Efectis Nederland BV
P.O. Box 554 | 2665 ZN Bleiswijk
Brandpuntlaan Zuid 16 | 2665 NZ Bleiswijk
The Netherlands
+31 88 3473 723
nederland@efectis.com

CLASSIFICATION

CLASSIFICATION OF FIRE RESISTANCE ACCORDING TO EN 13501-2: 2016 A NON-LOADBEARING METAL SANDWICH PANEL PARTITION OF TYPE “SAB WB 100.1000 EW30” MANUFACTURED BY SAB-PROFIEL BV

Classification no.	2021-Efectis-R000384
Sponsor	SAB-profiel BV P.O. Box 97 3400 AB IJSSELSTEIN THE NETHERLANDS
Product name	**SAB WB 100.1000 EW30**
Prepared by	Efectis Nederland BV
Notified body no.	1234
Author(s)	A.J. Waber M.Sc. G.M. Klijn B.Sc.
Project number	ENL-20-001246
Date of issue	March 2021
Number of pages	16

TABLE OF CONTENTS

1. INTRODUCTION

This classification report defines the resistance to fire classification assigned to “SAB WB 100.1000 EW30” 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	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

1.2 REVISION INFORMATION

This is the first issue of the classification report.

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL

The element, “SAB WB 100.1000 EW30” is defined as a non-loadbearing metal sandwich panel construction.

2.2 DESCRIPTION

The element, “SAB WB 100.1000 EW30” is fully described below in support of classification listed in 3.1.

2.2.1 Test Frame

The test frame was constructed of steel beams comprising a fire-resistant concrete lining (density: 1450 kg/m^3 ± 200 kg/m^3), with an aperture of 4 x 3 m (w x h) with an insertion width of 250 mm.

2.2.2 Supporting Construction

An aerated concrete pier with a thickness of 250 mm was built into the test frame to achieve the necessary aperture dimensions.

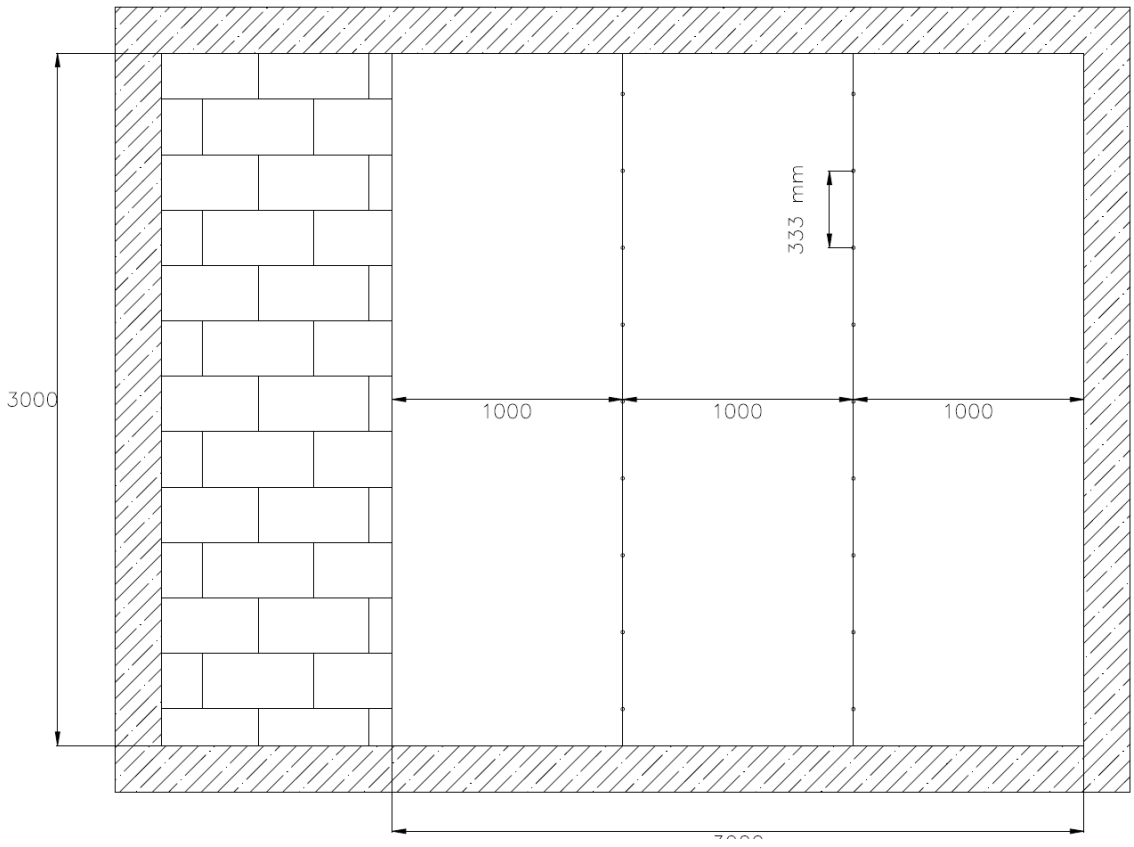
Table 2.1: Specifications supporting construction

Specifications standard low density rigid supporting construction	
Overall dimensions	1000 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

2.2.3 Restraint / Free edge

The specimen was erected so that the left vertical edge (seen from the unexposed side) was unrestrained as described in EN 1363-1. The gap was filled with mineral wool of type “Prorox SL 970” with a density of 115 kg/m^3 to provide a seal without restricting freedom of movement. The gap was approx. 40 mm wide.

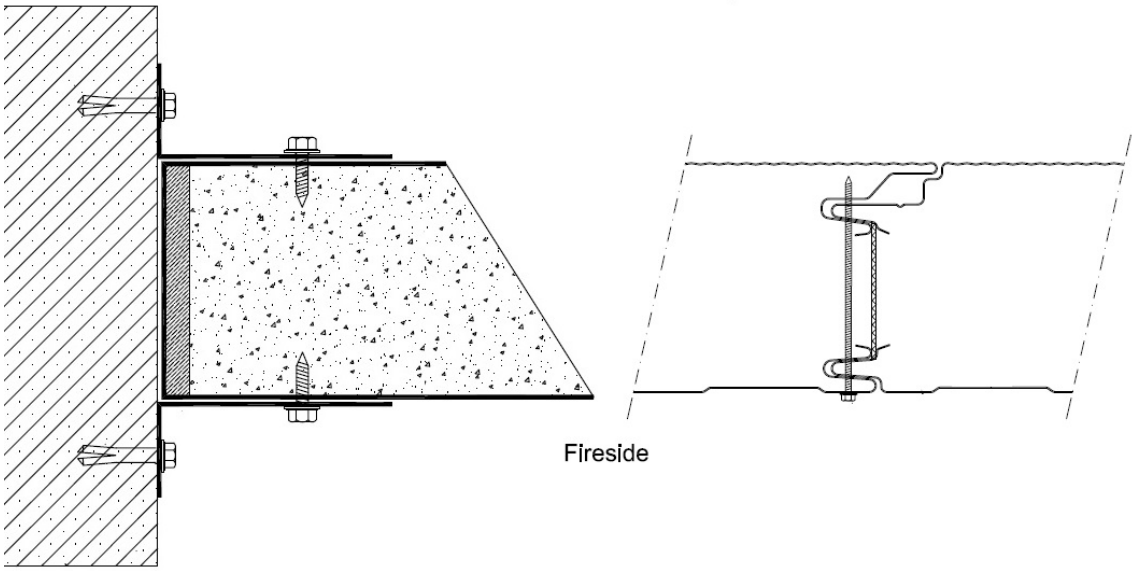
2.2.4 Partition

Specifications partition	
	
Manufacturer	SAB-profiel bv

Type	Non-loadbearing partition consisting of sandwich panels
Material	Steel and PIR foam
Product name	WB100.1000
Dimensions	3000 x 3000 x 100 mm (w x h x t)
Function	Fire resistant partition
Fixing	Connected with L-shaped profiles to the supporting construction

2.2.5 Sandwich panel

Specifications sandwich panel



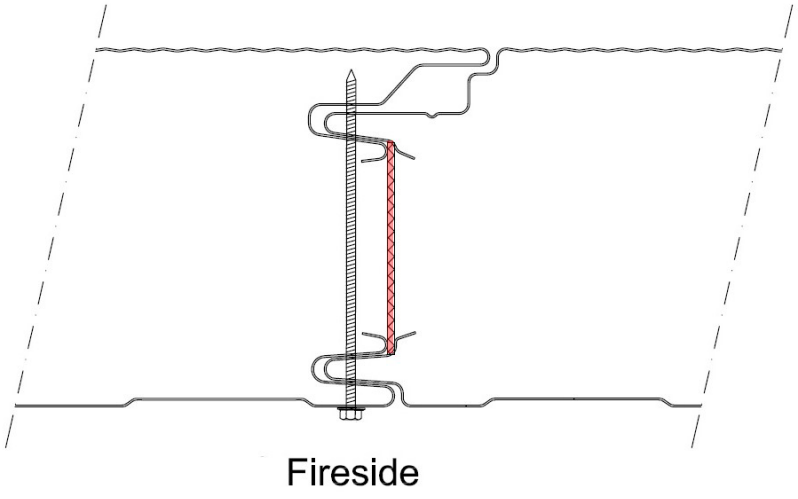
Manufacturer	SAB-profiel bv
Type	Sandwich panel
Product name	WB100.1000
Material	Outer layer exposed side: steel, 0.5 mm Core: PIR foam type “SAB VIII” with a density of 39 kg/m^3 Outer layer unexposed side: steel, 0.6 mm
Dimensions	1000 x 3000 x 100 mm (w x h x t)
Function	Fire resistant partition
Fixing	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. 333 mm. The L-shaped profile was fixed to the supporting construction with Ø8 x 60 mm screws and 8 mm plugs at a c.t.c of approx. 333 mm

	Panels to each other: on the exposed side with screws Ø4.8 x 90 mm at a c.t.c distance of approx. 333 mm

2.2.6 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	With screws Ø5.5 x 25 mm at a c.t.c distance of approx. 333 mm

2.2.7 Sealant

Specifications sealant	
	
Manufacturer	Celdex
Type	Sealant

Product name	Panelseal UF50A
Material	PUR
Dimensions	6 x 59 mm
Location	At the vertical edges were the sandwich panels join
Function	Wind- and water tightness
Fixing	Self-adhesive

2.2.8 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

2.2.9 Sealants

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 during fire

2.2.10 Screws

Specifications screws	
Type	Self-drilling screws
Product name	Saphir self-drilling screw: EJOT JT2 Self-drilling Firesafe screw
Material	Steel
Dimensions	Ø5.5 x 25 mm Ø8.0 x 60 mm Ø4.8 x 90 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 Ø8.0 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. Ø4.8 x 90 mm: on the exposed side fixing the sandwich panels to each other along the vertical sides

2.3 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.

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-R000169[Rev.1]	*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	 48 48 48 47	 Not applied Not applied Not applied Failure
Insulation (I) -Average temperature -Maximum temperature	 48 16	 No Failure Failure tc 12
Heat Radiation (W)		No failure, max. 2.4 kW/m^2 at 48 min.
The maximum deflection was 106 mm at 48 minutes.		
The heating was terminated after 48 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 WB 100.1000 EW30” is classified according to combinations of performance parameters and classes as described in Clause 6.7 of EN 13501-2:2016.

E 45, EI 15 and EW 30

4.3 FIELD OF APPLICATION

4.4 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 stud spacing;

f) decrease in distance of fixing centres;

g) increase in the number of vertical joints, of the type tested;

h) vertical joints, of the type tested.

4.5 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.

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/m^2. In any other case, no increase in width is allowed.

4.6 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/m$_2$. In any other case, no increase in height is allowed.

4.7 SUPPORTING CONSTRUCTIONS

The following rules for the field of application apply.

4.7.1 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

A.J. Waber M.Sc.
Project leader fire resistance

APPROVED

G.M. Klijn B.Sc.
Project leader fire resistance

6. DRAWINGS

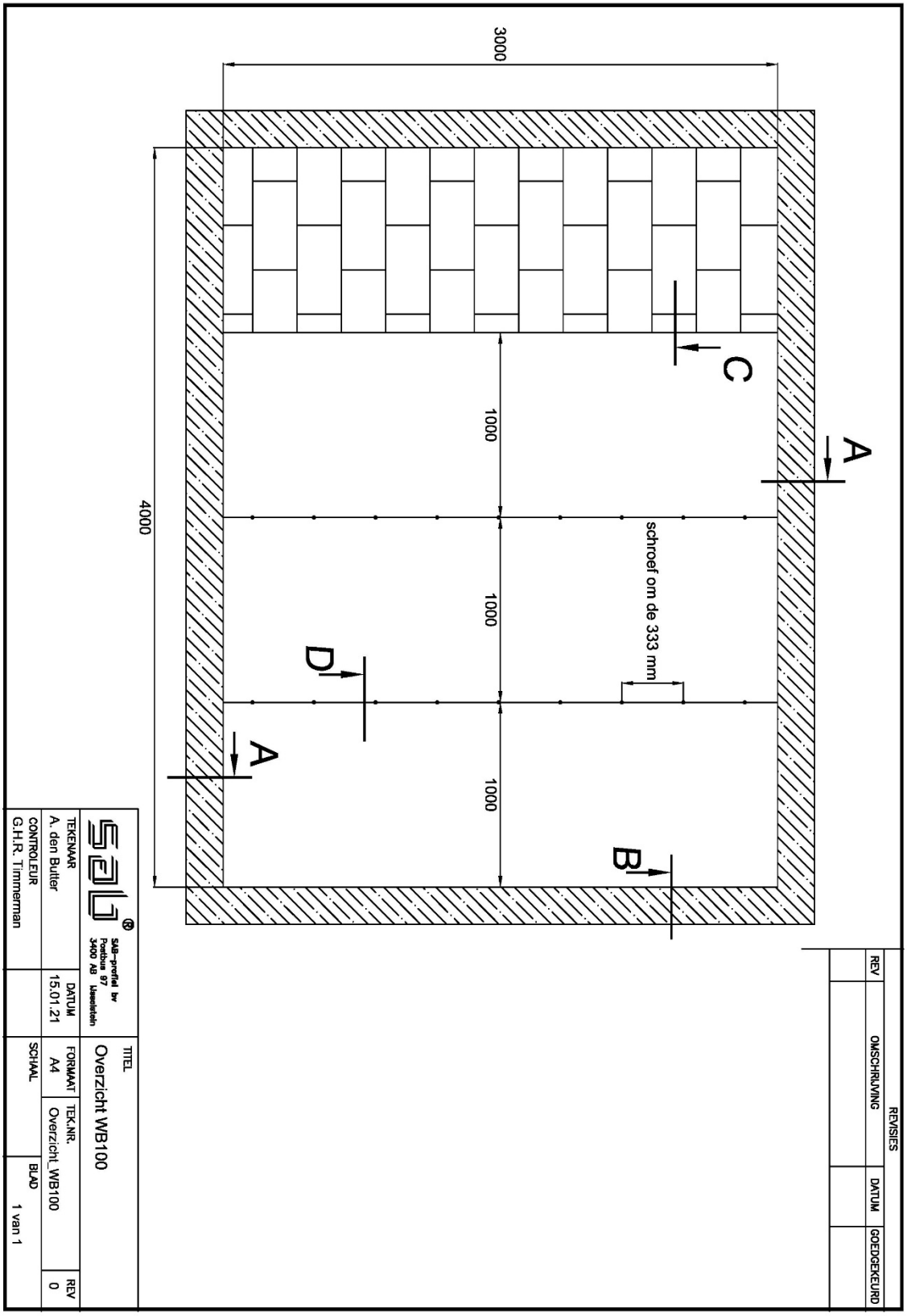


Figure 1: Overview

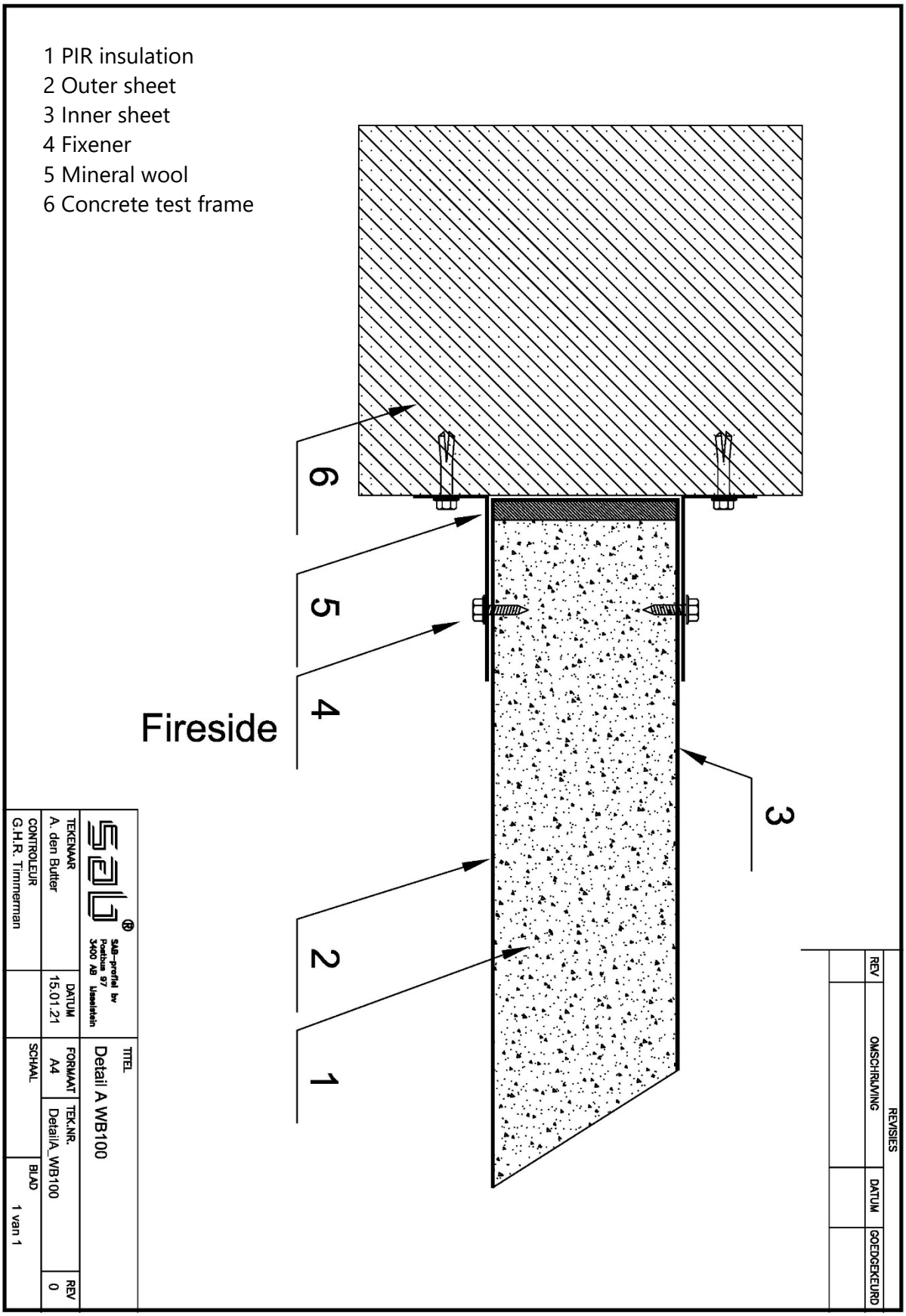


Figure 2: Detail AA

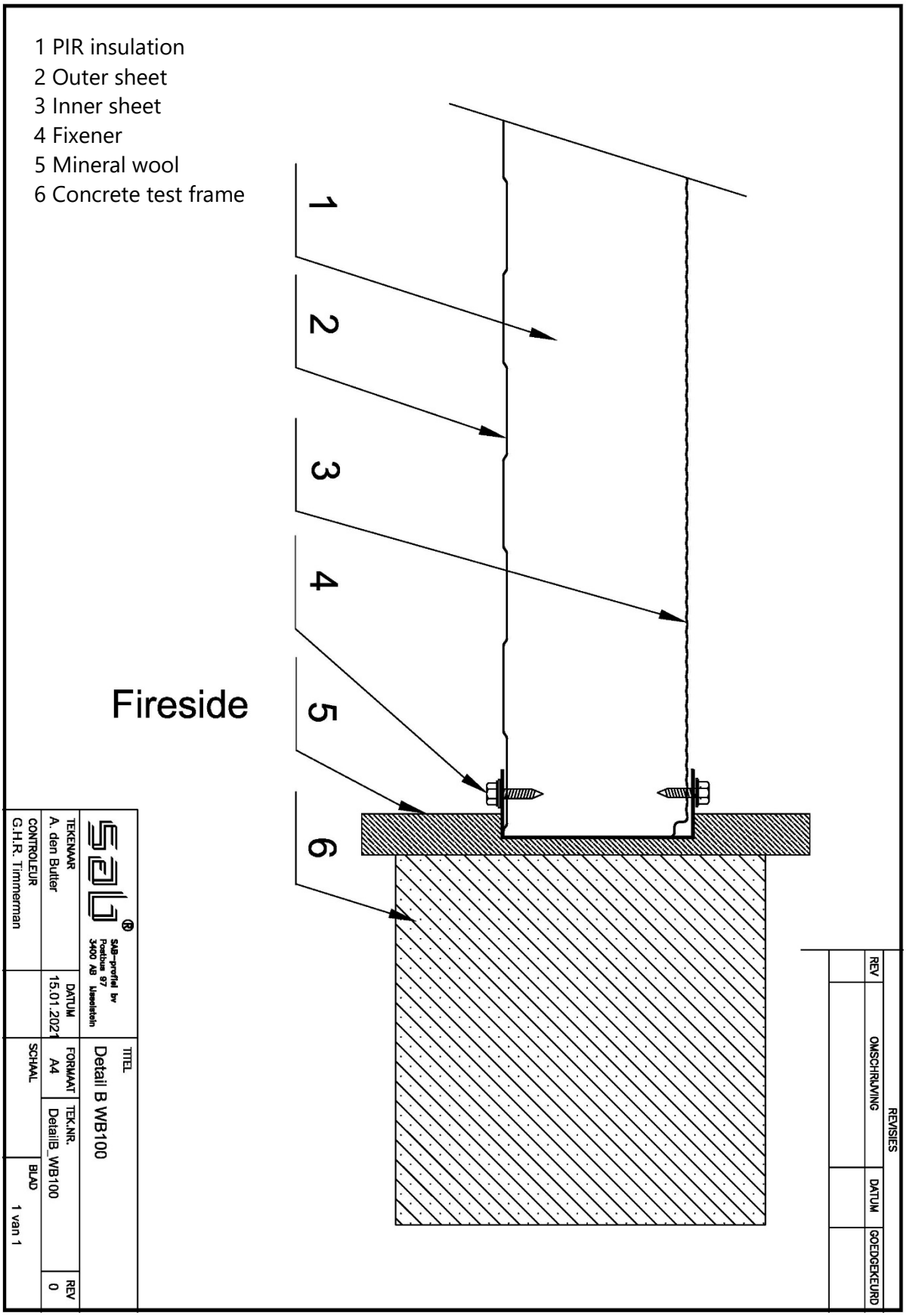


Figure 3: Detail BB

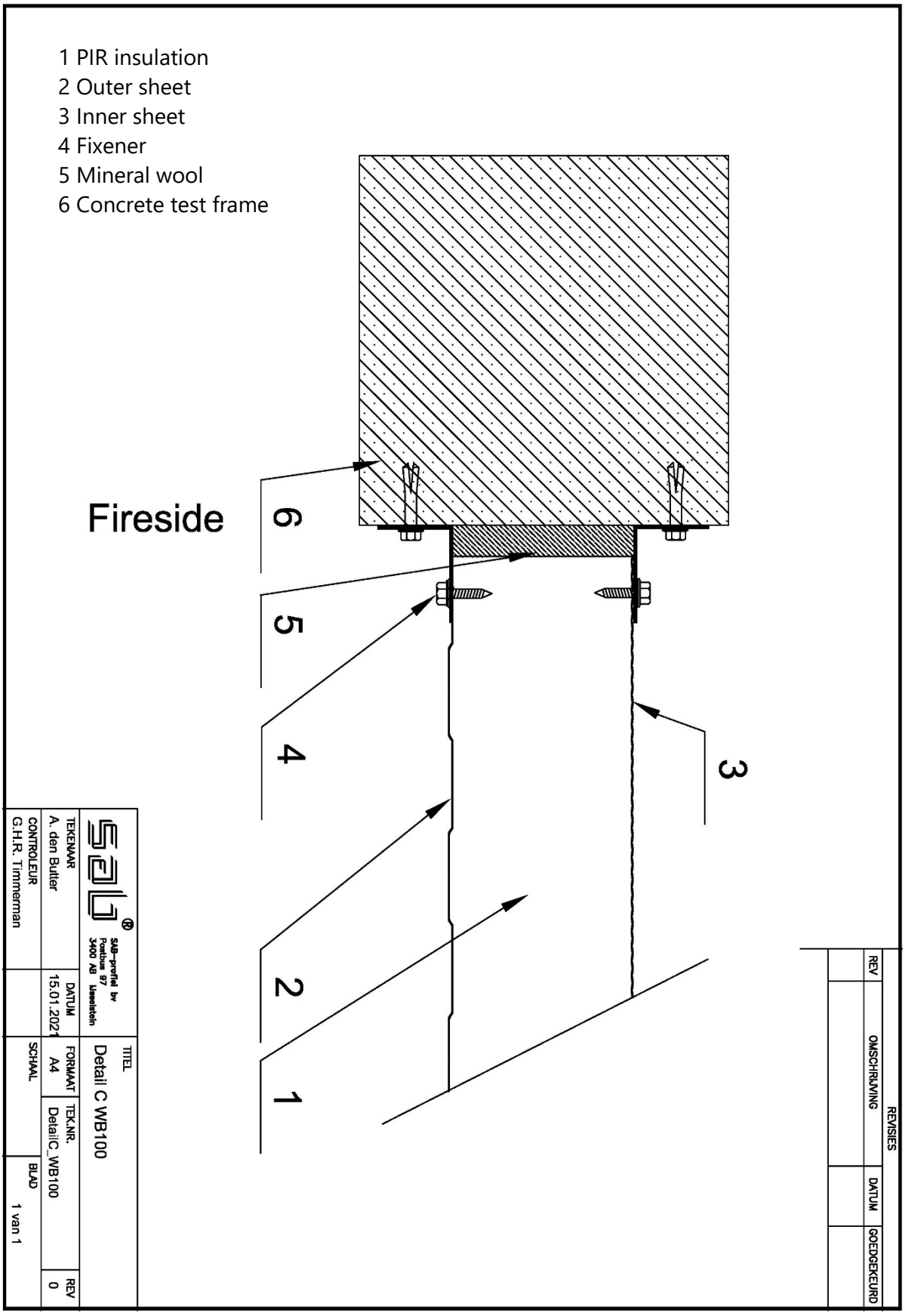


Figure 4: Detail CC

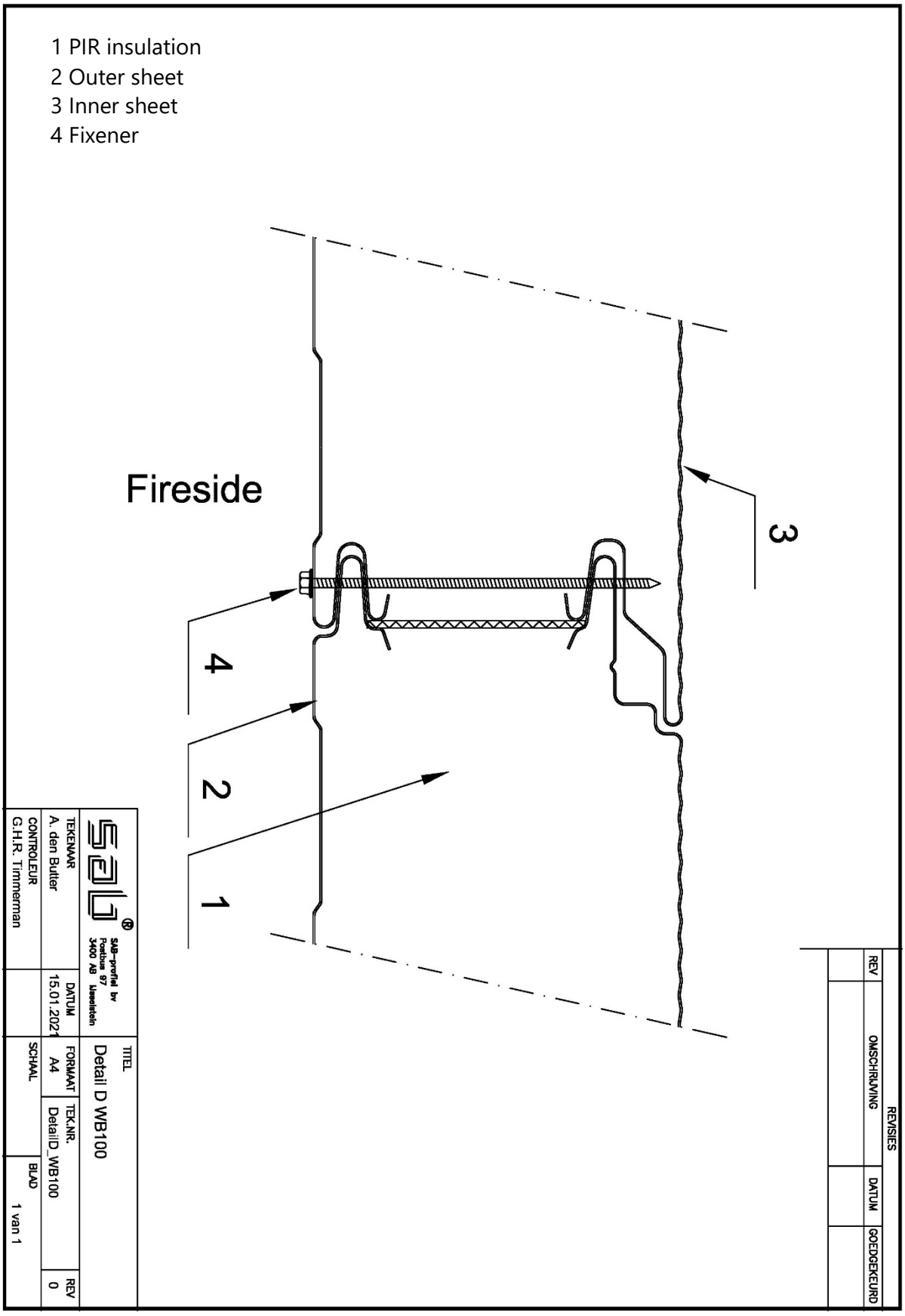


Figure 5: Detail DD