



Laboratory for Fire Safety

*Classification of the fire resistance in accordance with
EN 13501-2:2023 of a sandwich panel wall,
SAB_WB120.1000 FR*

Classification report

Report number YA 2992-2E-RA-001 dated 13 May 2024

Laboratory for Fire Safety

*Classification of the fire resistance in accordance with
EN 13501-2:2023 of a sandwich panel wall,
SAB_WB120.1000 FR*

Classification report

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Notified body no. NB 2264

Product name **Sandwich panel wall, SAB WB120.1000 FR**

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This report consists of 10 pages and an Appendix containing 5 pages and can only be used and reproduced in its entirety.

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1 Introduction

This classification report defines the fire resistance classification which is assigned to a sandwich panel wall, heated according to the standard fire curve, all this in accordance with the procedures described in EN 13501-2:2023, further referenced as EN 13501-2.



For performing measurements, the Laboratory for Fire Safety of Peutz bv is recognized by the Dutch Accreditation Body RvA..

The RvA is member of the **EA MLA** (European Accreditation Organisation MultiLateral Agreement). www.european-accreditation.org

EA: "Certificates and reports issued by bodies accreditatie by MLA and MRA members are considered to have the same degree of credibility, and are accepted in MLA and MRA countries".

2 Details of the classified system

2.1 General

The system, a sandwich panel wall, is defined as an external wall as meant in EN 13501-2 chapter 7.5.3.

The wall has an asymmetrical construction.

2.2 Product description

The system, a sandwich panel wall, is fully described in the test report. See also the Appendix.

The test frame consists of a steel frame with heat-resistant concrete elements inside. The installation opening of the test frame is 4.05 m × 3.00 m. A supporting construction is built in the test frame.

An opening is created of 3.0 x 3.0 m (w x h). In this opening three SAB WB120.1000 FR sandwich panels are mounted (with a PIR core material), vertically mounted. The sandwich panels have a dimension of:

- length 3000 mm;
- width 1000 mm;
- thickness 120 mm.

The sandwich panels consists of coil coated galvanized steel plates (thickness outer plate 0.50 mm, thickness inner plate 0.40 mm) with a PIR core (thickness 120 mm, 40 kg/m³). A intumescent sealant (type confidential, but known by Peutz) is factory applied in the joint of the sandwich panels.

The panels are fixed with steel angles (50 x 100 x 1.5 mm) to the supporting construction with plugs (Fisher S 8 x 40 mm) and screws (Spax 6 x 60 mm) c.t.c. 340 mm and to the sandwich panels with self drilling screws (Roymans 6.3 x 22 mm) c.t.c 250 mm. Sealant (Seal-It® Acryl-FR 140) is used between the steel angles and the sandwich panels. A steel U-profile (50 x 120 x 0.7 mm) is fixed with self drilling screws (Roymans 6.3 x 22 mm) c.t.c 250 mm on the edge of the sandwich panel at the free edge.

The opening between the sandwich panels and the supporting construction is filled with Rockwool (Rocksono Base). On one side is a free edge, this is filled with Rockwool (Rocksono Base, thickness 40 mm).

The materials used are given in the tables below.

t2.1 Construction materials

Material	Dimensions / specifications
Outer coil coated galvanized steel plate, white	Thickness 0.50 mm
Core material, PIR	Thickness 120 mm, density 40 kg/m ³
Intumescent sealant	Type confidential, but known by Peutz
Inner coil coated galvanized steel plate, white	Thickness 0.40 mm

t2.2 Fixing materials

Material	Dimensions / specifications
Plug	Fisher S 8 x 40 mm
Screw	Spax 6 x 60 mm
Self drilling steel plate screw	Roymans 6.3 x 22 mm
Steel angles	50 x 100 x 1.5 mm
Steel U-profile	50 x 120 x 50 x 0.7 mm
Sealant	Seal-It® Acryl-FR 140

t2.3 Finishing materials

Material	Dimensions / specifications
Rockwool Rocksono Base	Thickness 40 mm, density 35 kg/m ³

3 Data to support the classification

3.1 Reports

The classification is based on the report mentioned in Table 3.1. The client has stated that the report provided may be used for this classification report.

t3.1 Report used for classification

Name of the laboratory	Name client	Number and date of the test report	Method
Peutz bv	SAB Profiel B.V.	Y 2992-3E-RA-001 dated April 26, 2024	EN 1363-1:2020
			EN 1363-2:1999
			EN 1364-1:2015

3.2 Results

The test specimen was heated using the standard heating curve as defined in EN 1363-1. The sandwich panel wall was heated from the outside face.

Table 3.2 shows the time of failure ('fail') with respect to the relevant criteria or the finished test time ('pass') when the relevant criteria were not exceeded during the test. The elapsed time is the time in whole minutes that have elapsed since the commencement of the test. After 39 minutes the test in consultation with the client is ended.

t3.2 Results fire resistance test

Assessment criterion	Elapsed time	Pass / Fail
Integrity (E)		
– no flames more than 10 s continuously visible	38 minutes	fail
– no glowing or burning of the cotton pad	38 minutes	fail
– no gap gauges into the furnace	39 minutes	pass
Insulation (I)		
– increase of average temperature less than 140°C	38 minutes	fail (due to failing E)
– increase of maximum temperature less than 180°C	33 minutes	fail
Radiation (W)		
– 15 kW/m ² not exceeded	39 minutes	pass
Deformation of the wall no more than 100 mm	39 minutes	pass

4 Classification and field of application

4.1 Reference of the classification

This classification is performed in accordance with paragraph 7.5.3 of EN 13501-2.

4.2 Classification

The system, an external wall, is classified according to the following combinations of assessment criteria and classes.

Classification of the fire resistance:

EI 30 (o→i)
EW 30 (o→i)
E 30 (o→i)

4.3 Field of application

4.3.1 General

The classification is valid for constructions that are identical in detail to the construction described in the test report. In addition, within the field of direct application as defined in the test standard(s) presented in Table 3.1, one or more of the modifications of the tested construction shown below are permitted, provided that the construction achieves at least the same rigidity and stability as the tested construction.

In all cases, the following adjustments are possible:

- decrease in height of the wall;
- increase in thickness of the wall, minimum thickness 120 mm;
- increase in the thickness of component materials;
- decrease in linear dimensions of panels but not thickness;
- decrease in distance of fixing centres, maximum distance 250 mm c.t.c.;
- increase in the number of vertical joints, of the type tested.

4.3.2 Extension of width

Since the construction has been tested with a width of 3.0 m (minimum 2.8 m) and one free edge, an identical construction with a larger width may be used.

Since the measured heat radiation is less than 6 kW/m², an increase in width of an identical construction is also allowed for EW classification.

4.3.3 Extension of height

Since the construction is tested with a height of 3.0 m and the deflection perpendicular to the wall was less than 100 mm the construction may be increased to a height of 4.0 m, provided that the expansion allowances are increased pro-rata.

Since the measured heat radiation is less than 6 kW/m², an increase in height to 4.0 m of an identical construction is also allowed for EW classification.

4.3.4 Supporting constructions

The result is applicable to any other supporting construction of the same type (rigid) that has the same or a greater classified fire resistance (thicker, denser, as appropriate) than the one used in the test and the same vertical orientation, i.e.:

- only vertical since the element is tested with the standard supporting construction fixed along the vertical edge.

5 Limitations

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

Haps,

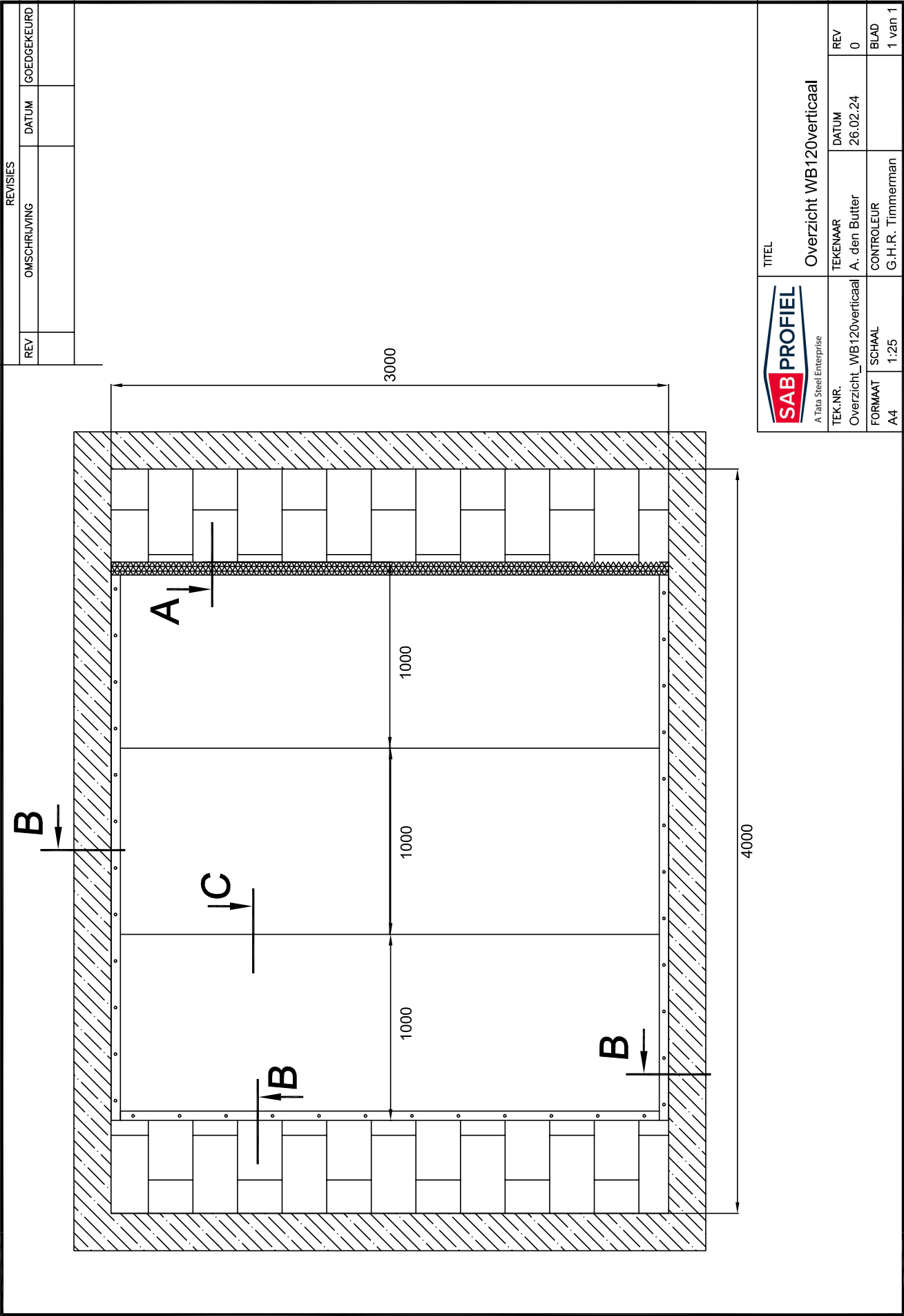


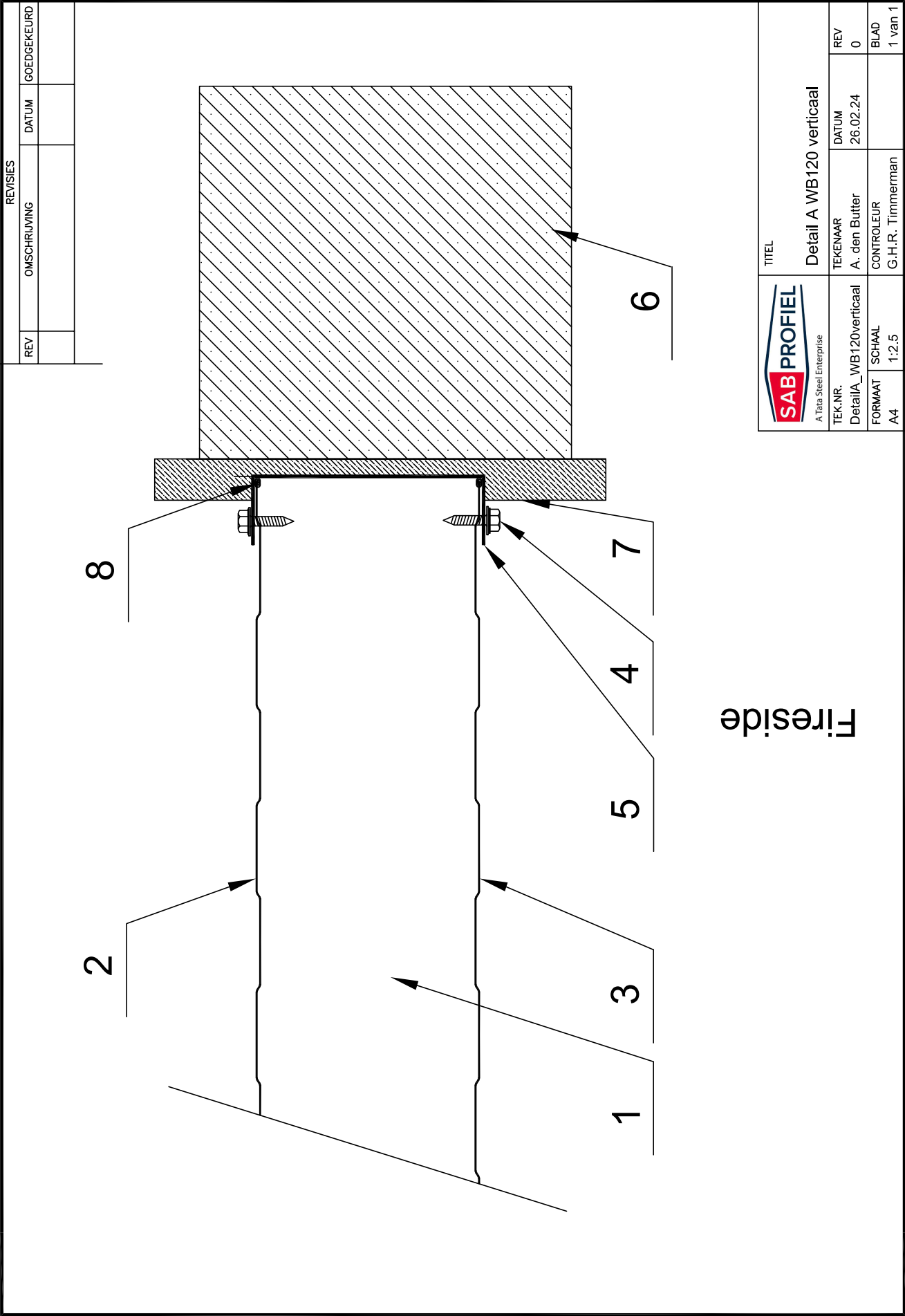
H.H.A. Leenders, BSc.
Head of Laboratory for Fire Safety

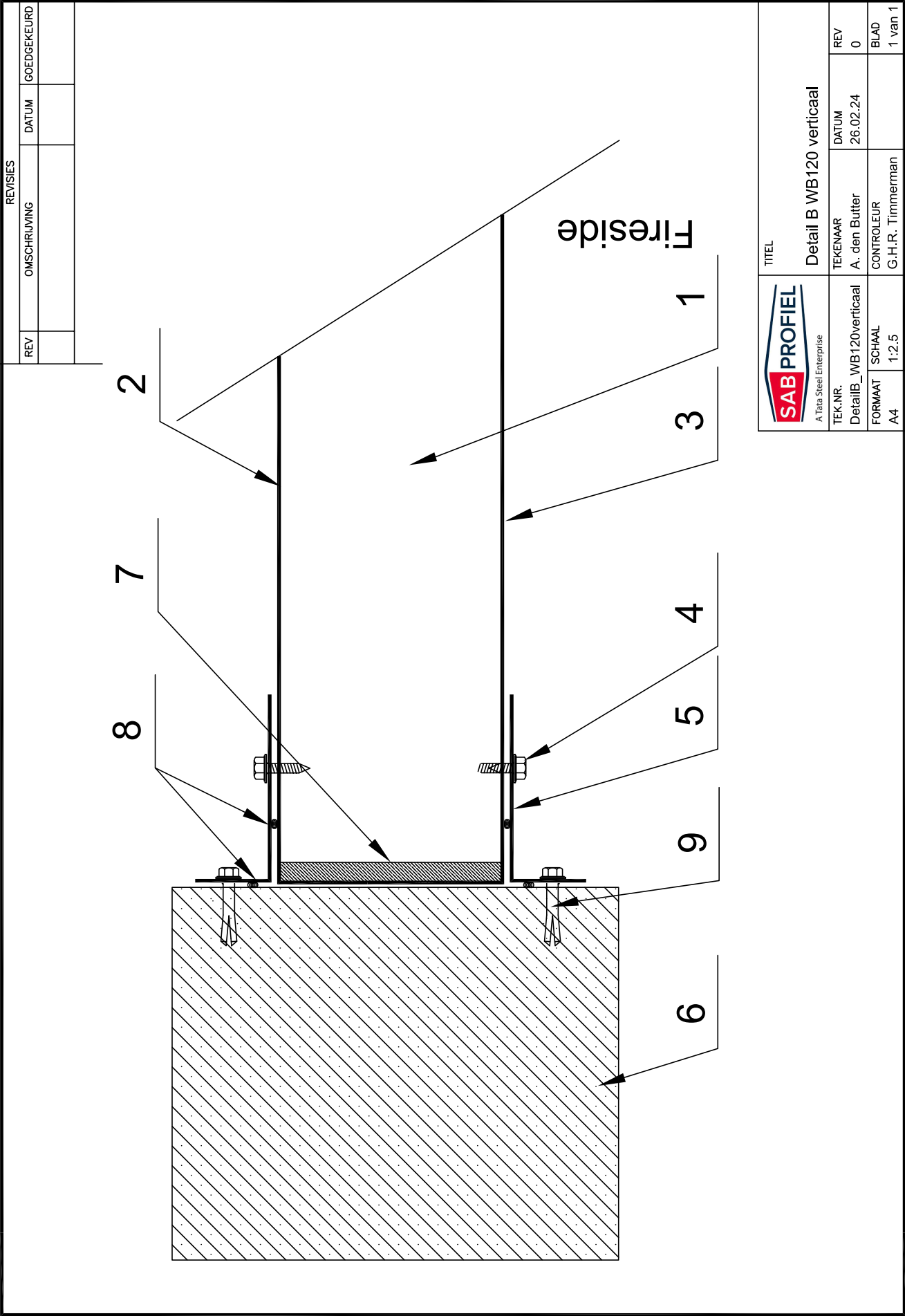


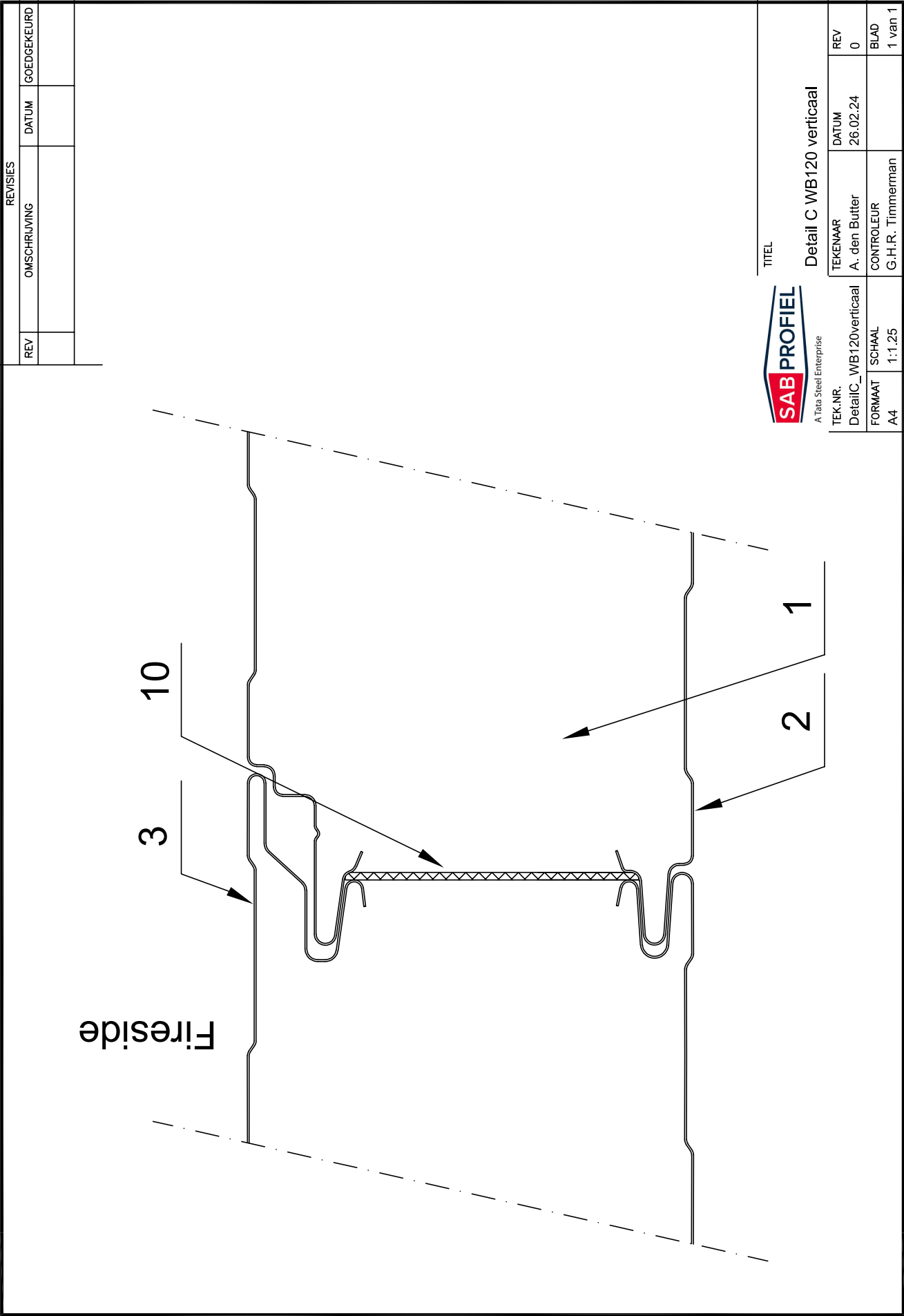
D.J. den Boer, BSc.
Management

This report consists of:
10 page's with 1 Appendix of 5 pages









Legend:

- 1) PIR filling
- 2) Inner steel plate 0.40 mm
- 3) Outer steel plate 0.50 mm
- 4) Screw: Roymans 6.3 x 22 mm
- 5) L-profile 50 x 100 x 1.50 mm / U-profile 50 mm x panel thickness x 0.70 mm
- 6) Concrete / aerated concrete
- 7) Rockwool insulation, Rocksono Base
- 8) Firestop acoustic intumescent sealant
- 9) Concrete plug Fischer M8 x 40 mm and screw Spax 6 x 60 mm
- 10) Intumescent sealant, type confidential but known by the test institute