Appendix 5 - Rockpanel Technical Submittal Document

TECHNICAL SUBMITTAL

DOC NUMBER	REVISION	SUBMISSION DATE	RETURN DATE
203-ERR001-Z-ZZ-DC-RTC-TS-R0002	03	17/02/23	03/03/23
PROJECT		DESCRIPTION	
High Point Village		Rockpanel Premium Board	
CATEGORY		ISSUED TO	
External Envelope – Rainscreeen		Ballymore	
INFORMATION			

Proposed product for Timber Cladding replacement. (Revision 01)

Additional information and clarifications following teams meeting on 11/01/23 with Darren Gormer (Rockpanel) (Revision 02)

Rockpanel responses provided Pg.5/6 (Revision 03)

NAME & TITLE OF SUBMITTING PARTY	DATE OF SUBMITTAL
Helena Cosgrove – Design Manager	17/02/23
RESPONSE	

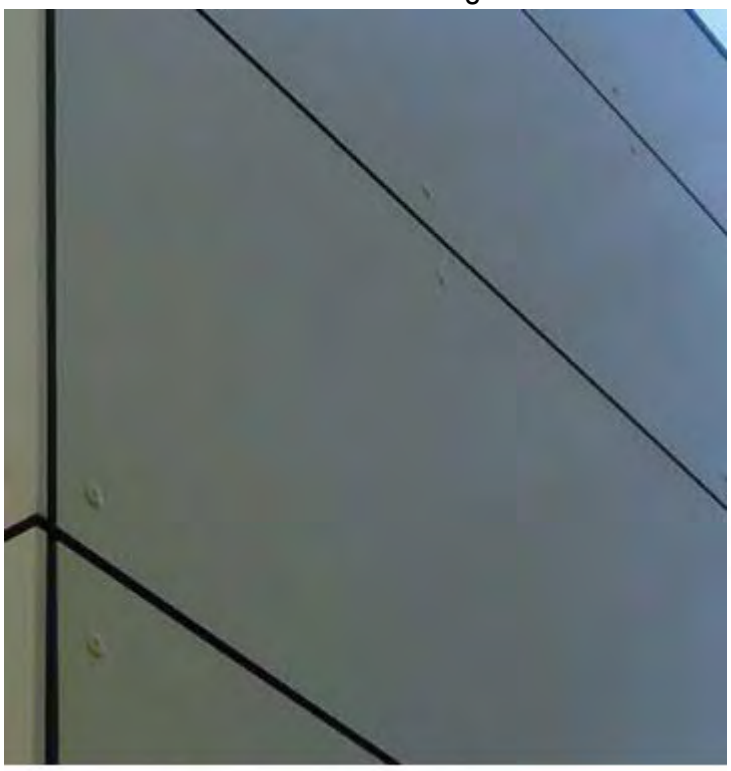
NAME & TITLE OF REQUESTING PARTY	DATE OF RESPONSE

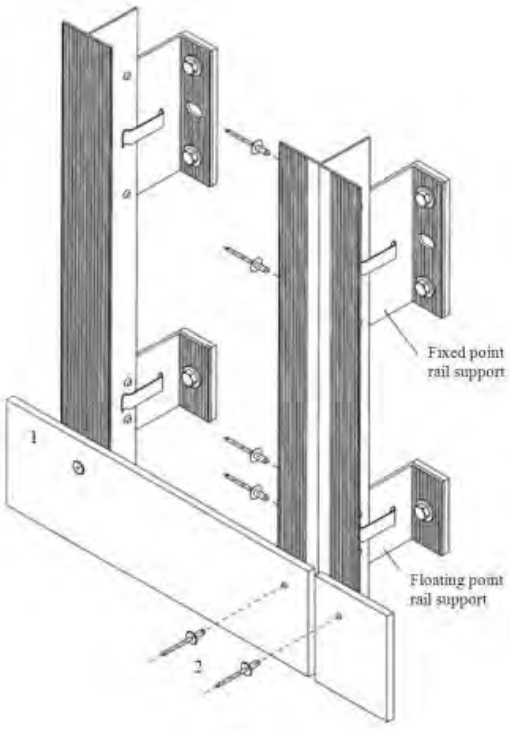
CONTENTS

1. Timber Rainscreen Replacement

1.1 Product Proposal

Errigal Facades are proposing Rockpanel Premium A2 external wall cladding board. Board thickness needs to be 11mm to maintain a 9mm thickness when a 2mm rout is applied to the panel face for the appearance of a panel joint. Panels are mechanically fixed to a metal subframe using colour matched rivet fixings.





Example sample with 2mm rout joint:

1.2 Fire Classification

Reaction to fire

Table 4. Euroclass classification of construction with Rockpanel Premium A2		
Fixing method	**Ventilated or non-ventilated**	**Vertical aluminium or steel profiles**
Mechanically fixed	Ventilated with ≥ 20 mm cavity	**A2-s1, d0**

See *Appendix A* for further information.

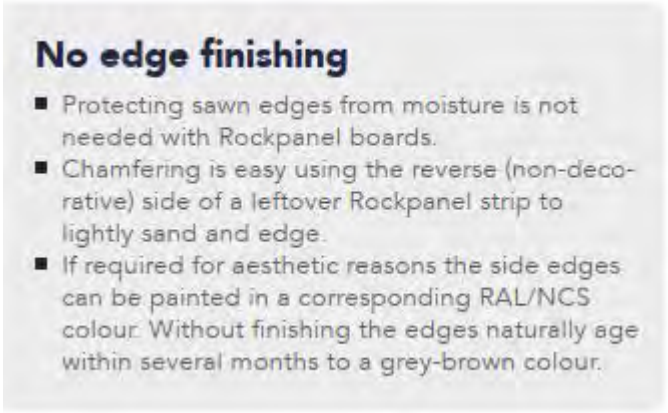
1.3 Queries and Responses

BDA: Has the Rockpanel Board had any age testing carried out?

Rockpanel Response: Yes the product has had a UV Stability test and design life is 50 years as per the product ETA. (Response received to Errigal 10/01/23)

BDA: Please advise on warranty and track record on the paint against failure at cut edges. Do Rockpanel apply a protective coating where panels are cut and routed?

Rockpanel Response: We don't warrant the cut edges. Edges cut by distributor using a ew knife leaves a nice clean cut edge. On occasions there might be a very small chip, which can't be seen from a 3 metre viewing distance. If this needs to be touched up then paint can be supplied through the distributor. All the panels leave the production facility with kiss film / protective coating on the face. This should only be removed once installed on site. Obviously to create the route, this would be cut through and discarded. (Response received to Errigal 13/01/23)



No edge finishing

- Protecting sawn edges from moisture is not needed with Rockpanel boards.
- Chamfering is easy using the reverse (non-decorative) side of a leftover Rockpanel strip to lightly sand and edge.
- If required for aesthetic reasons the side edges can be painted in a corresponding RAL/NCS colour. Without finishing the edges naturally age within several months to a grey-brown colour.

Extract above from pg.11 Appendix H

Responses from Darren Gormer Rockpanel to Errgial 19.01.23

Wording of the Rockpanel Guarantee

Delamination of the coating: Delamination of the colour layer relative to the base board does not occur; The Guarantee on delamination only applies to original colour layers applied by Rockpanel, so colour- layers applied by third companies are excluded.

Decomposition and delamination of the board: The base board is not susceptible to decomposition or delamination as moisture does not have influence on the board;

Rockpanel impact test/rating comments

Reducing the vertical centres of the substructure behind will improve with impact resistance. However, no test data available, an assessment based evaluation would be required.

The only tested solution is the 11mm secret fix which achieves 500NM, which we have done at ground floor level on some projects, then changing to face fix above 1.5m. Please note the smallest panel that can be produced in secret fix is 250mm height.

Rockpanel statement regarding LWSF on product ETA

Rockpanel A2 boards achieves fire class A2,s1,d0, as a cladding on a LWSF wall with a sheathing board which chosen according to EN 13238 is made of panel with Euro-class A1 or A2 (e.g. fibre-cement panels).

For an explanation for this please see page 7 of ETA-18/0883, under “Insulation” there is a part:
“• Results are also valid for the panels without insulation, if the substrate chosen according to EN 13238 is made of panel with Euro-class A1 or A2 (e.g. fibre-cement panels)”

APPENDIX A

ETA-Danmark A/S
Göteborg Plads 1
DK-2150 Nordhavn
Tel. +45 72 24 59 00
Fax +45 72 24 59 04
Internet www.etadanmark.dk

Authorised and notified according to Article 29 of the Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011

European Technical Assessment ETA-18/0883 of 2019/09/04

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S

Trade name of the construction product:	Rockpanel Premium A2
Product family to which the above construction product belongs:	Prefabricated mineral wool boards with organic or inorganic finish and with specified fastening system
Manufacturer:	ROCKWOOL B.V. / Rockpanel Industrieweg 15 NL-6045 JG Roermond Tel. +31 475 353535 Internet www.rockpanel.com
Manufacturing plant:	ROCKWOOL B.V. / Rockpanel Konstruktieweg 2 NL-6045 JD Roermond
This European Technical Assessment contains:	16 pages including 4 annexes which form an integral part of the document
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:	European Assessment Document (EAD) no. 090001-01-0404 for Prefabricated compressed mineral wool boards with organic or inorganic finish and with specified fastening system
This version replaces:	The previous ETA with the same number issued on 2018/12/03

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of product and intended use

Technical description of the product

General

Rockpanel Premium A2 is made from prefabricated compressed Rockwool panels with thermo-hardening synthetic binders. The boards are fastened to aluminium or steel subframes. Fastening to the aluminium or steel subframe is carried out with corrosion resistant rivets, or a concealed anchoring system.
Mechanical fasteners, aluminium and steel profiles are specified by the ETA-holder.

The Rockpanel Premium A2 includes the ProtectPlus finish i.e. are surface treated with a four-layer water-borne polymer emulsion coating on one side, which has been provided with an extra anti-graffiti clear coat as a fifth layer on the colour coating.

The physical properties of the panels are indicated in Table 1.

Table 1:

Property	Value
Thickness, nominal	11
Length, max	3050 mm
Width, max	1250 mm
Density, nominal	1250 kg/m^3
Bending strength, length and width	$f_{05} \geq 25,5$ N/mm^2
Modulus of elasticity	m(E) $\geq$ 4740 N/mm^2
Thermal conductivity EN 10456	0,55 W/(m × K)
Cumulative dimensional change %	Length / Width: 0,064
Coefficient of thermal expansion, length and width	$\alpha = 9,7$ (10^{-6} °K $^{-1}$)
Coefficient of moisture expansion 23 °C/50% RH to 92% RH, length and width	0,206 mm/m after 4 days

Finishes

The finish is indicated in Table 2. The coating is provided in several colours and designs.

Table 2:

Rockpanel Premium A2: (water-borne polymer emulsion coating with anti-graffiti clear coat)	Clear coat or Clear coat with wood texture "Woods" e.g.: Teak, Maple or stone texture "Stones" e.g.: Mineral Chalk, Basalt Anthracite or clear coat with metallic particles e.g. Metallics Aluminium, Brilliant Karbo, Chameleon

Colourfastness

The colourfastness of the panels is indicated in table 3.

Table 3:

Property	Value (ISO 105 A02)
Colour fastness after 5000 hours artificial weathering (TR010 climate class S)	ROCKPANEL Premium A2: 4 or better

Subframes

The panels are attached to the building by fixing to a subframe of aluminium or steel.

The minimum thickness of the vertical aluminium profiles is 1,5 mm. The aluminium is AW-6060, AW-6063, AW-6005A or equivalent according to EN 755-2. The $R_m/R_{p0,2}$ value is 170/140 for profile T6 and 195/150 for profile T66.

The minimum thickness of the vertical steel profiles is either 1,0 mm [a] (steel quality is S320GD +Z EN 10346 number 1.0250, or equivalent for cold forming), or 1,5 mm [a] (steel quality EN 10025-2:2004 S235JR number 1.0038).

[a] The minimum coating thickness (Z or ZA) is assessed by the corrosion rate (amount of corrosion loss in thickness per year) which depends on the specific outdoor atmospheric environment; the Zinc Life Time Predictor can be used to calculate the Corrosion Rate in µm/y for a Z coating: http://www.galvinfo.com:8080/zclp/ [copyright The International Zinc association]. The coating designation (classification which determines the coating mass) shall be agreed between the contractor and the building owner. Alternatively, a hot dip galvanized coating according to EN ISO 1461 can be used.

Joints

Aluminium profiles

The horizontal joints between the panels can be open.

Fasteners for the visible fixing system

The panels are mechanically fixed to vertical aluminium or steel subframe. The mechanical fastening to aluminium subframe is carried out with EN AW-5019 (AlMg5) rivets, head diameter 14 mm, body diameter 5 mm, head colour coated. The mechanical fastening to steel subframe is carried out with either EN 10088 (no 1.4578) rivets, head diameter 15 mm, body diameter 5 mm, head colour coated, or EN 10088 (no 1.4567) rivets, head diameter 14 mm, body diameter 5 mm, head colour coated.
For correct fixing, a riveting tool with rivet spacer must be used, see Table 5a and Table 10 of the ETA.

The maximum fixing distances and hole diameter, appear from Tables 11, 12a and 12b of the ETA.

The installation method for the rivets with the use of

fixed points and moving points appears from Annex 3, Table 11 and Figure 2 of the ETA.

Design value of the axial load appears from Annex 3, Table 10, Table 13a and Table 13b of the ETA.

Fasteners for the concealed anchoring system
Secret fixing clips are attached to the back of the panels by means of two SFS TU-S 6x13 blind fasteners (no 1.4401 according to EN 10088) for each clip. Horizontal channel profiles are fixed to the vertical 'T' and or 'L' profiles.

2 Specification of the intended use in accordance with the applicable EAD

The boards are intended for external cladding and for fascias and soffits according to Figure 1a and 1b. The cladding on vertical aluminium or steel subframe with mechanically fixed boards shall be carried out with ventilated cavities at the back.

The provisions made in this European Technical Assessment are based on an assumed intended working life of the kit of 50 years.

In addition, for aluminium support systems intended to be used for facades:
In some member states national climate conditions may reduce the service life of the aluminium support system to 35 years or more.

An additional assessment of the aluminium support system might be necessary to comply with Member State regulations or administrative provisions.

The indications given on the working life cannot be interpreted as a guarantee given by the producer or Assessment Body, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

Characteristic	Assessment of characteristic
3.2 Safety in case of fire (BWR 2)	
Reaction to fire	The aluminium profiles are classified as **Euroclass A1** Classification of panel: See table 4
3.3 Hygiene, health and the environment (BWR 3)	
Dangerous substances	The kit does not contain/release dangerous substances specified in TR 034, dated April 2013*), except Formaldehyde concentration 0,0105 mg/m^3 Formaldehyde class E1 The used fibres are not potential carcinogenic No biocides are used in the ROCKPANEL boards No flame retardant is used in the boards No cadmium is used in the boards.
Water vapour permeability	No Performance Assessed
Water permeability incl. joints for non-ventilated applications	No Performance Assessed
Drainability	No Performance Assessed
3.4 Safety and accessibility in use (BWR 4)	
In absence of national regulations, the design values X_d may be calculated as indicated in the ETA (see Table 13a & 13b). Below is mentioned the safety factors which has been used in the calculation of the design values.	
Pull-out resistance of fasteners	**Rivets aluminium or stainless steel:** Fastener specification according to Table 5a. Annex 3 Table 13a row *(15)* contains the characteristic pull-out strength.
Pull-through resistance of boards	**Rivets aluminium or stainless steel:** Fastener specification according to Table 5a. Characteristic pull-through for three different fixing locations. Annex 3 Table 13 row *(7)* contains the design value of the pull-through resistance for the different fixing locations.
Pull-out resistance of boards	**TU-S blind fastener:** Fastener specification according to Table 5b. Annex 3 Table 13b row 7 contains the design value of the pull-out strength.
Wind load resistance	**Rivets aluminium or stainless steel:** Fastener specification according to Table 5a. Annex 3 Table 13a row *(9)* contains the average wind load resistance (N/m²). Kit failure due to failure of the boards, failure of the rivet head or pull-through of the rivet. Maximum deformations in the wind load tests for M/E/C: 29/35/33 (span 600/600 and 43/45/40 for span 750/750.
	TU-S blind fastener: Fastener specification according to Table 5b. Annex 3 Table 13b row 9 contains the average wind load resistance. Kit failure due to conus failure of the concealed fixing. Maximum deformations in the wind load tests for M/E/C: 21/19/26 (E/C: span 750/600 and for M: span 750/520).

Characteristic	Assessment of characteristic
Design values of axial loads Design value X_d obtained by dividing the characteristic value X_k by a partial factor γ_M : $X_d = X_k / \gamma_M$ The design value X_d of a material property can be expressed in general terms as $X_d = \eta * X_k / \gamma_m$. (EN 1990 section 6.3.3) η is the mean value of the conversion factor taking into account – volume and scale effects, – effects of moisture and temperature, and – any other relevant parameters.	**Rivets aluminium or stainless steel:** The design value of the axial load $X_d = \eta * X_k / \gamma_m$ for the combination **rivet** and 11 mm Premium A2 boards can be found in Annex 3 Table 13a row *(18)*. The following material factors have been used: For Rockpanel $\gamma_m = 1,6$. For the combination rivet and Premium A2: - $\gamma_m = 1,6$ and $\eta = 0,8$ - for the connection rivet-subframe $\gamma_M = 1,25$ The conversion factor η depends on the fixing type: - rivet fixing: $\eta = 0,8$ - concealed fixing: $\eta = 0,61$ for hangers located in the 'centre' and 'edges' of the panel; $\eta = 0,51$ for hangers located in the corner of the panel.
Characteristic shear strength rivet fixings - Average values	Rivet fixing: 2194 N
Characteristic shear strength fixing clip with two anchors:	Load 0° Secret fixing clip in the ´Corner´: 3279 N Load 60° relative to the plane of the panel: 973 N Load 30° relative to the plane of the panel: 1441 N
Deformation shear (parallel to the plane of the panel)	Rivet fixing: 4.4 mm Secret fixing clip with two anchors: 2,5 mm
Impact resistance	See Table 6a for rivet fixing and table 6b for the concealed fixing. See annex 4 table 14 for use category
Dimensional stability	See Table 7
Wind load resistance	See Table 8 and 9; for the locations see Table 10
Mechanical resistance	See section 1, Table 1
3.7 Sustainable use of natural resources (BWR 7)	No Performance Assessed
3.8 Aspects of durability	
Resistance to Hygrothermal cycles	Pass
Resistance to Xenon Arc exposure	Pass

*) In addition to the specific clauses relating to dangerous substances contained in this European technical Assessment, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Regulation, these requirements need also to be complied with, when and where they apply.

Reaction to fire

Table 4. Euroclass classification of construction with Rockpanel Premium A2

Fixing method	Ventilated or non-ventilated	Vertical aluminium or steel profiles
Mechanically fixed	Ventilated with ≥ 20 mm cavity	**A2-s1, d0**

Field of application
Further to the limitations described in section 1 of the ETA, the following field of application applies.

Euroclass classification
The classification mentioned in table 4 is valid for the following end use conditions:

Mounting:
- Mechanically fixed to a metal subframe
- The panels are backed with min. 50 mm mineral wool insulation with density 30-70 kg/m^3 according to EN 13162 with a cavity between the panels and the insulation

Substrates:
- Concrete walls, masonry walls

Insulation:
- Ventilated constructions: The subframe is backed with min. 50 mm mineral wool insulation with density 30-70 kg/m^3 according to EN 13162 with a cavity of minimal 20 mm between the panels and the insulation
- Results are also valid for all greater thickness of mineral wool insulation layer with the same density and the same or better reaction to fire classification
- Results are also valid for the panels without insulation, if the substrate chosen according to EN 13238 is made of panel with Euro-class A1 or A2 (e.g. fibre-cement panels)

Subframe:
- Test results are only valid for a metal subframe

Fixings:
- Results are also valid with higher density of the fixing devices
- Test results are also valid for all the mechanical fixings

Cavity:
- Unfilled
- The depth of the cavity is minimum 20 mm
- Test results are also valid for other higher thickness of air space between the back of the board and the insulation behind the subframe

Joints:
- Vertical joints are without a gasket backing and horizontal joints can be open or closed with an aluminium profile
- The result from a test with an open horizontal joint is also valid for the same type of panel used in applications with horizontal joints closed by steel or aluminium profiles
- Max joint width: 8 mm

The classification is also valid for the following product parameters:

Thickness:
- Nominal 11 mm

Density
- Nominal 1250 kg/m^3

Aspects related to the performance of the product

All materials shall be manufactured by ROCKWOOL B.V. or by subcontractors under the responsibility of ROCKWOOL B.V.

The European Technical Assessment is issued for the product on the basis of agreed data/information, deposited with ETA-Danmark, which describes the product that has been assessed and judged. Changes to the product or production process, which could result in this deposited data/information being incorrect, should be notified to ETA-Danmark before the changes are introduced. ETA-Danmark will decide whether or not such changes affect the ETA and consequently the validity of the CE marking on the basis of the ETA and if so whether further assessment or alterations to the ETA, shall be necessary.

Installation details and application details for the man on site are given by ROCKWOOL B.V. / Rockpanel in the manufacturer's application guide technical dossier which forms part of the documentary material for this ETA. On every pallet label and/or on the protective film of every board the website is printed which guides the end user to the most actual information.

The boards are in general mounted with a joint width of between 5 and 8 mm.

If junctions are to be sealed, only durable sealants should be used with a good adhesion on the edges of the boards and a good UV-stability. To prevent sticking to the subframe, a PE-film or tape can be used.

The boards for external cladding shall not be fixed over building or settlement joints. Where settlement joints are located in the building the same movements of the building and substructure shall be possible in the external cladding.

The holes for the rivet fixings are drilled into the panels not less than 20 mm from a vertical edge and 50 mm from a horizontal edge. For correct fixing, a riveting tool with rivet spacer must be used.

The holes for the undercut anchors are drilled into the panels not less than 80 mm from a horizontal edge and not less than 80 mm from a vertical edge (centre from the two fixings). For correct drilling a 6,0 mm blind hole drill with depth control must be used.

4 Attestation and verification of constancy of performance (AVCP)

4.1 AVCP system

According to the decision 2003/640/EC of the European Commission as amended, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) is 1, since there is a clearly identifiable stage in their production which results in an improvement of fire performance due to the limiting of organic material.

5 Technical details necessary for the implementation of the AVCP system, as foreseen in the applicable EAD

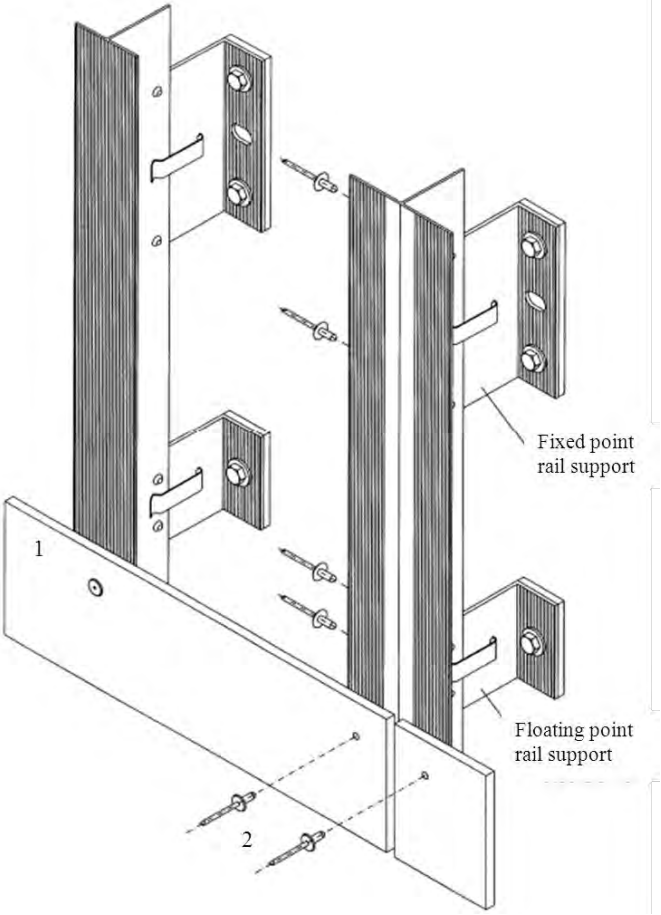
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark prior to CE marking

Issued in Copenhagen on 2019-09-04 by

Thomas Bruun
Managing Director, ETA-Danmark

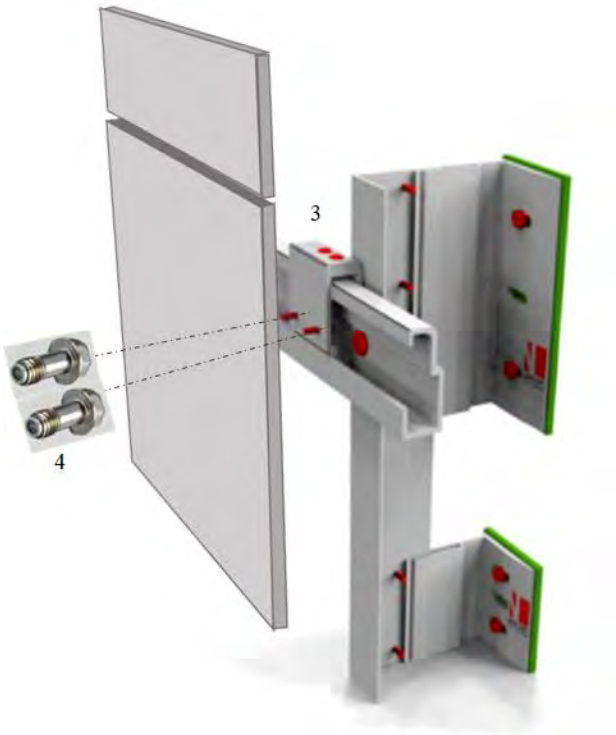
Annex 1
Pre-fabricated compressed mineral wool boards with organic or inorganic finish

Figure 1a. Ventilated intended use on vertical metal subframe



1. Compressed mineral wool board with organic or inorganic finish
2. Rivet fixing

Figure 1b. Ventilated intended use on vertical metal subframe and horizontal channel profiles by means of secret fixing clips.

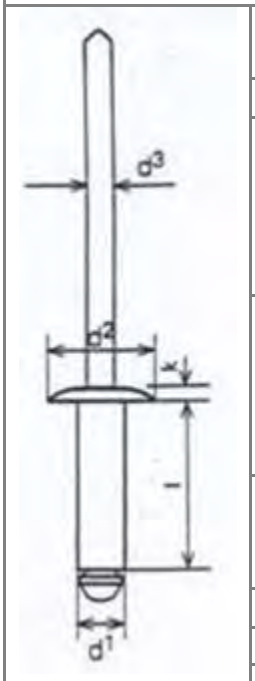


3. Secret fixing clip
4. Under cut anchor

Annex 2
Fastener specification

Table 5a - Fastener specification for metal sub-frames

Rivet aluminium or stainless steel



	SFS Aluminium	SFS Stainless steel A4 [a]	MBE Aluminium	MBE stainless steel [b]
Code	AP14-50210-S	SSO-D15-50180 [d]	129407	1290806[e]
Body	aluminium EN AW-5019 (AlMg5) in accordance with EN 755-2	stainless steel material number 1.4578 in accordance with EN 10088	aluminium EN AW-5019 (AlMg5) in accordance with EN 755-2	stainless steel material number 1.4567 in accordance with EN 10088
Mandrel	stainless steel material number 1.4541 in accordance with EN 10088	stainless steel material number 1.4541 in accordance with EN 10088	stainless steel material number 1.4541 in accordance with EN 10088	stainless steel material number 1.4541 in accordance with EN 10088
Pull-out strength	$F_{mean,n}$ = 2038	$F_{mean,n}$ = 1428	$F_{mean,10}$ = 2318	$F_{mean,10}$ = 3212
	s = 95	s = 54	s = 85	s = 83
	$F_{u,5}$ = 1882	$F_{u,5}$ = 1339	$F_{u,5}$ = 2155	$F_{u,5}$ = 3052
d^1	5	5	5	5
d^2	14	15	14	14
d^3	2,7	2,7	2,7	2,95
l	21	18	21	16
k	1,5	1,5	1,5	1,5
profile	aluminium t ≥ 1,5 mm	steel t ≥ 1,0 mm [a]	aluminium t ≥ 1,8 mm	steel t ≥ 1,5 mm [b]

[a]: The minimum thickness of the vertical steel profiles is 1,0 mm. The steel quality is S320GD +Z EN 10346 number 1.0250 (or equivalent for cold forming). For minimum coating thickness see [c]

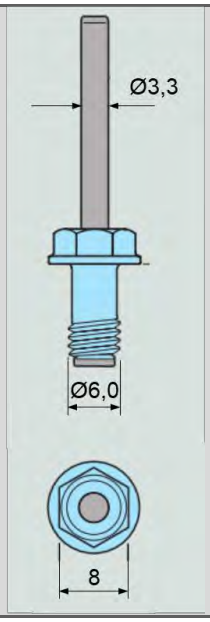
[b]: The minimum thickness of the vertical steel profiles is 1,5 mm. The steel quality is EN 10025-2:2004 S235JR number 1.0038. For minimum coating thickness see [c]

[c]: The minimum coating thickness (Z or ZA) is assessed by the corrosion rate (amount of corrosion loss in thickness per year) which depends on the specific outdoor atmospheric environment (the Zinc Life Time Predictor can be used to calculate the Corrosion Rate in µm/y for a Z coating: http://www.galvinfo.com:8080/zclp/ (copyright The International Zinc association).
The coating designation (classification which determines the coating mass) shall be agreed between the contractor and the building owner.
Alternatively, a hot dip galvanized coating according to EN ISO 1461 can be used.

[d]: In the event of application onto steel > 2 mm the same rivet should by applied with higher clamping thickness i.e. SSO-D15 50220 with a length of 22 mm.

[e]: In the event of application onto steel > 2 mm the same rivet should by applied with higher clamping thickness i.e. Code 1290807 with a length of 20 mm.

Table 5b – TU-S 6x13 blind fastener specification for secret fixing clip



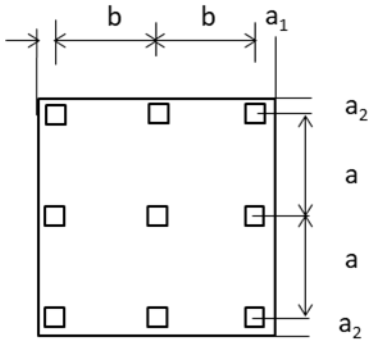
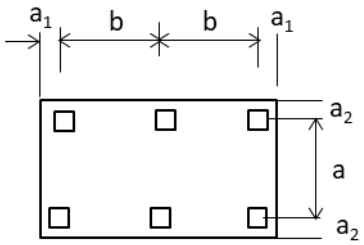
manufacturer	SFS intec
code	TU-S 6x13 [a] or TU-6x11 [b]
body	stainless steel material number 1.4401 in accordance with EN 10088
mandrel	electro-galvanised carbon steel

[a]: thickness (Table 12b): t = 5 mm
[b]: thickness (Table 12b): t = 3 mm

Annex 3
Performance

Impact resistance

Table 6a. Use category and shatter properties of Rockpanel Premium A2 with rivet fixing				
Body	Category IV	Category III	Category II	Category I
Hard body 1 joule	pass	---	---	---
Hard body 3 joule	---	pass	pass	pass
Hard body 10 joule	---	---	pass	pass
Soft body 10 joule	pass	pass	---	---
Soft body 60 joule	---	---	fail	fail

Table 6b. Use category and shatter properties of Rockpanel Premium A2 with concealed anchoring system						
Lay-out of the panels						
a_1/a_2	Edge distance (mm)	80/80	80/80	80/80	80/80	
b	Secret fixing clip (mm)	750	520	750	520	
a	Horizontal profiles (mm)	520	600	600	600	
		Impact Category				
Body	H2	Hard body 3 J	I			
	H3	Hard body 10 J	I			
	S2	Soft body 60 J	I			
	S3	Soft body 300 J	II			
	S4	Soft body 400 J	I	fail	I	I

Dimensional stability

Table 7. Deformation Rockpanel Premium A2 in accordance with EN 438-2		
characteristic	Premium A2, 11 mm	
	length of the board	width of the board
deformation	0,061 %	0,066 %
dry heat 23° / 50% to 23°C / 0% (mm/m)	-0,240	-0,290
coefficient of thermal expansion (10^{-6} °K $^{-1}$)	9,7	9,7
coefficient of moisture expansion 42% change RH (mm/m) 50% to 92% RH after 4 days	0,204	0,207

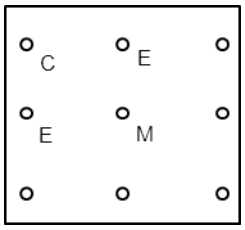
Wind load resistance

Table 8	Test results average failure load panel fixing N/m² Positions according to Table 10		
	M	E	C
Rivets	4266	3641	4047
Secret fixing clip with two TU-S blind fasteners	3446	2632	3474

Table 9	Test results average strength panel fixing N Positions according to Table 10		
	M	E	C
Rivets	2750	1348	679
Secret fixing clip with two TU-S blind fasteners	2681	1018	601

Fixing positions

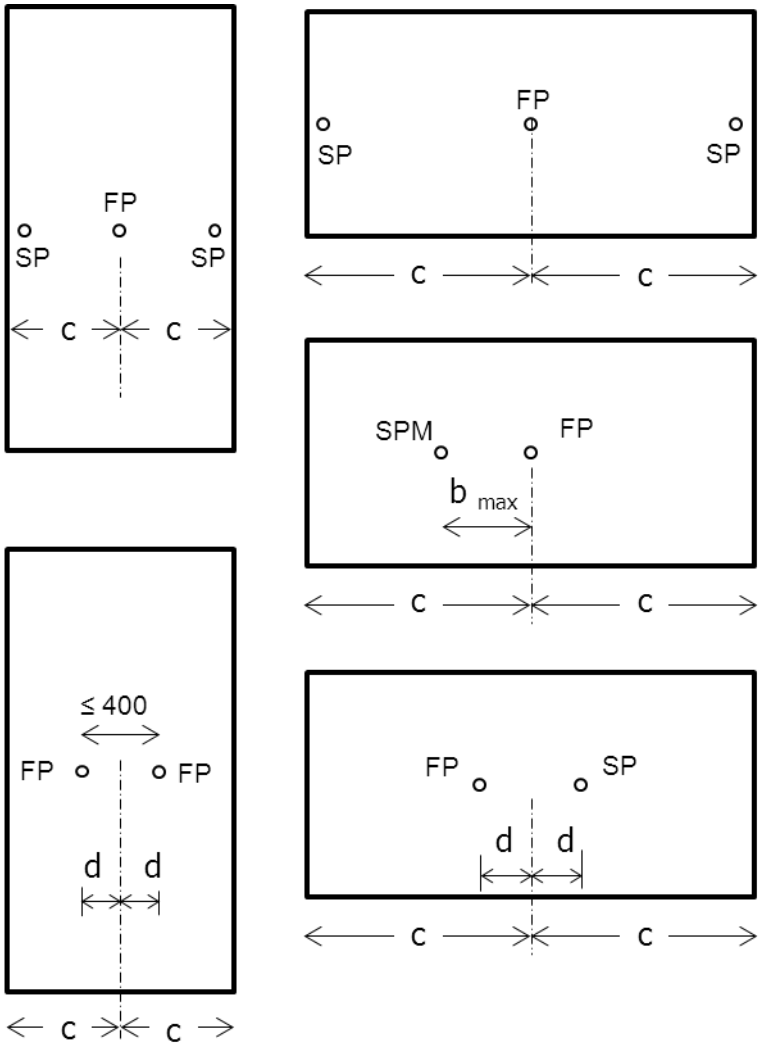
Table 10. Fixing positions M / E / C used in this document



M: fixing in intermediate position
E: edge fixing
C: corner fixing
See figure 2 for examples of possible installation methods for rivet fixing

Remark
Rivet fixing only with a riveting tool with rivet spacer

Figure 2 : Examples of possible installation methods with the use of fixed points and slotted points for rivet fixing



FP – fixed point
SP – slotted point
MP – moving point
All the other fixing points are 'moving points'
b_{max} : see Table 12a

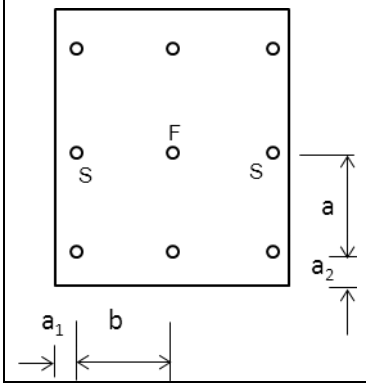
FP Fixed points may be realized by the use of a metal (aluminium or stainless steel) sleeve in a hole with the diameter of a moving point.

SP Slotted points may be realized by the use of a metal (aluminium or stainless steel) side sleeve in a hole with the diameter of a moving point. Maximum distance between slide sleeve and fixed point amounts 600 mm.

SPM Slotted point with the use of a slide sleeve (see also SP)

Annex 3 continued

Table 11. Hole diameters for rivet fixing mm



	rivet
F - Fixed point	5,1
S - Slotted holes	5,1 x 8,0
Moving points – all the other positions	8,0

Table 12a. Minimum edge distances and maximum distances between fastenings in mm

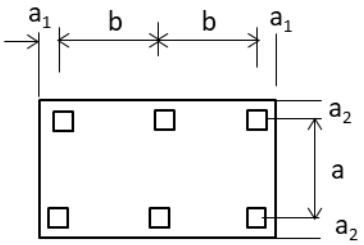
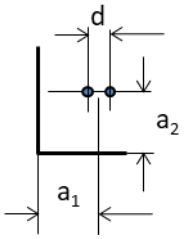
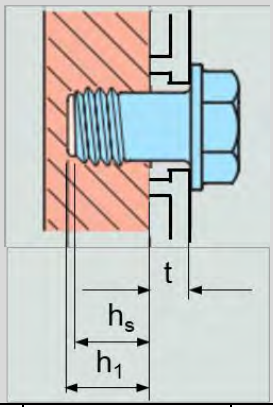
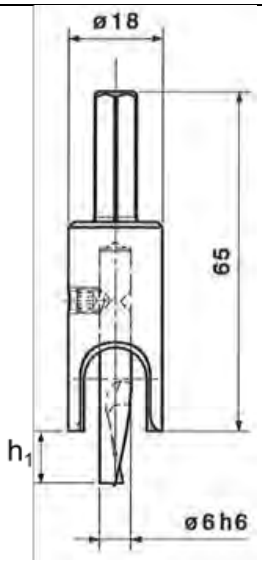
	b_{max}	a_{max}	a_1	a_2	d	
Rivet	750	750	≥ 20	≥ 50		
TU-S undercut anchors 	750	600	≥ 80	≥ 80	30	

Table 12b. Hole diameter and hole drill for undercut anchors





anchor	TU-S 6x13	TU-S 6x11
t mm	5	3
h_s mm	8,0	8,0
h_1 mm	8,5 +0,1/-0,1	
Hole diameter mm	6,0 ; tolerances +0/-0,1	HSS blind hole drill bit 6,0 mm with depth control stop

Annex 3 continued

Table 13a: Characteristic axial load X_k and design value of the axial load $X_d = \eta * X_k / \gamma_m$ for the combination **rivet** and Premium A2 panels [a]					
board thickness		11 mm			*(1)*
location of the fixing in the panel		M-middle	E-edge	C-corner	*(2)*
pull-through N					*(3)*
	characteristic pull-through N	1228	788	797	*(4)*
	material factor Rockpanel γ_m	1,6	1,6	1,6	*(5)*
	conversion factor η	0,8	0,8	0,8	*(6)*
	design value X_d of the pull-through N	**614**	**394**	**398**	*(7)*
wind suction					*(8)*
	average wind load in N/m²	4266	3641	4047	*(9)*
	average strength N	2750	1348	679	*(10)*
	material factor Rockpanel γ_m	1,6	1,6	1,6	*(11)*
	conversion factor η	0,8	0,8	0,8	*(12)*
	design value X_d of the pull-through N	1375	674	340	*(13)*
pull-out strength (lowest value of rivet/subframe combination)					*(14)*
	Pull-out $F_{u,5}$ N	≥ 1300	≥ 1300	≥ 1300	*(15)*
	material factor aluminium γ_M [b]	1,25	1,25	1,25	*(16)*
	design value X_d of the pull-out N	1040	1040	1040	*(17)*
design value of the axial load $X_d = \eta * (X_k / \gamma_m)$ for the combination **rivet** and 11 mm panels N		**614**	**394**	**340**	*(18)*
	board span b	≤ 750 mm			*(19)*
	fixing distance a	≤ 750 mm			*(20)*

[a] For correct fixing, a riveting tool with rivet spacer must be used;

[b] $\gamma_M = \gamma_m / \eta$

Table 13b: Characteristic axial load X_k and design value of the axial load $X_d = \eta * X_k / \gamma_m$ for a secret fixing clip fixed with two TU-S blind fasteners and Premium A2 panels [a]					
board thickness		11 mm			*(1)*
location of the secret fixing clip on the panel		M-middle	E-edge	C-corner	*(2)*
axial resistance					*(3)*
	characteristic axial resistance N	901	1175	1013	*(4)*
	material factor Rockpanel γ_m	1,6	1,6	1,6	*(5)*
	conversion factor η	0,615	0,614	0,509	*(6)*
	design value X_d of the of the axial resistance	**346**	451	322	*(7)*
wind suction: lowest value pull-out (panel) and pull-through (secret fixing clip)					*(8)*
	average wind load in N/m²	3446	2632	3474	*(9)*
	average axial strength N	2681	1018	601	*(10)*
	material factor Rockpanel γ_m	1,6	1,6	1,6	*(11)*
	conversion factor η	0,615	0,614	0,509	*(12)*
	design value X_d of the axial resistance N	1030	**391**	**191**	*(13)*
design value of the axial load $X_d = \eta * (X_k / \gamma_m)$ for the combination secret fix clip and 11 mm panels N		**346**	**391**	**191**	*(14)*
	distance b for the secret fixing clip	≤ 750 mm			*(15)*
	distance a for the horizontal channel profiles	≤ 600 mm			*(16)*

[a] for correct fixing of the TU-S blind fasteners the instructions of the manufacturer must be used

Annex 4

Table 14 – Impact resistance: Definition of use categories

Category	Use
I	A zone readily accessible at ground level to the public and vulnerable to hard body impacts but not subjected to abnormally rough use. (e.g.: Façade bases in buildings sited in public locations, such as squares, schoolyards or parks. Cleaning gondolas may be used on the façade).
II	A zone liable to impacts from thrown or kicked objects, but in public locations where the height of the kit will limit the size of the impact; or at lower levels where access to the building is primarily to those with some incentive to exercise care (e.g.: Façade bases in buildings not sited in public locations (e.g. squares, schoolyards, parks) or upper façade levels in buildings sited in public locations that occasionally can be hit by a thrown object (e.g. ball, stone, etc.). Cleaning gondolas may be used on the façade).
III	A zone not likely to be damaged by normal impacts caused by people or by thrown or kicked objects (e.g.: Upper façade levels in buildings (not including base) not sited in public locations, that occasionally can be hit by a thrown object (e.g. ball, stone, etc.). Cleaning gondolas should not be used on the façade).
IV	A zone out of reach from ground level (e.g. High façade levels that cannot be hit by a thrown object. Cleaning gondolas should not be used on the façade).

The hard body impact with steel ball represents the action from heavy, non-deformable objects, which accidentally hit the kit.

APPENDIX B

ROCKWOOL B.V. / Rockpanel
Konstruktieweg 2
NL-6045 JD Roermond
www.rockpanel.com

DECLARATION OF PERFORMANCE

No. ***0764-CPR-0313 - UK - vs01***

1. Unique identification code of the product-type:

'**Rockpanel Premium A2'**

2. Type, batch or serial number or any other element allowing identification of the construction product as required pursuant to Article 11 (4):

Backside print on the board.

3. Intended use / es

Internal and external wall cladding

4. Manufacturer

ROCKWOOL B.V.
Industrieweg 15
NL-6045 JG Roermond, Netherlands
Tel. +31 475 353 53

5. System or systems of AVCP (assessment and verification of constancy of performance of the construction product) as set out in Annex V (amended by : OJ L 157, 27.5.2014, p. 76-79)

System 1 for reaction to fire and system 2+ for other characteristics

6. European Assessment Document:

EAD 090001-01-0404 for Prefabricated compressed mineral wool boards with organic or inorganic finish and with specified fastening system, edition September 2018.

European Technical Assessment: ETA-18/0883 of 2019-09-04

Technical Assessment Body:
ETA-Danmark A/S
Göteburg Plads 1, DK-2150 Nordhavn, Denmark
Tel. +45 72 24 59 00
Fax +45 72 24 59 04
Internet www.etadanmark.dk

Notified Body:
Materialprüfanstalt für das Bauwesen
Nienburger Strasse 3, D-30167 Hannover, Germany
Notified Body 0764
Tel. +49 511 762 3104
Fax +49 511 762 4001
Internet www.mpa-bau.de/

and issued: **Certificate of Constancy of performance No. 0764 - CPR – 0313**

7. Characteristics of the product

The '*Rockpanel Premium A2'* panels are surface treated with a four-layer water-borne polymer emulsion paint on one side, which has been provided with an extra anti-graffiti clear coat as a fifth layer on the colour paint.

The physical properties of '***Rockpanel Premium A2'*** are indicated below:

- Thickness, nominal: 11 mm
- length, max: 3050 mm
- width, max: 1250 mm
- density, nominal: 1250 kg/m³
- bending strength: length and width $f_{05} \geq 25.5$ N/mm²
- Modulus of Elasticity: m(E) ≥ 4740 N/mm²
- Thermal conductivity EN 10456: 0.55 W/(m•K)

Clause 8 contains the performances of '*Rockpanel Premium A2'*.

8. Declared performance

<table>
<tr><td>Essential characteristic</td><td colspan="4">Performance</td><td>Harmonised technical specification</td></tr>
<tr><td rowspan="3">Basic Requirements for construction works
BR2 - Safety in case of fire</td><td colspan="4">Table 1 - Euroclass classification of constructions with ‘Rockpanel Premium A2’ boards</td><td rowspan="3">ETA-18/0883 issued 2019-09-04
EN 13501-1</td></tr>
<tr><td>Fixing method</td><td>Ventilated or non-ventilated</td><td>subframe</td><td>Euroclass</td></tr>
<tr><td>mechanically fixed</td><td>Ventilated with ≥ 20 mm cavity</td><td>vertical aluminum or steel profiles</td><td>A2-s1,d0
open horizontal joint max. 8 mm</td></tr>
</table>

Field of application
The following field of application applies.

Euroclass classification
The classification mentioned in Table 1 is valid for the following end use conditions:

Mounting:
- Mechanically fixed to a metal subframe
- The panels are backed with min. 50 mm mineral wool insulation with density 30-70 kg/m^3 according to EN 13162 with a cavity between the panels and the insulation

Substrates:
- Concrete walls, masonry walls

Insulation:
- Ventilated constructions: The subframe is backed with min. 50 mm mineral wool insulation with density 30-70 kg/m^3 according to EN 13162 with a cavity of minimal 20 mm between the panels and the insulation
- Results are also valid for all greater thickness of mineral wool insulation layer with the same density and the same or better reaction to fire classification
- Results are also valid for the panels without insulation, if the substrate chosen according to EN 13238 is made of panel with Euro-class A1 or A2 (e.g. fibre-cement panels)

Subframe:
- Test results are only valid for a metal subframe

Fixings:
- Results are also valid with higher density of the fixing devices
- Test results are also valid for all the mechanical fixings

Cavity:
- Unfilled
- The depth of the cavity is minimum 20 mm
- Test results are also valid for other higher thickness of air space between the back of the board and the insulation behind the subframe

Joints:
- Vertical joints are without a gasket backing and horizontal joints can be open or closed with an aluminum profile
- The result from a test with an open horizontal joint is also valid for the same type of panel used in applications with horizontal joints closed by steel or aluminum profiles
- Max joint width: 8 mm

The classification is also valid for the following product parameters:

Thickness: • Nominal 11 mm

Density: • Nominal 1250 kg/m^3

Essential characteristic	***Table 2*** *- Performance - Water vapour permeability and water permeability*		*Harmonised technical specification*
	Property	*Declared values*	
BR3 – Hygiene, health and environment	Water vapour permeability	NPD No Performance Declared	ETA-18/0883 issued 2019-09-04
	Water permeability	NPD No Performance Declared	ETA-18/0883 issued 2019-09-04

Essential characteristic	***Table 3*** *- Performance - Release of dangerous substances*		*Harmonised technical specification*
	Property	*Product specification*	
BR3 – Hygiene, health and environment	Dangerous substances	The kit does not contain/release dangerous substances specified in TR 034, dated April 2013*), except Formaldehyde concentration 0.0105 mg/ m^3. Formaldehyde class E1 The used fibres are not potential carcinogenic No biocides are used in the Rockpanel boards No flame retardant is used in the boards No cadmium is used in the boards.	ETA-18/0883 issued 2019-09-04

*) In addition to the specific clauses relating to dangerous substances contained in this European technical Assessment, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Regulation, these requirements need also to be complied with, when and where they apply.

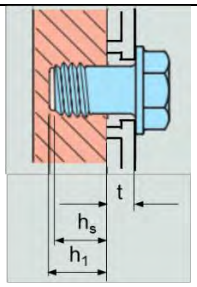
Essential characteristic	***Table 4*** *- Performance - Design value of the axial load for mechanical fixing 'Rockpanel Premium A2' boards*					*Harmonised technical specification*	
BR4 – Safety in use	*For hole diameters fixings see Table 5*						
	Property		Span in mm		$X_d = X_k / \gamma_M$ in N	*Table in ETA*	
	Design value of the axial load X_d	**Rivet** fixing [b1]	a fixing	b board	Middle / Edge / Corner		ETA-18/0883 issued 2019-09-04
			750 [a1]	750 [a1]	614 / 394 / 398 [c]	13a	
		TU-S blind fasteners [b2]	a rails	b hangers	$X_d = \eta * (X_k / \gamma_m)$ in N Middle / Edge / Corner		
			600 [a2]	750 [a2]	346 / 391 / 191 [c]	13b	

[a1] see Table 6a & 6b; [a2] see Table 6c; [b1] for specifications fixings see Table 8a; [b2] for specifications fixings see Table 8b

[c] The following material factors have been used: for the Premium A2 $\gamma_M = 2.0$; $\gamma_m = 1.6$; *for the connection rivet-subframe* $\gamma_M = 1.25$; *conversion factor* η *location middle:* 0.615, *location edge:* 0.614 *and location corner:* 0.509

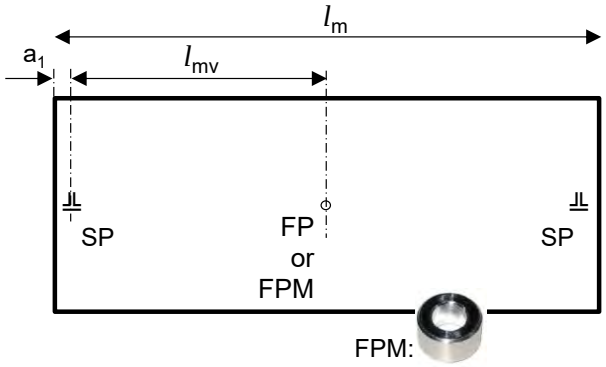
Essential characteristic	***Table 5a*** *- Performance mechanical fixings : hole diameters for 'Rockpanel Premium A2' boards*				*Harmonised technical specification*
	Fixing type [a]	Fixed hole	Moving hole	Slotted hole	
BR4 – Safety in use	Rivet	5.1	8.0	5.1 * 8.0	ETA-18/0883 issued 2019-09-04

[a] for specifications fixings see Table 8a; for installation methods see table 6a and 6b

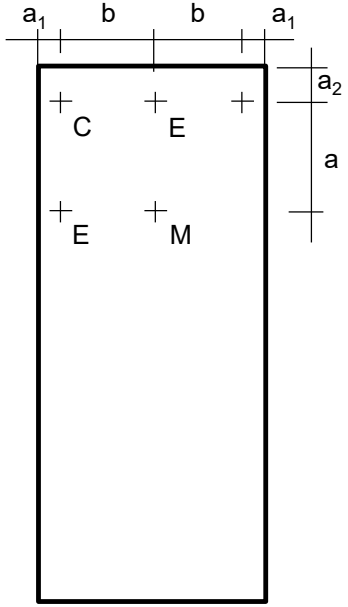
Essential characteristic	***Table 5b*** *- Performance mechanical fixings : hole diameters for 'Rockpanel Premium A2' boards*			*Harmonised technical specification*
			Fixing type *[a]*	
		anchor	TU-S 6x13	TU-S 6x11
BR4 – Safety in use		t [mm]	5	3
		h_s [mm]	8,0	8,0
		h_1 [mm]	8,5 +0,1/-0,1	
		hole diameter mm	6,0 ; tolerances +0/-0,1	

[a] for specifications anchors see Table 8b; for installation see table 6c

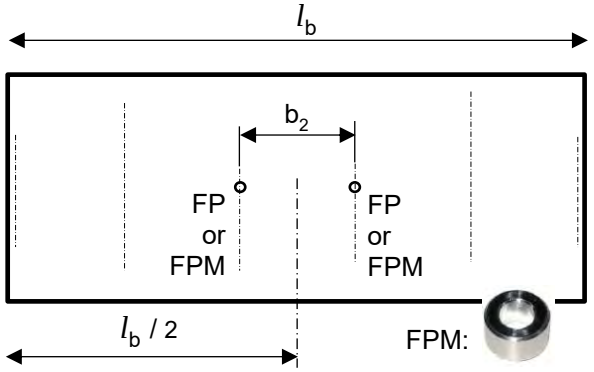
Essential characteristic	***Table 6a***	*Performance rivet fixing according to table 4 and 5a with the required edge distances, maximum distances and horizontal installation of boards*	*Harmonised technical specification*
BR4 – Safety in use			ETA-18/0883 issued 2019-09-04 Table 10, 11, 12a and Fig. 2



FP/SP [b]	'Fixed point' FP and 'slotted point' SP (according to Table 5a) in the middle of the vertical part of the board
All the other fixing points are 'moving points'	
l_m	length max 3050 mm
l_{mv}	'moving length' ≤ 1510 mm



Location oft he fixing
M: middle of the board
E: edge of the board
C: corner of the board



l_b	Length of the board
b_2	max. 750 mm; b_2 in the central area of the board length l_b
FPM [b]	Creating a fixed point by the use of a sleeve FPM

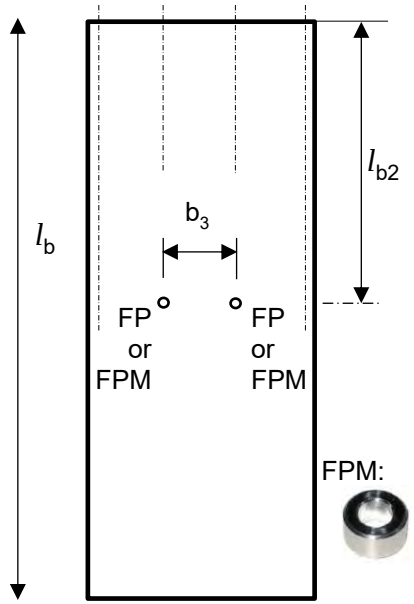
Fixing type	b_{max}	a_{max}	a_1	a_2
Rivet [a]	750	750	≥ 20	≥ 50

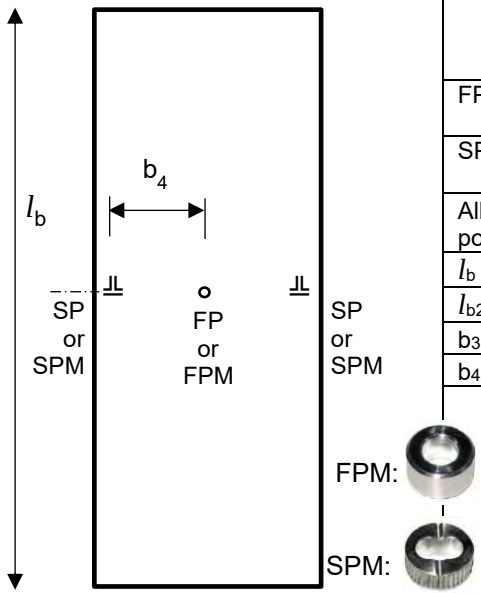
		Drill hole according to Table 5	Sleeve
Subframe Aluminum :	FPM – Sleeve [a] [b]	8 mm	ø8 x 7.5 – drill hole ø5.1
	FP - 'Fixed point' FP (according to Table 5) in the central area of the vertical edge of the board		

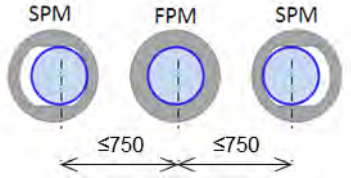
[a]: For correct fixing (FP and FPM) a riveting tool with rivet spacer must be used (e.g. 0.3 mm).
[b]: Subframe aluminum

Essential characteristic	***Table 6b***	*Performance rivet fixing according to Table 4 and 5a with the required edge distances, maximum distances and vertical installation of boards*	*Harmonised technical specification*

BR4 – Safety in use





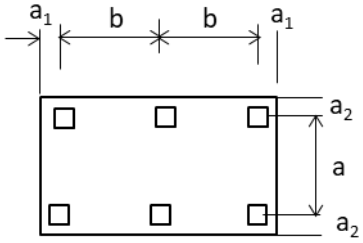
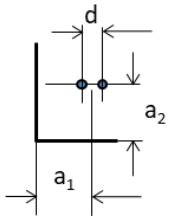


FP/SP [b]	'Fixed points' FP and 'slotted points' SP (according to Table 5a) in the middle of the vertical part of the board
FPM [b]	Fixed point realized by a sleeve FPM
SPM [b]	Slotted hole realized by a side sleeve
All the other fixing points are 'moving' points	
l_b	Length of the board
l_{b2}	ca l_b / 2
b_3	max. 400 mm
b_4	max. 600 mm

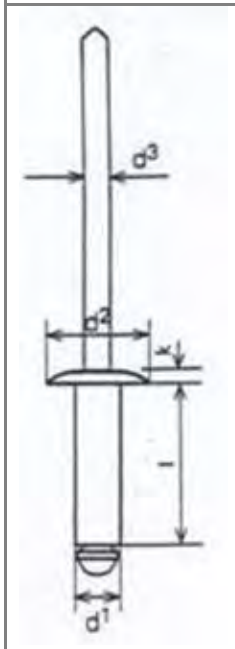
ETA-18/0883 issued 2019-09-04 Table 10, 11, 12a and Fig. 2

		Drill hole according to Table 6	Sleeve
Subframe Aluminum :	FPM – Sleeve [a] [b]	8 mm	ø8 x 7.5 – hole ø5.1
	SPM – Side sleeve [a] [b]	8 mm	ø8 x 7.5 – hole ø5.1 x 6.2

[a]: For correct fixing (FP, FPM, SP and SPM) a riveting tool with rivet spacer must be used (e.g. 0.3 mm). [b]: Subframe aluminium

Essential characteristic	***Table 6c*** - TU-S undercut anchors - *Minimum edge distances and maximum distances between anchors in mm*							*Harmonised technical specification*
	layout panel with clips	location in corner	secret fixing clip b_{max}	rails a_{max}	a_1	a_2	d	
BR4 –Safety in use			750	600	≥ 80	≥ 80	30	ETA-18/0883 issued 2019-09-04 Table 12a

Essential characteristic	***Table 7*** *– Performance shear strength mechanical fixings*				*Harmonised technical specification*
		Fixing	Failure load	Deformation	
BR4 – Safety in use	Characteristic shear strength average values	Rivets	2194 N	4.4 mm	ETA-18/0883 issued 2019-09-04
		TU-S anchors	3279 N (2 anchors in 1 secret fixing clip)	2.5 mm	

Table 8a - *Specifications mechanical fixings - Rivet aluminum or stainless steel [e]*						*Harmonised technical specification*
		Aluminum [d]	Stainless steel A4 [a]	Aluminum [d]	stainless steel [b]	
	Code	AP14-50210-S	SSO-D15-50180	1290407	1290806	
	Body	aluminum EN AW-5019 (AlMg5) in accordance with EN 755-2	stainless steel material number 1.4578 in accordance with EN 10088	aluminum EN AW-5019 (AlMg5) in accordance with EN 755-2	stainless steel material number 1.4567 in accordance with EN 10088	
	Mandrel	stainless steel material number 1.4541 in accordance with EN 10088	stainless steel material number 1.4541 in accordance with EN 10088	stainless steel material number 1.4541 in accordance with EN 10088	stainless steel material number 1.4541 in accordance with EN 10088	ETA-18/0883 issued 2019-09-04 Table 5a
	Pull-out strength	$F_{mean,n}$ = 2038	$F_{mean,n}$ = 1428	$F_{mean,10}$ = 2318	$F_{mean,10}$ = 3212	
		s = 95	s = 54	s = 85	s = 83	
		$F_{u,5}$ = 1882	$F_{u,5}$ = 1339	$F_{u,5}$ = 2155	$F_{u,5}$ = 3052	
	d^1	5	5	5	5	
	d^2	14	15	14	14	
	d^3	2.7	2.7	2.7	2.95	
	l	21	18	21	16	
	k	1.5	1.5	1.5	1.5	
	profile	aluminum t ≥ 1.5 mm	steel t ≥ 1.0 mm [a]	aluminum t ≥ 1.8 mm	steel t ≥ 1.5 mm [b]	

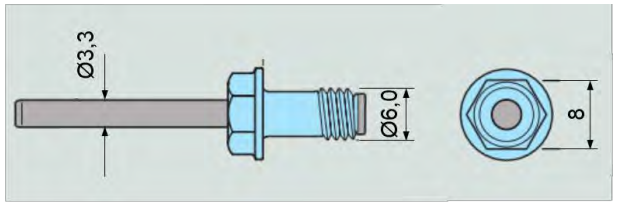
[a] : The minimum thickness of the vertical steel profiles is 1.0 mm. The steel quality is S320GD +Z EN 10346 number 1.0250 (or equivalent for cold forming).
For minimum coating thickness see [c]

[b] : The minimum thickness of the vertical steel profiles is 1.5 mm. The steel quality is EN 10025-2:2004 S235JR number 1.0038. For minimum coating thickness see [c]

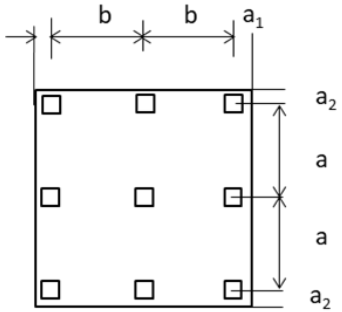
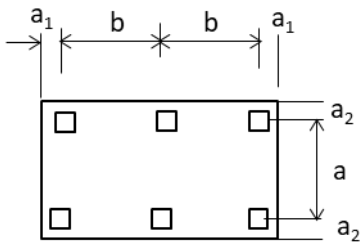
[c] : The minimum coating thickness (Z or ZA) is determined by the corrosion rate (amount of corrosion loss in thickness per year) which depends on the specific outdoor atmospheric environment (the Zinc Life Time Predictor can be used to calculate the Corrosion Rate in μm /y for a Z coating: http://www.galvinfo.com:8080/zclp/ (copyright The International Zinc association).
The coating designation (classification which determines the coating mass) shall be agreed between the contractor and the building owner.
Alternatively a hot dip galvanized coating according to EN ISO 1461 can be used.

[d] : The aluminum is AW-6060 according to EN 755-2.The $R_m/R_{p0,2}$ value is 170/140 for profile T6 and 195/150 for profile T66.

[e] : For correct fixing a riveting tool with rivet spacer must be used (e.g. 0.3 mm)

Table 8b *- Specifications mechanical fixings – blind fastener*			
	manufacturer	SFS intec	*Harmonised technical specification*
	code	TU-S 6x13 [a] or TU-S-6x11 [b]	ETA-18/0883 issued 2019-09-04 Table 5b
	body	stainless steel material number 1.4401 in accordance with EN 10088	
	mandrel	electro-galvanised carbon steel	
[a]: thickness secret fixing clip (Table 5b): t = 5 mm; [b]: thickness secret fixing clip (Table 5b): t = 3 mm			

Essential characteristic	***Table 9a*** *– Performance Impact resistance 'Rockpanel Premium A2' with rivet fixing*				*Harmonised technical specification*
	Impactor	Energy	Category	Table in ETA	
BR4 – Safety in use	Hard body	1 J	IV	6a	ETA-18/0883 issued 2019-09-04 Table 6a
	Hard body	3 J	III, II and I		
	Hard body	10 J	II and I		
	Soft body	10 J	IV and III		

Essential characteristic	***Table 9b*** *– Performance Impact resistance 'Rockpanel Premium A2' with concealed anchoring system*						Table in ETA	*Harmonised technical specification*
BR4 – Safety in use							6b	ETA-18/0883 issued 2019-09-04 table 6b
		a_1/a_2	80/80	80/80	80/80	80/80		
		b	750	520	750	520		
	Impactor	a	520	600	600	600		
	Hard body	Energy 3 j and 10 J	*Impact Category* I					
	Soft body	60 J and 300 J	*Impact Category* I					
	Soft body	400 J	*Impact Cat.* I	fail	*Impact Cat.* I	*Impact Cat.* I		

Essential characteristic	***Table 10** – Performance dimensional stability 'Rockpanel Premium A2'*				*Harmonised technical specification*
		Length	Width	Table in ETA	
BR4 – Safety in use	Deformation - cumulative dimensional change [a]	0.061%	0,064%	7	ETA-18/0883 issued 2019-09-04
	Dry heat 23°C / 50% to 23°C / 0% (mm/m)	-0.240	-0.290		
	Coefficient of thermal expansion (10^{-6} K^{-1})	9.7	9.7		
	Coefficient of moisture expansion 42% RH difference after 4 days (mm/m)	0.204	0,207		

[a] As a consequence the minimum joint width shall be 3 mm, preferably 5 mm.

Essential characteristic	***Table 11** – Resistance to hygro-thermal cycles and Xenon Arc exposure 'Rockpanel Premium A2'*		*Harmonised technical specification*
		Performance	
Aspects of durability and serviceability	Resistance to Hygrothermal cycles	Pass	ETA-18/0883 issued 2019-09-04
	Resistance to Xenon Arc exposure *EOTA TR010 climate class S (Technical Report 010)* 5000 hours artificial weathering	ISO 105 A02: 4 or better	

9. *The performances of the product identified above is in conformity with the set of declared performances. This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.*

Signed for and on behalf of the manufacturer by:

ROCKWOOL B.V.
W.J.E. Dumoulin
Technical Director Operations
DE-NL

At Roermond, The Netherlands on 2020-06-04

DOP in accordance with **Commission Delegated Regulation (EU) No 574/2014 of 21 February 2014 amending Annex III to Regulation (EU) No 305/2011 of the European Parliament and of the Council on the model to be used for drawing up a declaration of performance on construction products**, *http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32014R0574, OJ L 159, 28.5.2014, p. 41-46*

APPENDIX C

Rockpanel®

Part of the ROCKWOOL Group

Product Data Sheet
Rockpanel Premium

Rockpanel Premium

Key product data

Product description

All eyes on your facade! Rockpanel Premium is the very best we have to offer, customised to your needs. Our Rockpanel Premium A2 boards do not only enable concealed fixing, but the panels also offer optimum fire safety (Euroclass A2-s1,d0) and make it possible to have a span of up to 750 mm. All Rockpanel Premium A2 boards come with a ProtectPlus finish, which makes your facade extremely easy to clean; even graffiti can be washed off.

Assortment

Product Line	Board composition	Thickness	Standard dimensions
Rockpanel Premium	A2	11 mm	1200/1250 x 2500-3050 mm

Surface

The surface of Rockpanel Premium is treated with a four-layer water-borne polymer emulsion paint on one side, in a specific range of colours. The Rockpanel Premium boards are automatically provided with the Protect Plus layer. This fifth layer on top of the coloured paint makes the board extremely easy to clean; even graffiti can be washed off.

Fire Safety

The Euroclass classification of all Rockpanel products is based on testing with non-combustible mineral wool insulation. For the field of application covered by the classification please see the relevant Declaration of Performance. For high-rise buildings and high-risk buildings Rockpanel recommends the application of non-combustible (Euroclass A1-A2) cladding and insulation.

Key product properties

	A2 Premium	Unit	Test/classification method
Optical properties			
Colour stability ProtectPlus (5000 h)	4 or better	Class on greyscale	ISO 105 A02
Fire			
Fire classification	A2-s1,d0	Euroclass	EN 13501-1
Physical properties			
Thickness	11	mm	EN 325
Weight	13,75	kg/m²	
Density, nominal	1250	kg/m³	EN 323
Thermal conductivity	0,55	W/m·K	EN 10456
Water vapour permeability S_d (at 23 °C and 85 % RH) ProtectPlus	N/A	m	EN 12572
Coefficient of thermal expansion	9.7	x10^{-3} mm/m·K	EN 438-2 clause 17
Coefficient of moisture expansion (after 4 days)	0.206	mm/m	EN 438-2 clause 17
Mechanical properties			
Bending strength f_{05} (length and width)	≥ 25.5	N/mm²	EN 310 / EN 1058
Modulus of elasticity	≥ 4740	N/mm²	EN 310

Fixing distances

Maximum fixing distance (mm)	A2 ProtectPlus, 11 mm	
	b max.	a max.
Nail	N/A	N/A
Screw	N/A	N/A
Rivet	750	750
Consealed (anchors)	750	600
Bonding	N/A	N/A

Tests in this document are executed according the European Assessment Document (EAD 090001-01-0404) for Rockpanel boards.

Rockpanel boards

General product information

The Rockpanel boards are produced from compressed natural basalt, a sustainable and readily available volcanic rock and bonded with an organic binder from which all Rockpanel products derive their unique properties. The products combine the advantages of stone and workability of wood.

Fire safety

Rockpanel boards offer high performance when accessed for reaction to fire. Due to the nature of the stone wool fibres and the low binder content the boards have a low calorific value, which means that they will hardly contribute to a fire when exposed. As a result, the addition of environmentally unfriendly flame retardants is not needed.

The Rockpanel products are tested in accordance with the European harmonized technical specification (EAD 090001-01-0404) and are classified in accordance with EN 13501-1. The reaction to fire classification is based upon the end use situation as described in the EAD with non-combustible mineral wool insulation. The field of application covered by the reaction to fire classification is given in the Declaration of Performance (DoP, see www.rockpanel.com).

For high-rise buildings and high-risk buildings Rockpanel recommends only the application of non-combustible (Euroclass A1-A2) cladding and insulation.

Sustainability and environment

Rockpanel Durable and A2 products have been independently certified for their environmental performance by the Building Research Establishment (BRE), complying with all requirements identified in the scheme document SD028.

BRE granted Rockpanel an Environmental Product Declaration (Environmental Profiles Certificate No. 427) acknowledging Rockpanel Durable and A2 board material as amongst the best in their category with A+ and A ratings for various structures.

Rockpanel Durabel and A2 products have an Environmental Product Declaration (EPD) according to the EN15804 issued by Institut Bauen und Umwelt e.V. (IBU).

The influence on air quality and release of dangerous substances to soil and water has been determined to achieve the European Technical Assessment. The analysis showed Rockpanel boards contain no dangerous materials such as biocides; the manufacture of Rockpanel boards does not involve the use of flame retardents or cadmium. The formaldehyde concentration is ≤ 0.0105 mg/m³ which relates to formaldehyde class E1.

Warranty

With Rockpanel there is no need to compromise on the quality of the boards. For Premium Rockpanel offers a 15 year warranty. For details and additional warranties per product line please have a look at our warranty documents on www.rockpanel.co.uk.

Visual appearance

Surface quality: Rockpanel boards are produced with the utmost care and individually checked before being approved. In the event of doubts the panels are judged visually for aesthetic flaws, in daylight, without sight enhancements, from a distance of at least 5 metres in front of the surface of the facade element, with an observation angle of 45° (horizontally/vertically).

Batches: Rockpanel boards are produced using incoming inspection, process assurance and quality control by which Rockpanel boards in standard RAL/NCS colours out of different batches can be combined. However, for project related orders, the whole order for a given project must be ordered as a single batch.

Due to possible slight variations between batches of Rockpanel Premium Woods or Stones, the whole order for a given project needs to be ordered in one single batch.

Maintenance

Depending on the surface treatment, the boards can be cleaned with ordinary cleaning agents such as car shampoo dissolved in lukewarm water. Organic solvents for boards with the ProtectPlus finish are in general also allowed (such as white spirit and acetone), however consult Rockpanel for the correct application method. To remove graffiti, Rockpanel can supply a special cleaner.

Rockpanel recommends inspection and when needed cleaning once a year. For more information, contact Rockpanel.

Packaging

The panels are provided with a protective film on the decorative face (with the exception of Rockpanel Metallics White Aluminium/Grey Aluminium, Natural, Lines² and Structures) and are delivered on pallets and with a protective cover and edge protection.

The panels must be stored on a dry sub-soil and protected against rain, preferably under a cover. Pallets shall be stacked no more than two pallets high.

The panels should be lifted upwards when being handled and should not be slid over one another. Protective foam membranes should be placed between the sheets again to protect the surface layer, for example when the panels are stacked after having been sawn.

Rockpanel Premium

Detailed product information

Within our detailed product information section you can read about the impact resistance, suitable subframes, fire properties and the specified fixings. Also visit www.rockpanel.co.uk for additional information on Rockpanel board material, such as a complete overview of the Rockpanel assortment, guidelines for processing and installation, specifications text, health and safety and application.

Impact resistance

Impact resistance (categories)	Premium, rivets	Premium, concealed fixing	Test / classification method
Hard body (1 J)	IV	-	ISO 7892: 1988
Hard body (3 J)	III, II, I	I	
Hard body (10 J)	II, I	I	
Soft body (10 J)	IV, III	-	
Soft body (60 J)	-	I	
Soft body (300 J)	-	II	
Soft body (400 J)	-	I	

Application for full boards, for a complete overview and description, please consult the relevant European Technical Assessment.

Suitable subframes

Rockpanel Premium A2 boards can only be attached to a sub-frame of aluminium or steel. The minimum thickness of the vertical aluminium profiles is 1.5 mm.

The aluminium is AW-6060, AW-6063, AW-6005A or equivalent according to EN 755-2.
The Rm/Rp0.2 value is 170 /140 for profile T6 and 195/150 for profile T66. The minimum thickness of the vertical steel profiles is either 1.0 mm (steel quality is S320GD +Z EN 10346 number 1.0250, or equivalent for cold forming), or 1.5 mm (steel quality EN 10025-2:2004 S235JR number 1.0038).

Properties in relation to fire

Product Grade	Vertical subframe***	Construction build-up	Fixing method	Classification
A2 11 mm	Aluminium or steel subframe	Ventilated with ≥ 20 mm cavity	Mechanically fixed (rivets, TU-S anchors)	A2-s1,d0

*** For a complete overview and description of the end use situation in which the classification is determined, please consult the relevant European Technical Assessment.

Fixings specified for use with Rockpanel Premium

	Rivet[1]				Concealed	
A2 11 mm Premium	✓	✓	✓	✓	✓	✓
Code	AP14-50210-S	1290407	SSO-D15-50180 (a)	1290806 (b)	TU-S 6x13	TU-6x11
Subframe [2]	Aluminium subframe	Aluminium subframe	Steel subframe	Steel subframe	Aluminium subframe	Aluminium subframe
Thickness subconstruction [2]	≥ 1,5 mm	≥ 1,8 mm	≥ 1,0 mm	≥ 1,5 mm	≥ 1,5 mm	≥ 1,5 mm
Material (body)	EN AW-5019 (AlMg5) according EN 755-2	EN AW-5019 (AlMg5) according EN 755-2	Stainless steel nr. 1.4578 according EN 10088	Stainless steel nr. 1.4567 according EN 10088	Stainless steel (material nr. 1.4401 according EN 10088)	Stainless steel (material nr. 1.4401 according EN 10088)
Length	21 mm	21 mm	18 mm	16 mm	13 mm	11 mm
Shank diameter	5 mm	5 mm	5 mm	5 mm	6 mm	6 mm
Head diameter fixing	14 mm	14 mm	15 mm	14 mm	N/A	N/A
Thickness hook					5 mm	3 mm
Material hook					Equal to subframe	Equal to subframe
Hole Ø fixed point	5,2 mm	5,2 mm	5,2 mm	5,2 mm	-	-
Hole Ø moving point	8,0 mm	8,0 mm	8,0 mm	8,0 mm	-	-
Hole Ø slotted point	5,2 x 8,0 mm	5,2 x 8,0 mm	5,2 x 8,0 mm	5,2 x 8,0 mm	-	-

[1] For correct fixing, use riveting tool with rivet spacer
[2] in accordance with paragraph „Suitable Subframes“
[a] Application onto steel >2 mm the same rivet with higher clamping thickness should be applied (i.e. code SSO-D15-50220, length 22 mm)
[b] Application onto steel >2 mm the same rivet with higher clamping thickness should be applied (i.e. code 1290807, length 20 mm)

European Technical Assessment (ETA)

ETA- 18/0883	Rockpanel Premium A2

Declaration of Performance (DoP)

0764-CPR-0313	Rockpanel Premium A2

Additional information

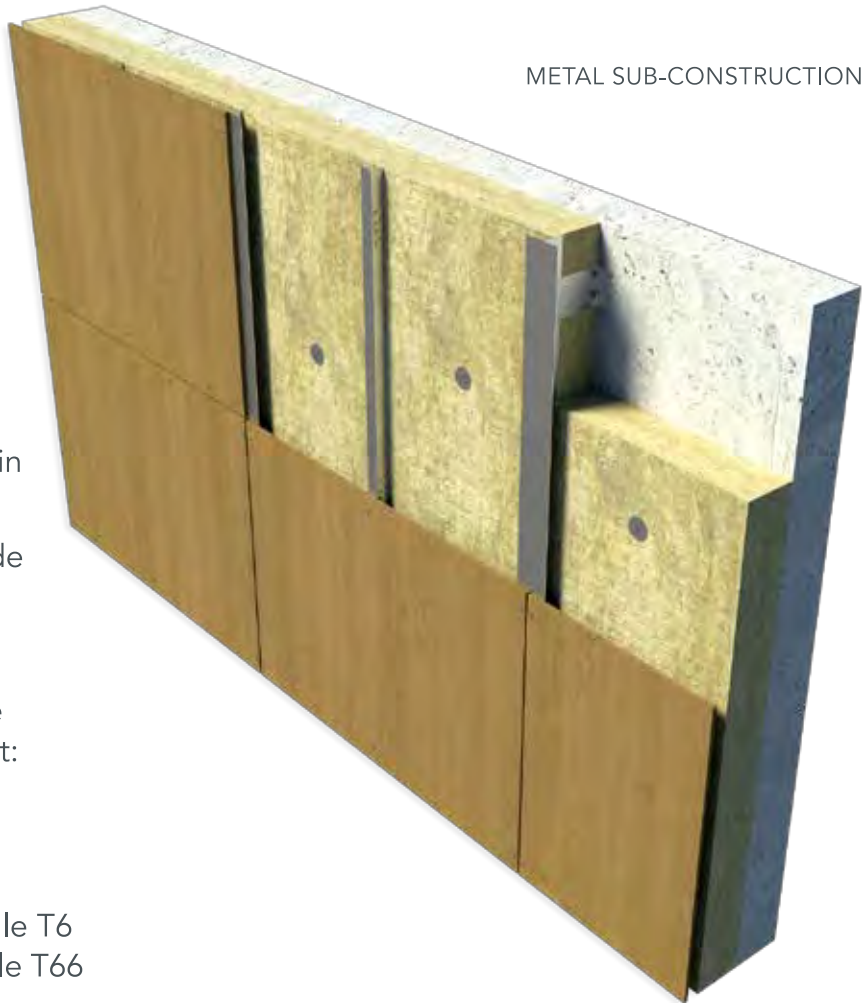
The product data sheet Rockpanel Premium clearly specifies the general product properties and is not related to national building regulations. Relevant information about the application of Rockpanel boards related to national building regulations or national guidelines can be found in the Rockpanel instruction guide and on the Rockpanel website. The Rockpanel instruction guide and the website also provide fixing tables related to national annex of the EN 1991-1-4.

Published August 2021. This publication supersedes and replaces all previous datasheets. Subject to alterations. All data are intended to serve as general information about our products and their possible uses. This publication is an extract of the European Technical Assessment, which is the only legally binding document. ROCKWOOL B.V. / Rockpanel disclaims any liability towards possible (typing) errors and incomplete information in this product data sheet. No rights may be derived from the content of this publication.

www.rockpanel.co.uk

RPDSPREUK202108 / UK / Version 1.0

APPENDIX D



Metal sub-construction

Metal sub-constructions are the best option if a building requires optimum fire safety.

When Rockpanel boards are applied to an aluminium or a steel sub-construction, there are also certain requirements for the materials.

Sub-construction suppliers can provide the required details.

For **aluminium sub-constructions** the following requirements should be met:

- The aluminium alloy is AW-6060 according to:
  - BS EN 755-2
  - $R_m/R_{p0,2}$ value is 170/140 for profile T6
  - $R_m/R_{p0,2}$ value is 195/150 for profile T66
- The minimum thickness of the profile is 1.5mm.

For **steel sub-constructions**, the requirements are the following.

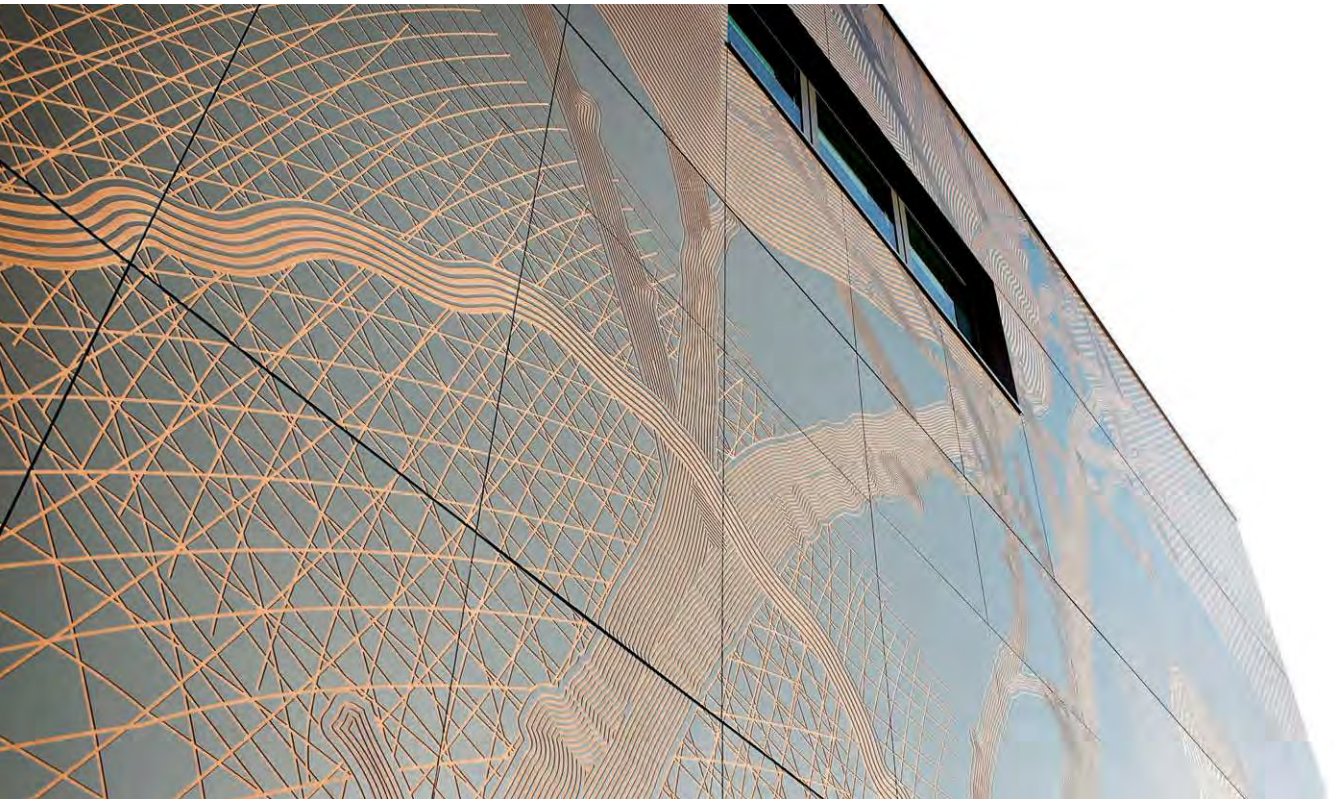
- The minimum thickness of the vertical steel profiles is either 1.0mm (steel quality is S320GD +Z BS EN 10346 number 1.0250, or equivalent for cold forming), or 1.5mm (steel quality BS EN 10025-2:2004 S235JR number 1.0038).
- The minimum coating thickness (Z or ZA) is determined by the corrosion rate (amount of corrosion loss in thickness per year) which depends on the specific outdoor atmospheric environment.
- The coating designation (classification which determines the coating mass) shall be agreed between the contractor and the building owner. Alternatively, a hot dip galvanized coating according to BS EN ISO 1461 can be used.

More information

More detailed information can be found on our website, including the European Technical Assessments (ETAs) of Rockpanel products, fixing distances, BIM and CAD details.

Let your façade communicate

Personalisation on a completely different level. Engrave or perforate your building to create unique pieces or art, messages or company logos.



Routing and perforation

Engraving a façade lets you make a very personal statement. It is an amazing way to bring across your message, literally letting the façade speak for itself. And as Rockpanel boards are insensitive to moisture, no special treatment is required afterwards.

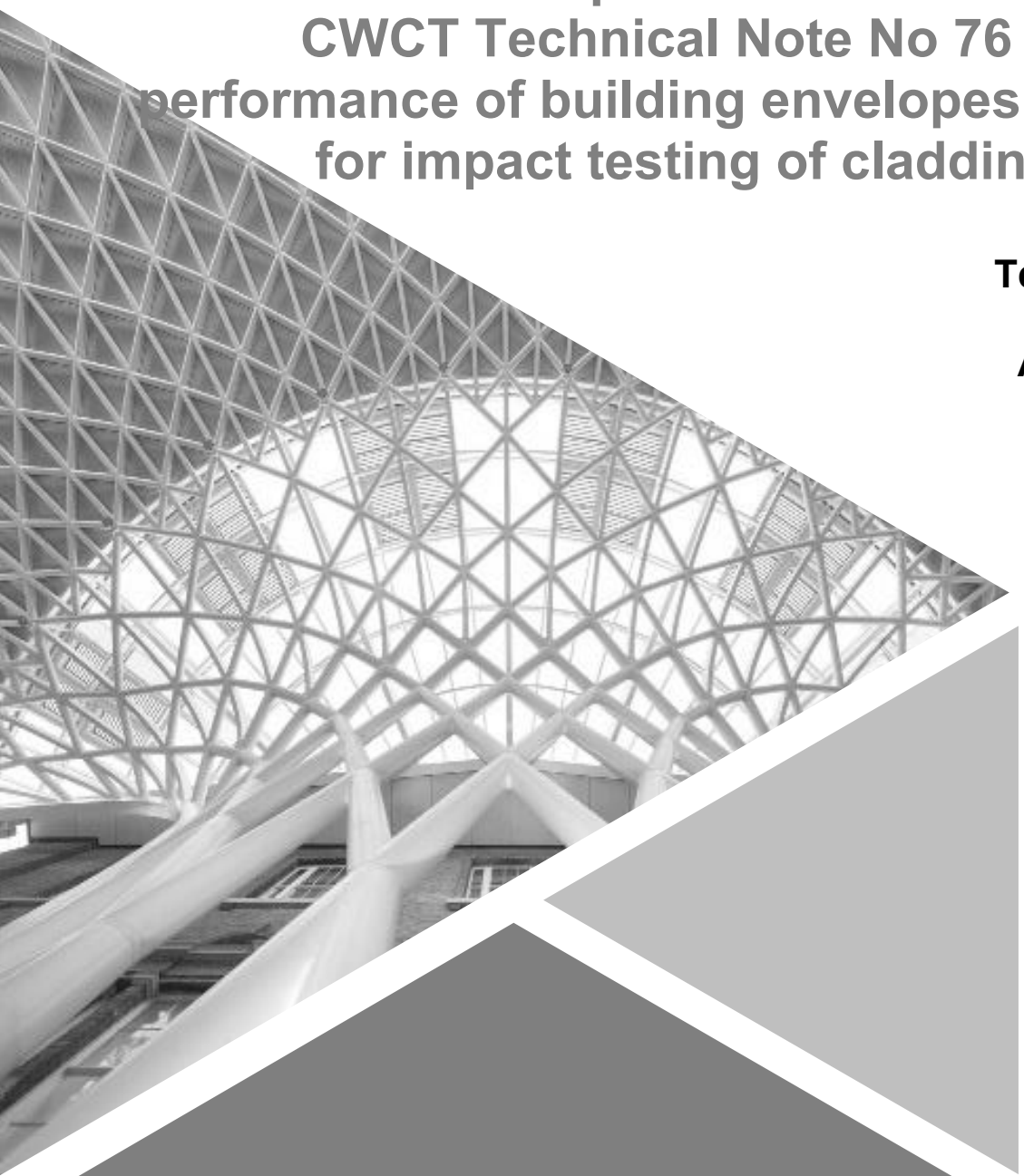
APPENDIX E

5772

Technical Report – R4790280537 Rev 1
CWCT Technical Note No 76 – Impact performance of building envelopes: Method for impact testing of cladding panels

TetraClad Ltd

A2 Premium



UL International (UK) Limited, Halesfield 2, Telford, Shropshire, TF7 4QH
www.ul.com |Tel: +44 (0)1952 586580

Contents

Rev 1 (Revised Report) – this report has been amended as shown in Section 8 and it replaces previous report No. R4790280537 dated 10th March 2022.

1. Introduction

This report describes impact testing conducted at the test site of UL International (UK) Limited to a sample supplied as follow:

Test Details	
Customer:	TetraClad Ltd 7 Carlton Business Park Carlton Road Ashford Kent TN23 1EF
Product Tested:	A2 Premium
Date of Test:	25th February 2022
Test Conducted at:	UL International (UK) Limited Halesfield 2 Telford Shropshire TF7 4QH
Test Conducted by:	D Reynolds – Engineering Technician P Seymour – Laboratory Technician J Ball – Laboratory Technician

Report Authorisation	
Report Compiled by:	D Price – Senior Engineering Associate
Authorised by:	M Wass – Engineering Manager

UL International (UK) Limited is accredited by the United Kingdom Accreditation Service as UKAS Testing Laboratory No. 5772.

This report and the results shown within are based upon the information, drawings, samples and tests referred to in the report. The results obtained do not necessarily relate to samples from the production line of the above named company and in no way constitute any form of representation or warranty as to the performance or quality of any products supplied or to be supplied by them. UL International (UK) Limited or its employees accept no liability for any damages, charges, cost or expenses in respect of or in relation to any damage to any property or other loss whatsoever arising either directly or indirectly from the use of the report.

2. Summary of Results

The following summarises the results of testing carried out, in accordance with the relevant testing and classification standards.

Test Type	Test Date	Impact Category	Result
Impact Resistance (Retention of Performance)	25.02.22	F	Class 1
Impact Resistance (Safety to Persons)	25.02.22	F	Negligible Risk

More comprehensive details are reported in Section 6.

These results are valid only for the conditions under which the test was conducted.

All measurement devices, instruments and other relevant equipment were calibrated and traceable to National Standards.

2.1 Decision Rule

Classifications reported in Section 5 indicate that the product conforms with the relevant accuracy requirements of the testing standards (as summarised below) and the expanded measurement uncertainty (k= 2 for approximately 95% coverage probability) is no greater in magnitude than the accuracy requirements defined in Section 2 of CWCT Standard Test methods for Building Envelopes.

2.2 Measurement Uncertainty

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k = 2, providing a level of confidence of approximately 95%, and for the mass of the dislodge fragments is +/- 0.12 %.

3. Description of Test Sample

The description of the test sample in this section has been supplied by TetraClad Ltd and has not been verified by UL International (UK) Limited.

See Section 7 for test sample drawings as supplied by TetraClad Ltd.

Product Description

Full product name:	A2 Premium
Product type:	Decorative Cladding Panel
Product description:	Ventilated Rainscreen Cladding
Manufactured by:	Rockpanel (Part of the Rockwool Group)

Support Framing and bracketry

Material:	Fastframe: Aluminium Alloy
Finish:	Bare
Vertical rail Ref:	Fastframe: FIX/TEE/HD/100/60
Horizontal rail Ref:	N/A
Fixing method (rail to backing wall):	Stainless Fastener with Nylon Plug
Fixing Ref:	SDF-KB-10vX60E
Fixing method (rail to rail):	Stainless Tec-Screw
Fixing Ref:	PCF/44/4.8x19
Max Span between vertical rails:	600mm
Max Span between horizontal rails:	N/A
Brackets ref:	Fastframe: FF FIX/BR/120

Panels/tiles/brickslip

Material:	Compressed Stone Wool Fibre
Material ref (source, spec):	Basalt Rock with Thermosetting Resin binder
Finish:	Water borne polymer emulsion.
Thickness:	11mm
Reinforcing:	None
Max height of panel:	1200mm
Max width of panel:	1200mm
Max size of panel by area (m2):	1.44
Fixing method:	Rivet
Bracket/clip ref:	N/A
Screws/fixings ref:	EN AW 5019 (AlMg5) 14mm x 5mm Rivet

Backing Wall

Structural support type:	Blockwork Wall
Insulation type:	Rockwool Duoslab
Insulation thickness:	90mm

Additional brackets & Fixings

Ref:	Aluminium Birds-beak joint profile to horizontal joint

Drawings

Drawing/s must be provides covering the below; -Full drawing of sample including front elevation -Cross Sections (Panels/Rails Etc.) -Hardware Locations	As detailed in Section 7

-Fixings -Drainage Points Note: drawings are required to show all relevant dimensions.	
Test sample size:	2.4m x 2.4m

Confirmation

Customer is to confirm that the samples provided for testing are representative of standard production. Please note: the details given above, as well as the drawings supplied by the customer as confirmed as typical of normal production are not verified by UL International (UK) Limited.	
Company:	Tetraclad Ltd
Name:	Adrian Buckmaster
Position:	Technical Director
Date:	08/03/2022

Sample during testing

Photograph No. 1

Photograph No. 2

4. Test Arrangement

4.1 Test Chamber

A specimen, supplied for testing in accordance with CWCT requirements, was mounted on to a concrete backing wall.

4.2 Instrumentation

4.2.1 Temperature & Humidity

A digital data logger capable of measuring temperature with an accuracy of ± 1°C and humidity with an accuracy of ± 5 %Rh was used.

4.2.2 General

Electronic instrument measurements were scanned by a computer-controlled data logger, which processed and recorded the results.

4.3 Impactors

4.3.1 Soft (S1) Body Impactor

A spherical/conical, glass bead filled impactor with a mass of 50 Kg, as required in CWCT TN76

4.3.2 Hard (H1) Body Impactor

A steel ball with a diameter of 50 mm and a mass of 0.605 Kg, as required in CWCT TN 76 was released from the height, calculated to result in the required impact energies and allowed to fall under gravity until it impacted the designated test zone of the sample.

All measurement devices, instruments and other relevant equipment were calibrated and are traceable to National Standards.

5. Test Procedures

The test sample was tested using a drop height which corresponded with the required performance level.

The Impactors, as described in section 4.3, were suspended on a wire cord and allowed to swing freely, without initial velocity, in a pendulum motion until it hit the sample normal to its face.

Tests were conducted at the specified drop height as shown in the results table to the selected impact points and the impactor was not allowed to strike the sample more than once. Drop heights were set to an accuracy of ± 10 mm.

6. Test Results

The following summarises the results of tests carried out. The sample was tested in the following sequence and the following results prevailed.

6.1 Impact – Retention of Performance (Soft & Hard Body)

25th February 2022	Ambient Temperature (°C)	5.2	Humidity (%)	85

Soft Body Impactor (S1) – Category F			
Impact Energy (Nm)	120	Drop Height (mm)	245

Impact Location	Observations	Class
A1	No Damage	Class 1
A2	No Damage	Class 1
A3	No Damage	Class 1
A4	No Damage	Class 1
B1	No Damage	Class 1
B2	No Damage	Class 1
B3	No Damage	Class 1
B4	No Damage	Class 1
C1	No Damage	Class 1
C2	No Damage	Class 1
C3	No Damage	Class 1
C4	No Damage	Class 1
D1	No Damage	Class 1
D2	No Damage	Class 1
D3	No Damage	Class 1
D4	No Damage	Class 1
E1	No Damage	Class 1
E2	No Damage	Class 1
E3	No Damage	Class 1
E4	No Damage	Class 1
F1	No Damage	Class 1
F2	No Damage	Class 1
F3	No Damage	Class 1
F4	No Damage	Class 1

Photograph No. 3

No damage was caused during the above test.

Photograph No. 4

No damage was caused during the above test.

Hard Body (H1) – Category F			
Impact Energy (Nm)	**3**	**Drop Height (mm)**	**505**

Impact Location	Observations	Class
A1	No Damage	Class 1
A2	No Damage	Class 1
A3	No Damage	Class 1
A4	No Damage	Class 1
B1	No Damage	Class 1
B2	No Damage	Class 1
B3	No Damage	Class 1
B4	No Damage	Class 1
C1	No Damage	Class 1
C2	No Damage	Class 1

C3	No Damage	Class 1
C4	No Damage	Class 1
D1	No Damage	Class 1
D2	No Damage	Class 1
D3	No Damage	Class 1
D4	No Damage	Class 1
E1	No Damage	Class 1
E2	No Damage	Class 1
E3	No Damage	Class 1
E4	No Damage	Class 1
F1	No Damage	Class 1
F2	No Damage	Class 1
F3	No Damage	Class 1
F4	No Damage	Class 1

Photograph No. 5

No damage was caused during the above test.

Photograph No. 6

No damage was caused during the above test.

Photograph No. 7

No damage was caused during the above test.

6.2 Impact – Safety (Soft Body & Hard Body)

25th February 2022	**Ambient Temperature (°C)**	7.2	**Humidity (%)**	65

Hard Body (H1) – Category F			
Impact Energy (Nm)	**3**	**Drop Height (mm)**	**505**

Impact Location	Observations	Risk Category
A1	No Damage	Neg Risk
A2	No Damage	Neg Risk
A3	No Damage	Neg Risk
A4	No Damage	Neg Risk
B1	No Damage	Neg Risk
B2	No Damage	Neg Risk
B3	No Damage	Neg Risk
B4	No Damage	Neg Risk
C1	No Damage	Neg Risk
C2	No Damage	Neg Risk
C3	No Damage	Neg Risk
C4	No Damage	Neg Risk
D1	No Damage	Neg Risk
D2	No Damage	Neg Risk
D3	No Damage	Neg Risk
D4	No Damage	Neg Risk
E1	No Damage	Neg Risk
E2	No Damage	Neg Risk
E3	No Damage	Neg Risk
E4	No Damage	Neg Risk
F1	No Damage	Neg Risk

F2	No Damage	Neg Risk
F3	No Damage	Neg Risk
F4	No Damage	Neg Risk

Soft Body Impactor (S1) – Category F			
Impact Energy (Nm)	**350**	**Drop Height (mm)**	**714**

Impact Location	**Observations**	**Risk Category**
A1	No Damage	Neg Risk
A2	No Damage	Neg Risk
A3	No Damage	Neg Risk
A4	No Damage	Neg Risk
B1	No Damage	Neg Risk
B2	No Damage	Neg Risk
B3	No Damage	Neg Risk
B4	No Damage	Neg Risk
C1	No Damage	Neg Risk
C2	No Damage	Neg Risk
C3	No Damage	Neg Risk
C4	No Damage	Neg Risk
D1	One Crack 330 mm	Neg Risk
D2	Two cracks 550 mm & 570 mm	Neg Risk
D3	One Crack 400 mm	Neg Risk
D4	Two cracks 450 mm & 500 mm	Neg Risk
E1	No Damage	Neg Risk
E2	No Damage	Neg Risk
E3	No Damage	Neg Risk
E4	No Damage	Neg Risk
F1	No Damage	Neg Risk
F2	No Damage	Neg Risk
F3	No Damage	Neg Risk
F4	No Damage	Neg Risk

Photograph No. 8

Damage caused following safety impacting, safely retained.

Photograph No. 9

Damage caused following safety impacting, safely retained.

Photograph No. 10

Damage caused following safety impacting, safely retained.

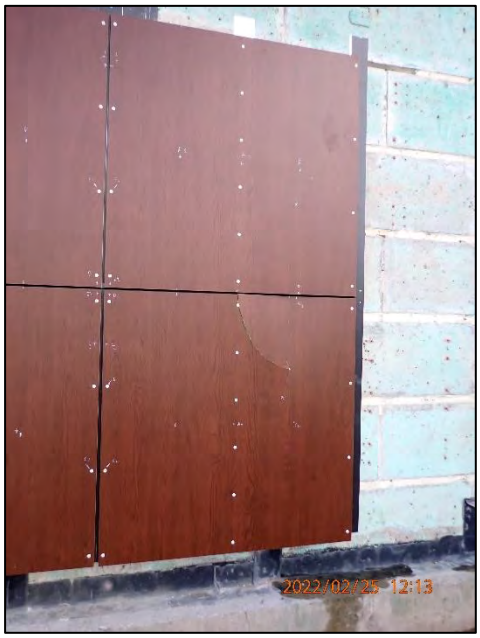
Photograph No. 11

Damage caused following safety impacting, safely retained.

Photograph No. 12

Damage caused following safety impacting, safely retained.

Photograph No. 13



Damage caused following safety impacting, safely retained.

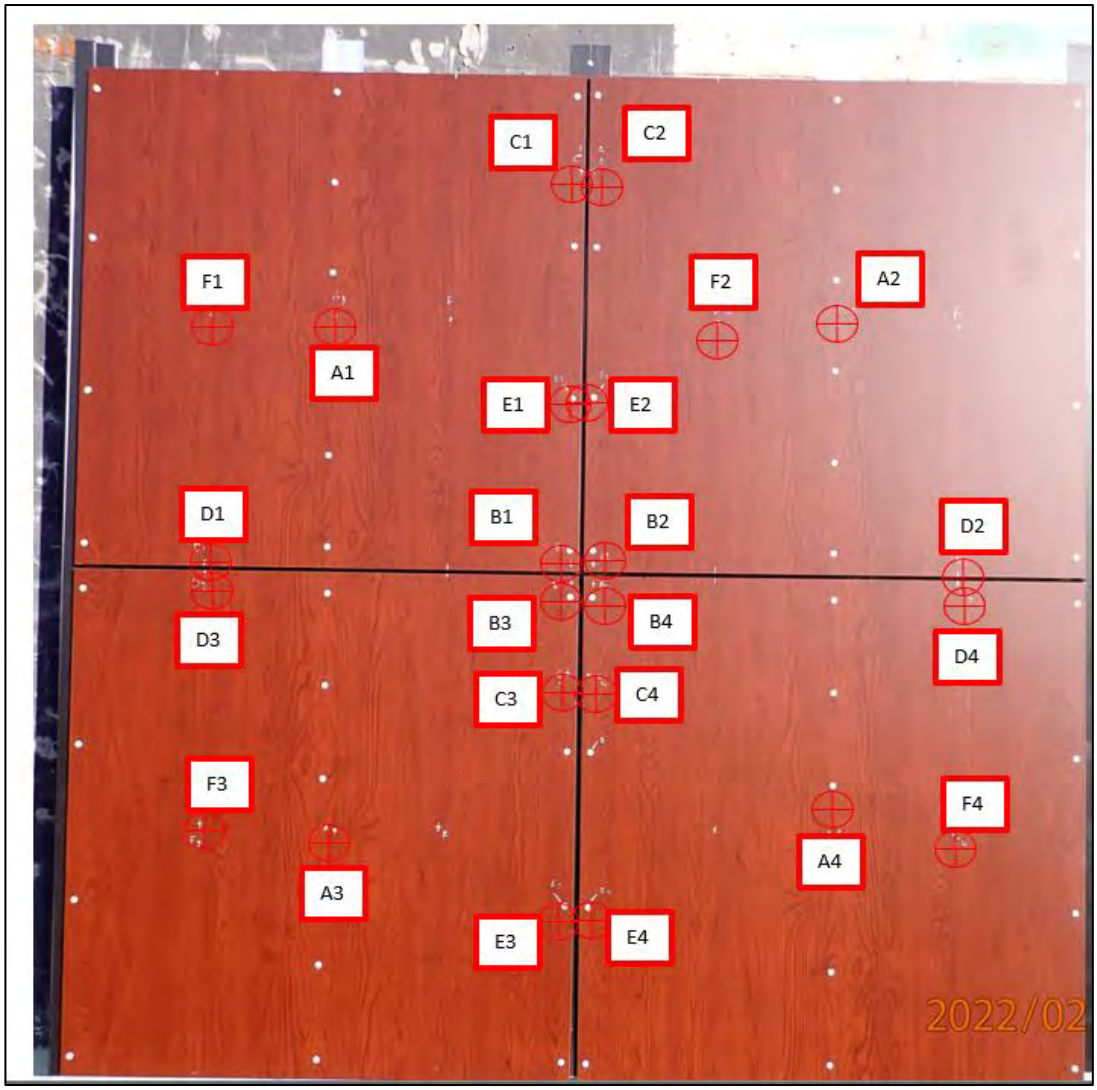
Photograph No. 14

Damage caused following safety impacting, safely retained.

Photograph No. 15

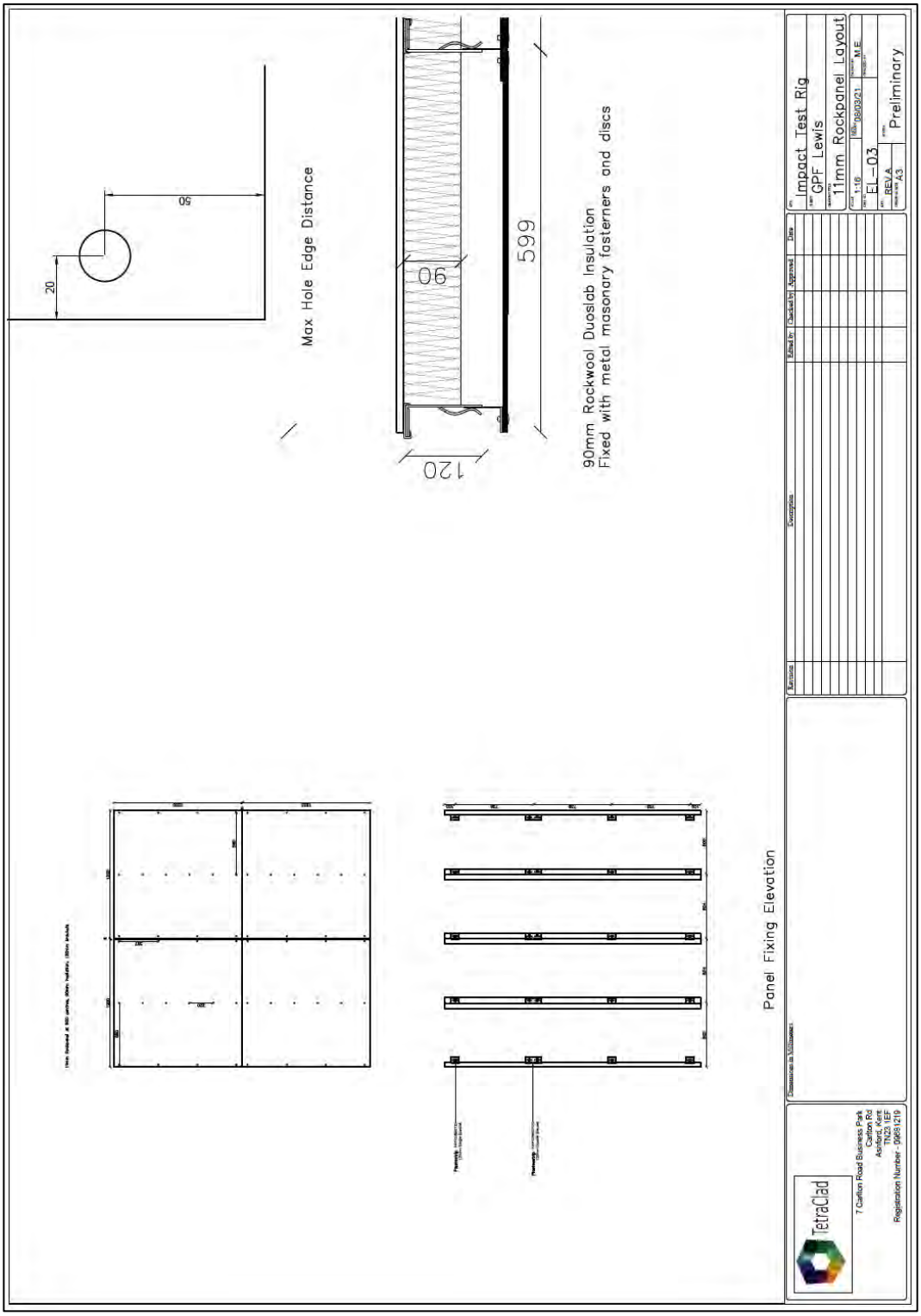
Damage caused following safety impacting, safely retained.

6.3 Impact Locations



Impact Reference	Impact Location
A	Panel Centre
B	Panel Corner
C	Supported Edge
D	Unsupported Edge
E	On a fixing
F	Centre between fixings

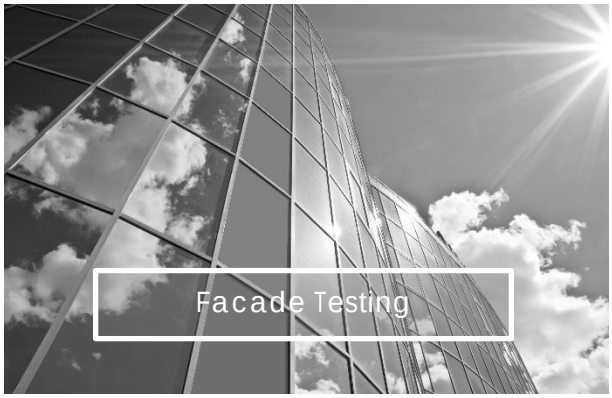
7. Sample Drawings



8. Amendments

Revision No.	Amendments	Date of Amendment
Rev 1	1. Product name changed	4th October 2022

----- END OF REPORT -----



UL International (UK) Limited is an independent UKAS accredited testing laboratory and certification body. We provide a comprehensive range of services to the building and construction industries, either onsite or at our own state-of-the-art test laboratory in Telford, Shropshire, in the heart of industrial England.

☎ +44 (0) 1952 586580
www.ul.com

APPENDIX F

Certificate of Testing

Certificate Number:	2021/114	
Date:	4 January 2022	
System:	**Rockpanel A2 Fixed with Rivets According ETA 13/0340**	
System supplier:	ROCKWOOL B.V. / Rockpanel Konstrukieweg 2 NL-6045 JD Roermond Netherlands	
Tests performed:	Air permeability	✓
	Watertightness – static	✓
	Watertightness – dynamic	✓
	Wind resistance – serviceability	✓
	Wind resistance – safety	✓
	Wind resistance (rainscreen) – serviceability	✓
	Wind resistance (rainscreen) – safety	✓
	Soft body impact	✓
	Hard body impact	✓

In accordance with 'Standard for Systemised building envelopes' CWCT, 2006

Test Witness

Director

CWCT Services Ltd, The Studio, Entry Hill, Bath, BA2 5LY
Tel: 01225 330945, email: cwct@cwct.ac.uk www.cwct.co.uk

Description of system tested

(Certain items shown below may be changed without affecting the validity of this test certificate, subject to analytical or other evidence being provided to demonstrate that the alternative system is no worse than that described here, in terms of structural strength, stiffness, water- and air-tightness)

Rainscreen: ROCKWOOL B.V. / Rockpanel (Konstrukieweg 2, NL-6045 JD Roermond, Netherlands):

Elevation (see Figure 1), vertical section (see Figure 2) and horizontal section (see Figure 3) of test sample as shown.

Rockpanel compressed mineral fibre panels, 9 thick, in various sizes as follows (width first):

3040x1200	3040x558	3040x350	3040x300
3040x250	3024x1200	2424x596	2408x556
1200x3050	1200x1200		

Panels fixed to cladding rails using SFS AP14-50180-S aluminium pop rivets, into predrilled holes, maximum 600 mm centres (Figure 4), 20 mm in on vertical edges, 50 mm from horizontal edges.

Vertical cladding rails comprise 60x40x2.2 'L' profile or 100x60x2.2 'T' profile arranged as per Figure 5.

Vertical cladding rails are fixed to extruded aluminium 65 deep Plastestrip FastFrame helping hand brackets using two (restraint only single bracket) or four (deadload plus restraint double bracket) SFS SDA5-5.5x22 stainless steel fixings, with brackets at nominal 1200 centres vertically (see Figures 2 & 5-9).

Helping hand brackets are fixed through sheathing board and into studs using two or three SFS SX3/28-S16-6.0x48 stainless steel self-drilling fixings (see Figure 9).

Flashings: Flashings are 2 thick pressed aluminium or angle profiles (Figures 8 & 10).

Insulation: 50 mm Rockwool Rainscreen Duo Slab.

Cavity barriers: AIM OSCB 60/25 open state mineral wool cavity barrier (horizontal) or AIM Wall Cavity Fire Barrier 90 thick mineral wool (vertical) as Figures 1, 6 & 9.

Backing wall: Stoneguard Protec SFS system using 142x1.2 steel stud at nominal 600 mm centres, fixed using Ejot SAPHIR HS 5.5 fixings into identical head and base track, direct fixed to supporting steelwork, set-out as Figure 11.

Head and base track each direct fixed to supporting steelwork using Ejot Saphir 5.5 dia self-tapping fixings.

External sheathing 12 thick RCM y-wall cement particle sheathing board fixed onto studs using GTEC Wet Area Self Drilling Screws. All joints sealed with GTEC Fire Rated Silicone Sealant. Wraptite self-adhesive breather membrane applied to face of sheathing board.

Dry lining omitted for purpose of test.

Drainage and ventilation: Drainage from, and ventilation of, rainscreen cavity achieved by 10 wide gap along head and base of rainscreen layer.

Test arrangements

Dates of test:	4 & 5 November 2021
Testing laboratory:	VINCI Technology Centre UK Limited Stanbridge Road Leighton Buzzard Bedfordshire LU7 4QH
Registration No:	UKAS No 0057
Independent testing authority:	VINCI Technology Centre UK Limited Stanbridge Road Leighton Buzzard Bedfordshire LU7 4QH
Report Number:	N950-21-18175 rev 3
Fabricator:	Stoneguard Projects Limited Unit 46 Hallmark Trading Centre Fourth Way Wembley HA9 0LB
Installer:	Stoneguard Projects Limited

Summary of results

Air permeability:	PASS (CWCT) Equivalent to Class A4 of BS EN 12152
Pressure:	+600 Pa (infiltration) -600 Pa (exfiltration)
Leakage rate (max):	0.16 m^3/hour/m^2 (infiltration) 0.13 m^3/hour/m^2 (exfiltration)

Note: The air permeability of this system is entirely dependent upon the construction of the backing wall. Airtightness testing was only carried out in order to show that the measured air leakage was within acceptable limits and so not likely to adversely influence the watertightness of the sample.

Watertightness – static:	PASS (CWCT) Equivalent to Class R7 of BS EN 12154
Test pressure:	+600 Pa

Note: No water penetration was noted during either static watertightness test.

Watertightness – dynamic:	PASS
Aero engine:	Equivalent static pressure +600 Pa

Note: No water penetration was noted during the dynamic watertightness test.

Wind resistance:	PASS
Serviceability test pressure:	+/-1800 Pa
Safety test pressure:	+/-2700 Pa

Note 1: The internal dry lining was not fitted to the test specimen, to permit the back of the sheathing board to be observed during the watertightness tests. It is likely that addition of the dry lining would stiffen the construction and reduce deflections below those reported below.

Note 2: Following the dynamic watertightness test the joints between the rainscreen panels were taped over and a hole was cut in the backing wall. The serviceability and safety wind loads were then reapplied directly to the rainscreen layer. No damage was seen to occur.

Soft body impact test to CWCT Technical Note 76:	All soft body impacts were applied using the glass-bead-filled soft bag defined in CWCT TN76. For impact locations see Figure 4 of the Vinci Test Report. Four locations (1 to 4 inclusive) were impacted three times in succession at a serviceability impact of 120 Nm. No damage was observed. This achieves '*Class 1 – No damage*'. Two locations (1 and 5) were impacted once at a safety impact of 350 Nm. In each instance a vertical crack occurred but no parts of the panel were dislodged. This achieves a '*Low Risk*' classification. Two locations (6 and 7) were impacted once at a safety impact of 350 Nm. In each instance no damage occurred. This achieves a '*Negligible Risk*' classification.

Two locations (2 and 4) were impacted once at a safety impact of 500 Nm. In each instance multiple cracks occurred and a large fragment or fragments were dislodged. This achieves a '*High Risk*' classification.

Three locations (3, 6 and 7) were impacted once at a safety impact of 500 Nm. In each instance no damage occurred. This achieves a '*Negligible Risk*' classification.

Note: The risk of cracking of the panel is governed by the proximity of the soft body impact to the edge and/or corner of the panel, and the span between cladding rails, and relates to the degree of support that the panel has around the impact location. Improved performance can be achieved in critical locations by the introduction of intermediate support rails, or by moving the rails closer together, or by using a thicker panel.

Hard body impact test to CWCT Technical Note 76:

Two locations (8 and 9) were each hit with a single impact at an energy of 3 Nm, using the 50 mm steel ball impactor. A slight indentation occurred at each location, which could only be seen close-up. This achieves '*Class 1 – No damage*' for serviceability, or '*Negligible Risk*' for safety.

Two locations (8 and 9) were each hit with a single impact at an energy of 6 Nm, using the 50 mm steel ball impactor. A slight indentation occurred at each location, which could only be seen close-up. This achieves '*Class 1 – No damage*' for serviceability.

Three locations (8, 9 and 10) were each hit with a single impact at an energy of 10 Nm, using the 62.5 mm steel ball impactor. A slight indentation occurred at two locations, which could only be seen close-up and no damage at the other. This achieves '*Class 1 – No damage*' for serviceability, or '*Negligible Risk*' for safety.

Wind resistance test results – SFS backing wall – deflection – serviceability @ 1800 Pa

SFS studs		Deflection limit L/360 (mm)	Measured deflection at serviceability wind load		Serviceability wind load (Pa)
	Span (mm)		Positive (mm)	Negative (mm)	
Stud, relative to ends	2900	8.1	3.7	-4.5	±1800

Note: Upon removal of the test pressure, the residual deflection was less than 1.0 mm in all cases.

Wind resistance test results – Cladding rails – deflection – serviceability @ 1800 Pa

The deflection of the cladding rails was not assessed due to the close spacing of the fixing brackets, which means that deflection of the rails between points of fixing is insignificant relative to the deflection of the SFS studs and rainscreen panels.

Wind resistance test results – Rainscreen panels – deflection – serviceability @ 1800 Pa

Rainscreen panels		Deflection limit L/90 (mm)	Measured deflection at serviceability wind load		Serviceability wind load (Pa)
All spans are nominal distance between adjacent fixings	Span (mm)		Positive (mm)	Negative (mm)	
3024x1200	600	6.7	1.1	-3.7	±1800
1200x3050	600	6.7	3.0	-5.0	±1800
1200x1200	600	6.7	2.7	-4.2	±1800
2424x596	600	6.7	1.2	-1.7	±1800
3040x1200	600	6.7	1.3	-1.7	±1800

Note: Upon removal of the test pressure, the residual deflection was less than 1.0 mm in all cases

Drawings

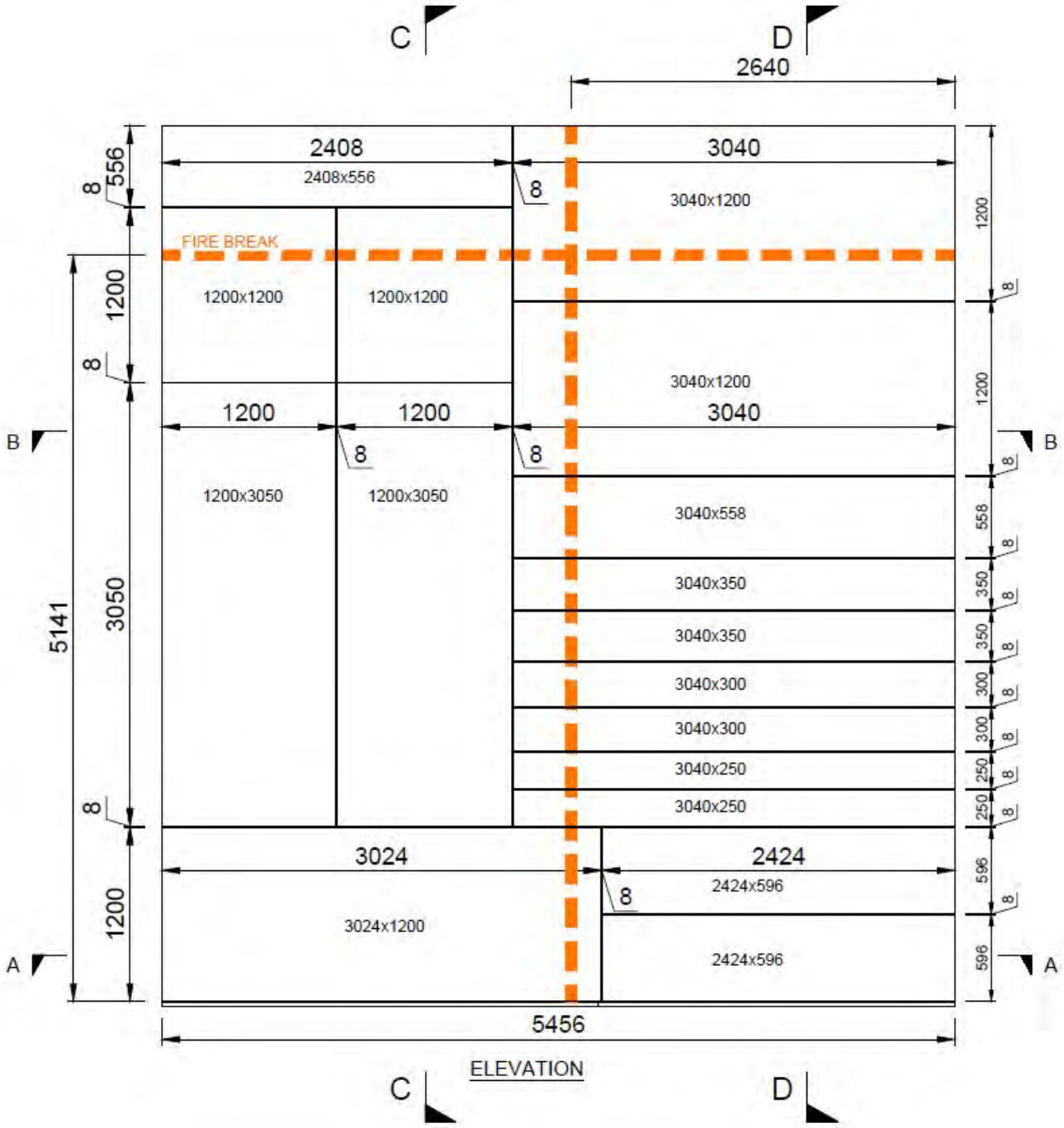


Figure 1 Elevation of cladding test sample showing location of cavity barriers

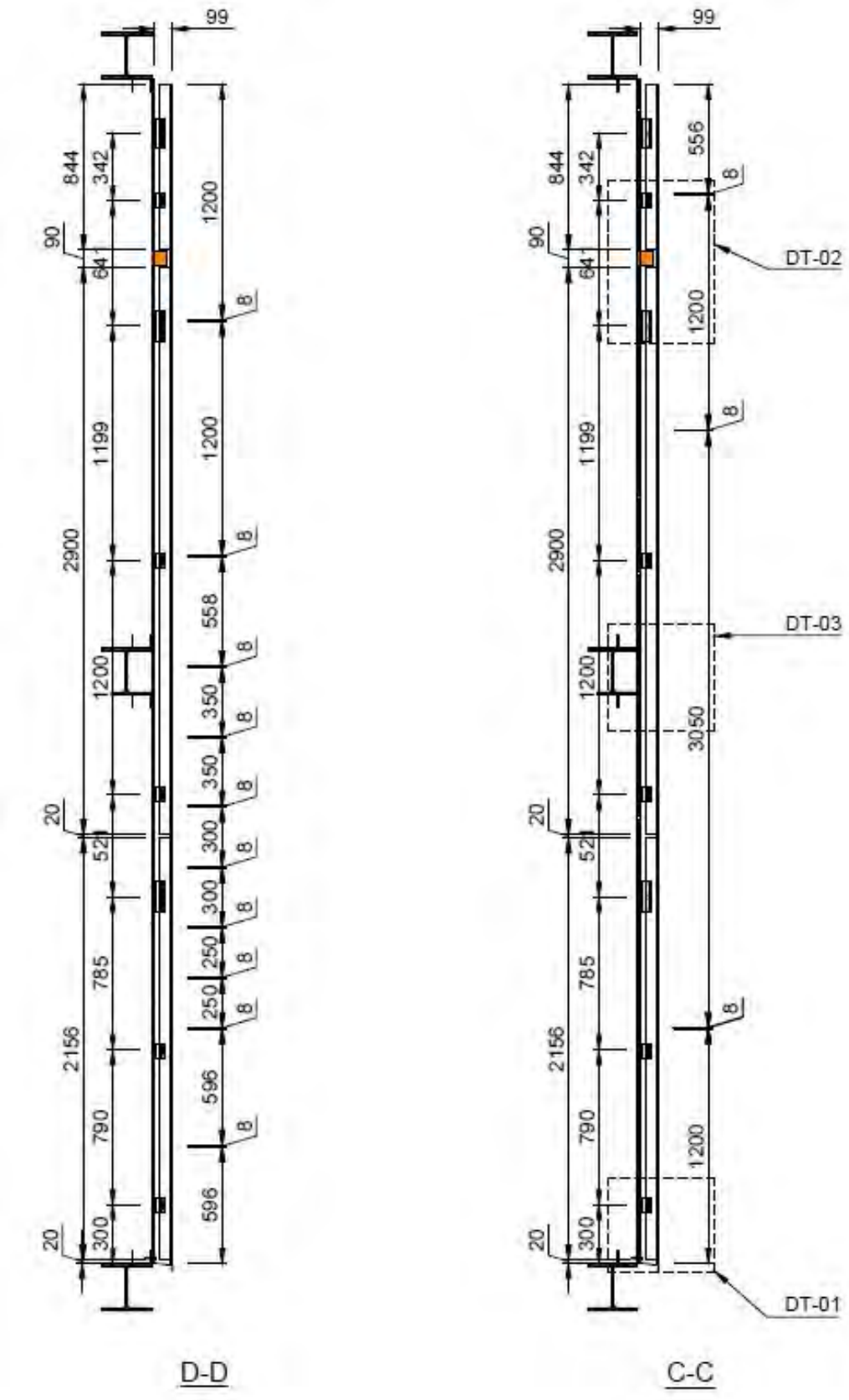


Figure 2 Vertical sections through test sample

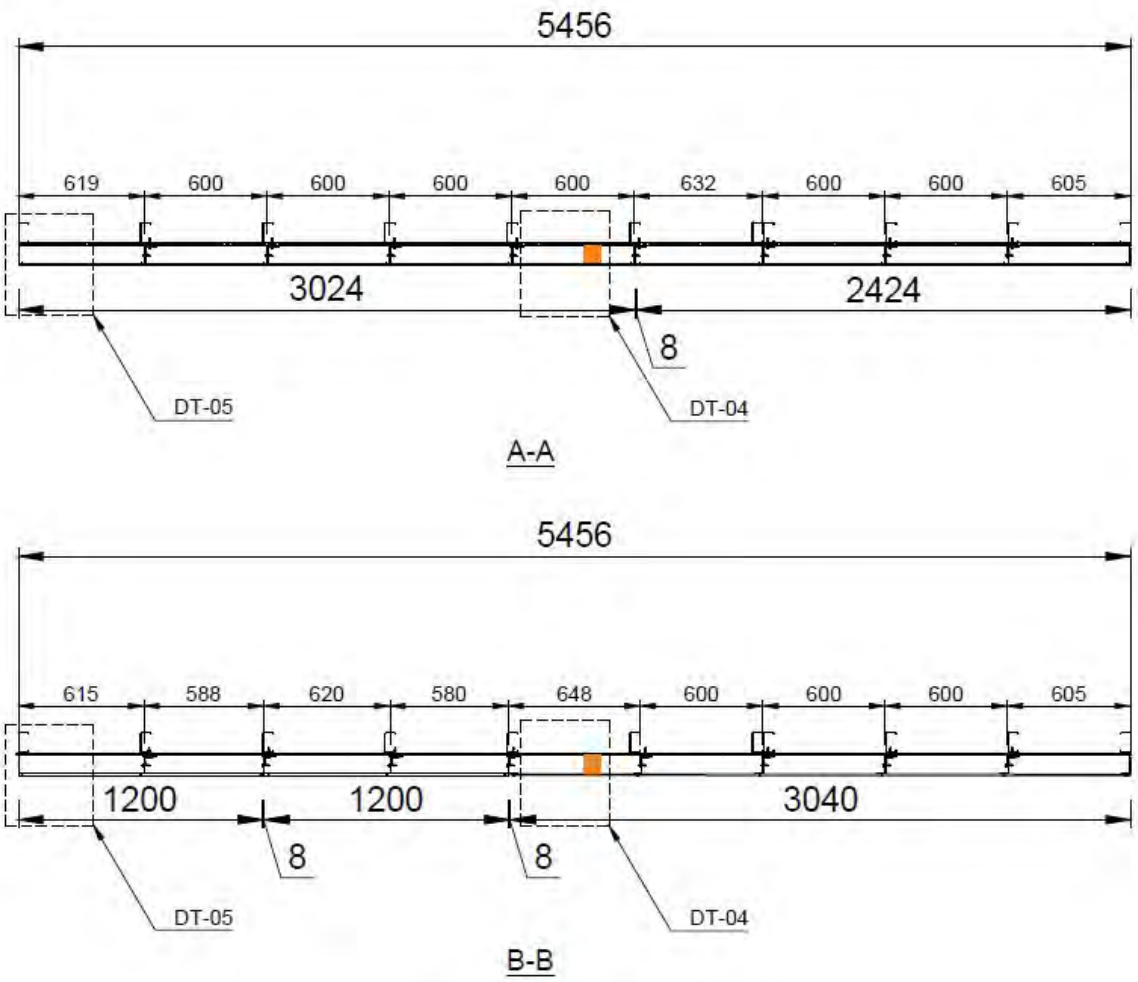
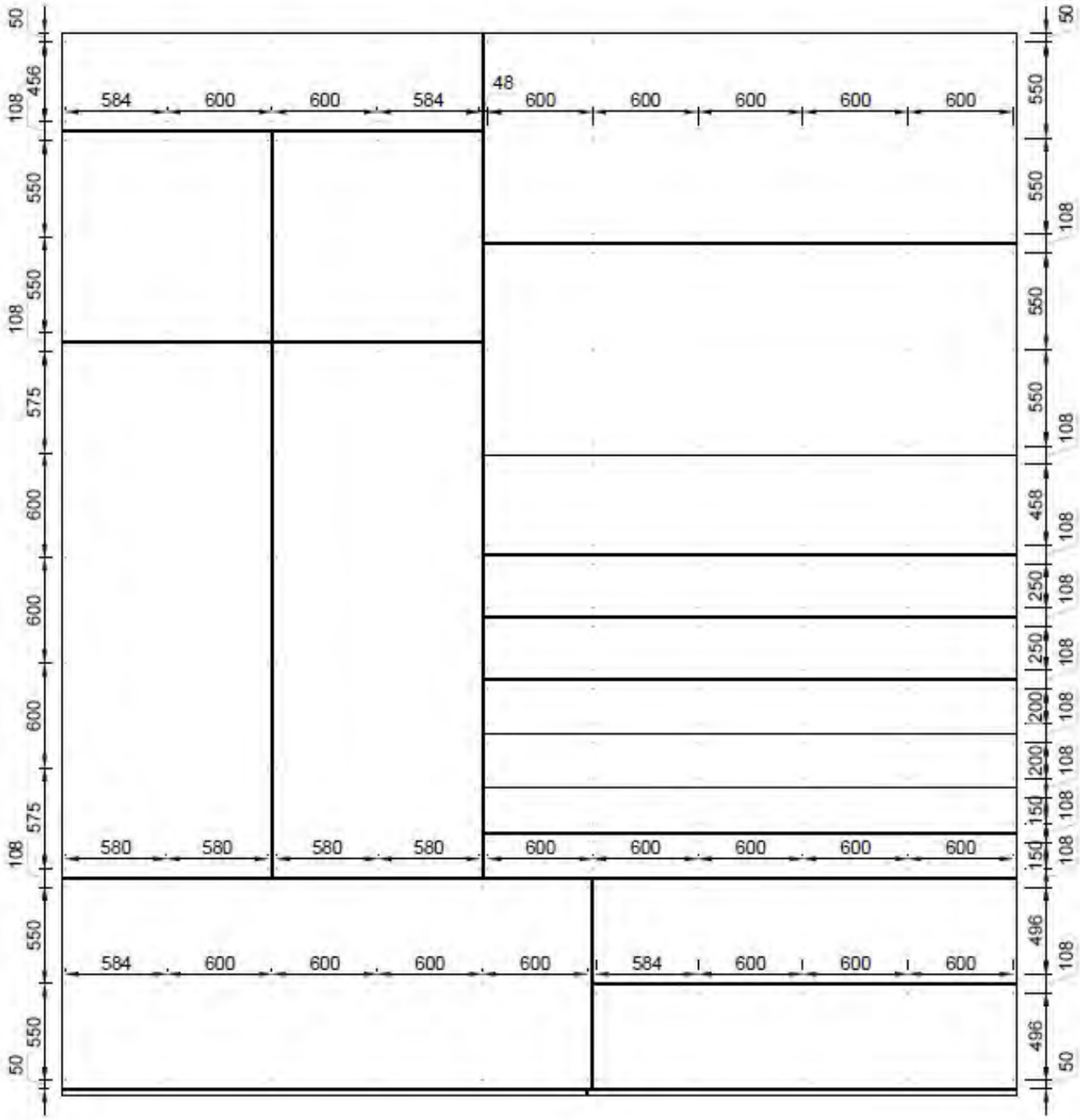


Figure 3 Horizontal sections through test sample



PANEL FIXING
ELEVATION

Figure 4 Panel layout with fixing locations

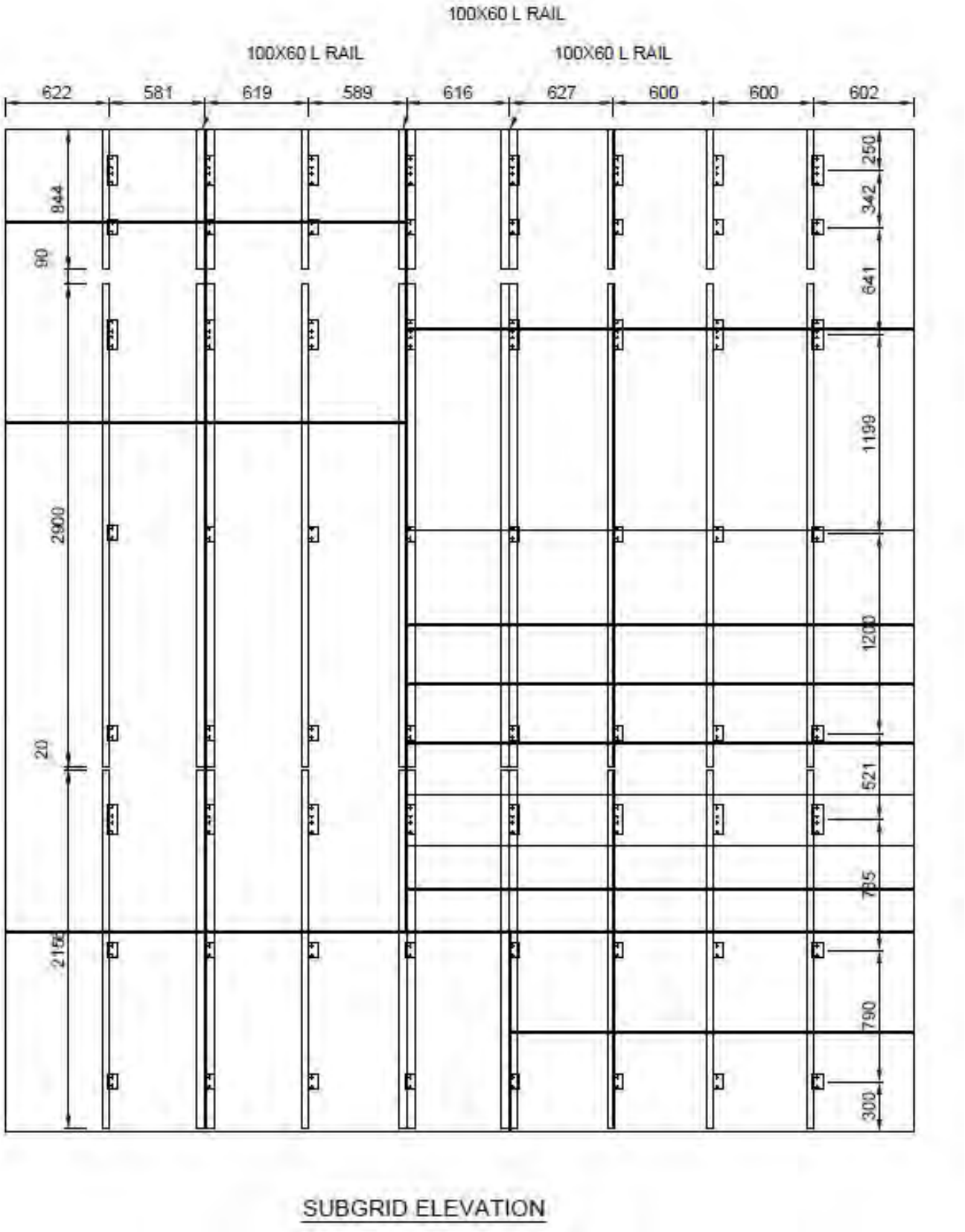


Figure 5 Cladding rail and bracket locations

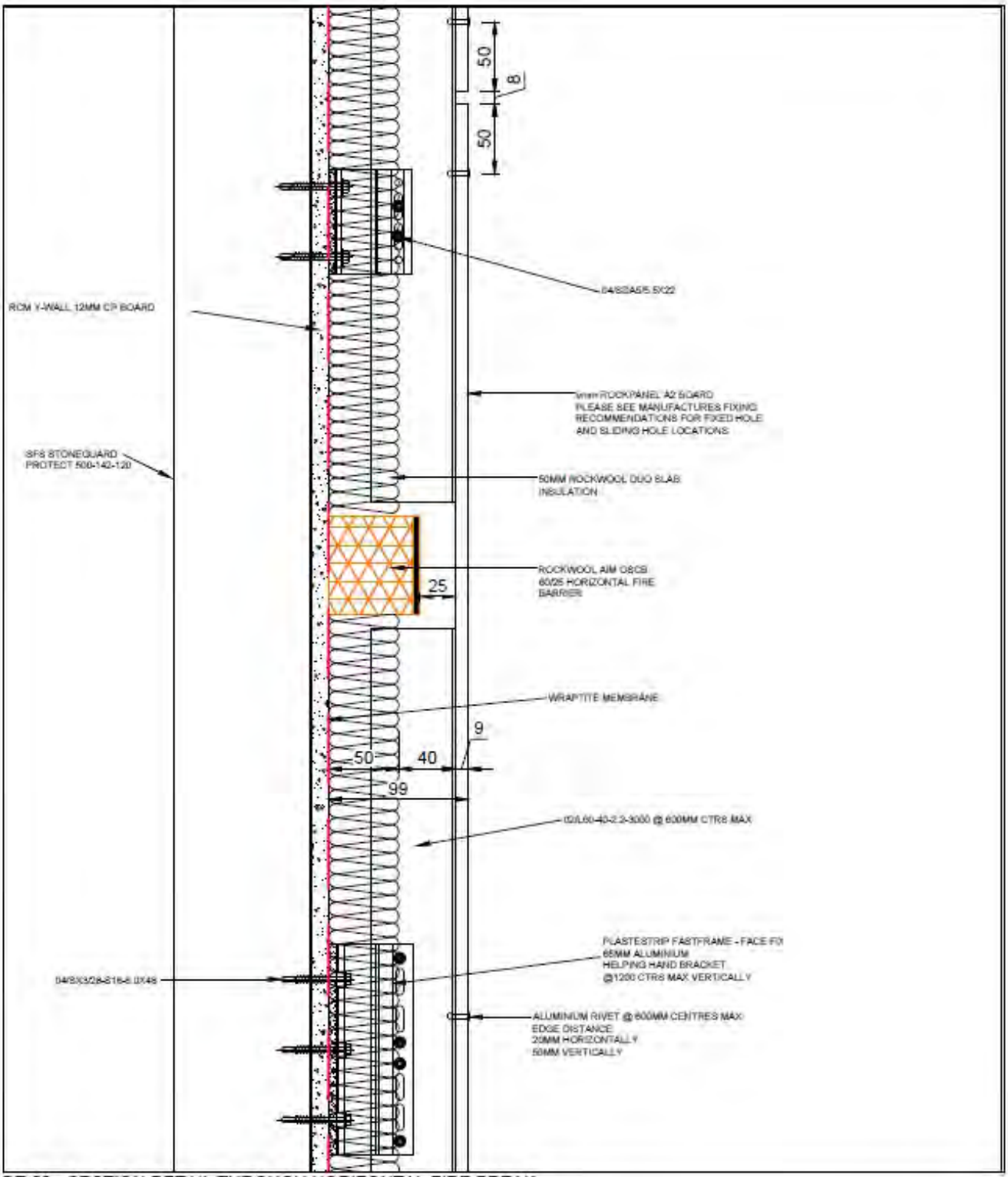


Figure 6 Vertical section through cavity barrier

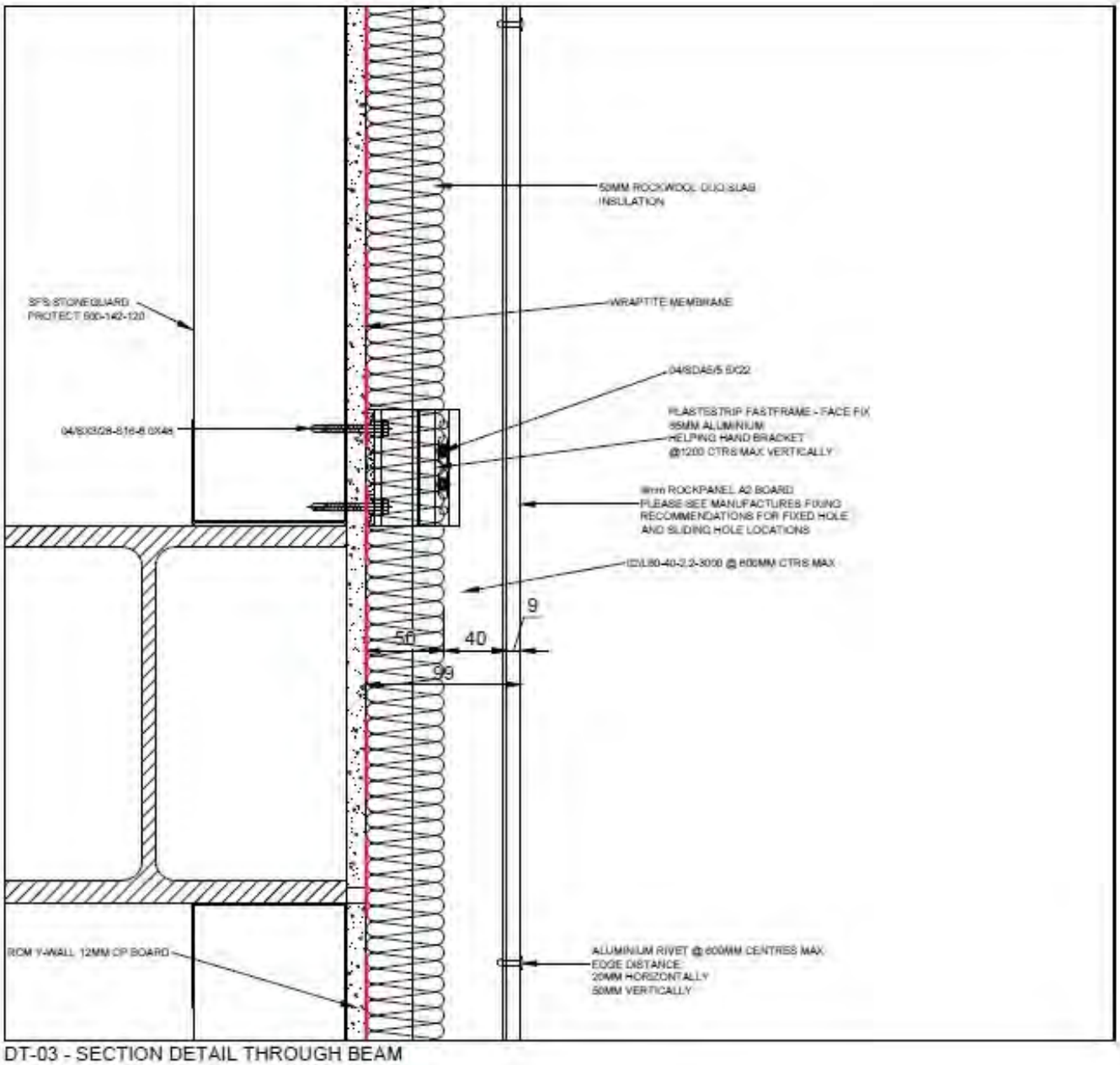
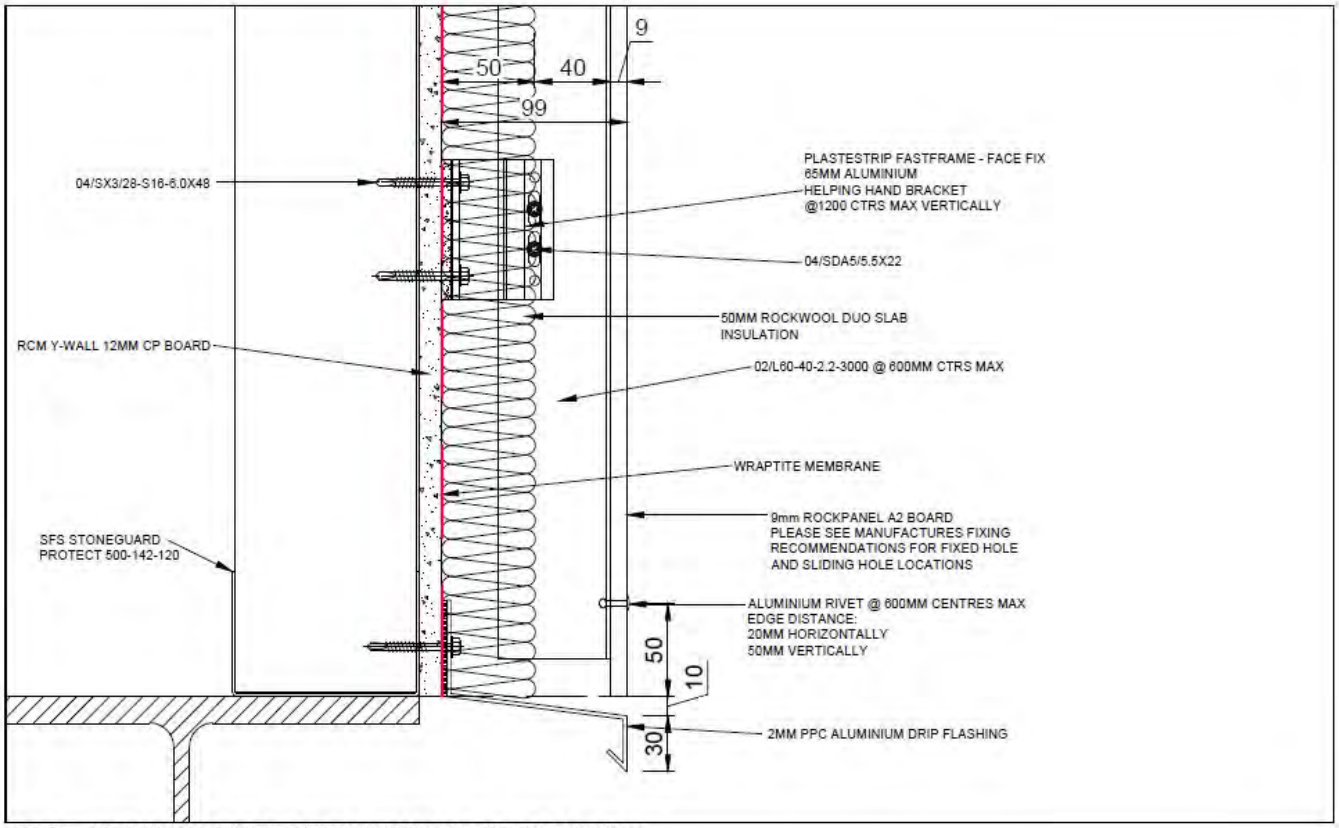


Figure 7 Vertical section through floor edge



DT-01 - SECTION DETAIL THROUGH BASE OF CLADDING
SCALE 1:3 @ A1

Figure 8 Vertical section through sill detail

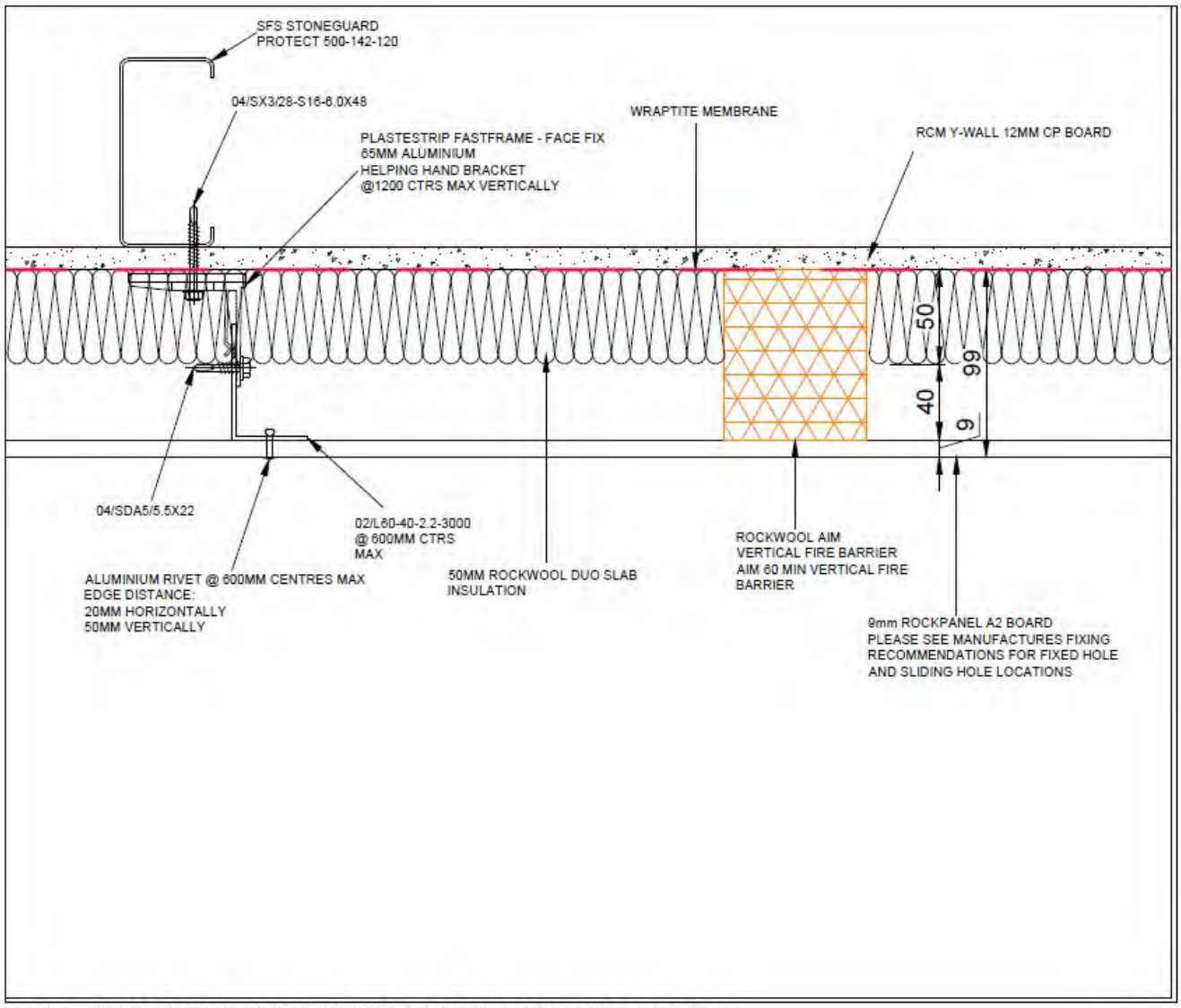


Figure 9 Horizontal section through cavity barrier

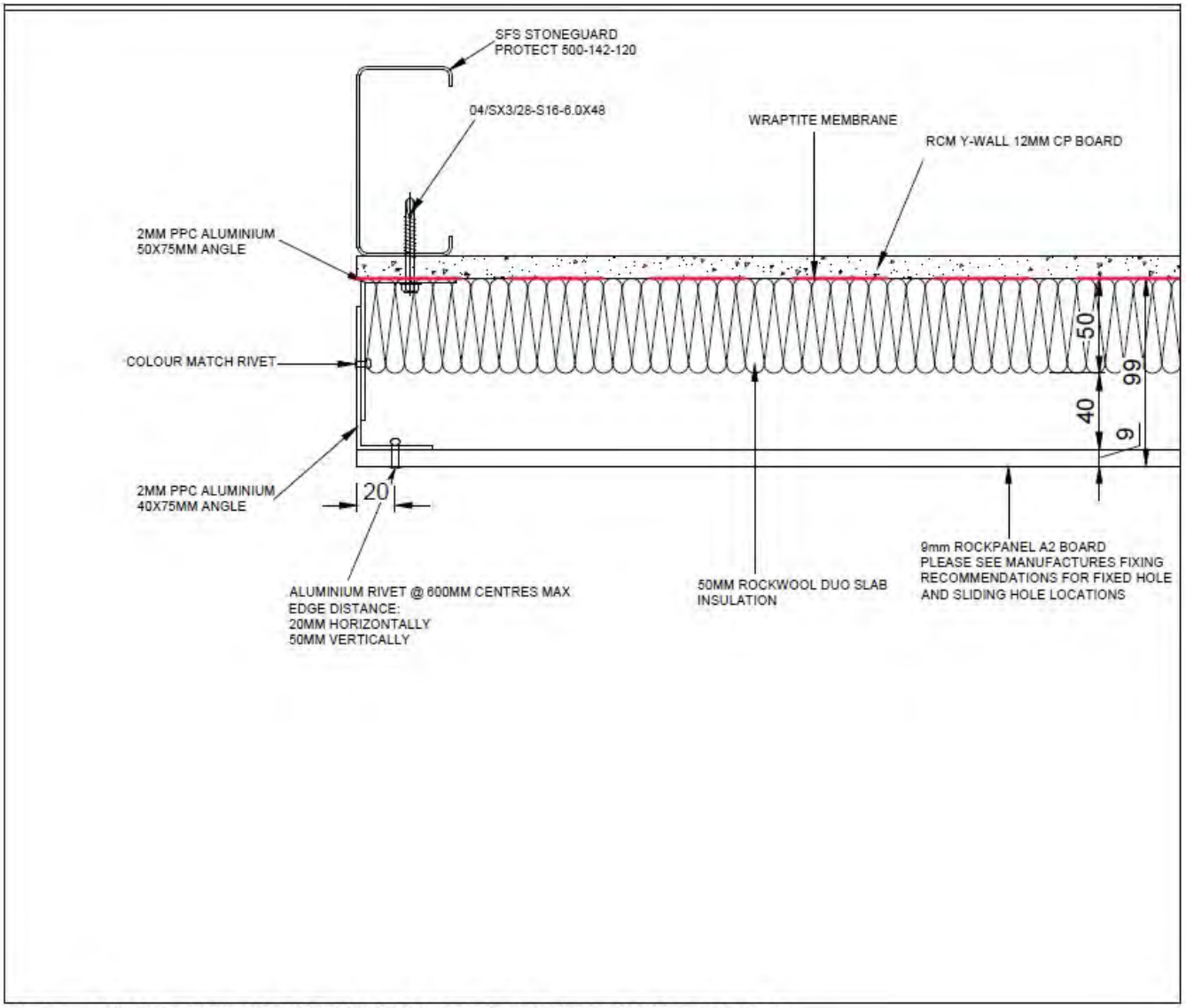


Figure 10 Horizontal section through jamb detail

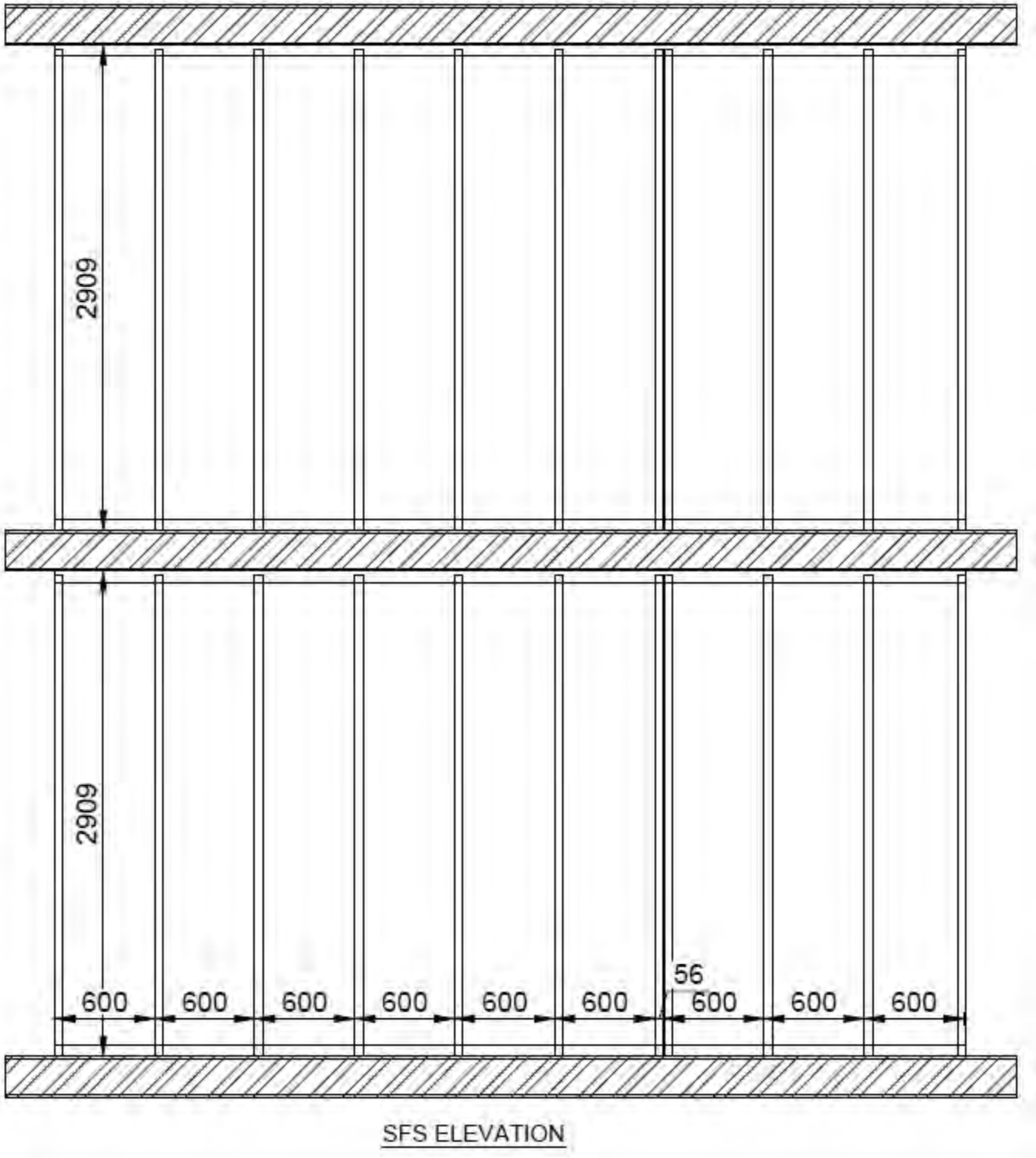


Figure 11 Stud layout

APPENDIX G

Materialprüfanstalt Hannover
Bauwesen und Produktionstechnik

Klassifizierungsbericht Nr. 182530

Classification report no. 182530

1. Ausfertigung vom 26.06.2018
1. edition dated 26 June 2018

Bericht zur Klassifizierung des Brandverhaltens
des Bauprodukts „Rockpanel Premium“
Reaction to fire classification report of the product „Rockpanel Premium“

Auftraggeber: ROCKWOOL B.V. / Rockpanel

Sponsor: Konstruktieweg 2
6045 JD Roermond
Niederlande

Auftrag vom: 06.11.2017 – Pascal Kabo

Order from:

Dieser Klassifizierungsbericht definiert die Klassifizierung des Bauprodukts „Rockpanel Premium“
in Übereinstimmung mit dem in EN 13501-1:2007+A1:2009 angegebenen Verfahren.
This classification report defines the classification assigned to „Rockpanel Premium“ in accordance with the procedures given in EN 13501-1:2007+A1:2009

Der Klassifizierungsbericht umfasst 6 Seiten.
This reaction to fire classification report consists of 6 pages.

Materialprüfanstalt für das Bauwesen und Produktionstechnik
Nienburger Straße 3 · 30167 Hannover
Contact Dipl.-Ing. Kielinski
Direct dial +49 511 762-3109
E-mail k.kielinski@mpa-hannover.de
Internet www.mpa-hannover.de

DAkkS Deutsche Akkreditierungsstelle D-PL-11220-01-00

Niedersachsen

Notifizierte Stelle 0764

1 Einzelheiten zum klassifizierten Bauprodukt
Details of the classified product

1.1 Art und Anwendungsbereich
Nature and end use application

Bei dem Bauprodukt „Rockpanel Premium" handelt es sich um eine einseitig farbeschichtete Fassadenplatte aus kunstharzgebunden Mineralfasern. Die Klassifizierung ist gültig für folgende Anwendung: Hinterlüftete Wandbekleidungen.

The product „Rockpanel Premium" is a one side coloured facade panel from resin bonded mineral fibers. The classification is valid for the following application: Ventilated wall coverings.

1.2 Beschreibung des Bauproduktes
Description of the classified product

Das Bauprodukt wird in den in Abschnitt 2.1 aufgeführten Prüfberichten, die der Klassifizierung zugrunde liegen, vollständig beschrieben.

The product is described in the test reports provided in support of the classification listed in section 2.1.

Für das Produkt existiert zurzeit keine europäische Produktspezifikation.

For the product exists currently no European product specification.

2 Prüfberichte und Prüfergebnisse für die Klassifizierung
Test reports and test results in support of this classification

2.1 Prüfberichte
Test reports

Name des Labors *Name of laboratory*	**Auftraggeber** *Sponsor*	**Nummer des Prüfberichts** *Test report no.*	**Prüfverfahren** *Test method*
MPA Hannover	ROCKWOOL B.V. ROCKPANEL Group	180343	EN 13823: 2010+A1:2014-11
MPA BAU HANNOVER	ROCKWOOL B.V. ROCKPANEL Group	114749	EN ISO 1716: 2010-06
		084080	EN ISO 1716: 2002-07

Materialprüfanstalt Hannover
Bauwesen und Produktionstechnik

2.2 Brennwert PCS des Bauprodukts
Gross heat of combustion of the product

Produkt/Komponente *Product/Component*	**Flächenbezogene Masse** *Weight per unit area*	**Brennwert PCS** *Gross heat of combustion PCS*	
	g/m^2	MJ/kg	MJ/m^2
Lackschicht „53-401“ *Clear coat „53-401“*	41	28,25	1,16
Farbe „13-454 - red“ *Colour „13-454 - red“*	50	27,39	1,37
Primer „11-511“	78	14,37	1,12
MW-Basisplatte (11 mm) *MW-base board* (11 mm)	13820	2,63	36,35
Produkt (11 mm) *Product (11 mm)*	13989	2,86	40,00

2.3 Prüfergebnisse
Test results

Prüfverfahren *Test method*	**Parameter**	**Anzahl der Versuche** *Number of tests*	**Stetige Parameter (Mittelwert)** *Continuous parameter (mean)*	**Diskrete Parameter** *Compliance parameter*
EN ISO 1716 (worst case)	PCS (MJ/kg) - MW base (a) - product (e) PCS (MJ/m^2) - front (b)	 3 - 3	 2,63 2,86 3,65	 - - -
EN 13823 (11 mm)	$FIGRA_{0,2\ MJ}$ $FIGRA_{0,4\ MJ}$ LFS < edge THR_{600s} (MJ)	3 3 3 3	9 9 - 1,5	- - übereinstimmend *compliant* -
	SMOGRA (m^2/s^2) $TSP_{600\ s}$ (m^2)	3 3	0 18	- -
	Flaming droplets / particles	3	-	nicht übereinstimmend *non-compliant*

(a) Substantieller Bestandteil von nichthomogenen Bauprodukten
substantial component of a non-homogeneous product
(b) Äußerer nichtsubstantieller Bestandteil von nichthomogenen Bauprodukten
external non-substantial component of a non-homogeneous product
(e) Produkt als Ganzes
product as a whole

3 Klassifizierung und direkter Anwendungsbereich
Classification and direct field of application

3.1 Verweisung
Reference

Diese Klassifizierung wurde in Übereinstimmung mit den Abschnitten 11.7.1, 11.7.3 und 14.1 der Norm EN 13501-1:2007+A1:2009 durchgeführt.
This classification has been carried out in accordance with clauses 11.7.1, 11.7.3 and 14.1 of EN 13501-1: 2007+A1:2009.

3.2 Klassifizierung
Classification

Das Bauprodukt „Rockpanel Premium" wird nach seinem Brandverhalten wie folgt klassifiziert: A2
The products „Rockpanel Premium" in relation to their reaction to fire behaviour are classified: A2

Die zusätzliche Klassifizierung in Bezug auf die Rauchentwicklung ist: s1
The additional classification in relation to smoke production is: s1

Die zusätzliche Klassifizierung in Bezug auf das brennende Abtropfen/Abfallen ist: d0
The additional classification in relation to flaming droplets/particles is: d0

Das Format der Klassifizierung des Brandverhaltens des Bauprodukts ist:
The format of the reaction to fire classification for construction products is:

Brandverhalten *Fire behaviour*	Rauchentwicklung *Smoke production*		Brennendes Abtropfen/Abfallen *Flaming droplets/particles*	
A2	s	1	d	0

Klassifizierung des Brandverhaltens: A2 – s1, d0

Reaction to fire classification: A2 – s1, d0

3.3 Anwendungsbereich
Field of application

Diese Klassifizierung gilt für folgende Endanwendungsbedingungen.
This classification is valid for the following end use conditions:

- Befestigung: mechanisch mit Nieten
  Fixing: mechanical by rivets
- Unterkonstruktion: Stahlprofile
  - *Subframe:* *steel profiles*
- Hinterlüftung: ≥ 20 mm
  - *Ventilated air space:* *≥ 20 mm*
- Vertikale Fugen: 8 mm, verschlossen durch vertikale Profile der Unterkonstruktion
  - *Vertical joints:* *8 mm, closed with subframe profiles*
- Horizontale Fugen: offen oder geschlossen durch Profile
  - *Horizontal joints:* *open or closed with profiles*

Materialprüfanstalt Hannover MPA HANNOVER Bauwesen und Produktionstechnik

- Dämmung:	Ohne oder mit Mineralwollprodukten der Klasse A1 oder A2-s1, d0 gemäß EN 13501-1.
- *Insulation material:*	*Without or with mineral wool products of class A1 or A2-s1, d0 in accordance with EN 13501-1.*
- Untergrund:	Untergründe der Klasse A1 oder A2-s1, d0 gemäß EN 13501-1.
- *End use substrate:*	*Any end use substrates of class A1 or A2-s1, d0 in accordance with EN 13501-1.*

Diese Klassifizierung ist weiterhin für die folgenden Produktparameter gültig:
This classification is also valid for the following product parameters:

- Nenndicke:	11 mm
- *Nominal thickness:*	*11 mm*
- Nennrohdichte:	1250 kg/m^3
- *Nominal apparent density:*	*1250 kg/m^3*
- Glühverlust der MW-Basisplatte:	≤ 8,5 %
- *LOI-content of MW base:*	*≤ 8,5 %*
- Sichtseitige Beschichtung: (Primer, Farbe, Lackschicht)	PCS ≤ 3,65 MJ/m^2
- *Coating on the front: (primer, colour, clear coat)*	*PCS ≤ 3,65 MJ/m^2*

4 Limitations

4.1 Warning

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

Hannover, 26. Juni 2018
Hanover, 26 June 2018

Leiter der Prüfstelle
Head of the fire laboratory

(ORR Dipl.-Ing. Restorff)

Materialprüfanstalt Hannover MPA HANNOVER Bauwesen und Produktionstechnik

Sachbearbeiter
Technician

(Dipl.-Ing. Kielinski)

APPENDIX H

INSTRUCTION GUIDE

Rockpanel®

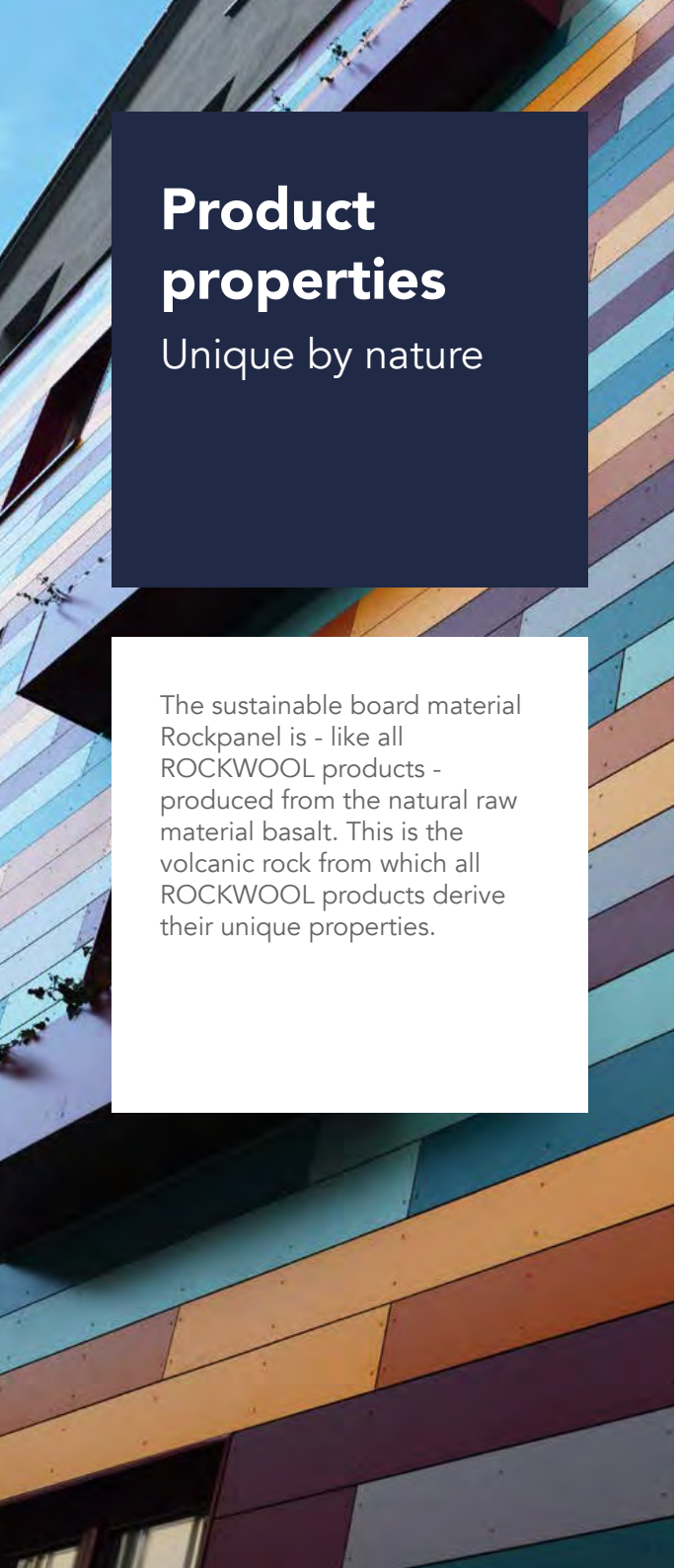
Part of the ROCKWOOL Group

Table of contents

Overview product properties

Properties		Value	Unit	Standard
Mechanical				
Modulus of elasticity	A2	≥ 4740	N/mm^2	EN 310
Characteristic bending strength f_{05}	A2	≥ 25.5	N/mm^2	EN 310 & EN 1058
Modulus of elasticity	Durable	4015	N/mm^2	EN 310
Characteristic bending strength f_{05}	Durable	≥ 27	N/mm^2	EN 310 & EN 1058
Modulus of elasticity	Uni	3567	N/mm^2	EN 310
Characteristic bending strength f_{05}	Uni	≥ 24	N/mm^2	EN 310 & EN 1058
Modulus of elasticity	Ply	3065	N/mm^2	EN 310
Characteristic bending strength f_{05}	Ply	≥ 15	N/mm^2	EN 310 & EN 1058
Optical				
Colour stability (5000 hours; Xenon test)	Rockpanel Colours / Lines[2]	3-4 or better	Greyscales	EN 20105-A02
	Rockpanel Colours (PP) Woods / Stones / Metals / Chameleon / Premium	4 or better	Greyscales	EN 20105-A02
	Rockpanel Uni	3 or better		
Fire				
Fire classification	Euroclass B-s2,d0 (Durable/Ply/Uni)* Euroclass A2-s1,d0 (A2)*			EN 13501-1
Physical				
Nominal density	A2	1250	kg/m^3	EN 323
	Durable	1050	kg/m^3	
	Uni	1050	kg/m^3	
	Ply	1000	kg/m^3	
Nominal mass of surface	A2	9 mm: 11.25	kg/m^2	
	Premium A2	11 mm: 13.75	kg/m^2	
	Durable	6 mm: 6.3	kg/m^2	
	Durable	8 mm: 8.4	kg/m^2	
	Uni	6 mm: 6.3	kg/m^2	
	Ply	8 mm: 8	kg/m^2	
Vapour permeability S_d	Rockpanel Colours	1.8	m	EN-ISO 12572
at 23°C and 85% RH	Rockpanel with ProtectPlus **	3.5	m	
Dimensional stability				
Dimension stability arising from changes in temperature	A2	9.7	mm/m·K	EN 438-2
	Durable	10.5	mm/m·K	
	Uni	10.5	mm/m·K	
	Ply	9.7	mm/m·K	
Expansion due to moisture between conditions of 23°C/50% RH and 23°C/95% RH	A2	0.206	mm/m	EN 438-2
	Durable	0.302	mm/m	
	Uni	0.303	mm/m	
	Ply	0.241	mm/m (after 4 days)	

* *Depending on the sub-construction. For more information please contact us.*
** *With the exception of Rockpanel Metals Aluminium White and Aluminium Grey and all Rockpanel Chameleon boards (S_d value > 3,5).*



Product properties

Unique by nature

The sustainable board material Rockpanel is - like all ROCKWOOL products - produced from the natural raw material basalt. This is the volcanic rock from which all ROCKWOOL products derive their unique properties.

Design advantages

Colour stable

Rockpanel boards are treated with a water-based coating that maintains their appearance, colour and finish for years to come. The table below shows the performance of the Rockpanel boards after a weathering test of 3000 and 5000 hours. This represents the weathering on a vertical south-facing facade.

The ProtectPlus coating is applied as standard on Rockpanel Premium, Woods, Stones, Metals and Chameleon.

Colour stability			
Product	Value 3000 hours	Value 5000 hours	Unit
Premium	4-5	4 or better	Greyscale
Colours	4	3-4 or better	Greyscale
Colours (ProtectPlus)	4-5	4 or better	Greyscale
Woods	4-5	4 or better	Greyscale
Stones	4-5	4 or better	Greyscale
Metals	4-5	4 or better	Greyscale
Chameleon	4-5	4 or better	Greyscale
Lines[2]	4	3-4 or better	Greyscale
Uni	-	3 or better	Greyscale

Standard: EN 20105-A02

Bending and curving

The boards can easily be curved and bent in any form you require, supporting your freedom of expression and creativity. The advised minimum bending radius is determined by the bending strength of Rockpanel boards, assuming that the board is bent lengthwise.

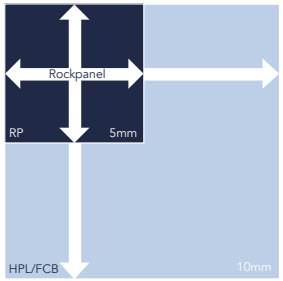
See page 45 for more information.

Dimensionally stable

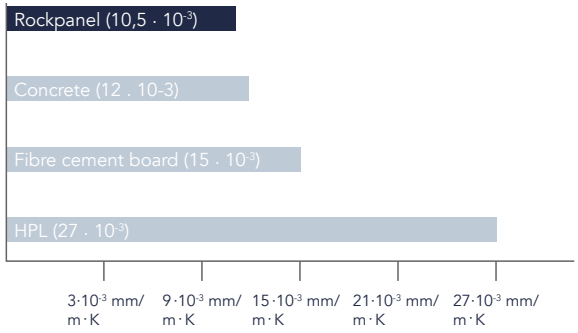
Dimensional stability, or resistance to changes in length and width, is determined by a material's tendency to expand as a result of temperature and/or moisture (moisture absorption). The unique composition of Rockpanel means that the boards are virtually immune to dimensional change caused by temperature or relative humidity.

See page 45 for guidelines on seamless installation.

Horizontal and vertical joints



Linear elongation due to temperature fluctuation



Fire safety

Rockpanel board material has been tested extensively and is classified as a fire safe building material. In case of fire, the stone wool structure remains fully intact and there will be absolutely no drop formation and the risk of fire spreading is prevented.

The boards are minimum B-s2,d0 classified and are also available in A2-s1,d0.

For all medium and high rise buildings we recommend the use of our A2 grade boards (A2-s1,d0).

Check national regulations for information on fire barriers.

Product	Fire class*	Standard
Durable	B-s1,d0	EN 13501-1
A2	A2-s1,d0	EN 13501-1

* *Depending on the sub-construction. For more information please contact us.*

Always in matching colours

The RAL colours of Rockpanel can be matched to window frames or other building elements. Facade finishing and paintwork in compatible RAL colour can therefore give your building a smooth and seamless look.

Non-directional

The Rockpanel boards are non-directional. The appearance of the board is the same regardless of the orientation in which it is mounted. This guarantees more efficient and swifter installation since fitting is simplified and waste reduced. Therefore during processing there is no marking of installation direction required.

Please note this applies only to Rockpanel Uni, Colours, Metals and Chameleon.

A corner solution for every building

For every corner Rockpanel offers the right solution. Use a corner profile in exactly the same RAL colour, or simply touch up paint for the edges if required. For the real craftsman you can achieve a perfect corner finish using a mitre saw.

See page 44 for the possibilities.

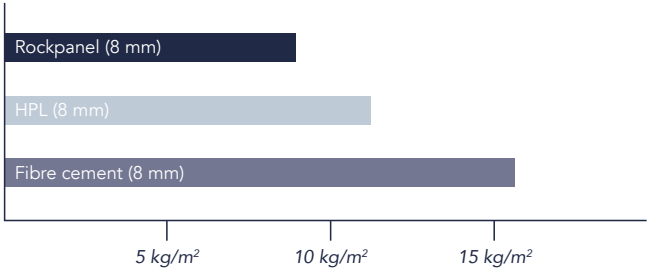
Installation advantages

Strong and flexible

Rockpanel combines the advantages of stone and wood in one product. It is as durable as stone and can be worked as easily as wood. A curved facade can easily be installed.

Light-weight

With Rockpanel board material you can work more quickly and easily. The boards are considerably lighter than other board materials. A standard Rockpanel board weighs only 8,4 kg/m^2, making it easy to handle on site.



Insensitive to moisture

With Rockpanel boards moisture problems are history. Rockpanel is insensitive to moisture and temperature so does not require edge treatment. Moisture will not change the mechanical or optical properties.

Working with standard tools

Rockpanel can be worked using standard carpentry tools. It is easier and much faster to work than other board materials. Easy to saw to size and install without pre-drilling again avoiding risks and costly site delays.

Butt joints

Rockpanel is dimensionally stable, and therefore resistant to changes in length and width arising from changes in temperature and humidity. This guarantees a sleek result without joints.

See page 45 for the conditions of seamless installation.

Detailing on the building site

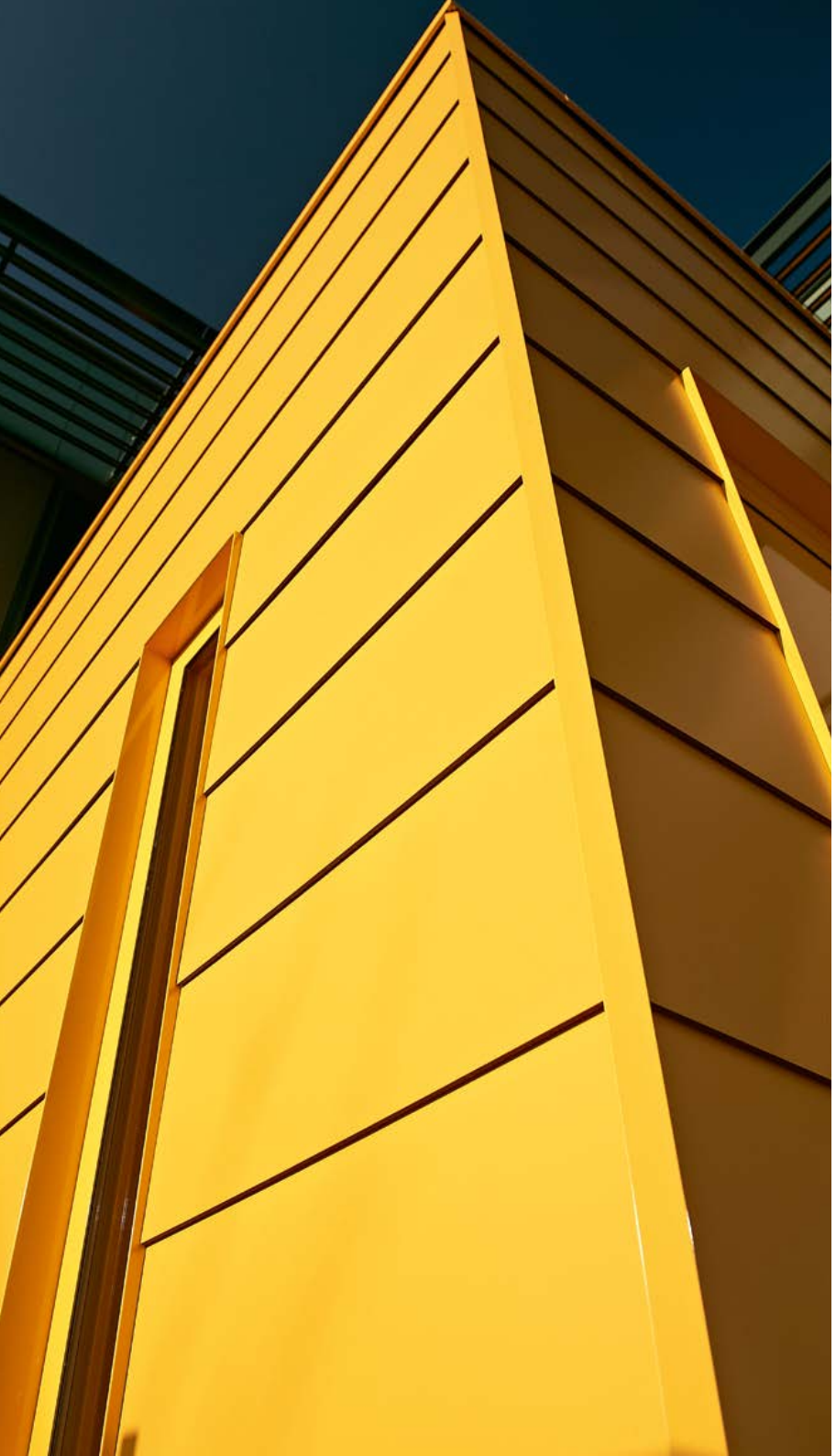
With Rockpanel you can complete detailing quickly and easily. Finishing the edges to protect them from moisture is not necessary.

Fixing with nails

With Rockpanel you can fix the boards with nails on the building site. The discreet nail heads in a compatible RAL colour ensure a beautiful end result.

Fixing without pre-drilling

Unlike other board materials, Rockpanel boards are dimensionally stable. Pre-drilling is not required but recommended when fixing the boards on a timber frame using Rockpanel screws.



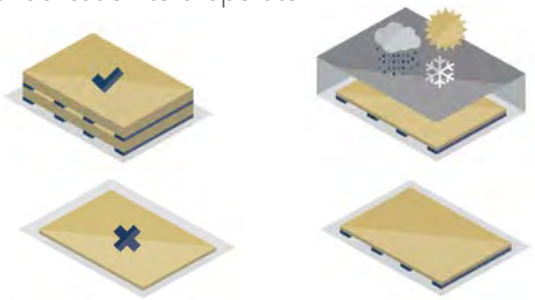
Working with Rockpanel

Packaging, transport and storage

Rockpanel is a light-weight, decorative external cladding product which weighs less than many other board materials. The products should always be handled with care by taking the following guidelines into account:

Storage in warehouse and building site

- Store the board material in dry, flat, frost-proof and protected conditions;
- Store on flat pallets and place the pallets on a level foundation. Preferably with PE-foil as an underlay;
- Make sure that the board material does not have direct contact with the floor;
- Never stack more than two pallets high;
- During storage, the board material can be more affected by moisture and night-time cooling than when installed. Before installing, the boards will need some time to allow any moisture and condensation to evaporate.



Site handling

- Individual panels must be lifted off the stack, not pulled or pushed, and carried upright;
- Protective foam membranes should be placed between the sheets again to protect the surface layer.

Protective film

- Most boards in the range are covered by a film to protect the decorative finish. Site measurements can also be marked on this film to aid the installation process. Rockpanel Natural, Rockpanel Ply, Rockpanel Lines[2] and Rockpanel Metals (Aluminium White and Aluminium Grey) are delivered without protective film. Handling of these boards needs extra attention.
- Remove the protective film:
  - after mounting, if attaching mechanically with screws or manual nailing;
  - before priming the board for adhesive bonding;
  - before installing when using a pneumatic hammer.

Get started with Rockpanel boards

Working with Rockpanel boards

The light-weight of Rockpanel boards allow for easy and quick installation. It also does not require any special tooling.

Safety guidelines

- Use a dust mask (type P2).
- Use standard safety spectacles to protect the eyes from dust.
- Wear gloves during sawing.

For additional information see the 'Health and safety' documentation on our website.

Indoor sawing

Use dust-reducing sawing equipment in combination with an extraction hood in a well-ventilated room.

Outdoor sawing

- Position the saw installation so that the wind blows away any dust from the sawing.
- Use dust-reducing sawing equipment if possible.

Always immediately clean the dust after cutting and drilling.

Equipment

Hand saw, e.g. a hard point saw.

Circular saw, e.g. a fine-toothed Widia/ Tungsten Carbide saw blad, for example a blade with 48 teeth and a diameter of 300 mm.

Fretsaw, e.g. a fine-toothed saw blade for metal or a saw blade with tungsten coating.

Pre-drilling can be done with a HSS-steeldrill.

Sawing

Standard tools can be used for sawing Rockpanel boards or making penetrations and cut-outs in the board material. In general the boards should be sawn with the decorative side facing upwards and with the protective film still in place. It is advised that when cutting boards with a hand-held circular saw the decorative side is facing downwards. Ensure that there is a clean, smooth surface for doing this.

Drilling

- Pre-drilling of Rockpanel boards is not required but recommended. Screw holes (Ø 3.2 mm) or holes for nailing (Ø 2.5 mm) can be pre-drilled with a HSS-steeldrill.
- With rivets, fixed anchorages are advised to be drilled at Ø 5.2 mm and a sliding attachment with Ø 8 mm. Predrilling can be done with a HSS-steel-drill.
- When fixing Rockpanel Lines[2] 10 mm Rockpanel recommends the use of flat headed screws or manual nailing with ring shank nails. When using 2.1/2.3 x 27 mm ring shank nails pre-drilling to Ø 2 mm is recommended. When using 3.5 x 30 mm stainless steel flat headed screws, pre-drilling to Ø 3.5 mm is recommended and also drilling to countersink the flathead.

No edge finishing

- Protecting sawn edges from moisture is not needed with Rockpanel boards.
- Chamfering is easy using the reverse (non-decorative) side of a leftover Rockpanel strip to lightly sand and edge.
- If required for aesthetic reasons the side edges can be painted in a corresponding RAL/NCS colour. Without finishing the edges naturally age within several months to a grey-brown colour.

Sub-construction

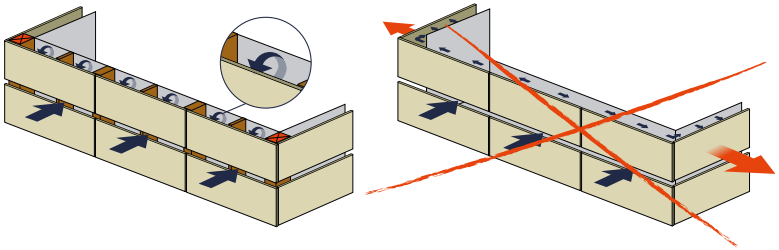
Ventilated facade

Rockpanel boards are applied as a ventilated facade cladding. A ventilated facade is a secondary defence system, also known as rainscreen. Ventilated facades built with Rockpanel boards counterbalance the effects of moisture, help to lower energy consumption both during summer and winter time, and make a positive contribution to healthy, safe and enjoyable living places thanks to their aesthetic design together with fantastic climatic and fire safety properties.

Ventilated facades, whether they are with open or closed construction, need to have sufficient ventilation openings. For proper ventilation, the sub-construction must have ventilation openings of at least 5000 mm^2 per meter of the length. The openings must be made at both the top and bottom of the cladding. The size of the openings should be between 5 and 10 mm wide. It is advised to apply the anti-insect mesh to prevent insects and rodents from entering the ventilation cavity. The depth of the ventilated cavity should be at least 20 mm. In case of using timber battens the cavity needs to be 28 mm.

Open facade

The open system works with open joints, whereby a small amount of rainwater may enter the cavity behind the panels. Any penetrating water will either drain away or be removed by the airflow in the cavity. In addition it must be ensured that the air cavities on different elevations of a building are separated from each other by cavity closers, so that there is no increase in wind load (see drawing).



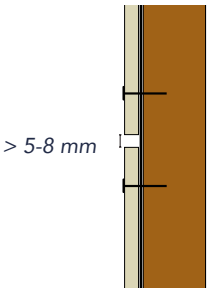
To be able to calculate the fixing distances as with open joints (which means reducing the wind load with pressure equalisation and achieving wider fixing distances), application needs to be done according the following pre-conditions:

- See drawing.
- 5 mm ≤ horizontal open joints ≤ 8 mm.
- Open joints represent ≥ 0,10 % of the total surface.
- Cavity closers should be used to prevent accumulation of wind loads (see also drawing above).
- Cavity should be at least 40 mm deep (maximum 100 mm).
- UV-resistant breathable membrane (in case of timber sub-construction).

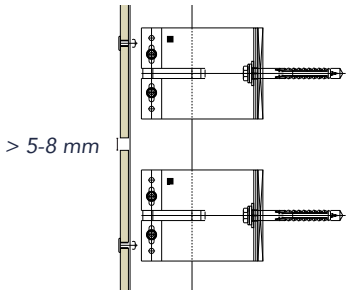
Horizontal joints

With an open facade, the horizontal joints should have a joint of a minimum 5 mm and maximum 8 mm width.

- When using open joints in a timber construction, the structure behind the vertical batten should be protected with a breathable, water repellent and UV resistant membrane. The cavity between the Rockpanel board and the breathable membrane should be minimum 28 mm or greater. It would be beneficial to have a cavity between 40 - 100 mm to make use of pressure and to prevent penetration of excessive rainwater. For those panel systems requiring NHBC approval, a cavity of 38 mm is required.
- With an aluminium construction Rockpanel recommends a cavity depth of 40 - 100 mm. The insulation should comply with the standard BS-EN 13162 e.g. ROCKWOOL Rainscreen Duoslab.



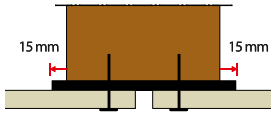
Timber sub-construction, open horizontal joint



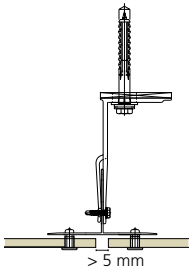
Aluminium sub-construction, open horizontal joint

Vertical joints

The vertical joints are automatically closed by the backing of the vertical sub-construction. To ensure the durability of the timber, the vertical battens must be well protected against rain water. This can be done with a UV- and weather-resistant EPDM gasket that is 15 mm wider on both sides than the framework. It can also be done with a strip of Rockpanel, which acts as gasket to protect the battens.



Timber sub-construction, vertical joint solution with EPDM gasket



Aluminium sub-construction, vertical joint solution