

**CLASSIFICATION OF FIRE RESISTANCE ACCORDING TO
EN 13501-2: 2016 OF A NON-LOADBEARING PARTITION OF
TYPE “SAB W150.1100-FR” CONSISTING OF VERTICALLY
PLACED SANDWICH PANELS OF TYPE “SAB W150.1100-
FR”, MANUFACTURED BY SAB-PROFIEL BV**

Classification no.	2022-Efectis-R000155
Sponsor	SAB-profiel BV Productieweg 2 3401 MG IJSSELSTEIN THE NETHERLANDS
Product name	“SAB W150.1100-FR”
Prepared by	Efectis Nederland BV
Notified body no.	1234
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1. INTRODUCTION

This classification report defines the resistance to fire classification assigned to “SAB W150.1100-FR” in accordance with the procedures given in EN 13501-2:2016.

1.1 NORMATIVE REFERENCES

Table 1.1: Normative references

European standard	Part
EN 1363-1:2020	Fire resistance tests – Part 1: General requirements
EN 1363-2:1999 + C1:2001	Fire resistance tests – Part 2: Alternative and additional procedures
EN 1364-1:2015	Fire resistance tests for non-loadbearing elements - Part 1: Walls
EN 13501-2:2016	Fire classification of construction products and building elements - Part 2: Classification using data from fire resistance tests, excluding ventilation services
EN 15254-5:2018	Extended application of results from fire resistance tests - Non-loadbearing walls - Part 5: Metal sandwich panel construction

1.2 REVISION INFORMATION

This is the first issue of the classification report.

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL

The element, “SAB W150.1100-FR” is defined as a non-loadbearing partition.

For the dimensions and specifications of the materials and components of the examined construction, also see the figures in chapter 6. Details of the assembly of the construction are given in the paragraphs below.

2.2 DESCRIPTION

The element, “SAB W150.1100-FR” is fully described below in support of classification listed in 3.1.

2.2.1 Test specimen

The test specimen was a non-loadbearing partition of type “SAB W150.1100-FR” consisting of sandwich panels of type “SAB W150.1100-FR”, manufactured by SAB-profiel BV. The specimen was built into a standard rigid low-density supporting construction. The top and bottom edge were fixed to the fire-resistant concrete lining of the test frame.

2.2.1.1 Test Frame

The test frame was constructed of steel beams comprising a fire-resistant concrete lining (density: $1450 \text{ kg/m}^3 \pm 200 \text{ kg/m}^3$), with an aperture of $4 \times 3 \text{ m}$ (w x h) with an insertion width of 240 mm.

2.2.1.2 Supporting Construction

Two aerated concrete piers were built into the test frame to achieve the necessary aperture dimensions.

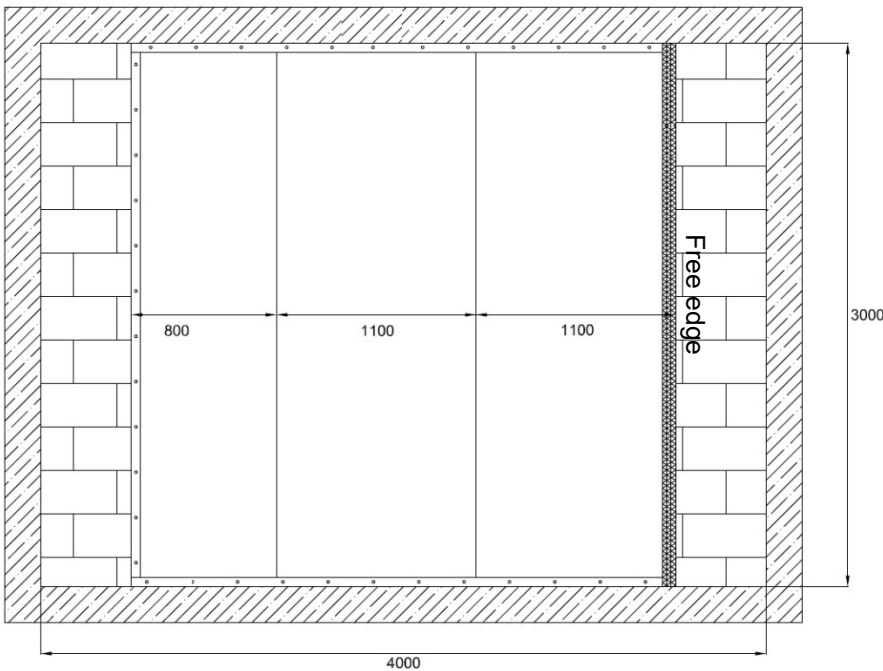
Table 2.1: Specifications supporting construction.

Specifications standard low density rigid supporting construction	
Overall dimensions	500 x 3000 x 250 mm (w x h x t)
Aperture	3000 x 3000 mm (w x h)
Material	Aerated concrete blocks: 600 x 250 x 150 mm
Manufacturer	Ytong
Density	575 kg/m ³ ± 50 kg/m ³
Thickness	250 mm

2.2.1.3 Restraint / Free edge

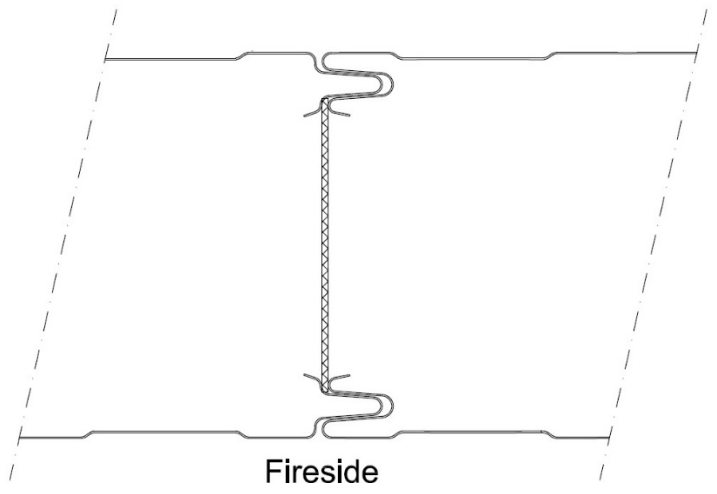
The specimen was erected so that the right vertical edge (seen from the unexposed side) was unrestrained as described in EN 1363-1 and adjacent to a full width panel. The gap was filled with mineral wool of type “Prorox SL 970” with a density of 115 kg/m³ to provide a seal without restricting freedom of movement. The gap was approx. 40 mm wide. The edge of the panel adjacent to the free edge was sealed as described below.

2.2.1.4 Partition

Specifications partition	
	
Manufacturer	SAB-profiel BV
Type	Non-loadbearing partition consisting of sandwich panels

Product name	SAB W150.1100 FR
Material	Steel and PIR foam
Number of panels	A total of 3 panels (2 full width panels and one fitting panel). The noggin was cut of the panels at both edges
Directions of panels	Vertically
Overall dimensions	3000 x 3000 x 150 mm (w x h x t)
Expansion allowances	Top: 20 mm Bottom: 20 mm
Function	Fire resistant partition
Fixing	Connected with L-shaped profiles to the supporting construction

2.2.1.5 Sandwich panel

Specifications sandwich panel	
	
Manufacturer	SAB-profiel BV
Type	Sandwich panel
Product name	SAB W150.1100-FR
Material	Inner sheet, exposed side: 0,45 mm steel with a polyester coating Core: PIR foam type "SAB VIII" with a density of 40 kg/m ³ Outer sheet, unexposed side: 0,55 steel with a polyester coating
Dimensions	1100 x 3000 x 150 (130) mm (w x h x t)
Function	Fire resistant partition
Fixing	Panels to the supporting construction: with L-shaped profiles. The panel was fixed with screws Ø5.5 x 25 mm to the L-shaped profile, at a c.t.c of approx. 250 mm. The L-shaped profile was fixed to the supporting construction with Ø6 x 60 mm screws and 8 mm plugs at a c.t.c of approx. 500 mm

2.2.1.6 Profiles

Specifications profiles	
Manufacturer	SAB-profiel BV
Type	U-shaped profile L-shaped profile
Material	Galvanized steel
Dimensions	U-shaped profile: 100 x 50 x 0,6 mm (w x h x t) L-shaped profile: 100 x 50 x 1,5 mm (w x h x t)
Location	U-shaped profile: at the free edge, capping the fitted sandwich panel L-shaped profile: around perimeter (except the free edge) on exposed and unexposed side
Function	U-shaped profile: sealing of the open edge of the fitted sandwich panel at the free edge L-shaped profile: connecting the sandwich panels to the supporting construction
Fixing	U-shaped profile to panel: with screws Ø5.5 x 25 mm at a c.t.c distance of approx. 250 mm L-shaped profile to supporting construction: with Ø6 x 60 mm screws and 8 mm plugs at a c.t.c distance of approx. 500 mm L-shaped profiles to panels: with screws Ø5.5 x 25 mm at a c.t.c distance of approx. 250 mm

2.2.1.7 Sealant

Specifications sealant	
Manufacturer	Celdex
Type	Sealant
Product name	Panelseal UF50A
Material	PUR
Dimensions	Thickness 5 mm
Location	At the vertical edges where the sandwich panels join
Function	Wind and water tightness
Fixing	Self-adhesive applied at factory

2.2.1.8 Sealant (mastic)

Specifications sealant	
Manufacturer	PFC Corofil
Type	Intumescent sealant
Product name	Firestop (acoustic intumescent sealant)
Material	Acrylic based sealant containing graphite
Location	Around perimeter of partition (except free edge) between L-shaped profile and panels Around perimeter of partition (except free edge) between L-shaped profile and supporting construction
Function	Sealing of gaps between the test frame and the sandwich panels during fire

2.2.1.9 Mineral wool

Specifications mineral wool	
Manufacturer	Rockwool
Type	Mineral wool
Product name	Prorox SL 970
Density	115 kg/m ³
Material	Mineral wool
Location	Between sandwich panel and supporting construction at fixed edges Filling of the free edge
Function	Fire resistant sealing of gaps
Fixing	Stuffed into cavity

2.2.1.10 Screws

Specifications screws	
Type	Self-drilling screws
Product name	Saphir self-drilling screw: EJOT JT2-2H-Plus-5,5x25 SPAX T2/C2nw A9J
Material	Steel
Dimensions	Saphir self-drilling screw: Ø5.5 x 25 mm SPAX: Ø6.0 x 60 mm

Location	Ø5.5 x 25 mm: around perimeter of the partition, on exposed and unexposed side, fixing the L-shaped and U-shaped profiles to the sandwich panel Ø6.0 x 60 mm (with 8 mm plugs): around the perimeter of the partition (except free edge), on exposed and unexposed side, connecting the L-shaped profile to the supporting construction. Ø5.5 x 25 mm: on the longitudinal overlap between the panels on the exposed and unexposed side at a c.t.c. distance of 500 mm
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2.2.2 Method of assembly

The test specimen was built in the following order:

- Fixing of L-shaped profiles to the supporting construction on one side;
- mounting the panels to the L-shaped profiles;
- mounting the L-shaped profiles on the other side;
- applying screws to connect the panels to each other;
- sealing of gaps between specimen and supporting construction.

3. TEST REPORTS AND TEST RESULTS IN SUPPORT OF THE CLASSIFICATION

3.1 TEST REPORTS

Table 3.1: Details test report

Name of laboratory	Name of sponsor	Report ref. no	Test standard and Date
Efectis Nederland BV	SAB-profiel BV	2021-Efectis-R001749	EN 1364-1:2015

3.2 RESULTS

Table 3.2: Summary of test results

Criterion	Time [min]	Time of reaching a criterion measured from the start of the test in accordance with EN 1364-1:2015
Integrity (E) -Cotton pad -Gap gauge Ø 6 mm -Gap gauge Ø 25 mm -Sustained flaming > 10 seconds	97	Not applied Not applied Not applied Failure
Insulation (I) -Average temperature -Maximum temperature	41 28	Failure Failure tc 11
Heat Radiation (W)		No failure, max. 9.7 kW/m ² at 97 min. 6 kW/m ² reached at 81 minutes
The maximum deflection was 139 mm at 97 minutes 100 mm deflection reached at 40 minutes		
The heating was terminated after 98 minutes after consulting the client.		

4. CLASSIFICATION AND FIELD OF APPLICATION

4.1 REFERENCE OF CLASSIFICATION

This classification has been carried out in accordance with Clause 7 of EN 13501-2:2016.

4.2 CLASSIFICATION

The element, "SAB W150.1100-FR" is classified according to combinations of performance parameters and classes as described in Clause 6.7 of EN 13501-2:2016.

E 90, EI 20 and EW 90

4.3 FIELD OF APPLICATION

4.3.1 General

The results of the fire test are directly applicable to similar constructions where one or more of the changes listed below are made and the construction continues to comply with the appropriate design code for its stiffness and stability, except with respect to the construction types covered in annex A and annex B of EN 1364-1 where specific direct field of application rules are given.

- a) decrease in height;
- b) increase in the thickness of the wall;
- c) increase in the thickness of component materials;
- d) decrease in linear dimensions of boards or panels but not thickness;
- e) decrease in distance of fixing centres;
- f) increase in the number of vertical joints, of the type tested;
- g) horizontal and/or vertical joints, of the type tested.

4.3.2 Extension of width

For test specimens tested with a supporting construction, the width of an identical construction may be increased if the specimen was tested at a minimum of nominally 2.8 m wide with one vertical edge without restraint. Therefore, the construction may be increased without restrictions for **E 90** and **EI 20**.

In case of EW classification, an increase in width of an identical construction is only allowed when the average unexposed surface temperature of any discrete area of the test specimen remains below 300 °C or the measured radiation remains below 6 kW/m². In any other case, no increase in width is allowed.

The radiation exceeded 6 kW/m² after 81 minutes. Therefore, the width of the construction may be increased without restriction for **EW 60**.

4.3.3 Extension of height

The height of the construction may be increased by 1.0 m under the following conditions:

- a) minimum tested height is 3 m when tested without a supporting construction or 2.8 m when tested with a supporting construction;

- b) the maximum deflection of the test specimen was not in excess of 100 mm;
- c) the expansion allowances are increased pro-rata.

In case of EW classification, an increase in height of an identical construction is only allowed when the average unexposed surface temperature of any discrete area of the test specimen remains below 300 °C or the measured radiation remains below 6 kW/m². In any other case, no increase in height is allowed.

The deflection exceeded 100 mm after 40 minutes and the radiation exceeded 6 kW/m² after 81 minutes. Therefore, the height of the construction may be increased to 4 meters for **E 30, EI 20 and EW 30**.

4.3.4 Supporting constructions

The following rules for the field of application apply.

4.3.4.1 Standard supporting constructions

For specimens tested with any standard supporting construction as defined in EN 1363-1, the result is applicable to any other supporting construction of the same type (flexible or rigid) that has the same or a greater classified fire resistance (thicker, denser, more layers of boards, as appropriate) than the one used in the test and the same horizontal and/or vertical orientation, i.e.: only vertical if the specimen was tested with the standard supporting construction fixed along the vertical edge.

5. LIMITATIONS

This classification document does not represent type approval or certification of the product.

SIGNED



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6. DRAWINGS

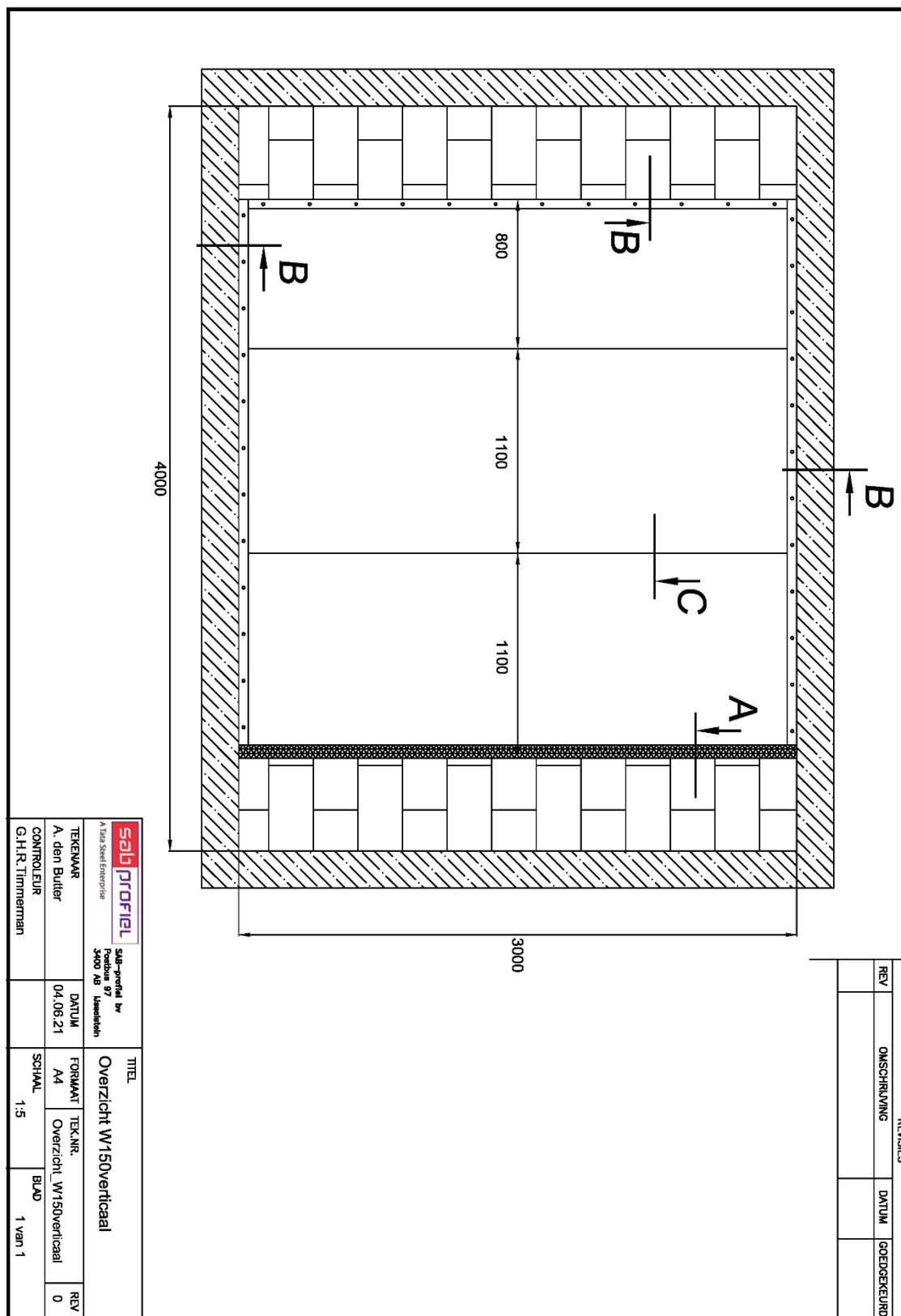


Figure 1: Front vies unexposed side

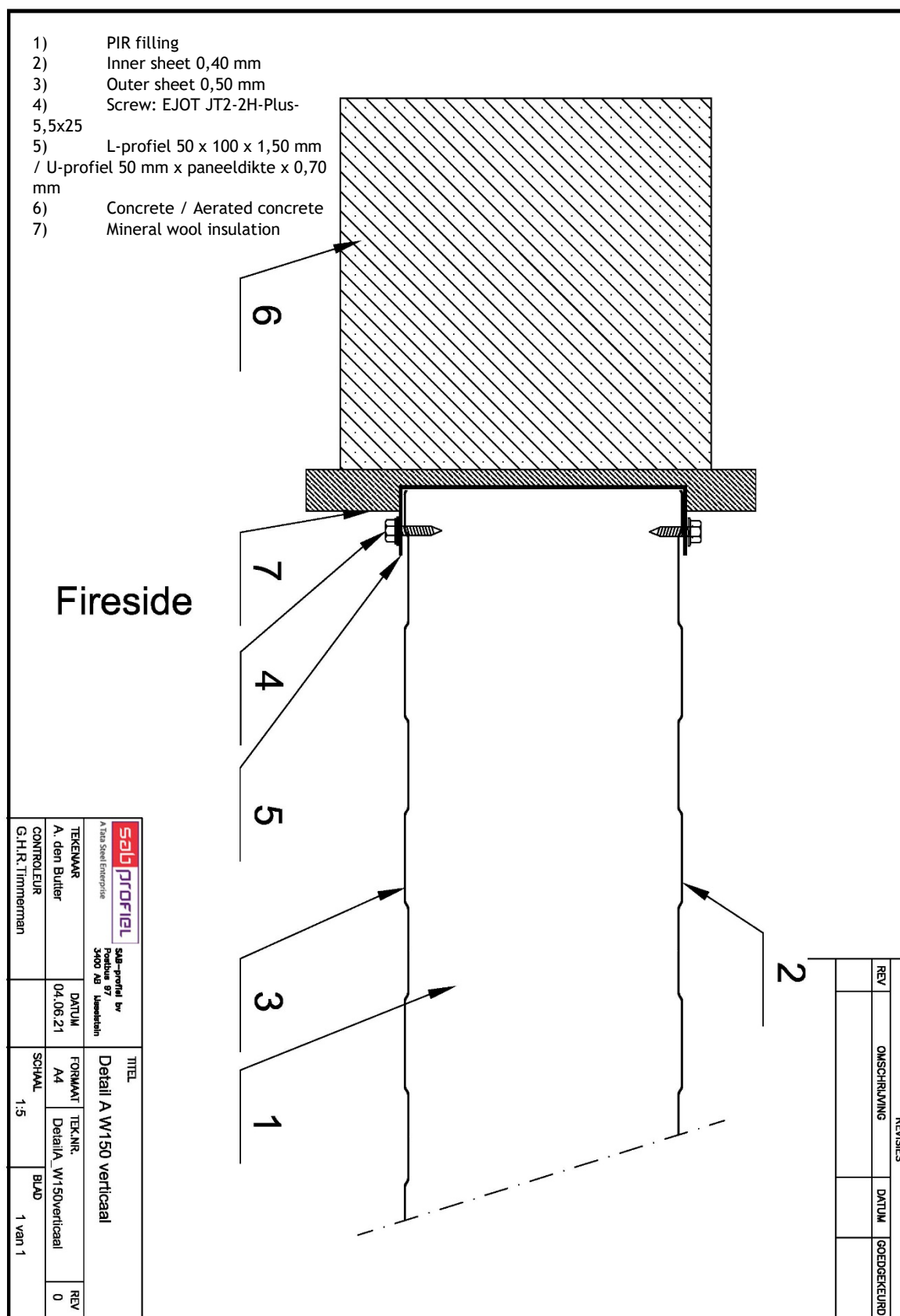


Figure 2: Detail A

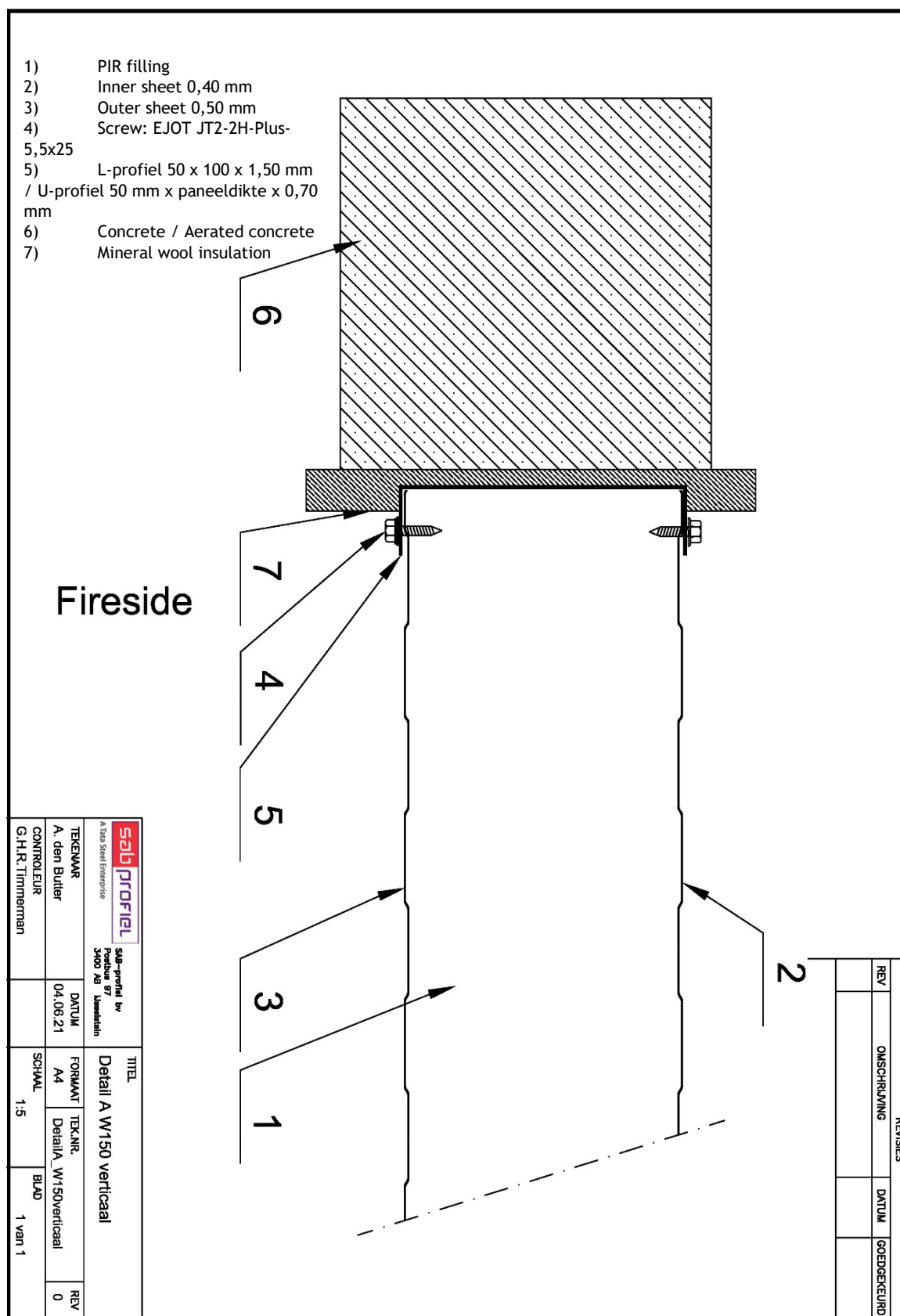


Figure 3: Detail B

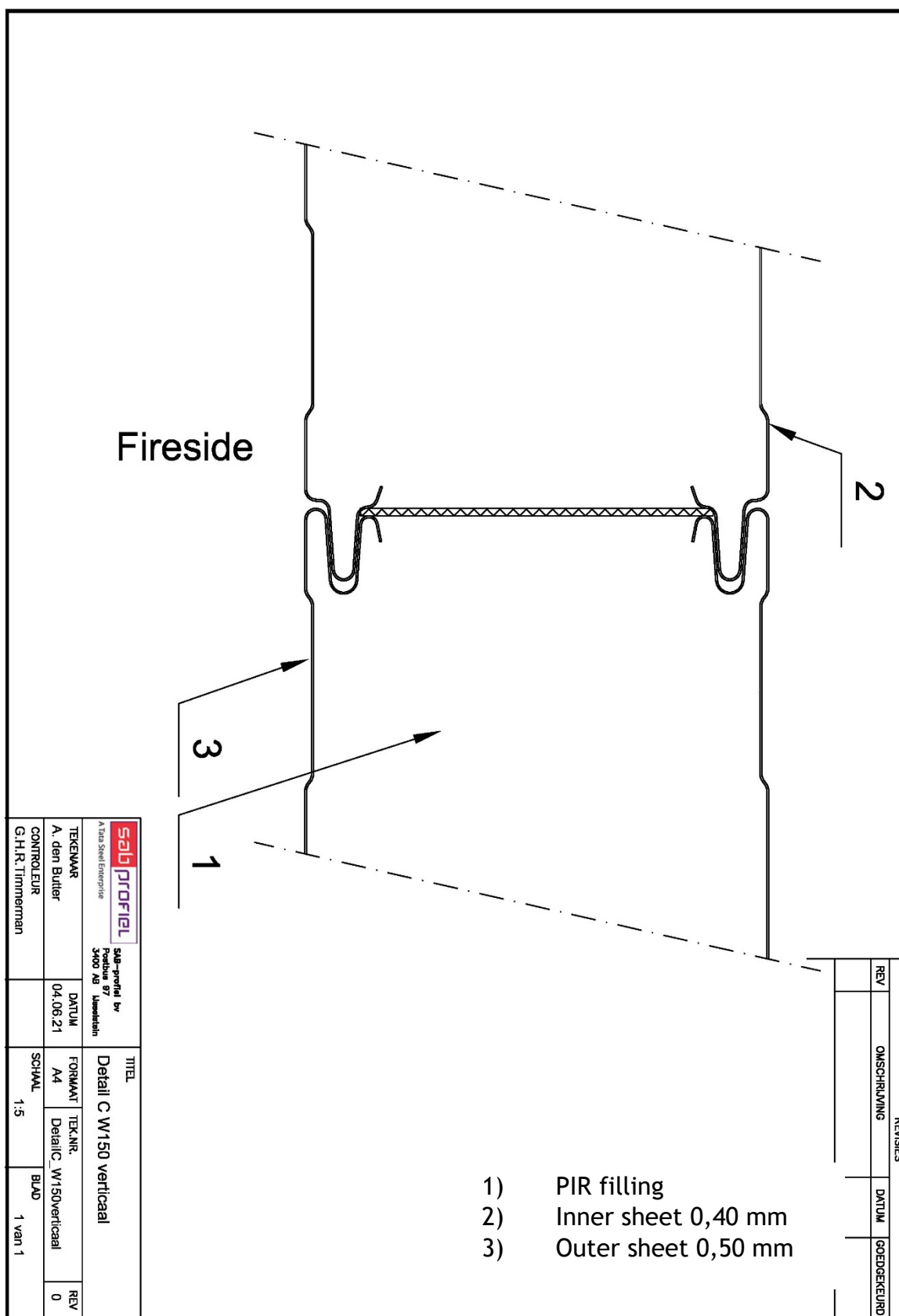


Figure 4: Detail C