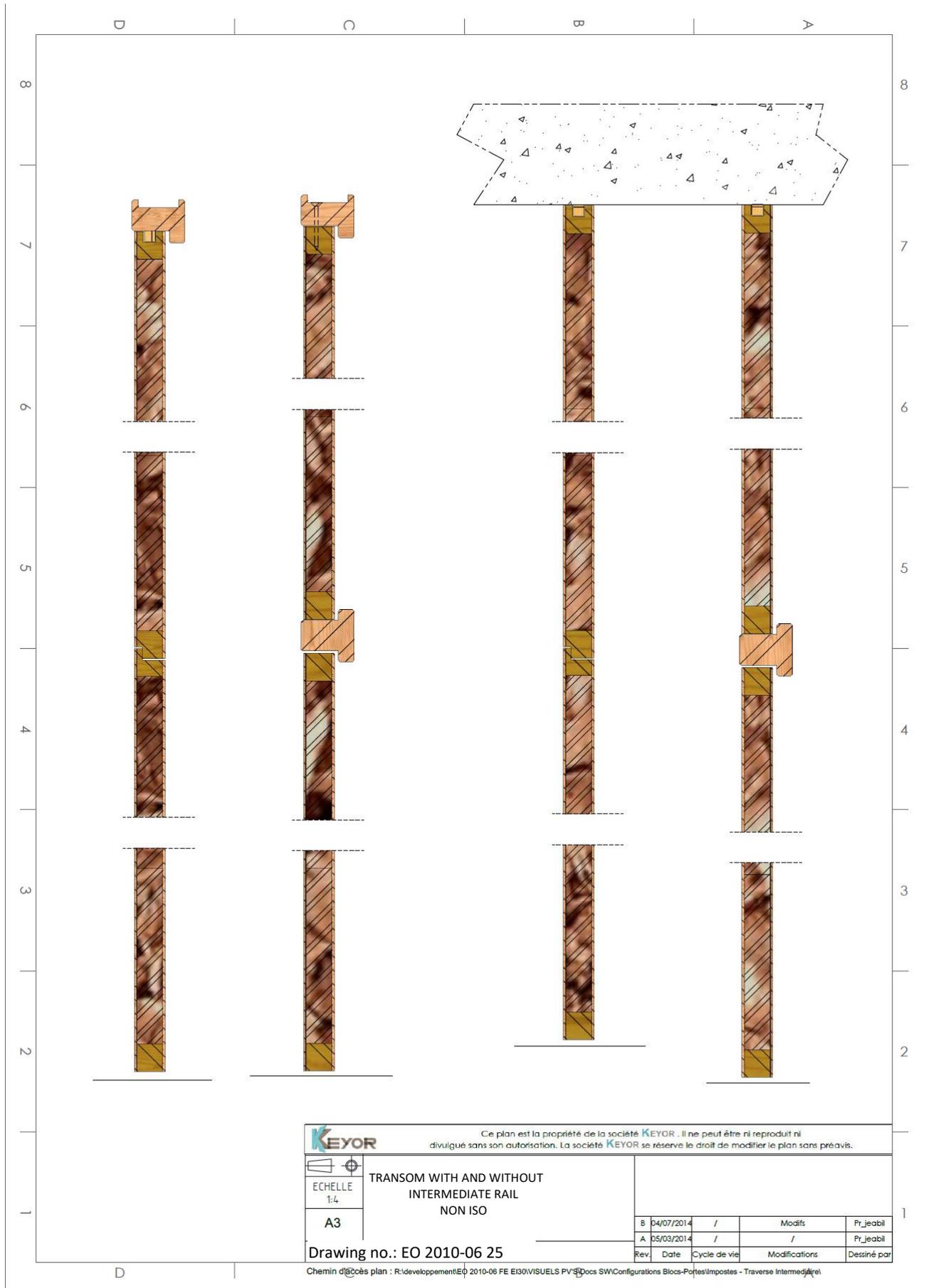
Chemin d'accès plan : R:\developpement\EQ\2010-06 FE E130VISUELS PV3 ET INDUS\Docs SW\Configurations Blocs-Portes\



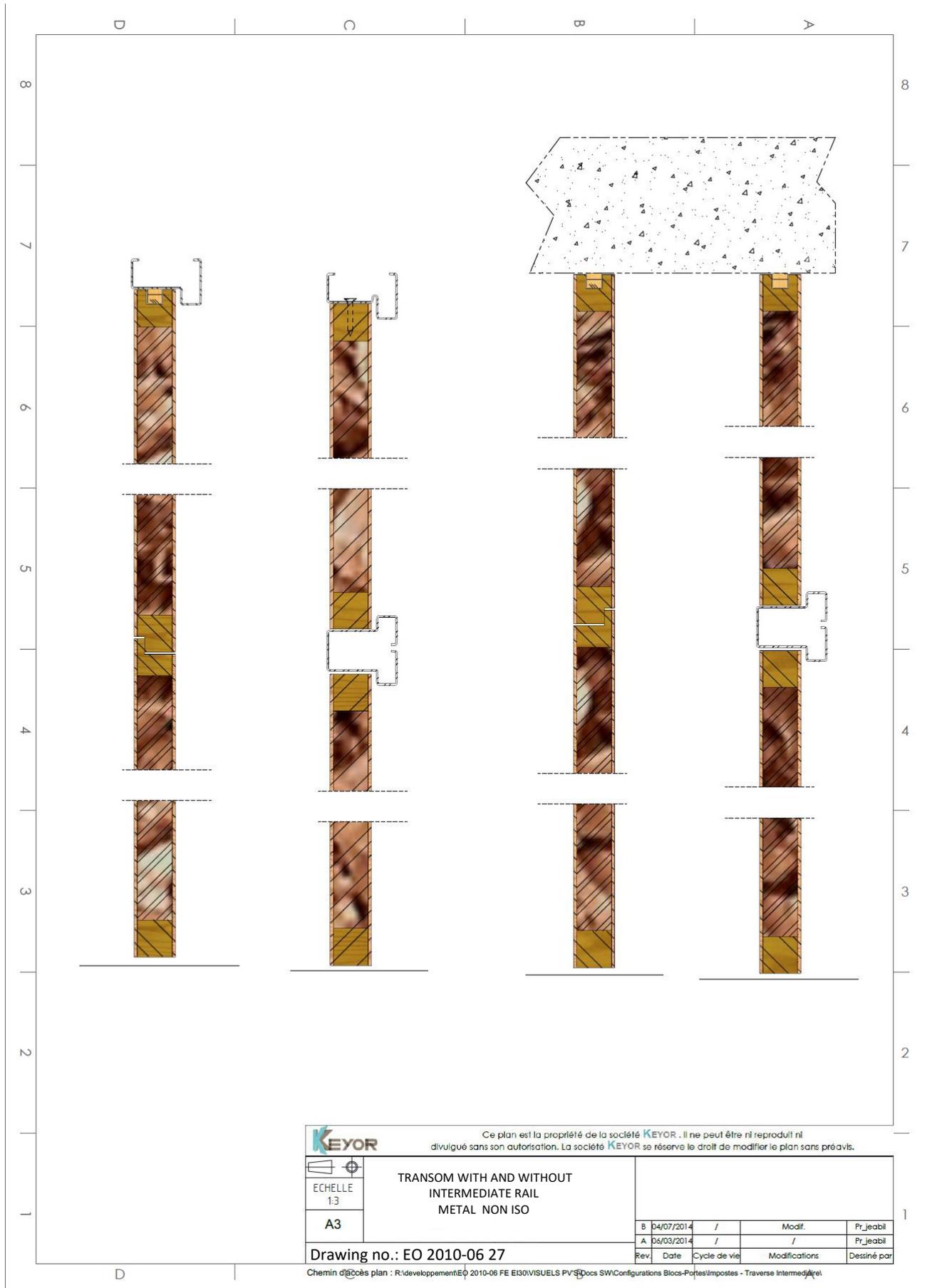


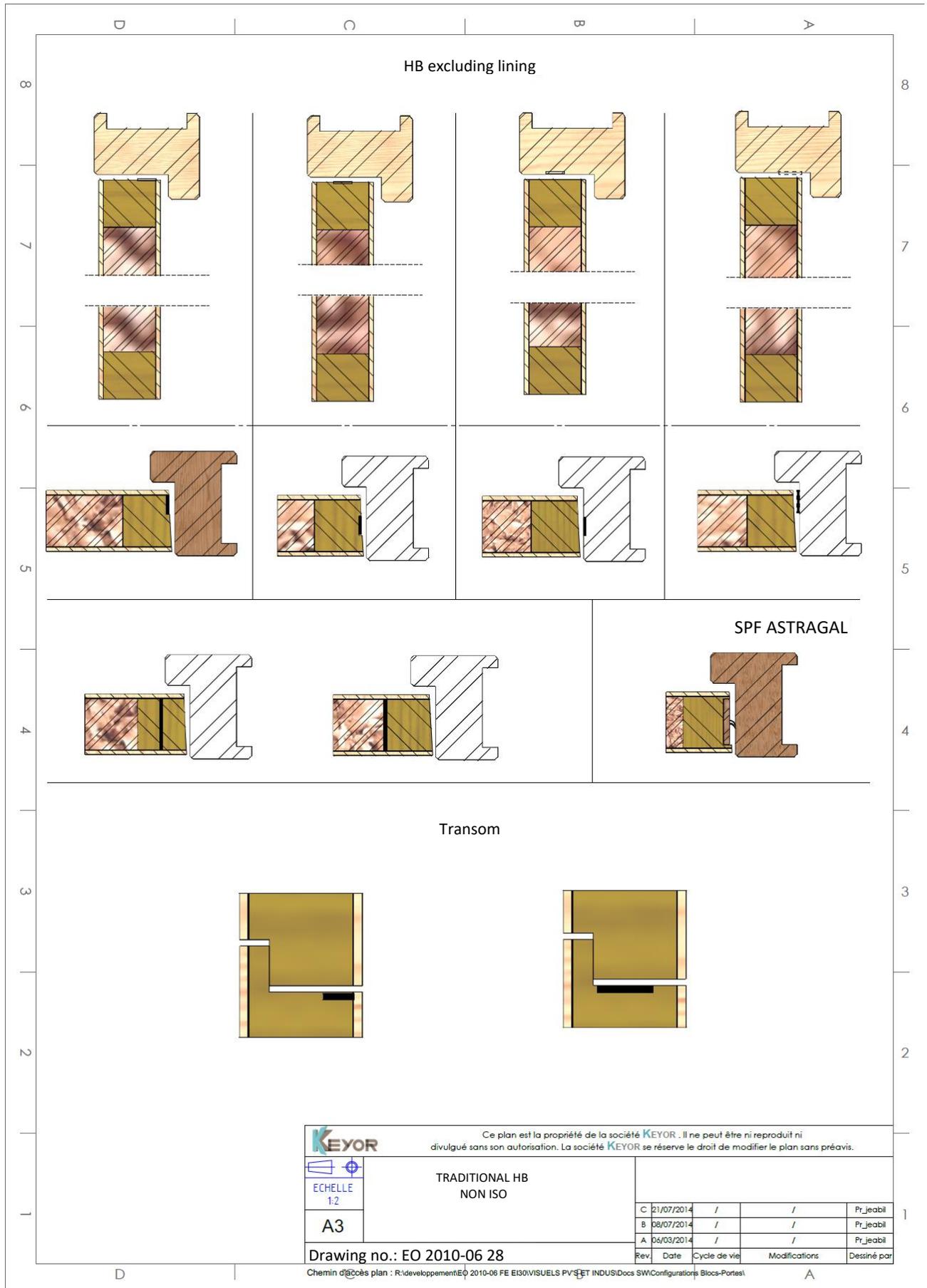




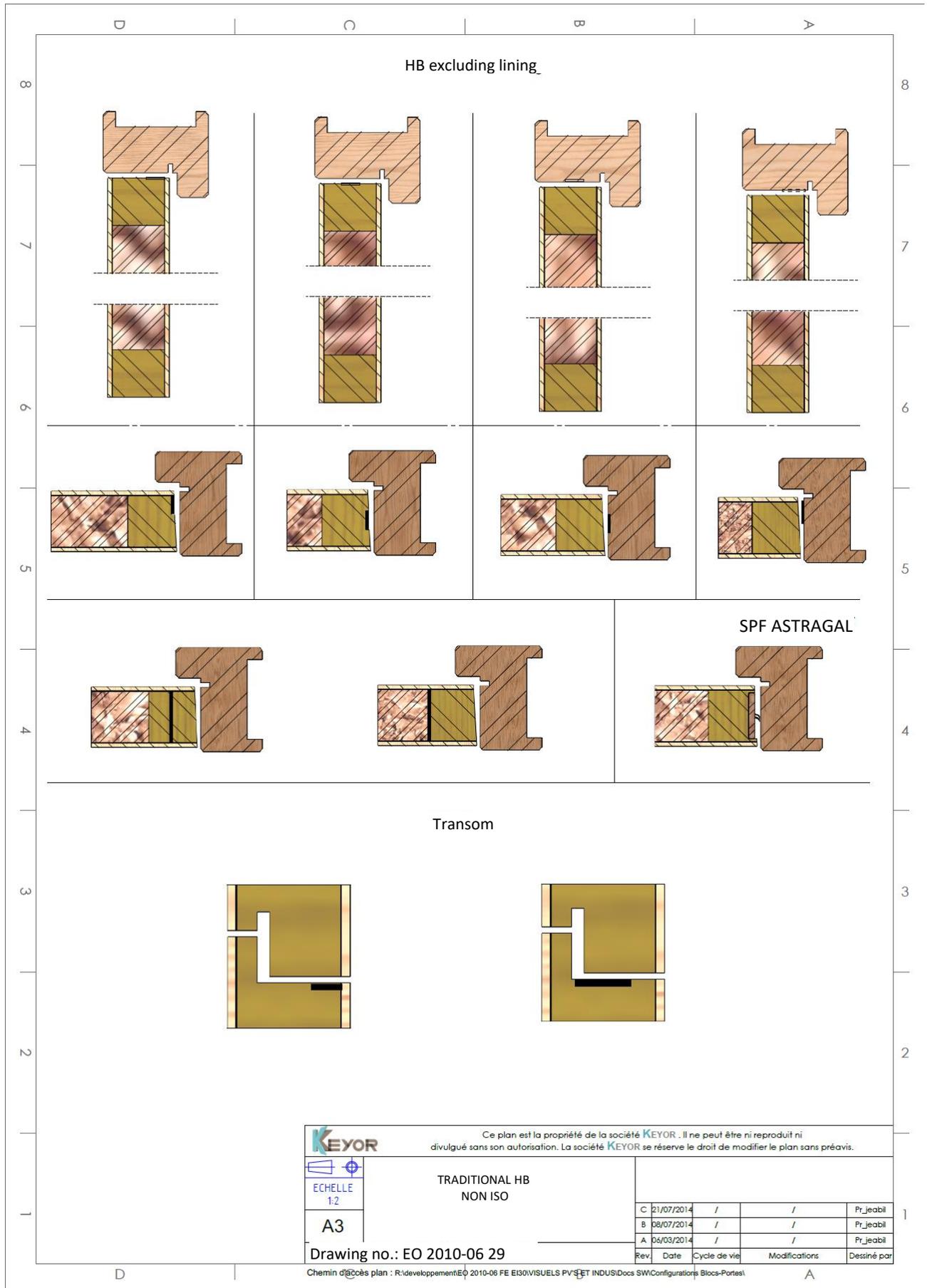


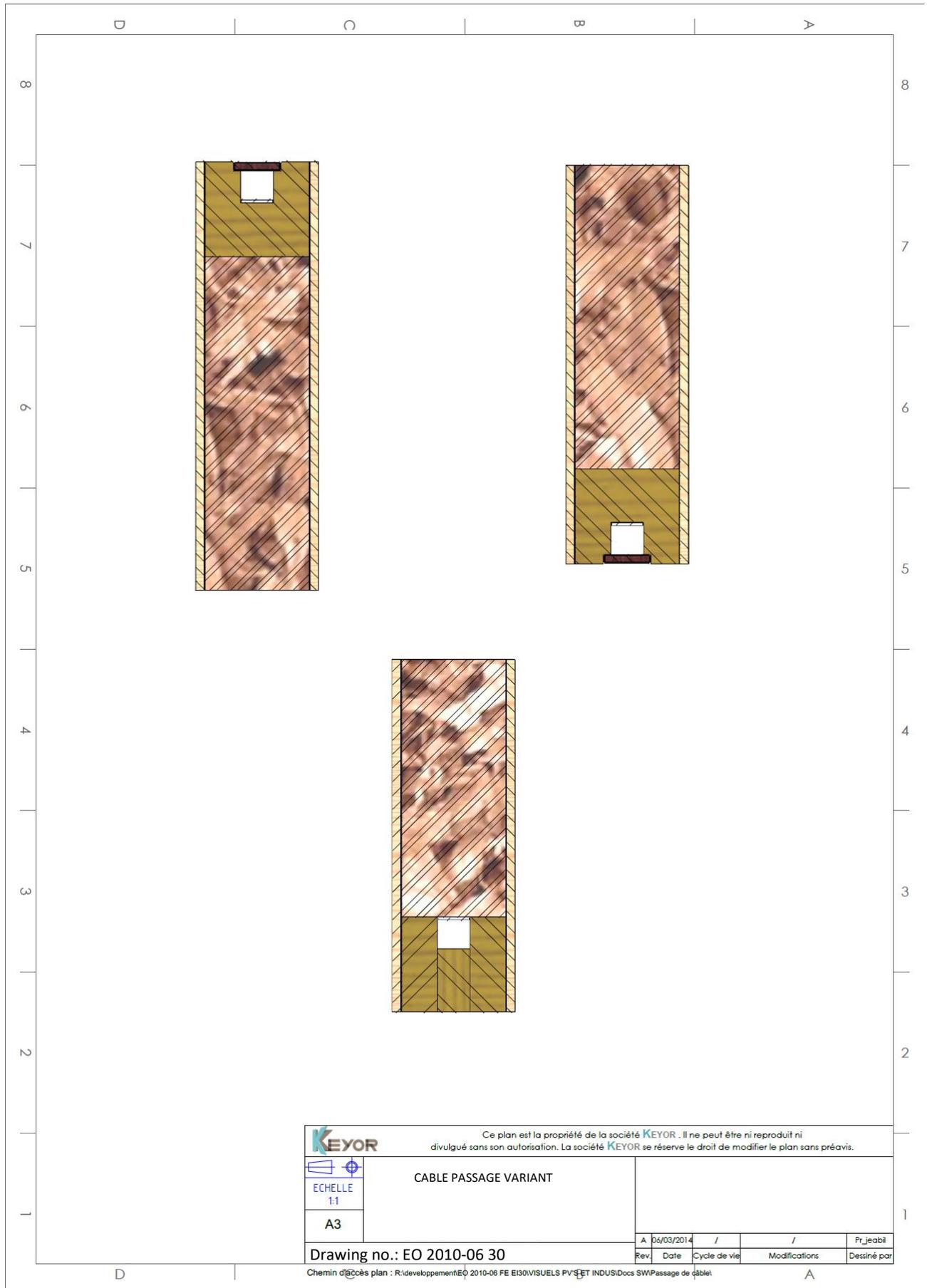






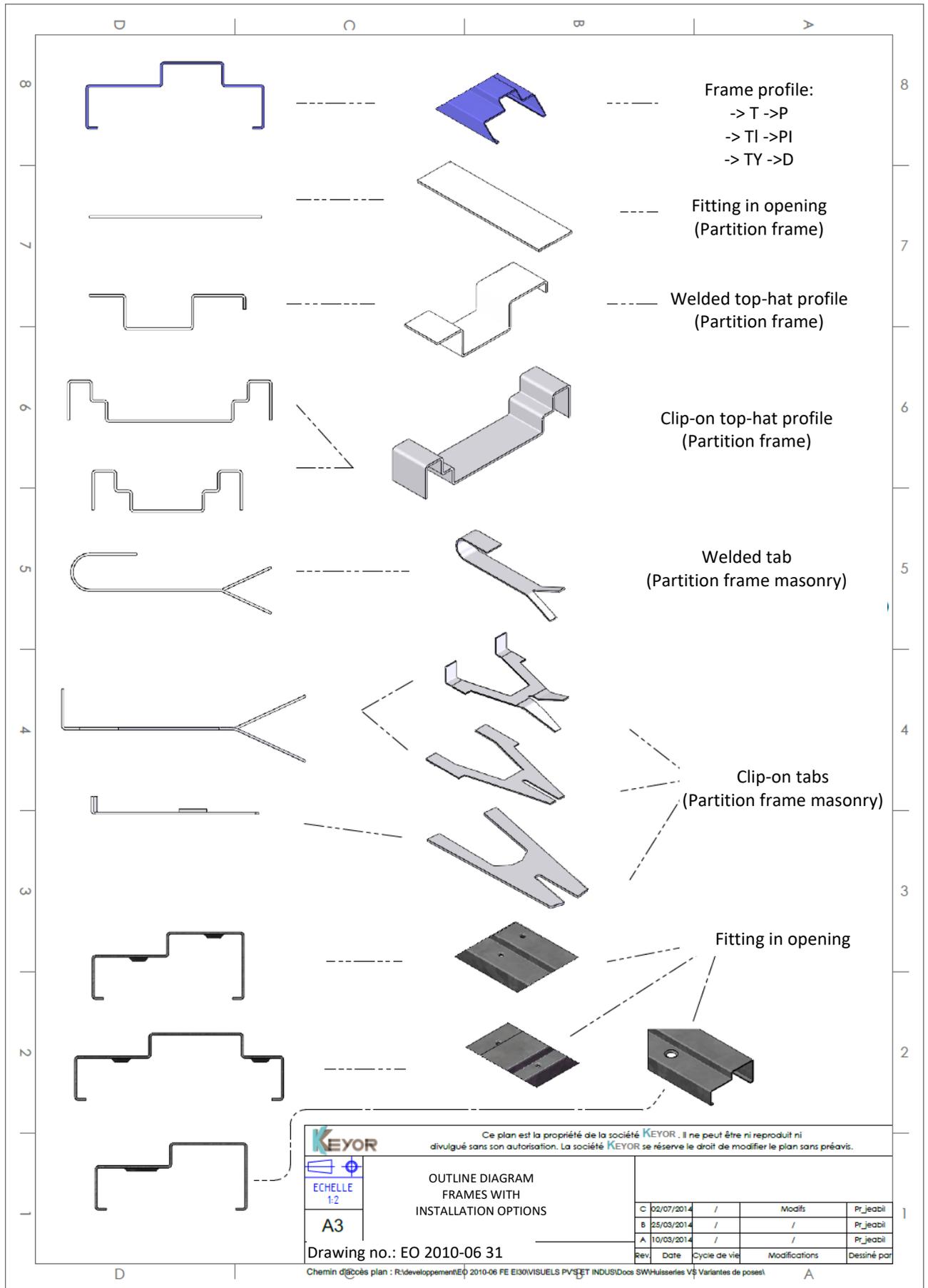
<p>Ce plan est la propriété de la société KEYOR. Il ne peut être ni reproduit ni divulgué sans son autorisation. La société KEYOR se réserve le droit de modifier le plan sans préavis.</p>				
<p>ECHELLE 1:2</p>	<p>TRADITIONAL HB NON ISO</p>			<p>Pr_jeabil</p>
<p>A3</p>	<p>C 21/07/2014 / /</p>	<p>B 08/07/2014 / /</p>	<p>A 04/03/2014 / /</p>	<p>Pr_jeabil</p>
<p>Drawing no.: EO 2010-06 28</p>	<p>Rev.</p>	<p>Date</p>	<p>Cycle de vie</p>	<p>Modifications</p>
<p>Chemin d'accès plan : R:\developpement\EQ\2010-06 FE E130VISUELS PV-3 ET INDUS\Docs SW\Configurations Blocs-Portes</p>				<p>Dessiné par</p>





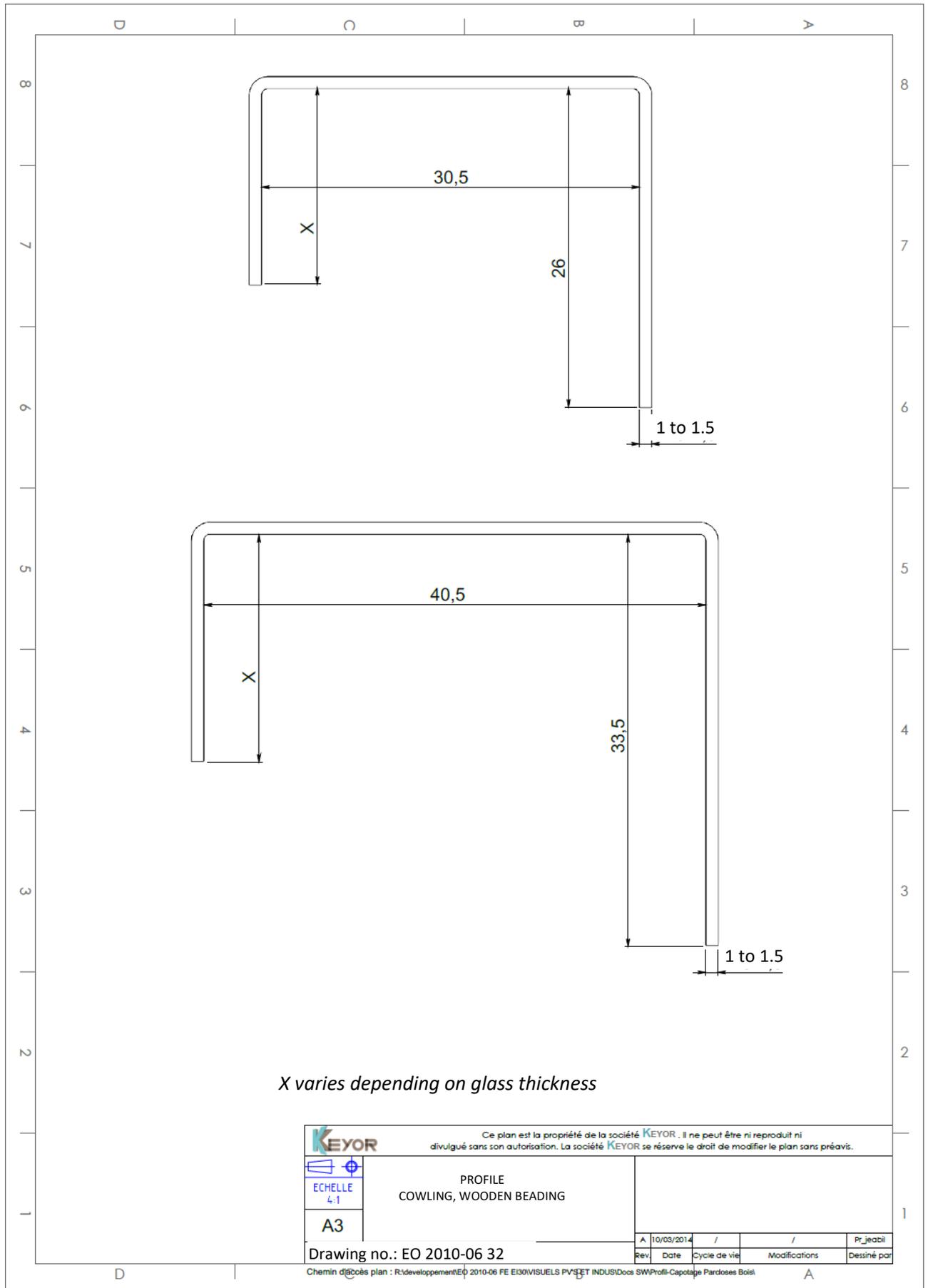
<p>Ce plan est la propriété de la société KEYOR. Il ne peut être ni reproduit ni divulgué sans son autorisation. La société KEYOR se réserve le droit de modifier le plan sans préavis.</p>				
<p>ECHELLE 1:1</p>	<p>CABLE PASSAGE VARIANT</p>			
<p>A3</p>				
<p>Drawing no.: EO 2010-06 30</p>				
<p>Rev.</p>	<p>Date</p>	<p>Cycle de vie</p>	<p>Modifications</p>	<p>Dessiné par</p>
<p>A</p>	<p>06/03/2014</p>	<p>/</p>	<p>/</p>	<p>Pr_jeabil</p>

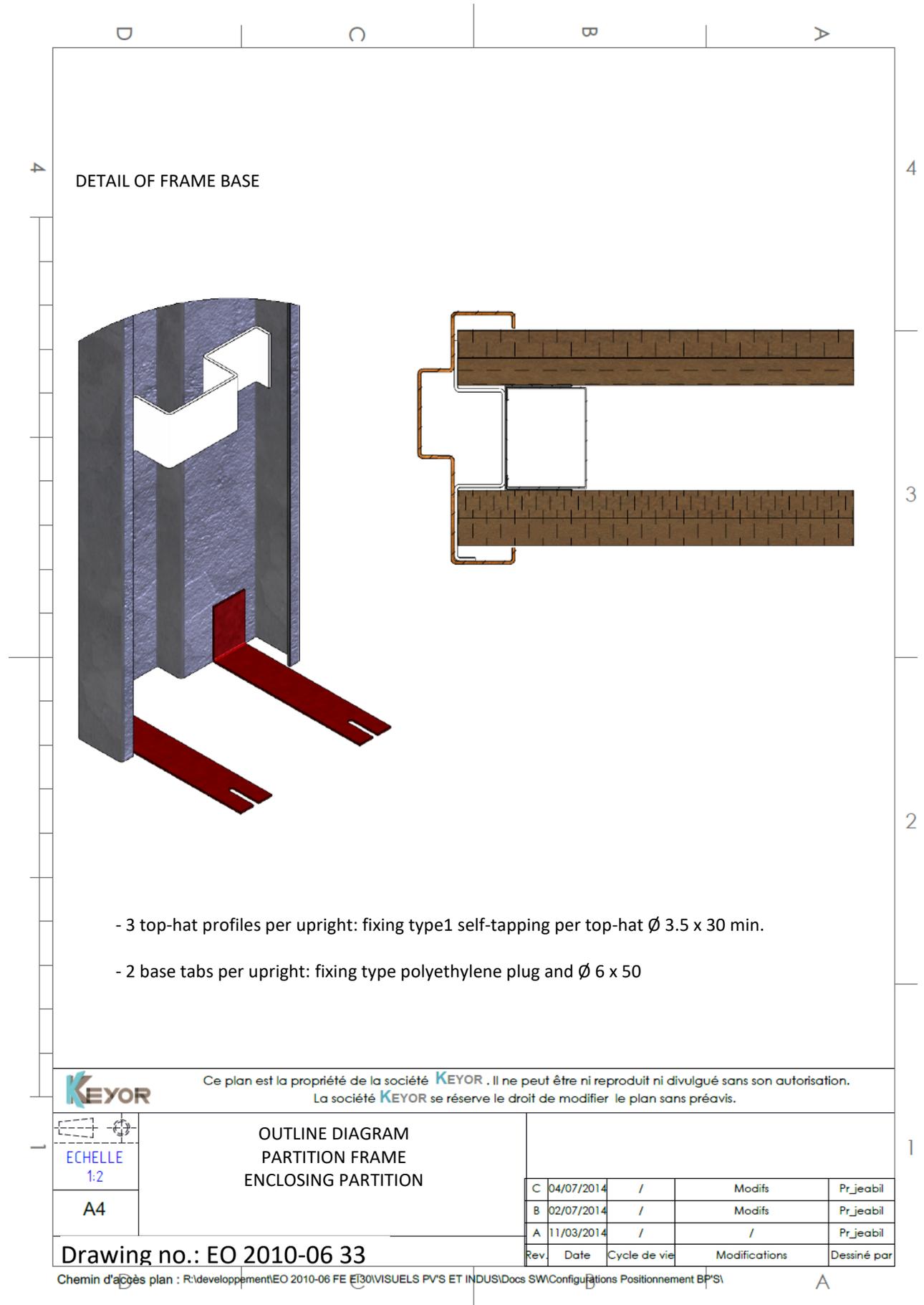
Chemin d'accès plan : R:\developpement\EQ\2010-06 FE EIG30\VISUELS PV\3-ET INDUS\Docs SW\Passage de cable



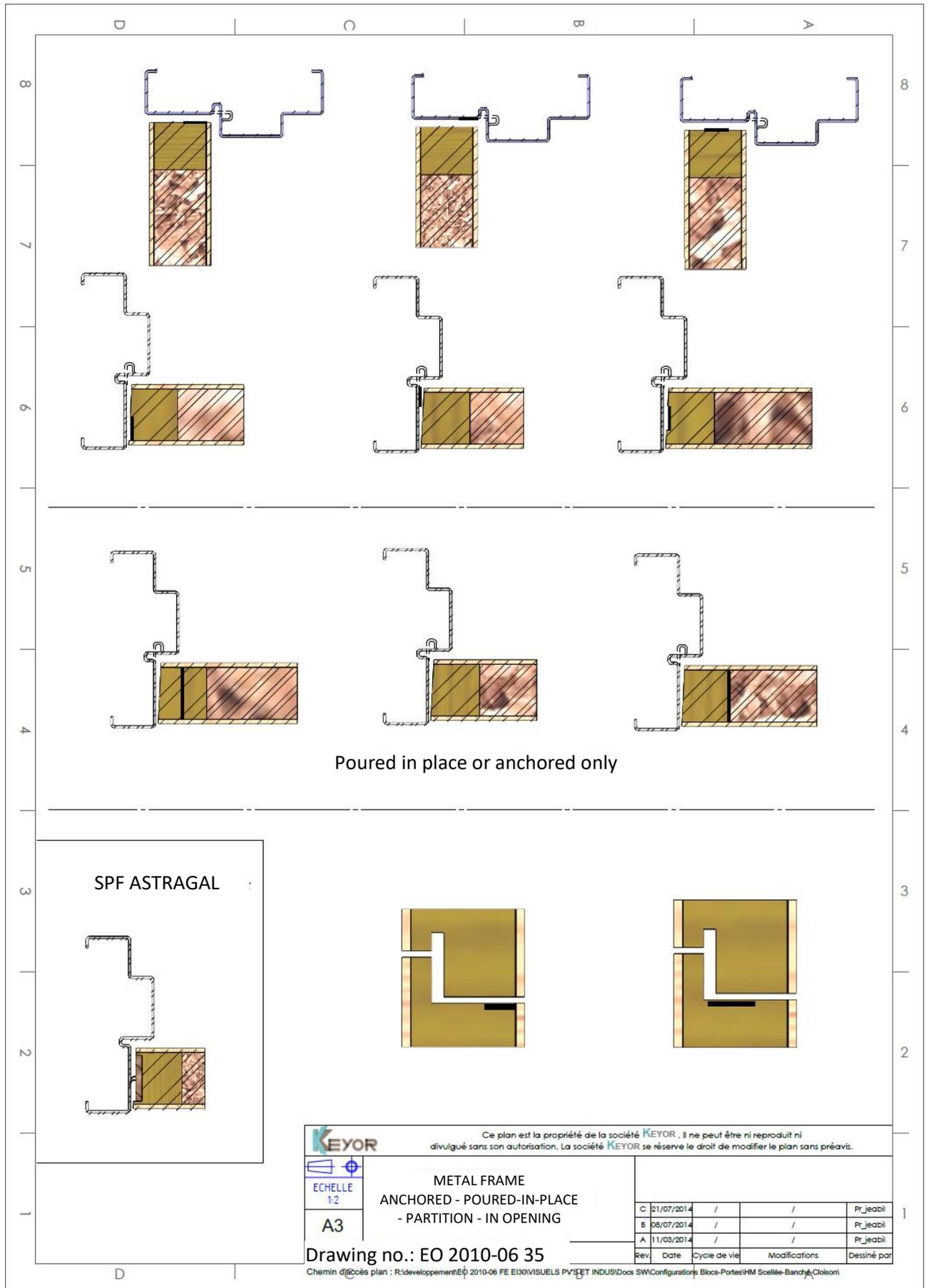
<p>Ce plan est la propriété de la société KEYOR. Il ne peut être ni reproduit ni divulgué sans son autorisation. La société KEYOR se réserve le droit de modifier le plan sans préavis.</p>																								
<p>KEYOR</p> <p>ECHELLE 1:2</p> <p>A3</p>	<p>OUTLINE DIAGRAM FRAMES WITH INSTALLATION OPTIONS</p>		<table border="1"> <tr> <td>C</td> <td>02/07/2014</td> <td>/</td> <td>Modifs</td> <td>Pr_jeabil</td> </tr> <tr> <td>B</td> <td>25/03/2014</td> <td>/</td> <td>/</td> <td>Pr_jeabil</td> </tr> <tr> <td>A</td> <td>10/03/2014</td> <td>/</td> <td>/</td> <td>Pr_jeabil</td> </tr> <tr> <td>Rev</td> <td>Date</td> <td>Cycle de vie</td> <td>Modifications</td> <td>Dessiné par</td> </tr> </table>	C	02/07/2014	/	Modifs	Pr_jeabil	B	25/03/2014	/	/	Pr_jeabil	A	10/03/2014	/	/	Pr_jeabil	Rev	Date	Cycle de vie	Modifications	Dessiné par	<p>Drawing no.: EO 2010-06 31</p>
C	02/07/2014	/	Modifs	Pr_jeabil																				
B	25/03/2014	/	/	Pr_jeabil																				
A	10/03/2014	/	/	Pr_jeabil																				
Rev	Date	Cycle de vie	Modifications	Dessiné par																				

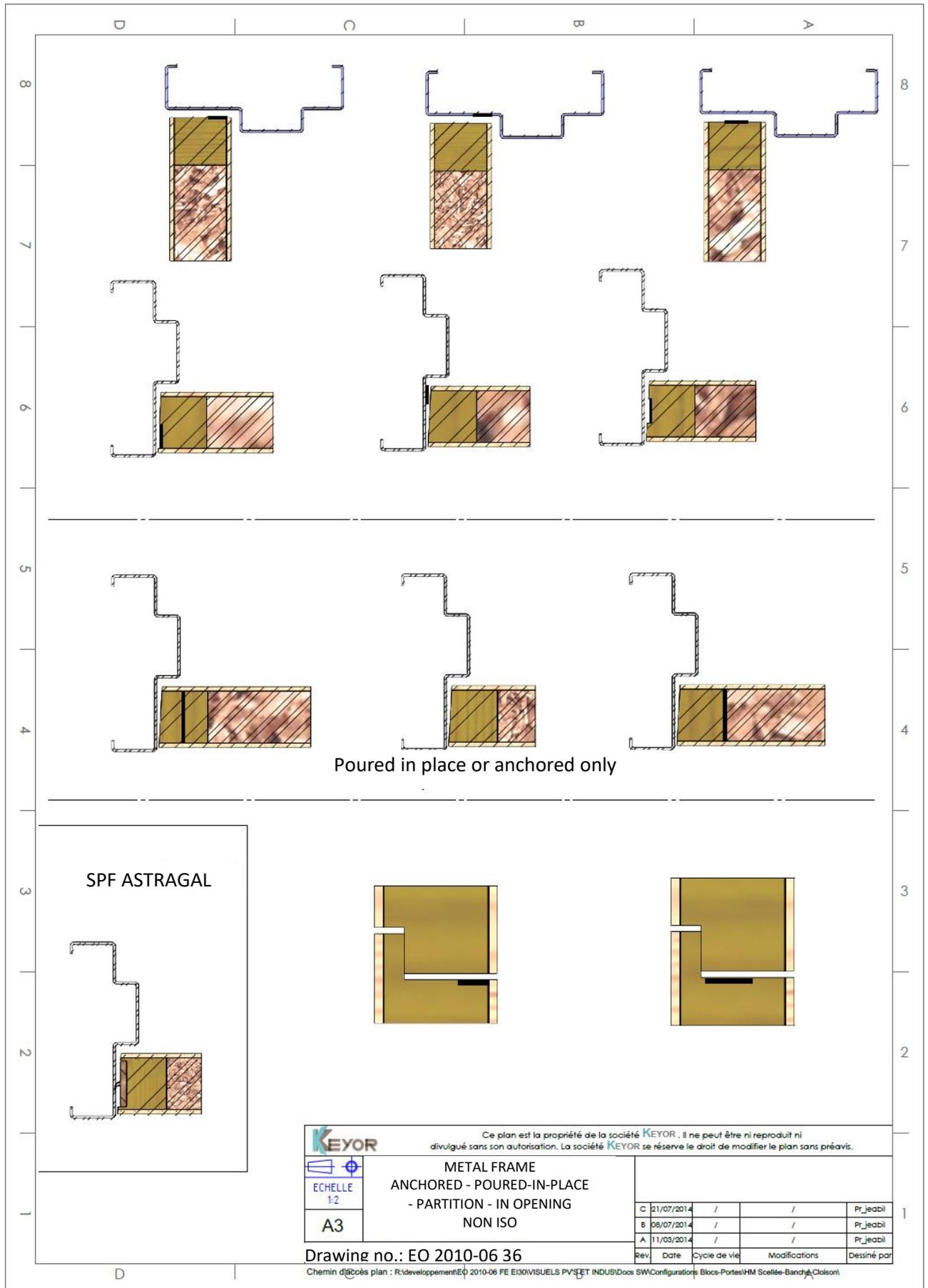
Chemin d'accès plan : R:\developpement\EO 2010-06 FE E130\VISUELS PV\SET INDUS\Docs SWHulseries VS Variantes de poses\

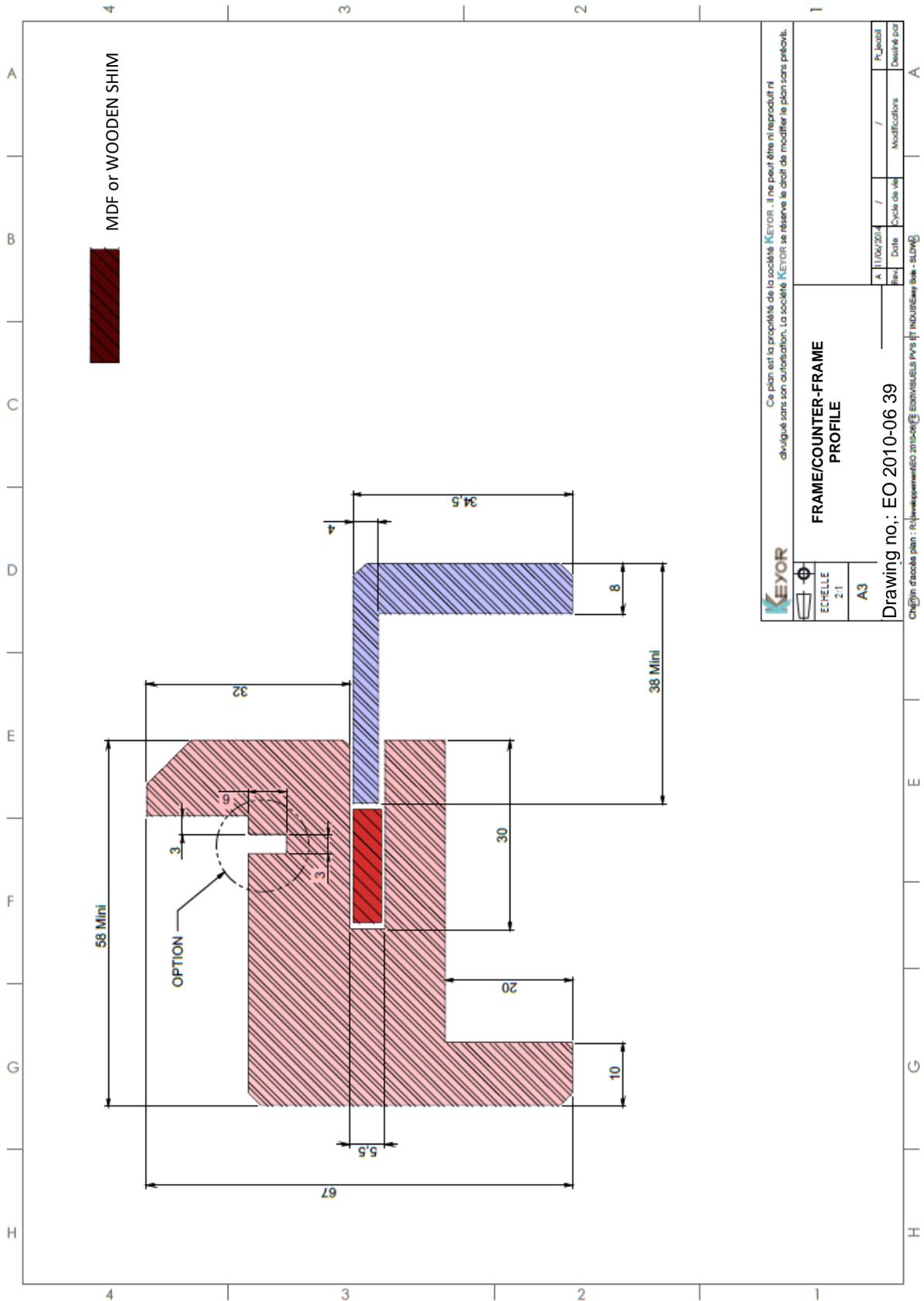












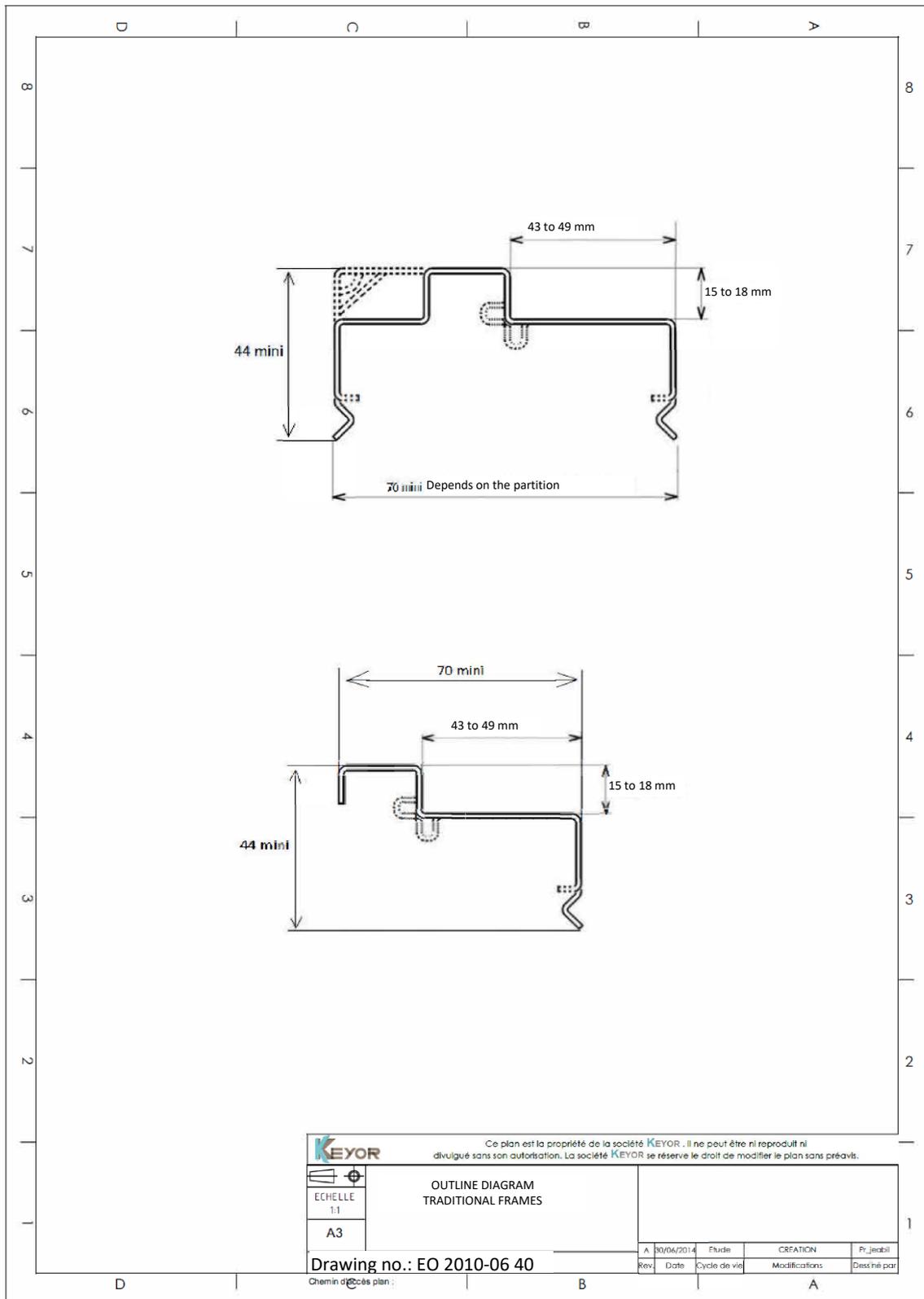
Ce plan est la propriété de la société KEYOR. Il ne peut être reproduit ni divulgué sans son autorisation. La société KEYOR se réserve le droit de modifier le plan sans préavis.

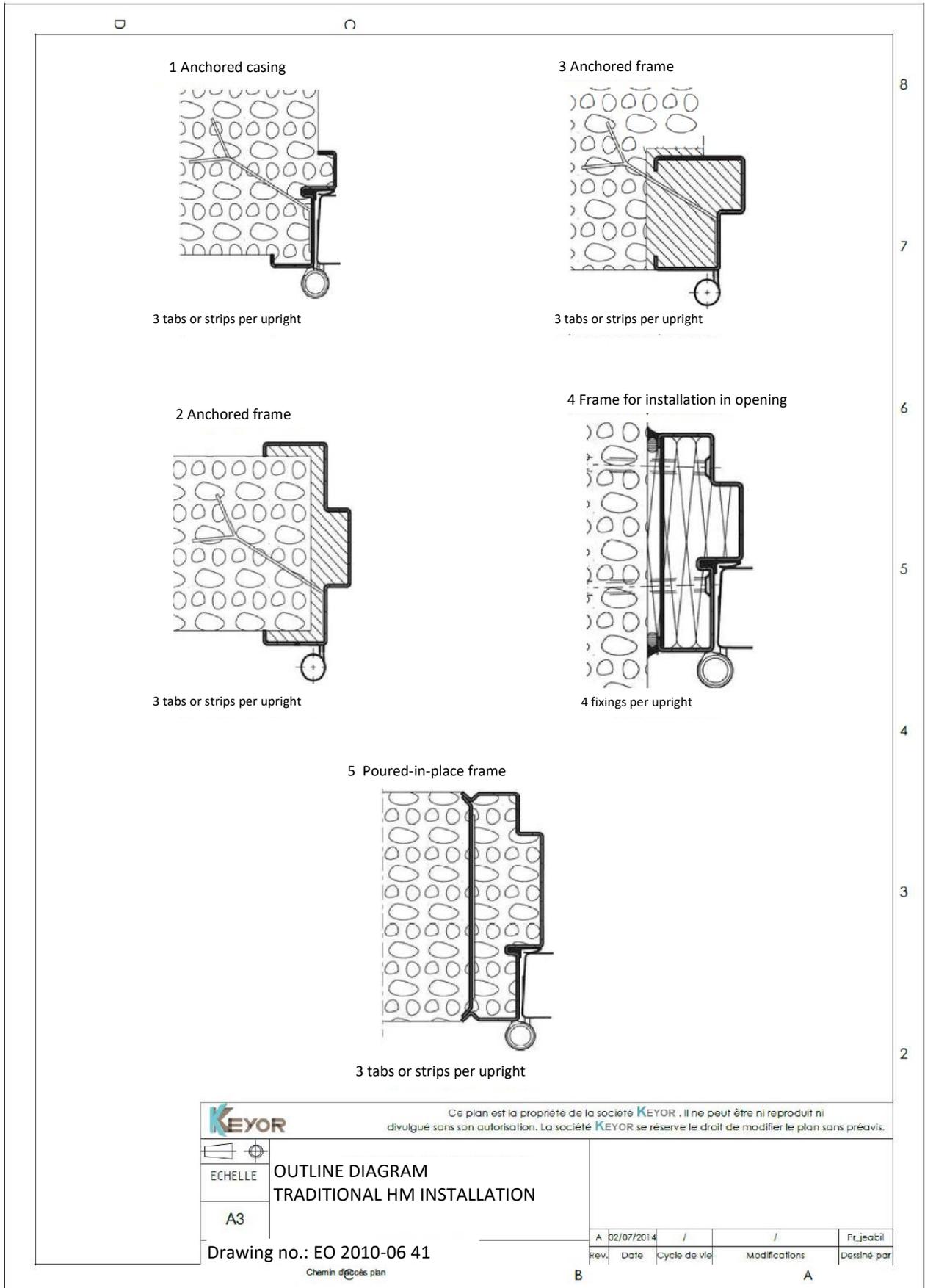
**FRAME/COUNTER-FRAME PROFILE**

Drawing no.: EO 2010-06 39

Chemin d'accès plan : R:\developpement\ECO 2010-06\ECO 2010-06\BROUILLONS INVS ET INOUE\Brouillon - BLDWG

 ECHELLE 2:1 A3	Rev. Date A 11/04/2014 / /	Modifications Destiné par A
--------------------------	-------------------------------	-----------------------------------





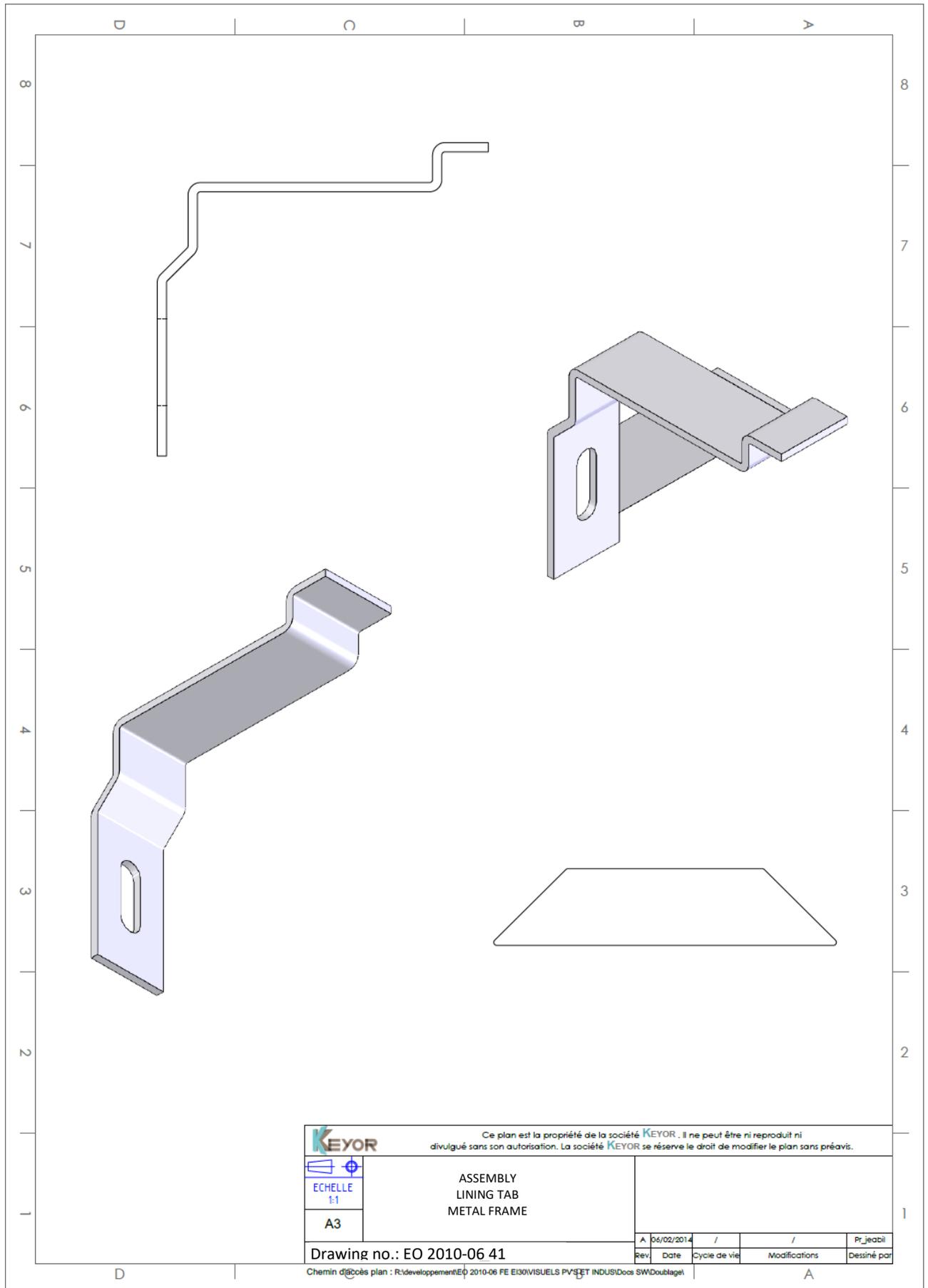
**KEYOR** Ce plan est la propriété de la société KEYOR. Il ne peut être ni reproduit ni divulgué sans son autorisation. La société KEYOR se réserve le droit de modifier le plan sans préavis.

OUTLINE DIAGRAM  
TRADITIONAL HM INSTALLATION

Drawing no.: EO 2010-06 41

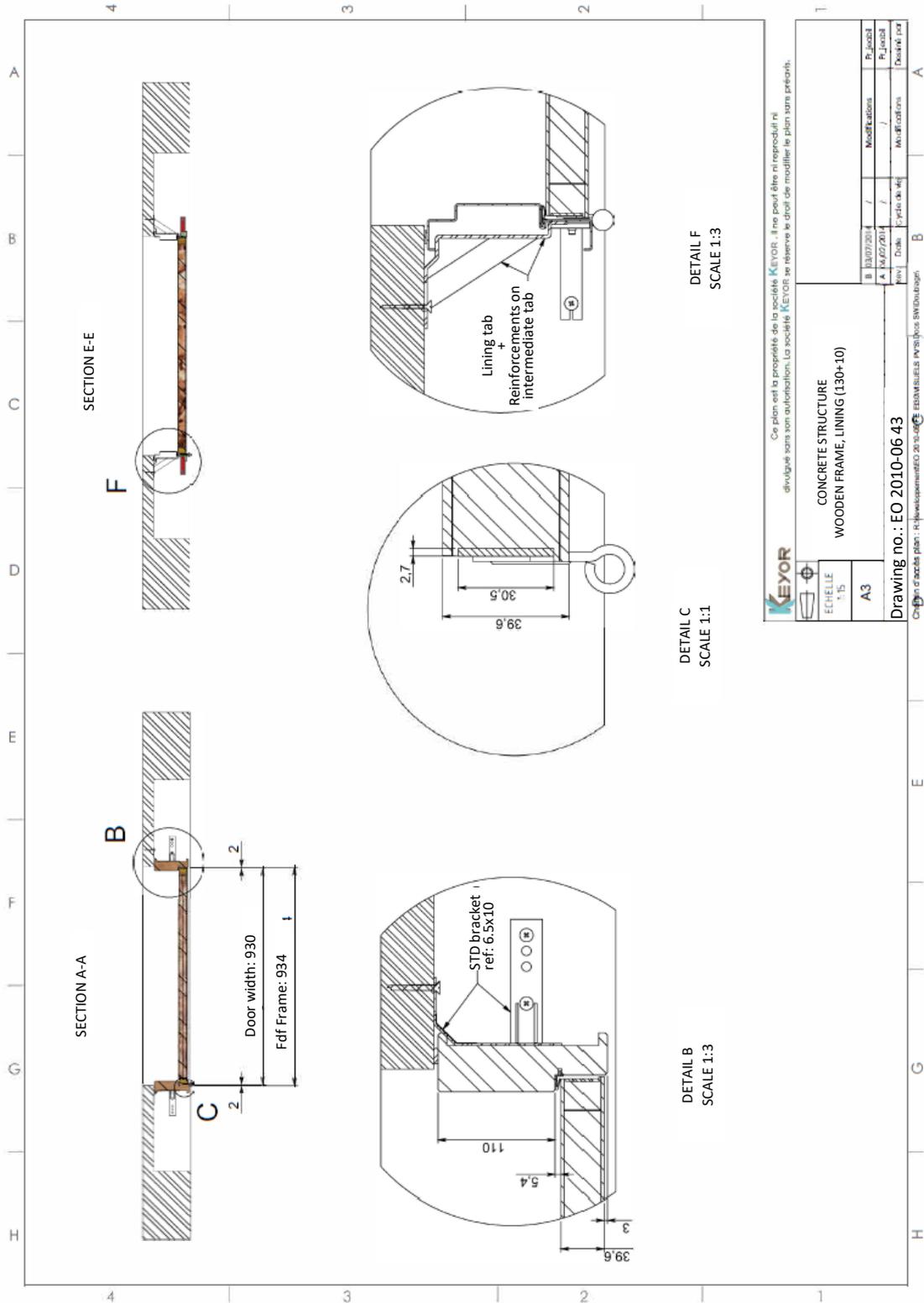
Rev.	Date	Cycle de vie	Modifications	Dessiné par
A	02/07/2014	/	/	Pr_jeabil

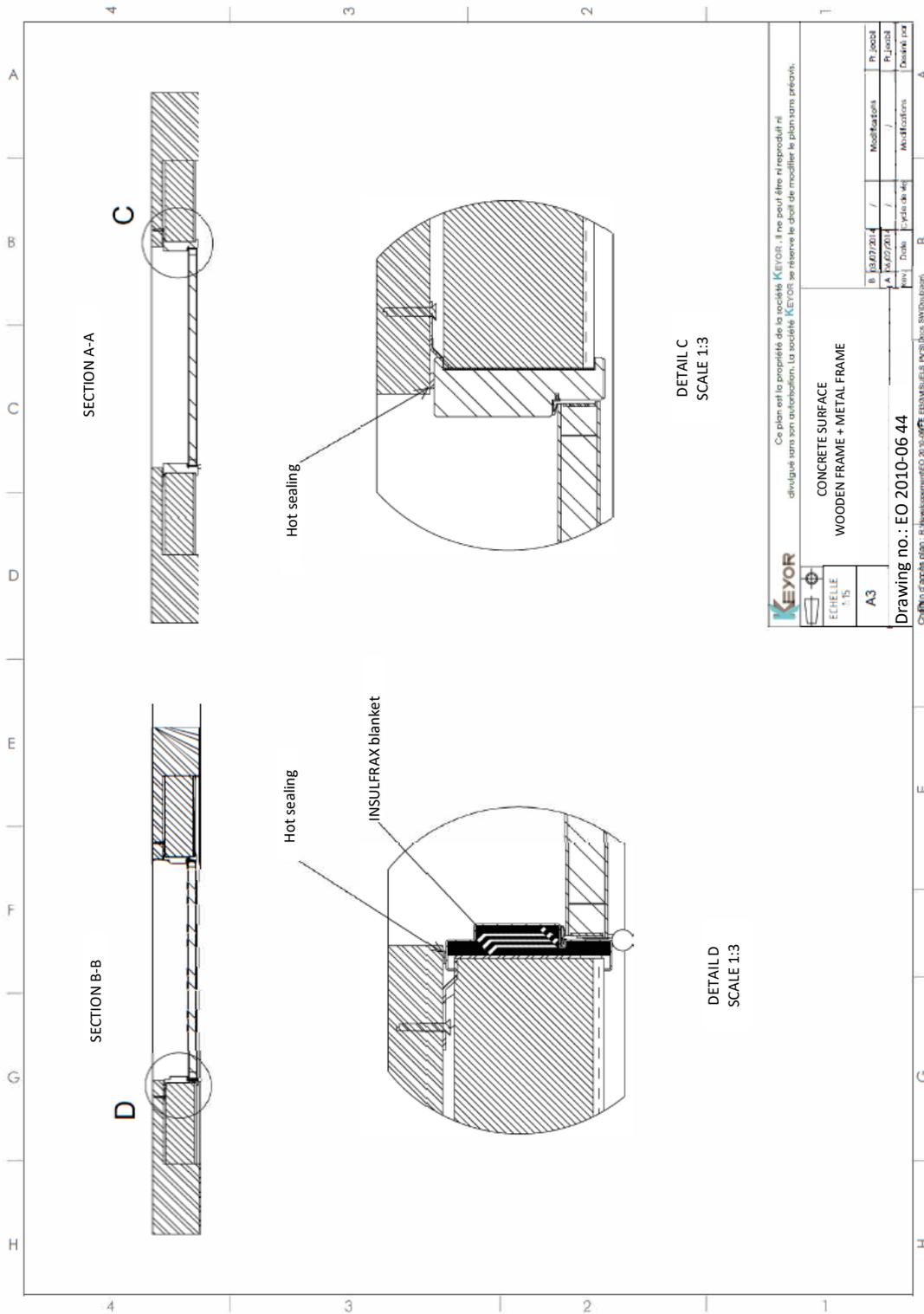
Chemin d'accès plan



 Ce plan est la propriété de la société KEYOR. Il ne peut être ni reproduit ni divulgué sans son autorisation. La société KEYOR se réserve le droit de modifier le plan sans préavis.								
 ECHELLE 1:1	ASSEMBLY LINING TAB METAL FRAME							
A3			A	36/02/2014	/	/	/	Pr_jeobil
Drawing no.: EO 2010-06 41			Rev	Date	Cycle de vie	Modifications	Dessiné par	

Chemin d'accès plan : R:\developpement\EO 2010-06 FE E130\VISUELS PV\SET INDUS\Docs SW\Doublage1





Ce plan est la propriété de la société KEYOR. Il ne peut être reproduit ni divulgué sans son autorisation. La société KEYOR se réserve le droit de modifier le plan sans préavis.

**CONCRETE SURFACE**  
**WOODEN FRAME + METAL FRAME**

Drawing no.: EO 2010-06-44

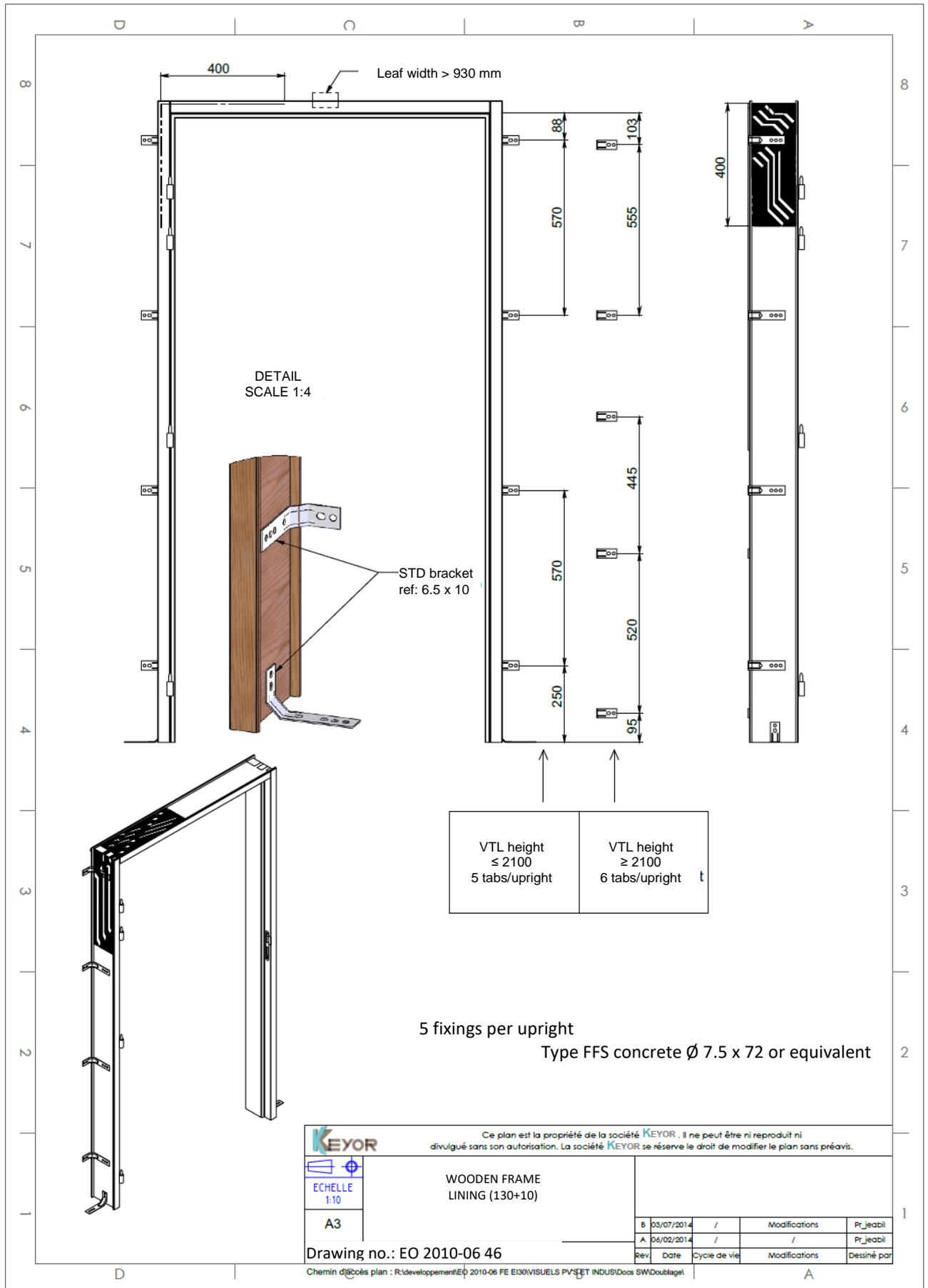
Modifications	Pr. Joubert

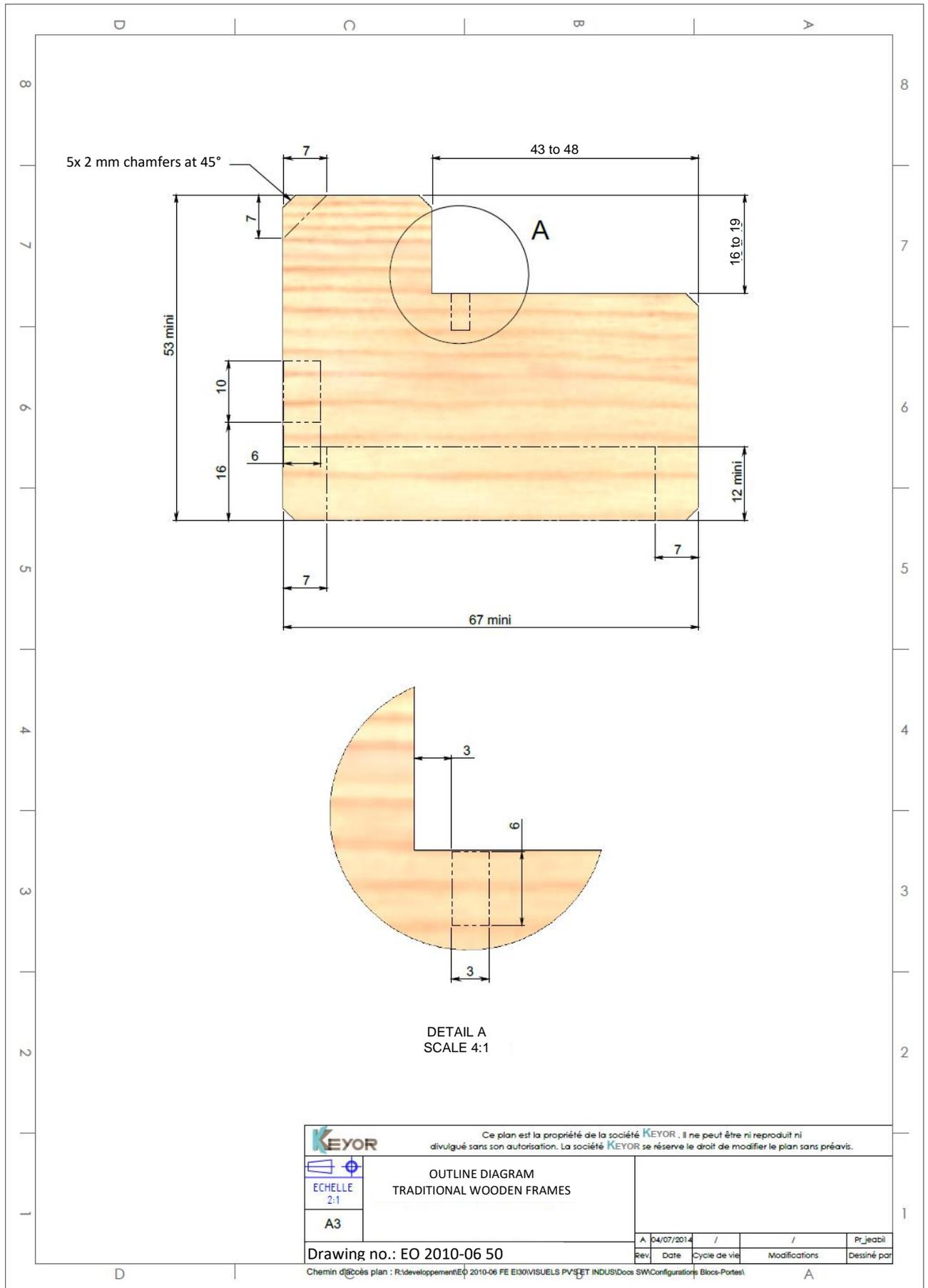
Date: / /  
 Scale: 1:3

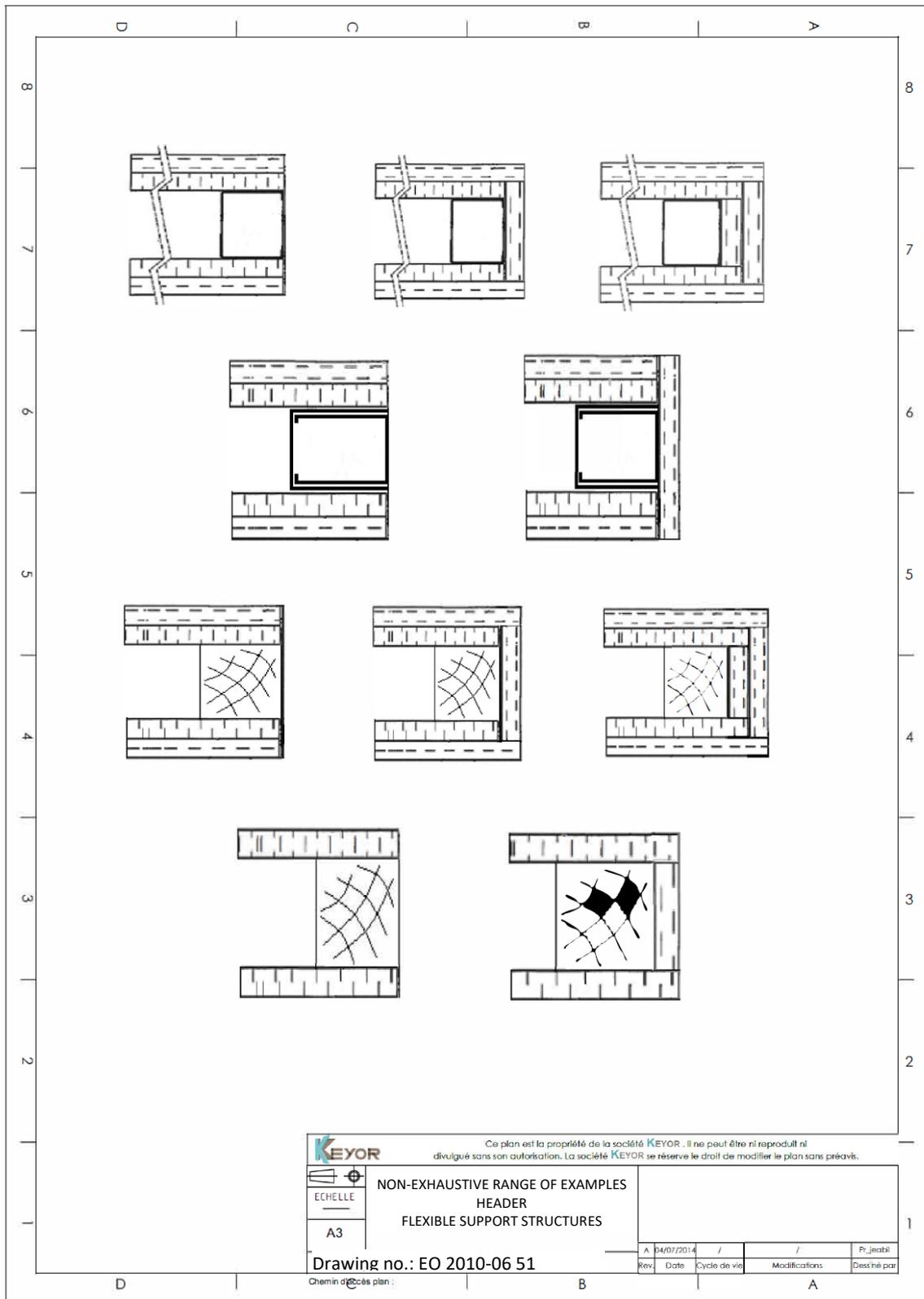
CHIFFRE DE PROJET: 2010-06-44

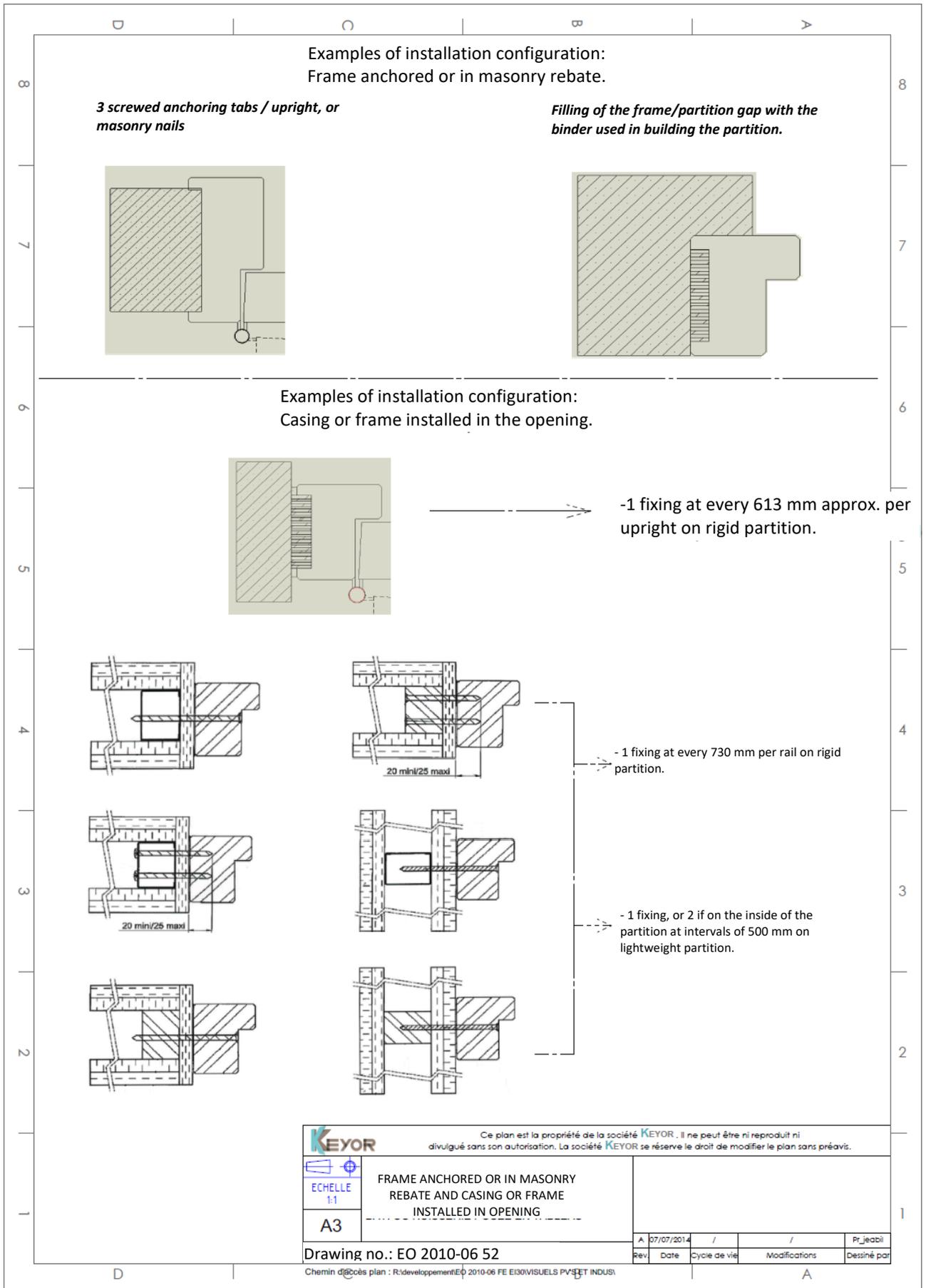


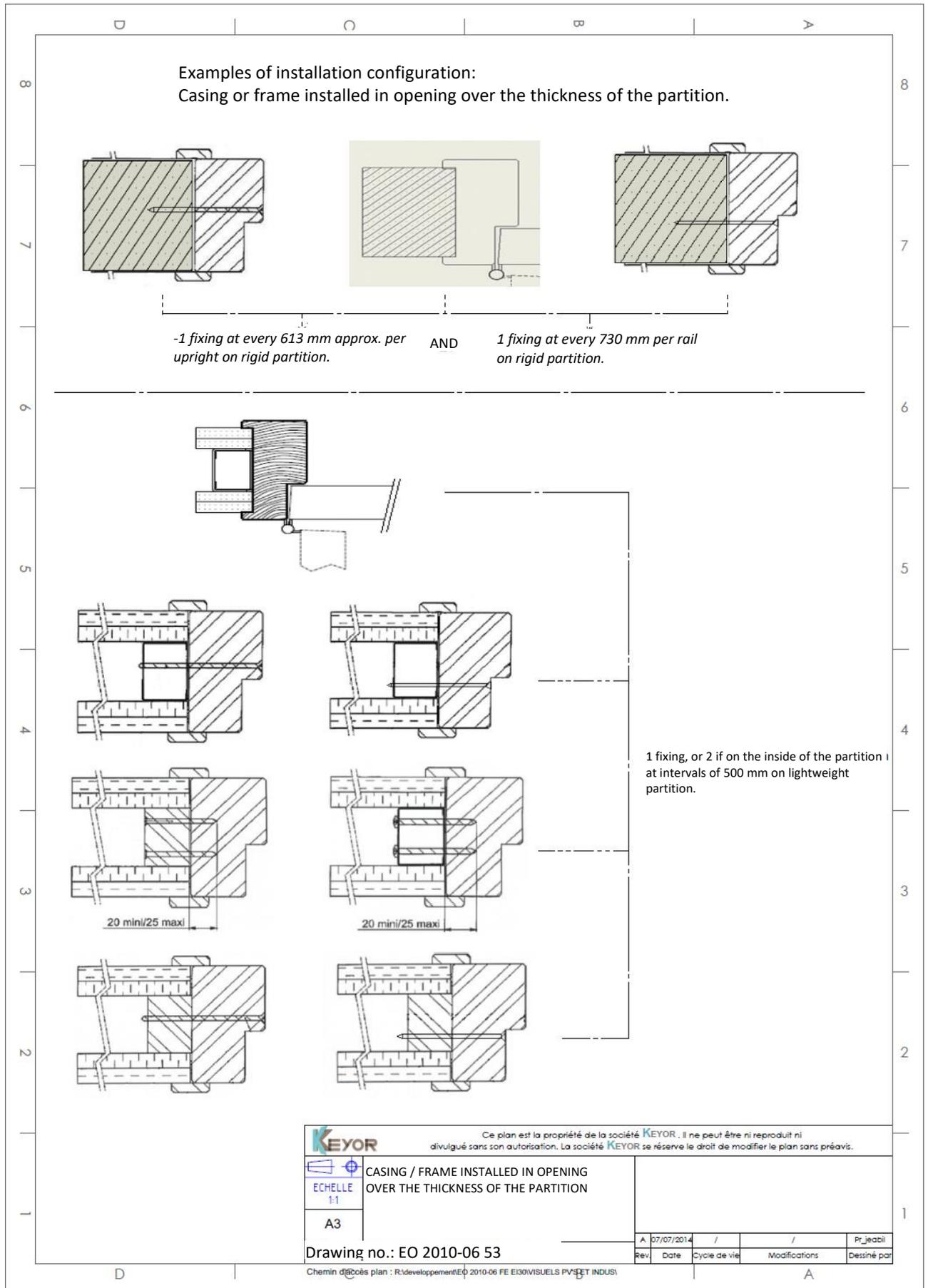
<p>Ce plan est la propriété de la société KEYOR. Il ne peut être ni reproduit ni divulgué sans son autorisation. La société KEYOR se réserve le droit de modifier le plan sans préavis.</p>																			
<p>ECHELLE 1:10</p>		<p>METAL FRAME FIXINGS</p>																	
<p>A3</p>		<table border="1"> <tr> <td>B</td> <td>03/07/2014</td> <td>/</td> <td>Modification</td> <td>Pr_jeabil</td> </tr> <tr> <td>A</td> <td>06/02/2014</td> <td>/</td> <td>/</td> <td>Pr_jeabil</td> </tr> <tr> <td>Rev</td> <td>Date</td> <td>Cycle de vie</td> <td>Modifications</td> <td>Dessiné par</td> </tr> </table>			B	03/07/2014	/	Modification	Pr_jeabil	A	06/02/2014	/	/	Pr_jeabil	Rev	Date	Cycle de vie	Modifications	Dessiné par
B	03/07/2014	/	Modification	Pr_jeabil															
A	06/02/2014	/	/	Pr_jeabil															
Rev	Date	Cycle de vie	Modifications	Dessiné par															
<p>Drawing no.: EO 2010-06 45</p>																			
<p>Chemin d'accès plan : R:\developpement\EO 2010-06 FE E130\VISUELS PV\SET INDUS\Docs SWI\Outlagel</p>																			

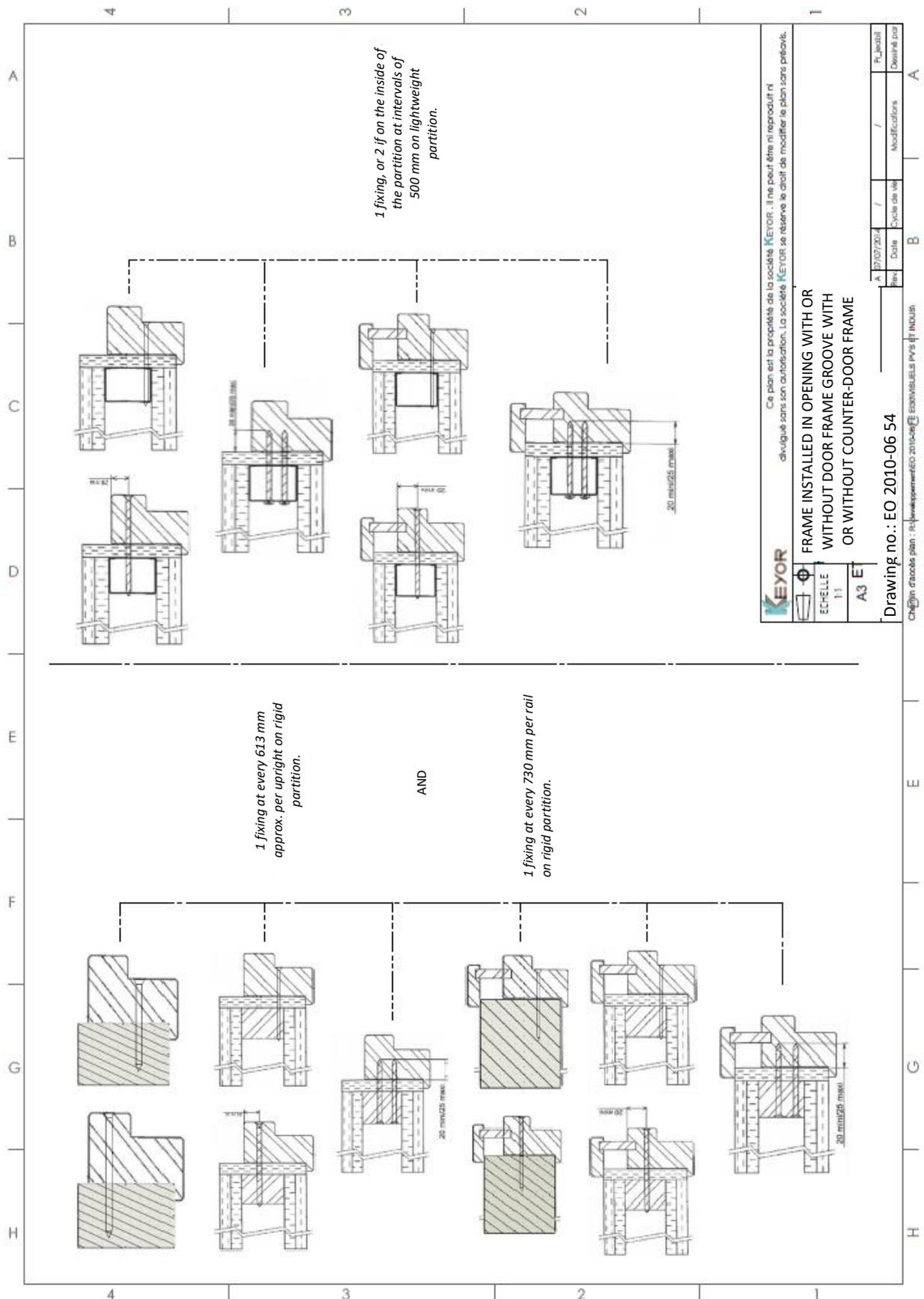












Ce plan est la propriété de la société KEYOR. Il ne peut être ni reproduit ni divulgué sans son autorisation. La société KEYOR se réserve le droit de modifier le plan sans préavis.

KEYOR

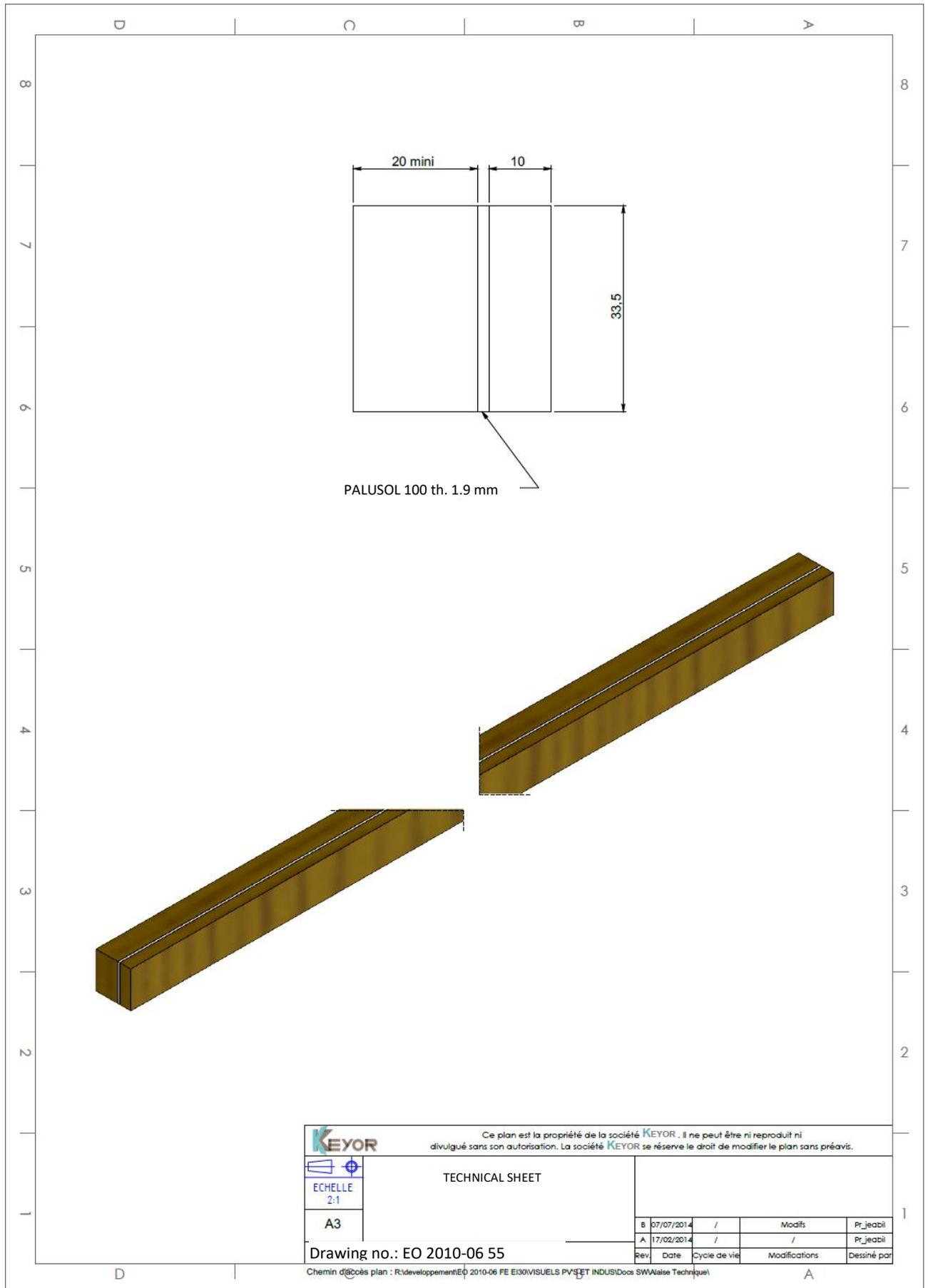
CHUJIN d'accede plan : e:\developpement\2010-06\E\EXAMINABLES\INVS-EF\INDUS

FRAME INSTALLED IN OPENING WITH OR WITHOUT DOOR FRAME GROOVE WITH OR WITHOUT COUNTER-DOOR FRAME

ECHELLE 1:1  
A3 E

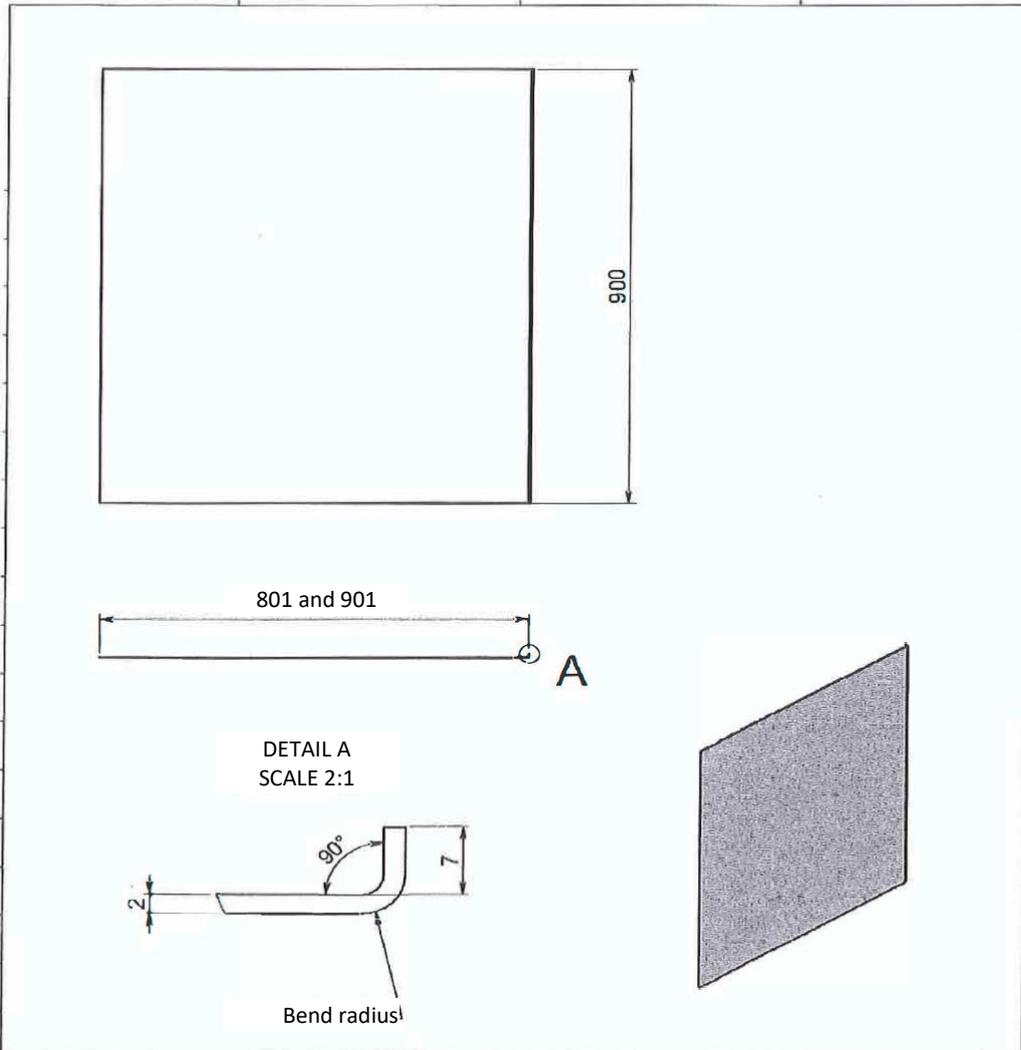
Drawing no.: EO 2010-06 54

Rev.	Date	Cycle de vel.	Modifications	Destiné par
1	27/07/2014	/	/	/



		Ce plan est la propriété de la société KEYOR. Il ne peut être ni reproduit ni divulgué sans son autorisation. La société KEYOR se réserve le droit de modifier le plan sans préavis.			
ECHELLE 2:1		TECHNICAL SHEET			
A3		B 07/07/2014 / /	Modifs	Pr_jeabil	
Drawing no.: EO 2010-06 55		A 17/02/2014 / /	/	Pr_jeabil	
Rev	Date	Cycle de vie	Modifications	Dessiné par	

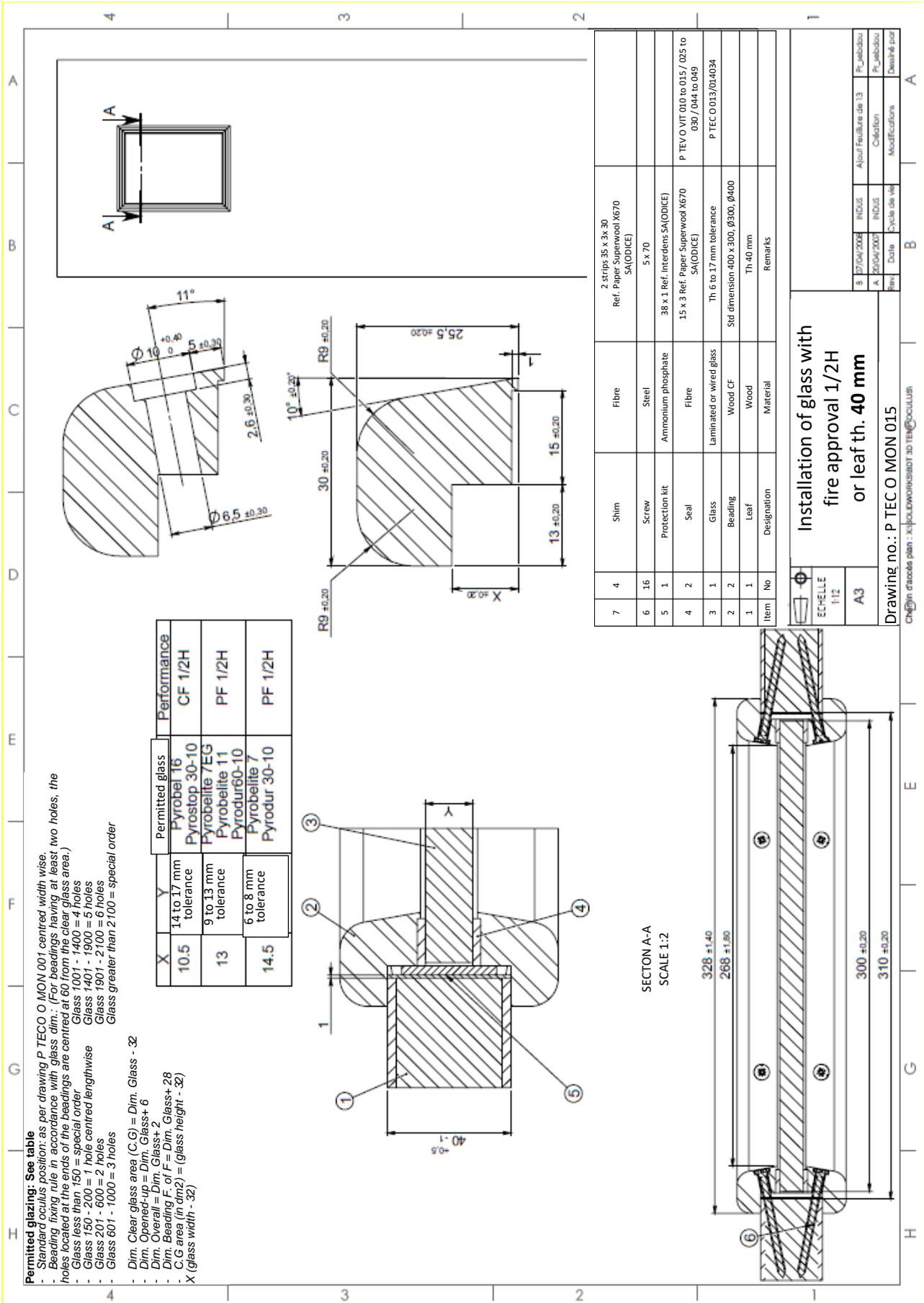
Chemin d'accès plan : R:\developpement\EO 2010-06 FE E130\VISUELS PV\SET INDUS\Docs SWA\aise Technique

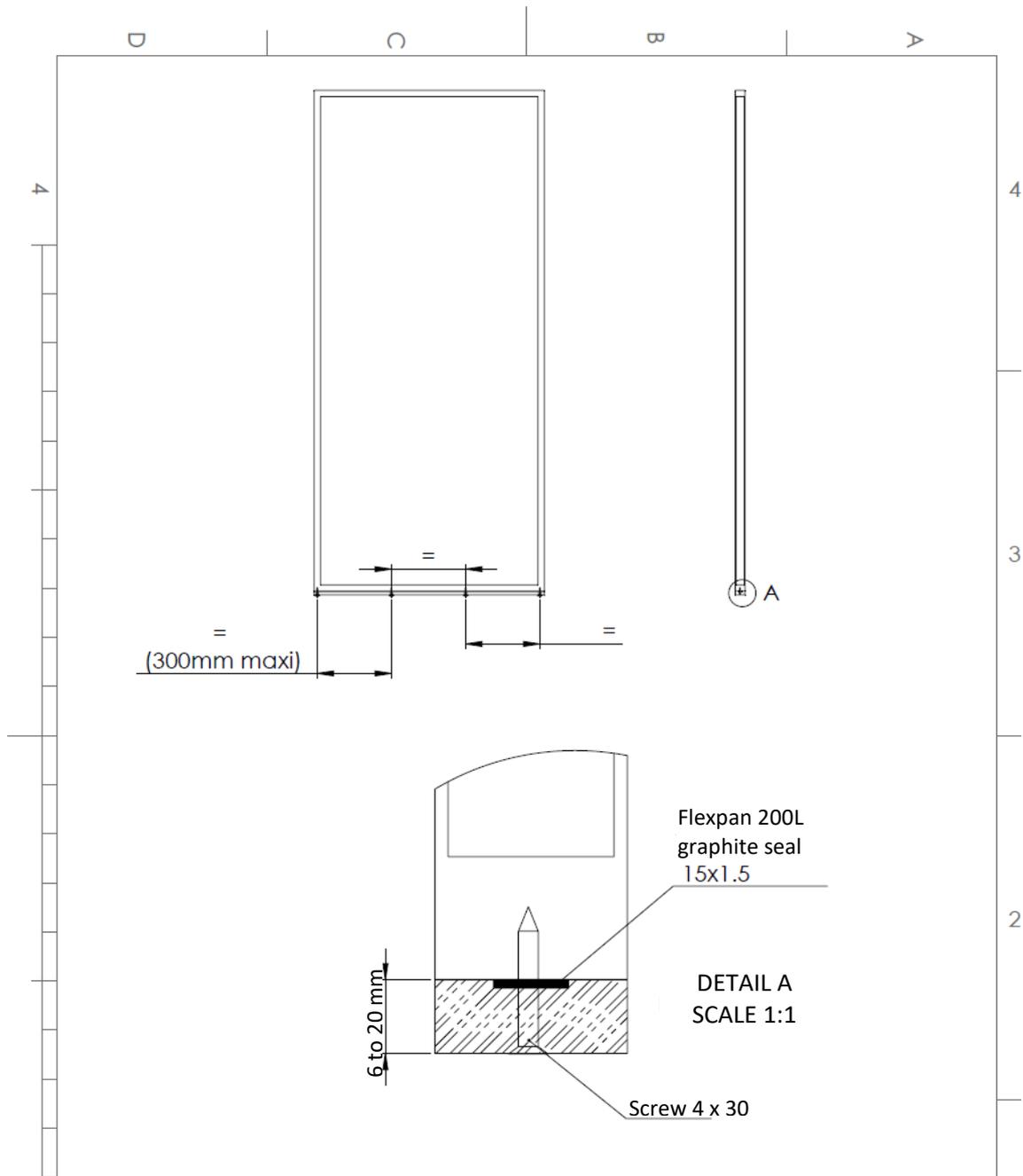


1	1	Protection de porte	PVC rigide		1 du 07_05_09
Rep.	Nb.	Désignation	Matériau	Observation	N° de plan
<p>Ce plan est la propriété de la société KEYOR . Il ne peut être ni reproduit ni divulgué sans son autorisation. La société KEYOR se réserve le droit de modifier le plan sans préavis.</p>					
<p>ECHELLE 1:10</p>		Protection profile, door edges			
A					
Drawing no.: EO 2010-06 59				Rev.	Date
				Cycle de vie	Modifications
				Destiné par	

Seule la reproduction intégrale de ce document permet l'exploitation normale des résultats.







Ce plan est la propriété de la société KEYOR. Il ne peut être ni reproduit ni divulgué sans son autorisation. La société KEYOR se réserve le droit de modifier le plan sans préavis.

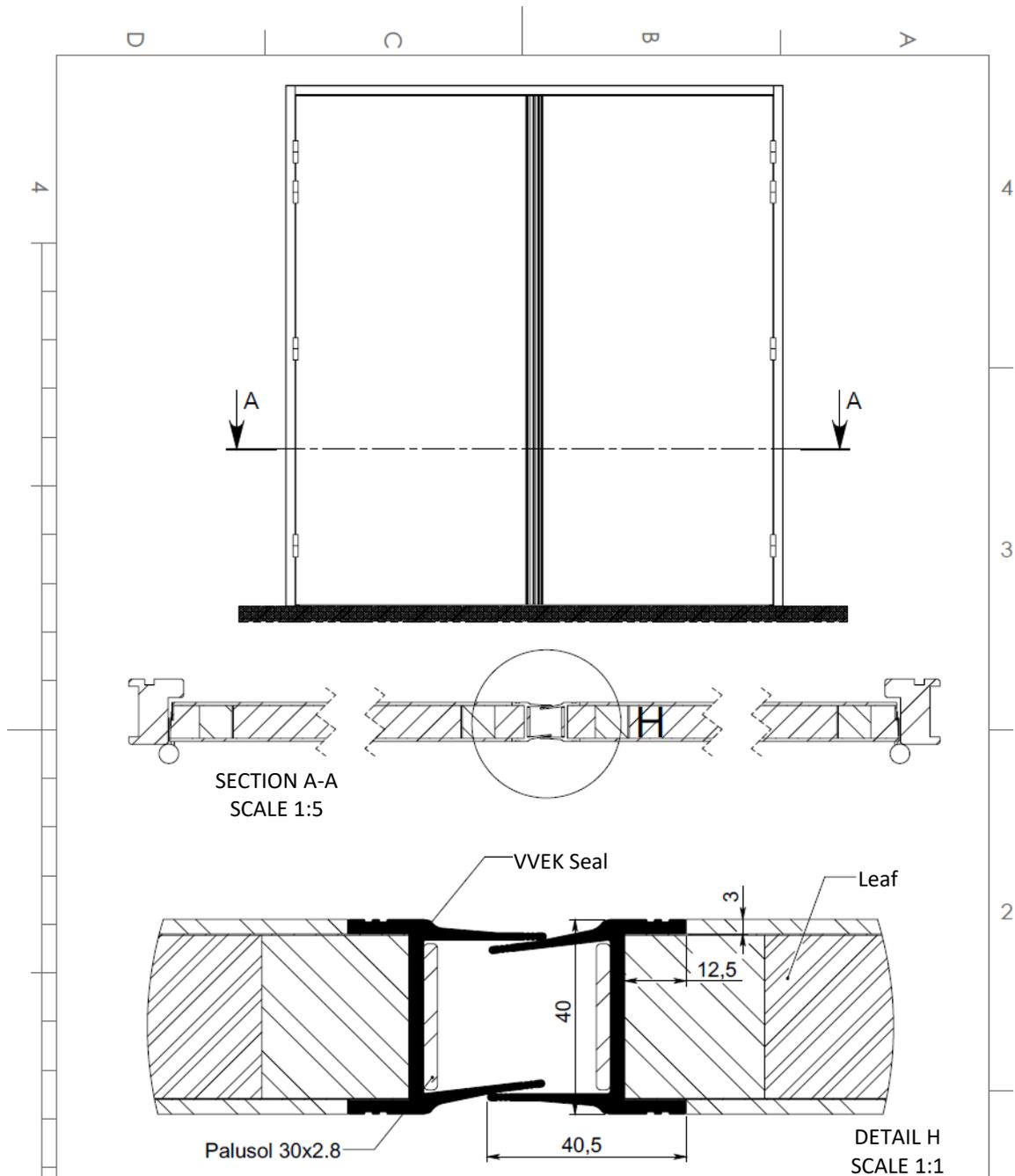
	ECHELLE 1:20
	A
	4

Closing of sill gap

Drawing no.: EO 2010-06 FE 101

A	14/09/2017	Etude	Creation	Pr_stedem
Rev	Date	Cycle de vie	Modification	Dessiné Par

Chemin d'accès plan : R:\development\EO 2010-06 FE 101\Extension des APL E130\Plan\Rattrapage jeu bas de portel



Ce plan est la propriété de la société KEYOR. Il ne peut être ni reproduit ni divulgué sans son autorisation. La société KEYOR se réserve le droit de modifier le plan sans préavis.

ECHELLE  
 1:20  
 A4

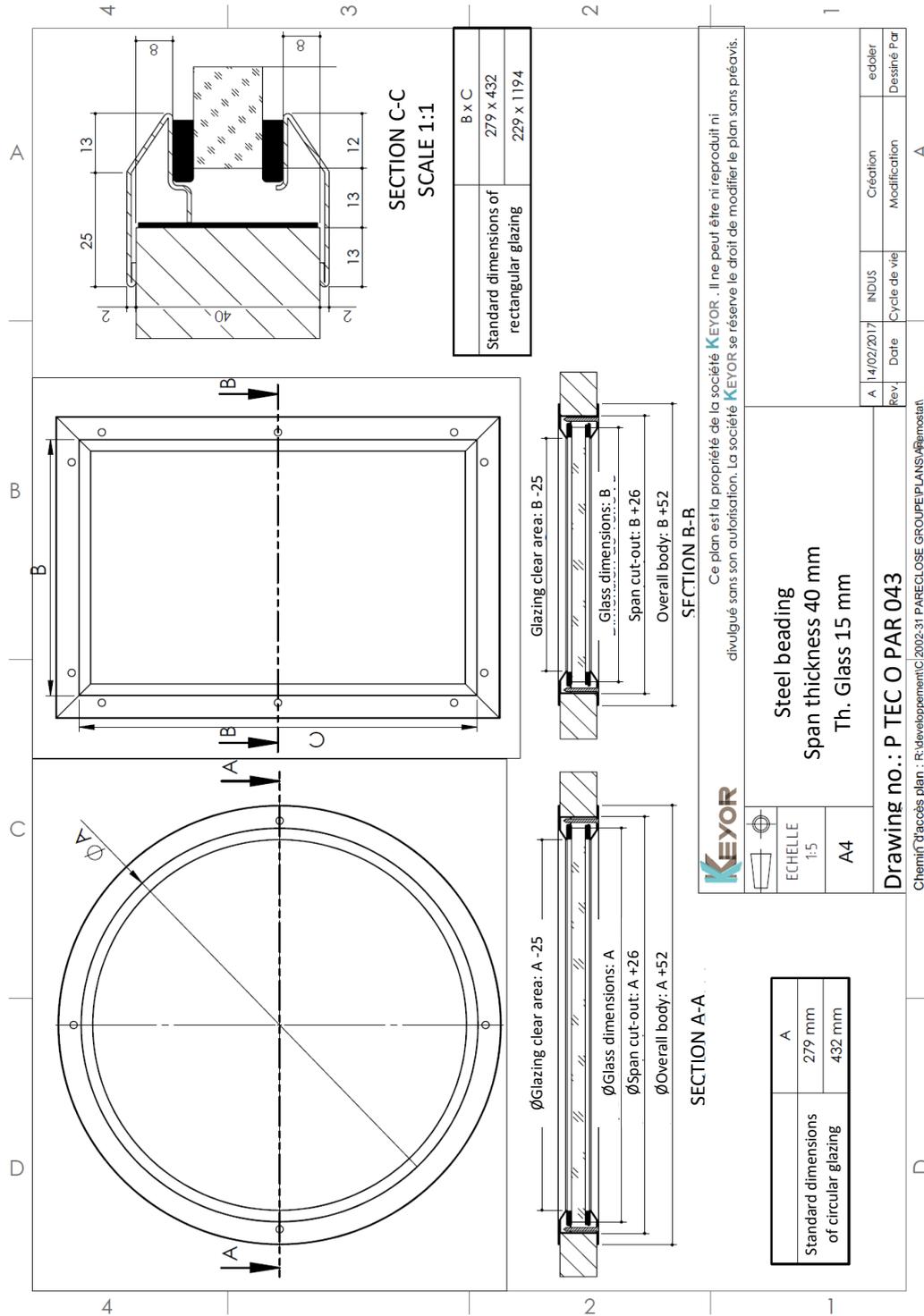
Astragal seal VVEK  
 SPF - 2 LEAVES

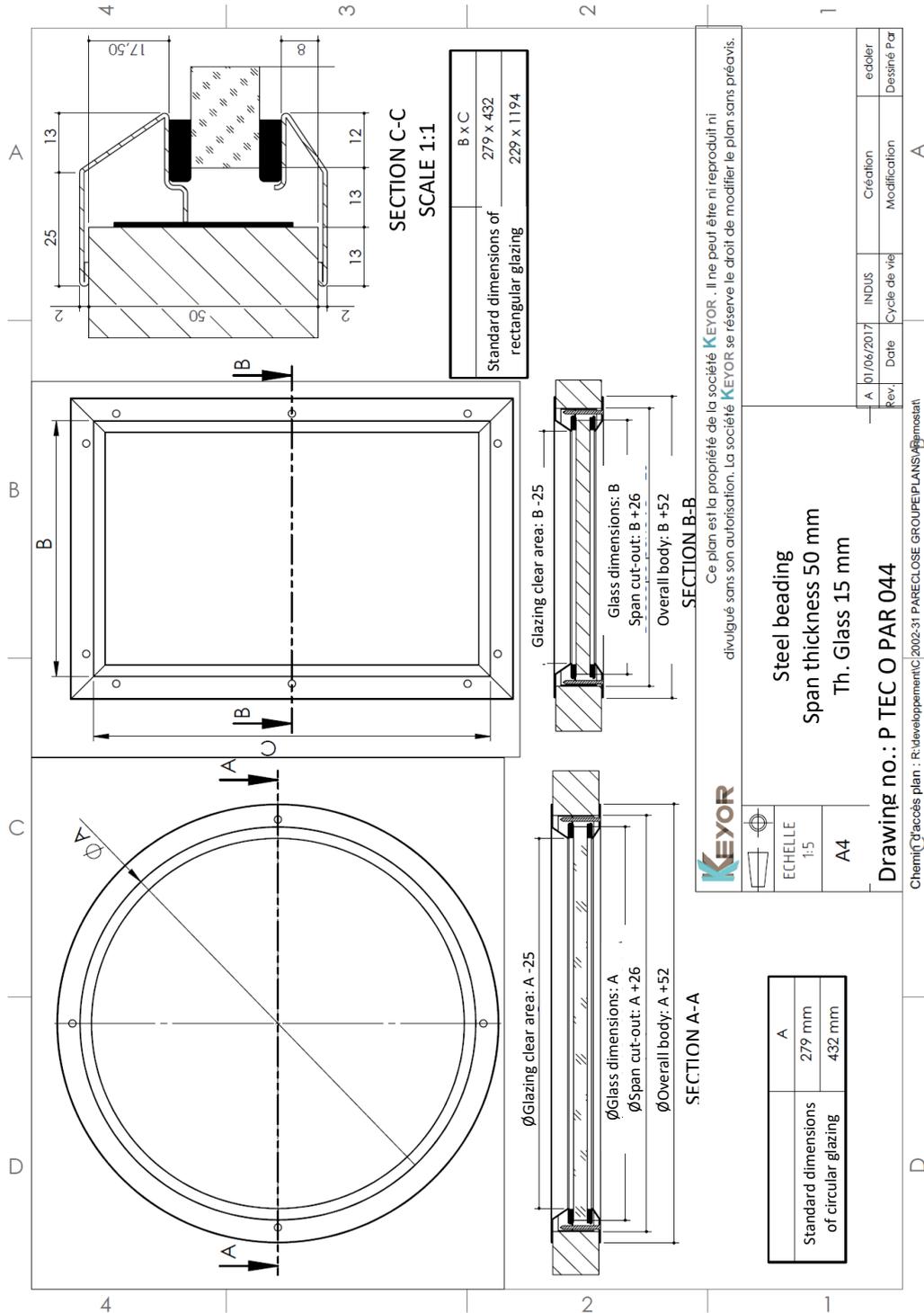
Drawing no.: EO 2010-06 FE 100

A	14/09/2017	Etude	CREATION	Pr_jeabil
Rev	Date	Cycle de vie	Modifications	Dessiné par

Chemin d'accès plan : R:\developpement\EO 2010-06 FE 100\Extension des APL E130\Plan\VVEK\

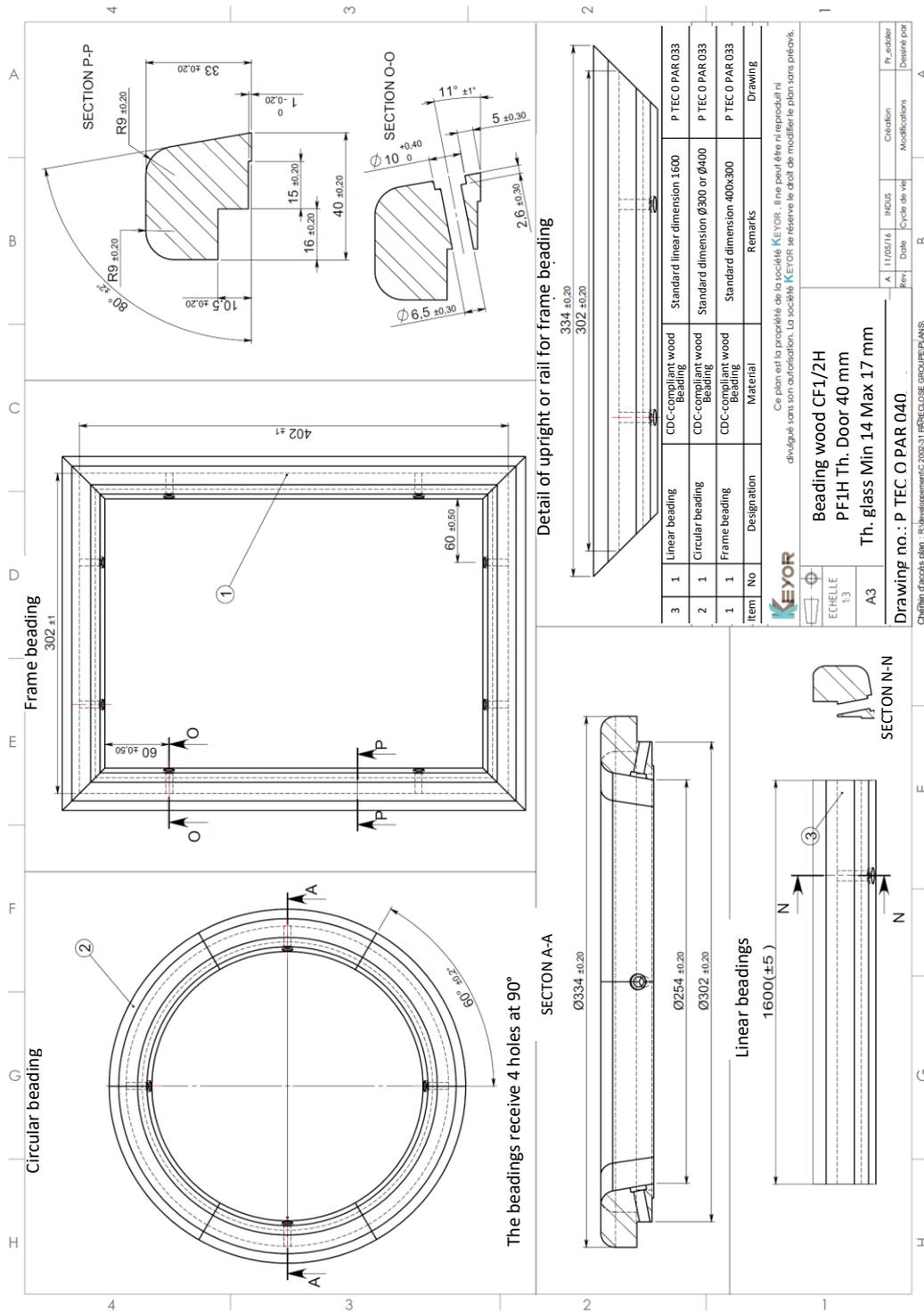


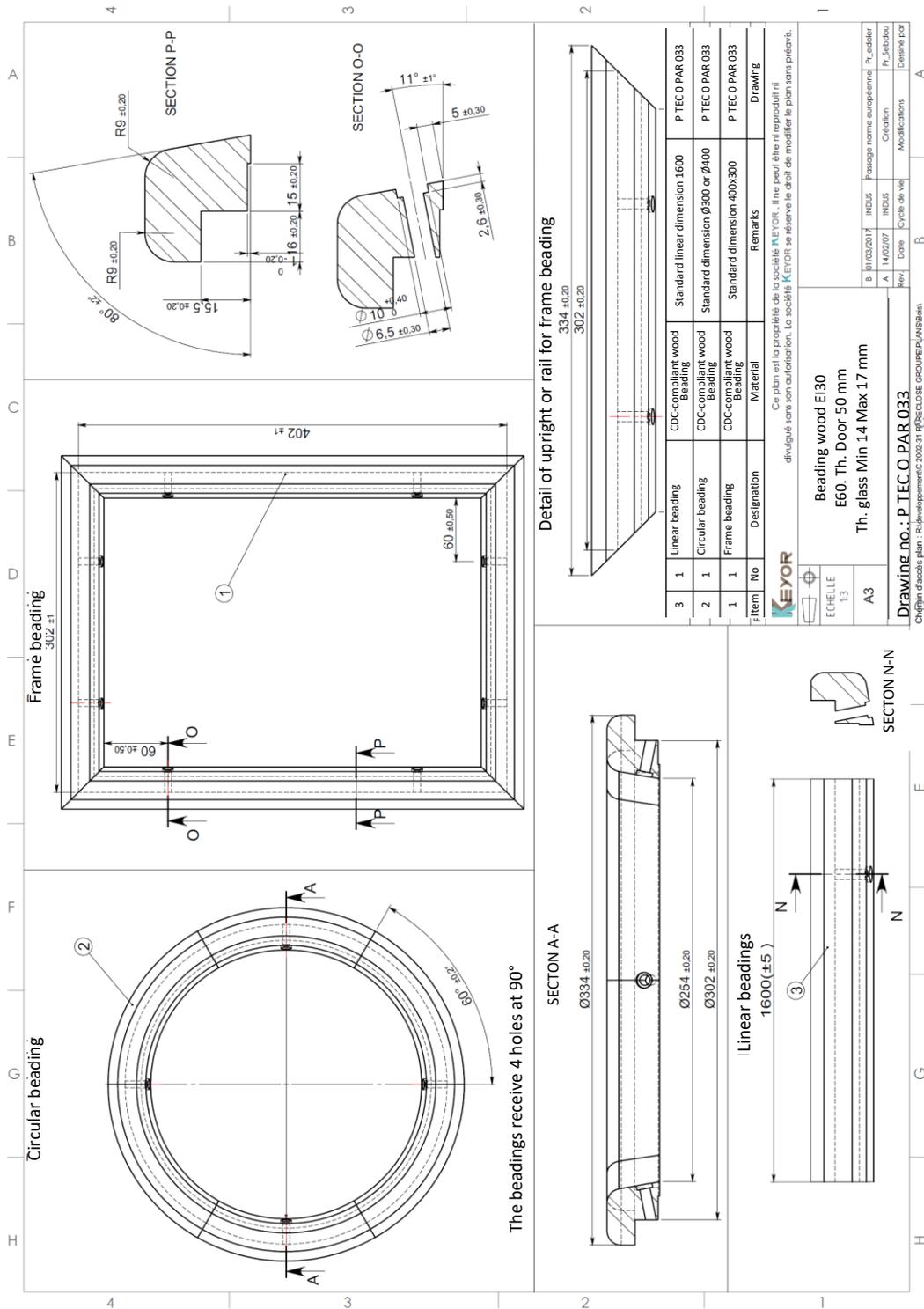


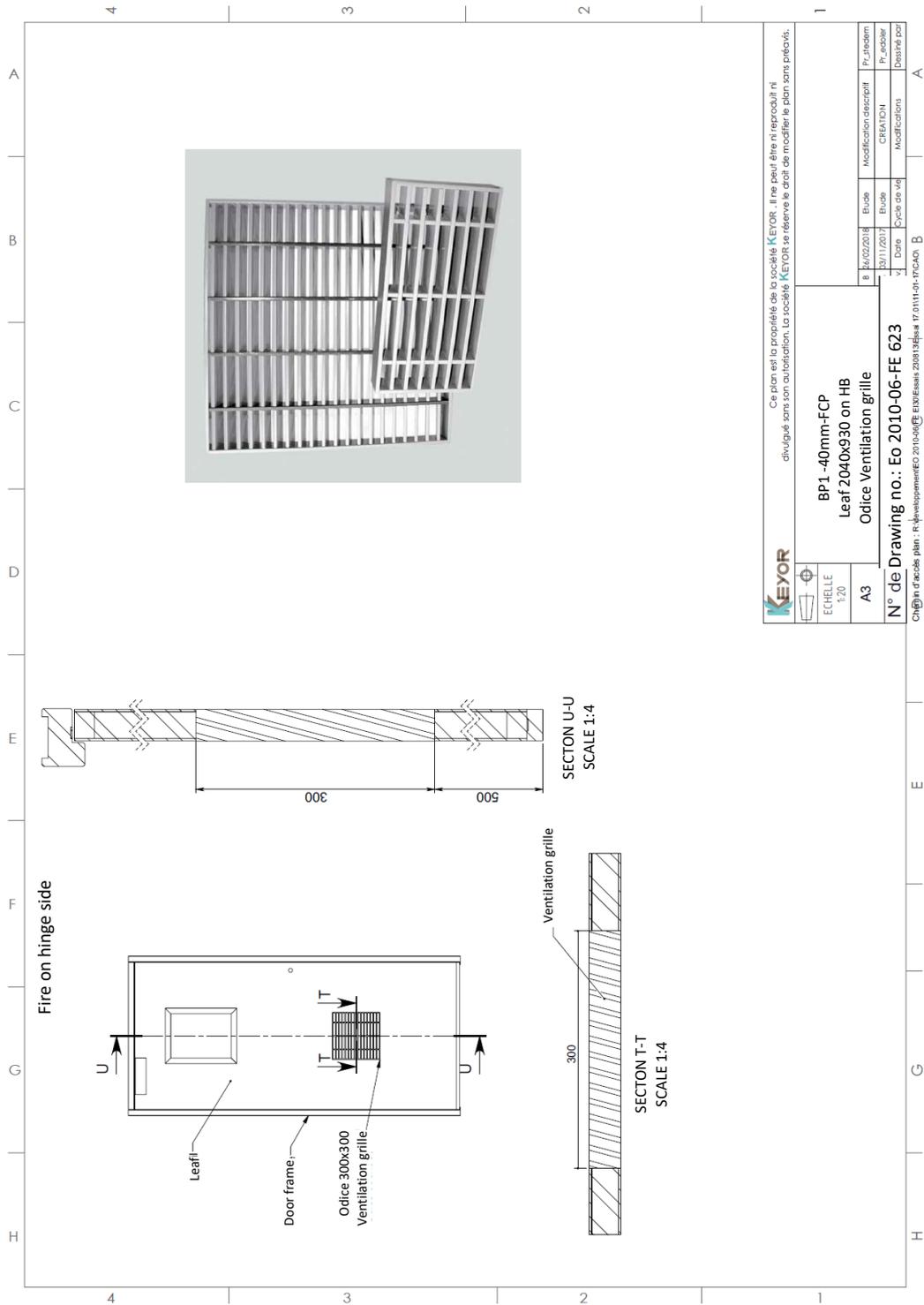






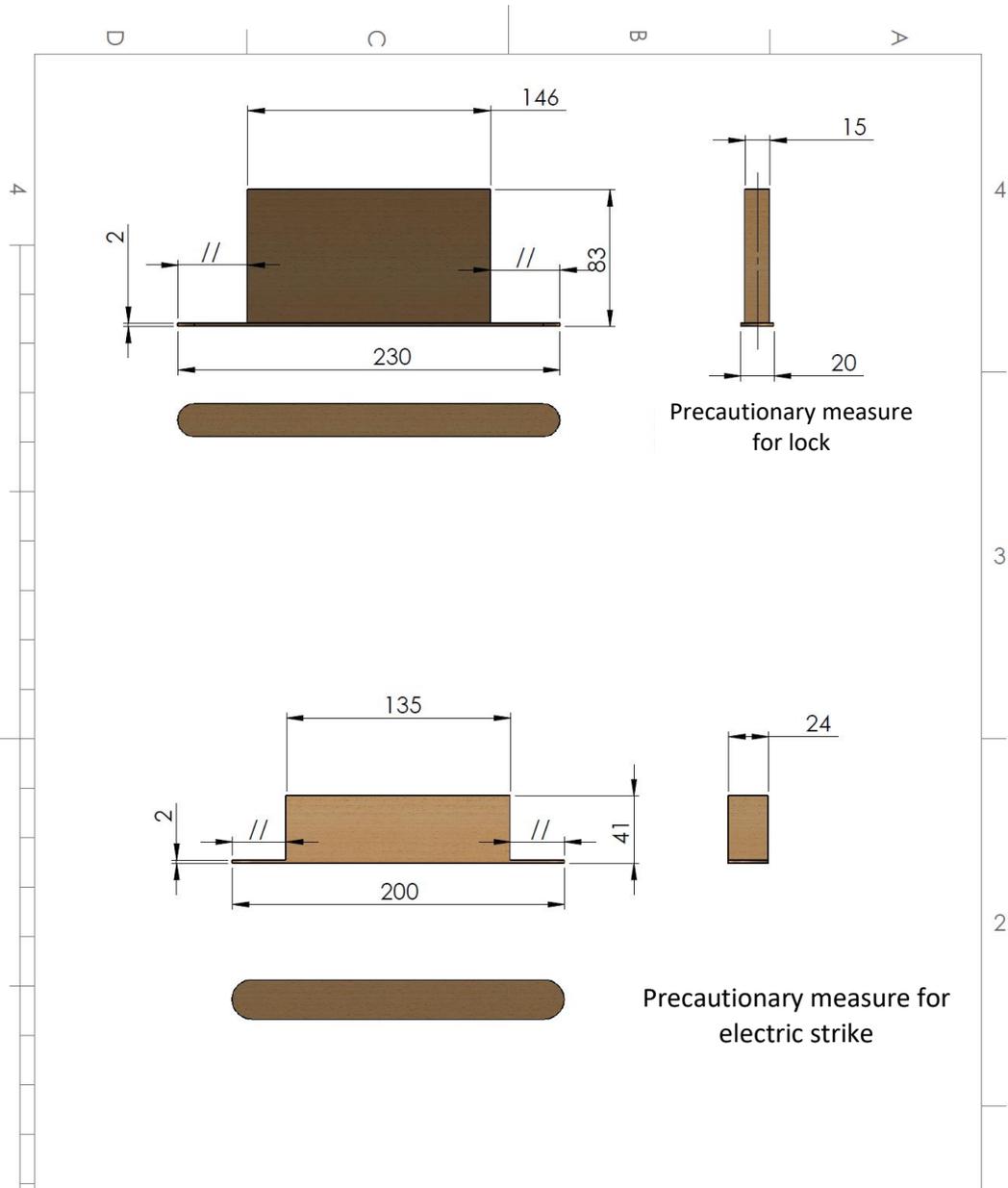






		Ce plan est la propriété de la société KEYOR. Il ne peut être ni reproduit ni divulgué sans son autorisation. La société KEYOR se réserve le droit de modifier le plan sans préavis.			
ECHELLE 1:20	A3	B 12/02/2018	Ecluse	Modification descriptif	Pr. a. e. a. m.
N° de Drawing no.: Eo 2010-06-FE 623		C 20/11/2017	Ecluse	CREATION	Pr. a. e. a. m.
CH@In d'écule plan - R: Développement 2010-06-FE 623		D Date	Cycle de vie	Modification	Destin. par
		CH@In d'écule plan - R: Développement 2010-06-FE 623			

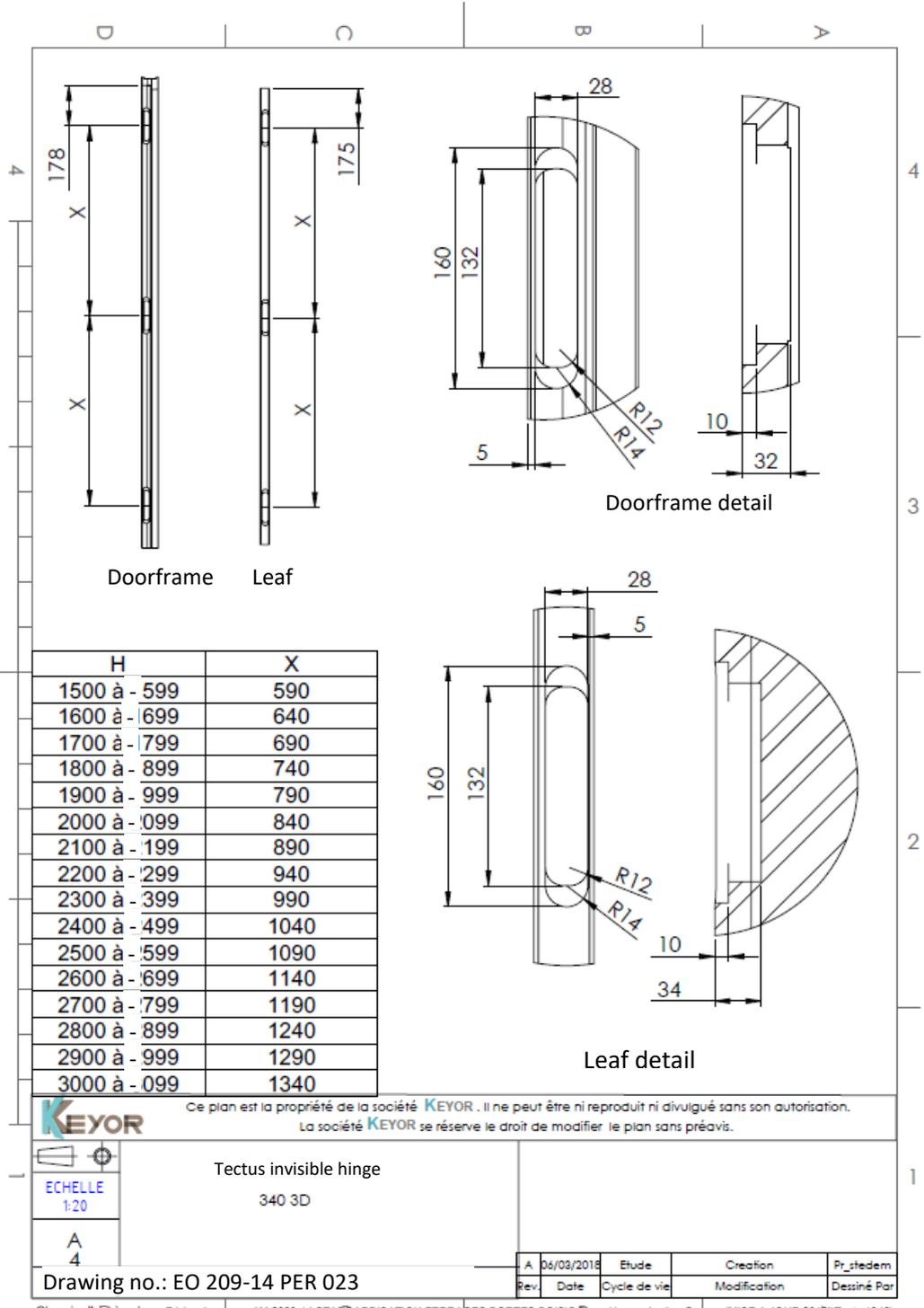




**KEYOR** Ce plan est la propriété de la société **KEYOR**. Il ne peut être ni reproduit ni divulgué sans son autorisation. La société **KEYOR** se réserve le droit de modifier le plan sans préavis.

	<b>Precautionary measure</b> Strike and lock				
ECHELLE 1:3					
A 4					
<b>Drawing no.: EO 2010-06 104</b>		A 28/02/2018 Etude	Creation	Pr_stedem	
		Rev. Date Cycle de vie	Modification	Dessiné Par	

Chemin d'accès plan : R:\developpement\EO 2017-03 Extension APL EI30-EI60\Plan\Mesure conservatoire\B



**KEYOR** Ce plan est la propriété de la société KEYOR . Il ne peut être ni reproduit ni divulgué sans son autorisation.  
La société KEYOR se réserve le droit de modifier le plan sans préavis.

Tectus invisible hinge  
340 3D

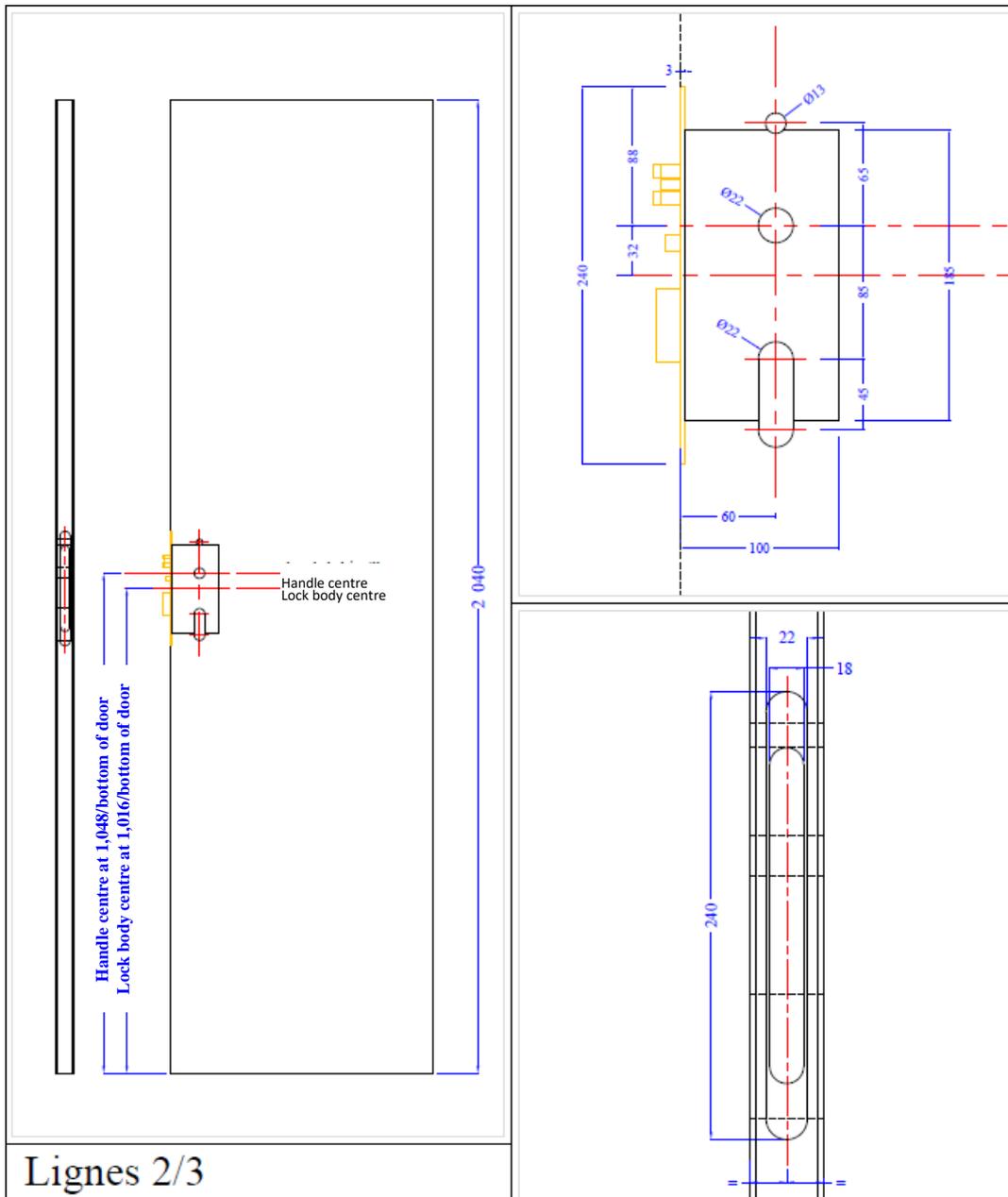
ECHELLE  
1:20

A  
4

A	06/09/2018	Etude	Creation	Pr_stedem
Rev.	Date	Cycle de vie	Modification	Dessiné Par

Drawing no.: EO 209-14 PER 023

Chemin d'accès plan : R:\developpement\M 2009-14 STANDARDISATION FERRAGES PORTES BOIS\5 Plans Harmonisation Groupe (MISE A JOUR 2018)\Tectus\340\



## Lignes 2/3

Ce plan n'est valable que pour l'U.F portant le même numéro, il ne peut donc être réutilisé. Ce document a été diffusé en 3 exemplaires.

Ce plan est la propriété de la société KEYOR. Il ne peut être reproduit ni divulgué sans son autorisation. La société KEYOR se réserve le droit de modifier le plan sans préavis.

KEYOR  
22 RUE D'ARTAGNAN  
33100 BORDEAUX  
TEL. 05.57.77.90.90  
FAX 05.56.40.33.26

CUTTING DRAWING  
CISA LOCK "E SIGNO"  
CENTRE AT 60 mm

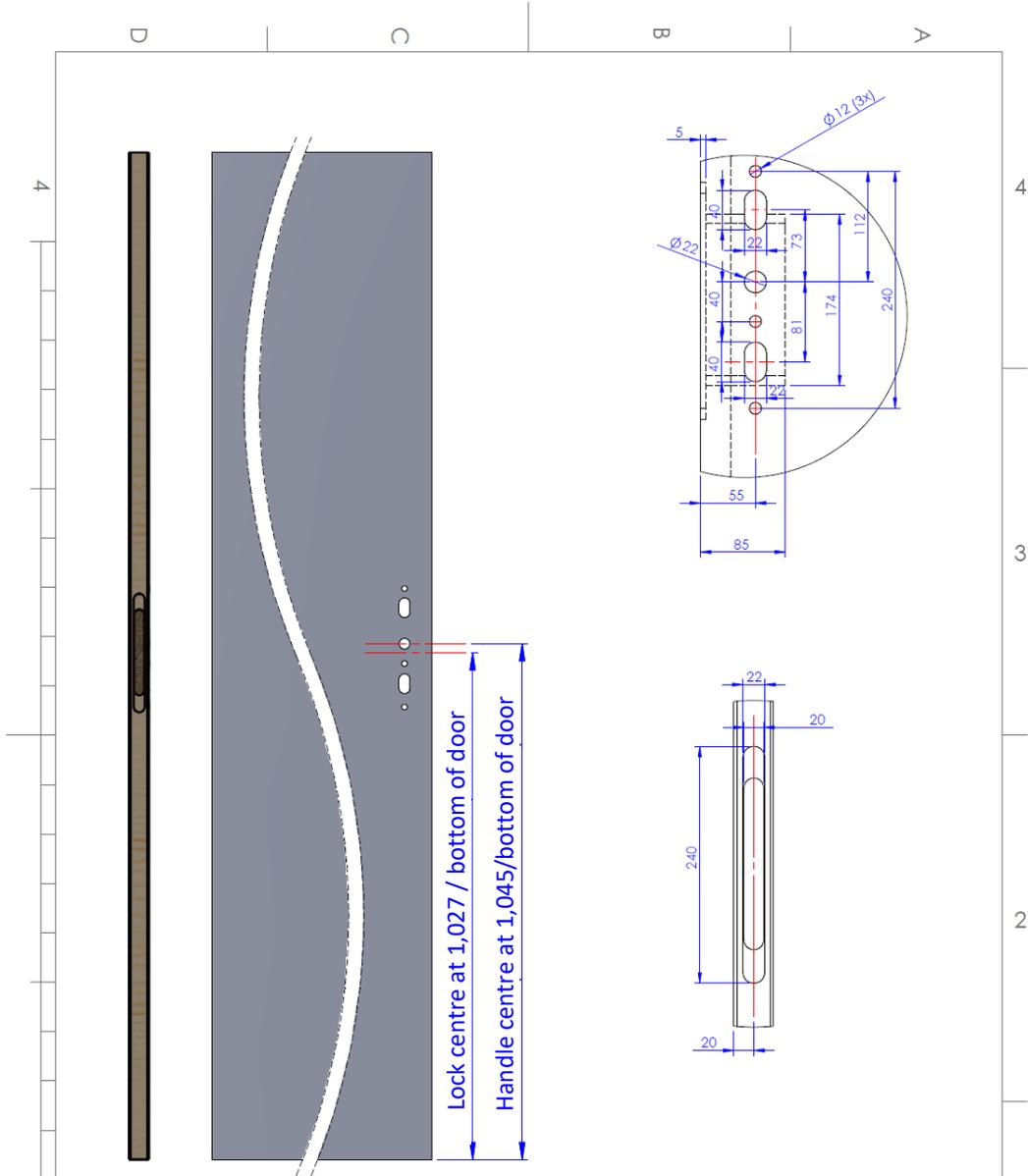


Plan N° :  
O45534

Ind	Date	Nature de la modification
A	02/05/17	Création

Client : KORTA

Dessiné par  
D.VACQUE



Ce plan est la propriété de la société KEYOR . Il ne peut être ni reproduit ni divulgué sans son autorisation.  
La société KEYOR se réserve le droit de modifier le plan sans préavis.

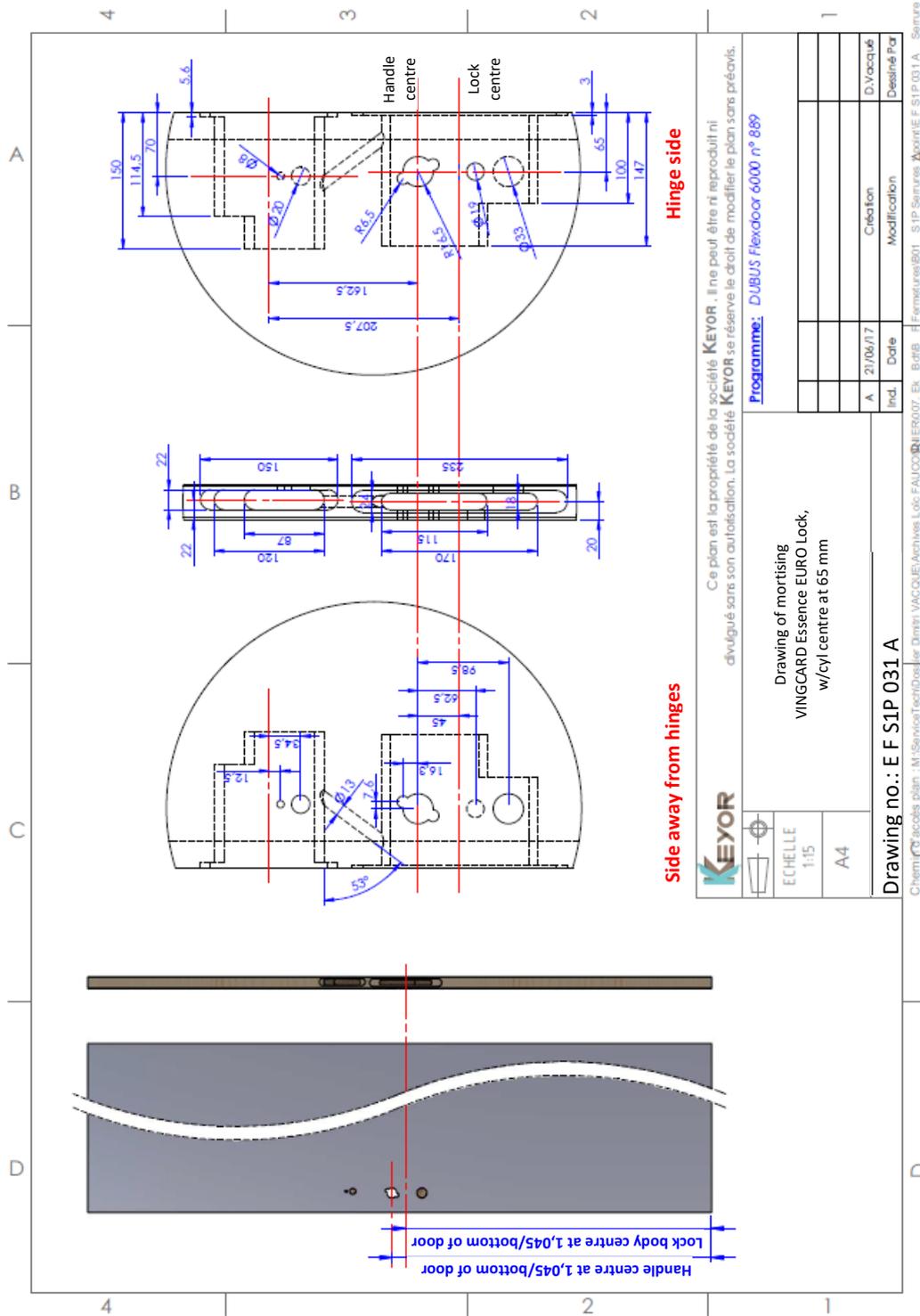
	ECHELLE 1:10
A4	

Drawing of mortising  
CISA EGO EURO Lock  
centred at 55 mm

A	24/04/18	Création	D.Vacqué
		Modification	Dessiné Par

Drawing no.: E F S1P 042 A

Chemin d'accès plan : U:\B\_F Fermetures\B01\_S1P Serres 1 point\E F S1P 042\_\_Serrure CISA EGO Lock EURO\



**KEYOR**

Ce plan est la propriété de la société KEYOR. Il ne peut être ni reproduit ni divulgué sans son autorisation. La société KEYOR se réserve le droit de modifier le plan sans préavis.

**Programme:** DUBUS Flexdoor 6000 n° 889

Drawing of mortising  
VINGCARD Essence EURO Lock,  
w/cyl centre at 65 mm

ECHELLE	1:15
A4	

Ind.	A	21/06/17	Création	D.Vacqué	Destiné Par
			Modification		

Drawing no.: E F SIP 031 A

Chem: accas plan: M:ServicesTech\Daier\Dimen1 VACQUE\Archives Loc FAUCON\BIBER007\_EB\_BdrB\_B\_Fermeture01\_SIP\_Serrure Apoint E F SIP 031 A\_Serrure VII

