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to Article 29 of the Regulation (EU)
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MEMBER OF EOTA



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
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NL-6045 JG Roermond
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Manufacturing plant:

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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

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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	$f_{05} \geq 25,5 \text{ N/mm}^2$
Modulus of elasticity	$m(E) \geq 4740 \text{ N/mm}^2$
Thermal conductivity EN 10456	0,55 W/(m × K)
Cumulative dimensional change %	Length / Width: 0,064
Coefficient of thermal expansion, length and width	$\alpha = 9,7 \text{ (} 10^{-6} \text{ } ^\circ\text{K}^{-1} \text{)}$
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
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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 $\mu\text{m/y}$ 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 (AIMg5) 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/m ²). 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
<p>Design values of axial loads</p> <p>Design value X_d obtained by dividing the characteristic value X_k by a partial factor γ_M: $X_d = X_k / \gamma_M$</p> <p>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)</p> <p>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.</p>	<p>Rivets aluminium or stainless steel:</p> <p>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).</p> <p>The following material factors have been used:</p> <p>For Rockpanel $\gamma_M = 1,6$.</p> <p>For the combination rivet and Premium A2:</p> <ul style="list-style-type: none"> - $\gamma_M = 1,6$ and $\eta = 0,8$ - for the connection rivet-subframe $\gamma_M = 1,25$ <p>The conversion factor η depends on the fixing type:</p> <ul style="list-style-type: none"> - 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/m³ 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/m³ 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/m³

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)

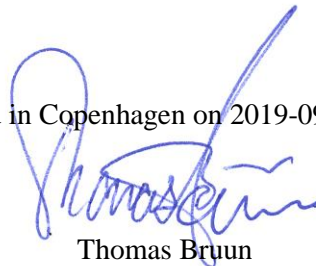
4.1 AVCP system

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

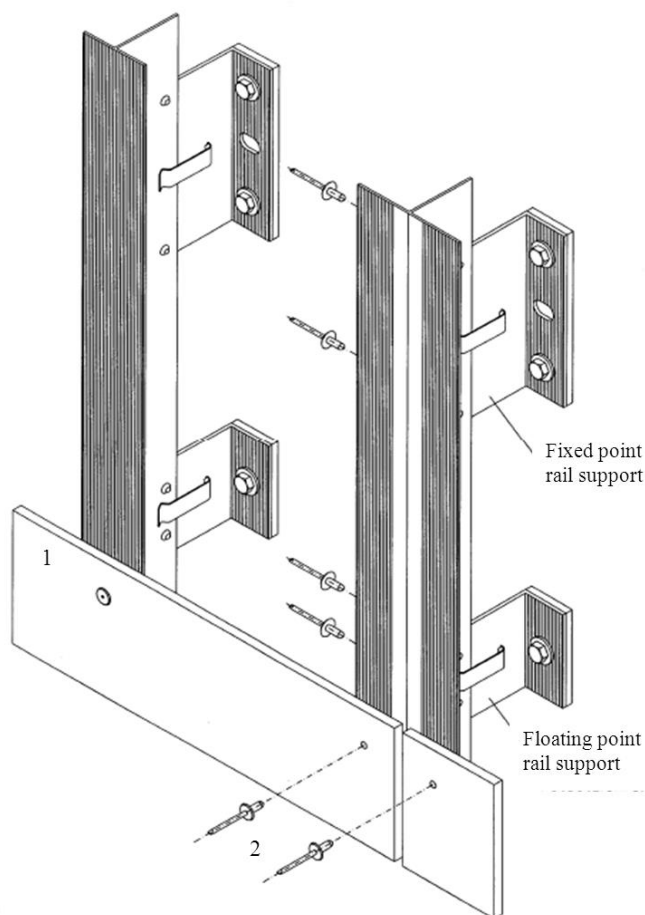
Issued in Copenhagen on 2019-09-04 by



Thomas Bruun
Managing Director, ETA-Danmark

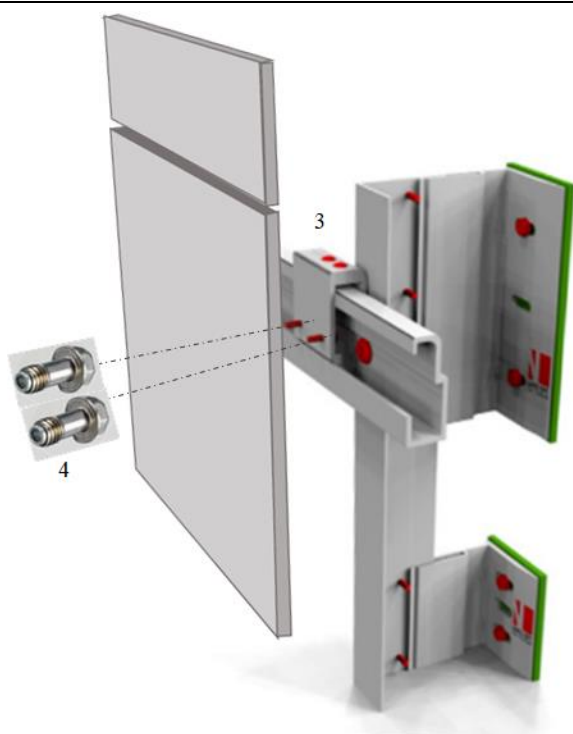
Annex 1 **Pre-fabricated compressed mineral wool boards with organic or inorganic finish**

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.

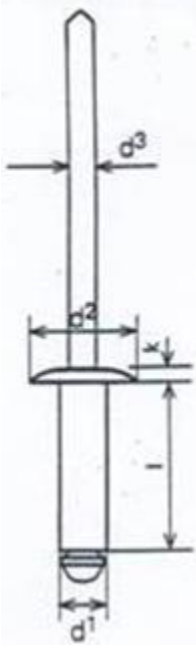


3. Secret fixing clip
4. Under cut anchor

Annex 2

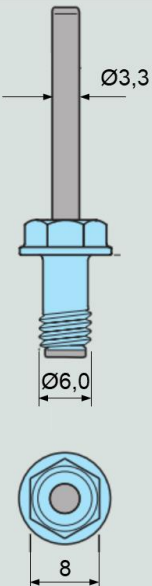
Fastener specification

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 $t \geq 1,5$ mm	steel $t \geq 1,0$ mm [a]	aluminium $t \geq 1,8$ mm	steel $t \geq 1,5$ 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 $\mu\text{m}/\text{y}$ 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 be 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 be applied with higher clamping thickness i.e. Code 1290807 with a length of 20 mm.

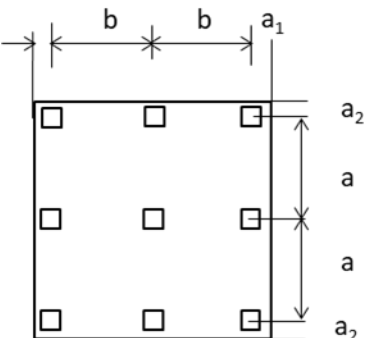
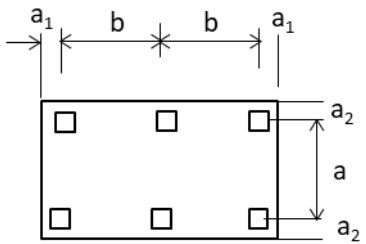
Table 5b – TU-S 6x13 blind fastener specification for secret fixing clip

	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

Dimensional stability

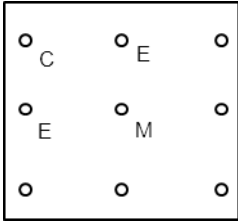
Table 7. Deformation Rockpanel Premium A2 in accordance with EN 438-2		
characteristic	Premium A2, 11 mm	
	length of the board	width of the board
deformation	0,061 %	0,066 %
dry heat 23° / 50% to 23°C / 0% (mm/m)	-0,240	-0,290
coefficient of thermal expansion (10 ⁻⁶ °K ⁻¹)	9,7	9,7
coefficient of moisture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

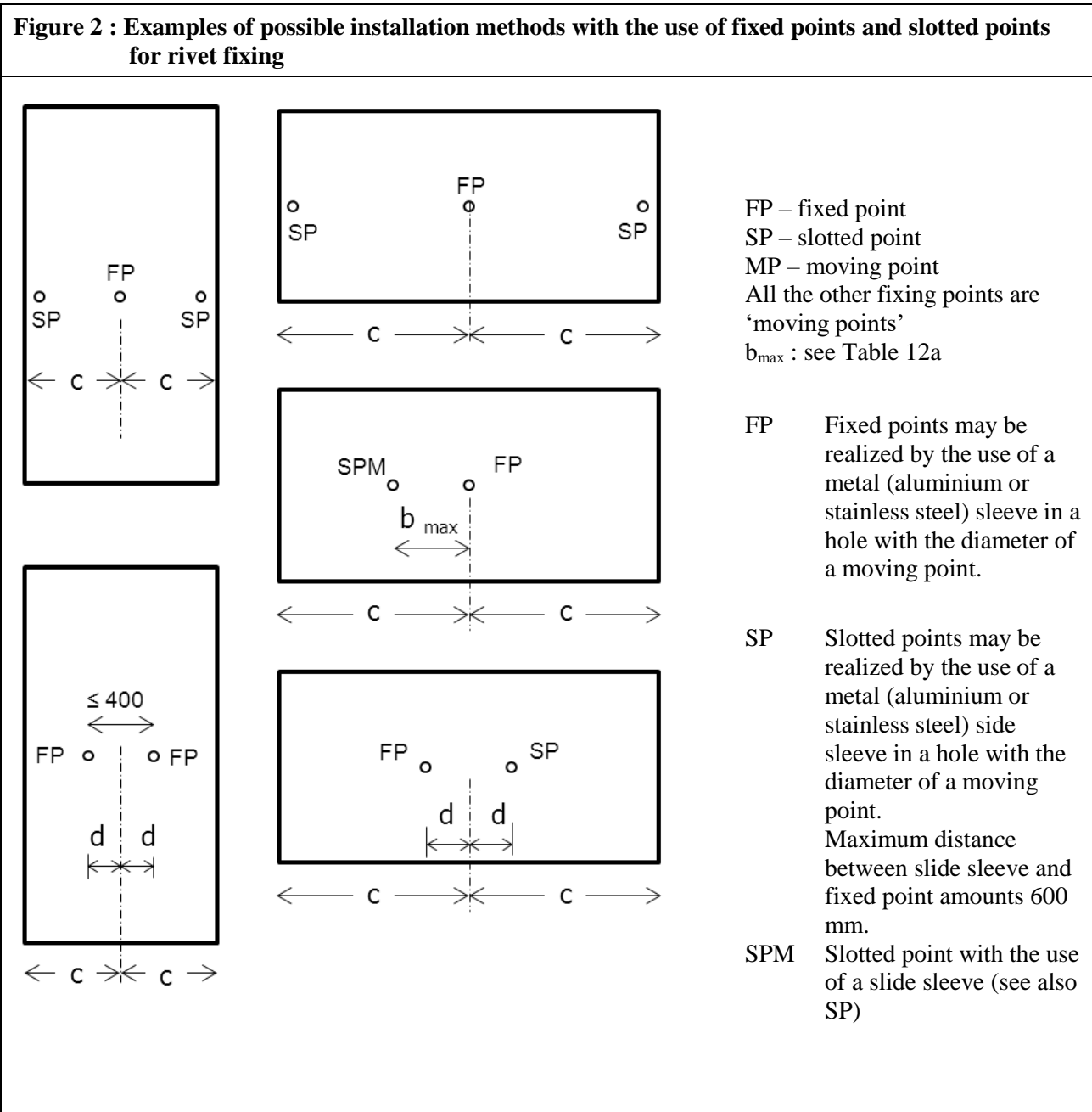
Wind load resistance

Table 8	Test results average failure load panel fixing N/m ² 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	
	<p>M: fixing in intermediate position E: edge fixing C: corner fixing See figure 2 for examples of possible installation methods for rivet fixing</p> <p><i>Remark</i> Rivet fixing only with a riveting tool with rivet spacer</p>



Annex 3 continued

Table 11. Hole diameters for rivet fixing mm

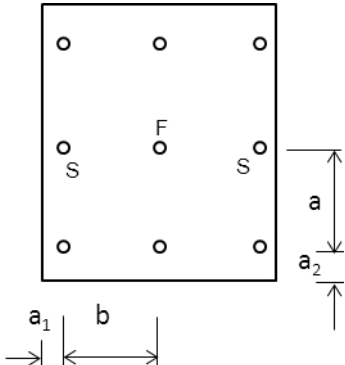
		rivet
	F - Fixed point	5,1
	S - Slotted holes	5,1 x 8,0
	Moving points – all the other positions	8,0

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

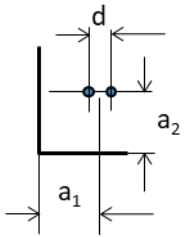
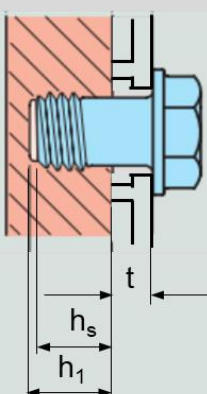
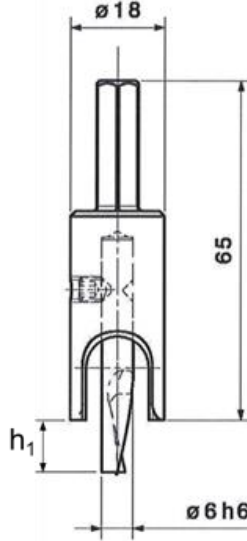
	b_{\max}	a_{\max}	a_1	a_2	d	
Rivet	750	750	≥ 20	≥ 50		
TU-S undercut anchors	750	600	≥ 80	≥ 80	30	

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/m ²	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/m ²	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.