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Authorised and notified according to Article 10 of the Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products

MEMBER OF EOTA

European Technical Approval ETA-07/0141

Trade name:	ROCKPANEL Durable Colours 8 mm and ROCKPANEL Durable Anti-Graffiti 8 mm
Holder of approval:	Rockwool Rockpanel B.V. Konstruktieweg 2 NL-6045 JD Roermond Tel. +31 475 353 000 Fax +31 475 353 550
Generic type and use of construction product:	Prefabricated mineral wool boards with organic or inorganic finish and with specified fastening system
Valid from: to:	2007-11-30 2012-11-30
Manufacturing plant:	Rockwool Rockpanel B.V. Konstruktieweg 2 NL-6045 JD Roermond
This European Technical Approval contains:	14 pages including 3 annexes which form an integral part of the document

I LEGAL BASIS AND GENERAL CONDITIONS

1 This European Technical Approval is issued by ETA-Danmark A/S in accordance with:

- Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products[1)], as amended by Council Directive 93/68/EEC of 22 July 1993[2)].

- Bekendtgørelse 559 af 27-06-1994 (afløser bekendtgørelse 480 af 25-06-1991) om ikrafttræden af EF direktiv af 21. december 1988 om indbyrdes tilnærmelse af medlemsstaternes love og administrative bestemmelser om byggevarer.

- Common Procedural Rules for Requesting, Preparing and the Granting of European Technical Approvals set out in the Annex to Commission Decision 94/23/EC[3)].

- Common Understanding of Assessment procedure no. 04.04/12 for Prefabricated mineral wool boards with organic or inorganic finish and with specified fastening system, dated 1999-10-22.

2 ETA-Danmark A/S is authorized to check whether the provisions of this European Technical Approval are met. Checking may take place in the manufacturing plant. Nevertheless, the responsibility for the conformity of the products to the European Technical Approval and for their fitness for the intended use remains with the holder of the European Technical Approval.

3 This European Technical Approval is not to be transferred to manufacturers or agents of manufacturers other than those indicated on page 1, or manufacturing plants other than those indicated on page 1 of this European Technical Approval.

4 This European Technical Approval may be withdrawn by ETA-Danmark A/S pursuant to Article 5(1) of Council Directive89/106/EEC.

5 Reproduction of this European Technical Approval including transmission by electronic means shall be in full. However, partial reproduction can be made with the written consent of ETA-Danmark A/S. In this case partial reproduction has to be designated as such. Texts and drawings of advertising brochures shall not contradict or misuse the European Technical Approval.

6 This European Technical Approval is issued by ETA-Danmark A/S in Danish.
This version corresponds fully to the version circulated within EOTA. Translations into other languages have to be designated as such.

1) Official Journal of the European Communities N° L40, 11 Feb 1989, p 12.
2) Official Journal of the European Communities N° L220, 30 Aug 1993, p 1.
3) Official Journal of the European Communities N° L 17, 20 Jan 1994, p 34.

II SPECIAL CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

1 Definition of product and intended use

General
RockPanel Durable Colours and Durable Anti-Graffiti (AG) 8 mm are prefabricated compressed mineral wool boards with thermo-setting synthetic binders. The boards are fastened to timber substructures or aluminium rail supports. Fastening to the timber structures are carried out with corrosion resistant nails or screws or by bonding (with an intermediate RockPanel Colours strip). Fastening to aluminium rail supports are carried out with corrosion resistant rivets or by bonding. Mechanical fasteners, adhesives, joint strips and aluminium profiles are specified by the ETA-holder.

The RockPanel Durable Colours panels are surface treated with a four-layer water-based acrylic paint on one side, in a range of colours.

The Rockpanel Durable AG panels are surface treated with a four-layer water-based pur-acrylic paint on one side, which has been provided with an extra anti graffiti clear coat as a fifth layer on the colour paint. This additional layer can be without additives, with metal particles or a print.

The physical properties of the panels are indicated in table 1:

Table 1:

Property	**Value**
Thickness	8 ± 0,5 mm
Length, max	3050 mm
Width, max	1500 mm
Density, nominal	1050 ±150 kg/m^3
Bending strength, length and width	$f_{05} \geq 27$ N/mm^2
Modulus of elasticity	m(E) = 4015 N/mm^2
Thermal conductivity	0,35 W/(m × K)
Coefficient of thermal expansion, length and width	$\alpha = 11 \times 10^{-3}$ mm/m × K
Coefficient of moisture expansion 23 °C/50 %RH to 95 %RH	0.302 mm/m after 4 days

Finishes
The finishes are indicated in table 2. The paints are provided in a number of colours.

Table 2

RockPanel Durable Colours: (Water based acrylic paint)	Colourpaint
RockPanel Durable AG: (Water based pur-acrylic paint with anti graffiti clearcoat)	Clear coat pure or Clear coat with wood texture "Woods": Teak, Maple, Alder, Cherry, Mahogany, Merbau and Oak or With metallic particles

The colourfastness of the panels is indicated in table 3.

Table 3:

Property	**Value (ISO 105 A02)**
Colour fastness after 3000 hours artificial weathering	RockPanel Durable Colours: 4 RockPanel Durable AG: 4 – 5

Sub-constructions
The panels are attached to the building by fixing to a timber sub-frame or aluminium rail support.
The vertical battens should have a minimum thickness of 28 mm.
The minimum thickness of the vertical aluminium profiles is 1,5 mm. The aluminium 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

Joints
Aluminium profiles
The horizontal joints between the panels can be open in the case of aluminium rail supports and the bonded application on RockPanel strips.
The horizontal joints between the panels are made with a Protektor 9087 extruded aluminium chair profile or equivalent in the case of panels mechanically fixed on timber battens. The chair profile has an overlap of at least 15 mm on the board above the profile. See annex 1.

Foam gasket
A 3 mm thick and 60 mm wide EPDM foam gasket (self adhering backside) is fixed to the timber battens. For vertical joints between the panels, the 60 mm wide gasket is used and for the intermediate battens, the 36 mm wide gasket is used.

Fasteners
The panels are mechanically fixed or bonded (with intermediate RockPanel Colours strips) either to vertical

timber battens or vertical aluminium rail supports. The mechanical fastening to timber battens is carried out with either RockPanel stainless steel screws 4,5 × 35 mm no 1.4401 or 1.4578 (EN 10088) with heads in the colour of the panels or Rockpanel ring shank nails 2,7/2,9 × 32 mm no 1.4401 or 1.4578 (EN 10088) with heads in the colour of the panels. Fastening to aluminium is carried out with RockPanel aluminium EN AW-5019 (AIMg5) rivets, head diameter 14 mm, shank diameter 5 mm, head colour coated (for correct fixing, a riveting tool with rivet spacer must be used), see annex 3.

Bonding to both timber (with intermediate RockPanel Colours strips) and aluminium rails is carried out with RockPanel Tack-S adhesive. The bonding shall be carried out in accordance with the manufacturer's instructions. See annex 1. Bonding is only allowed on vertical sub-constructions with a drained cavity for ventilated applications.

The maximum fixing distances, hole diameter and characteristic load appears from annex 2, tables 5, 6 and 7.

Intended use

The boards are intended for external cladding and for fascias and soffits. The cladding on vertical timber battens with mechanically fixed boards can be carried out with or without ventilated cavities at the back. The cladding on vertical timber battens provided with mechanically fixed RockPanel Colours strips with the bonding system must be carried out with a ventilated cavity at the back. The cladding on vertical aluminium support shall be carried out with a ventilated cavity at the back. See annex 1.

Assumed working life

The assumed intended working life of the boards for the intended use is 25 years, provided that they are subject to appropriate use and maintenance.

An "assumed intended working life" means that it is expected that, when this working life has elapsed, the real working life may be, in normal use conditions, considerably longer without major degradation affecting the essential requirements.

The indications given as to the working life of the boards cannot be interpreted as a guarantee given by Rockwool Rockpanel B.V or ETA-Danmark A/S.

2 Characteristics of product and assessment

CUAP para.	Characteristic	Assessment of characteristic
	2.1 Mechanical resistance and stability	Not relevant.
	2.2 Safety in case of fire	
5.2.1	Reaction to fire	The aluminium profiles are classified as **Euroclass A1** Classification of panels: See table 4
	2.3 Hygiene, health and the environment	
5.3.1	Water vapour permeability	**Durable Colours:** S_d < **1,80 m** at 23°C and 85 %RH **Durable AG:** S_d < **3,5 m** at 23°C and 85 %RH The designer shall consider the relevant needs for ventilation, heating and insulation to minimise condensation in service.
5.3.2	Water permeability incl. joints for non-ventilated applications	**50 Pa**
5.3.3	Influence on air quality and Release of dangerous substances to soil and water	No dangerous materials *) The used fibres are not potential carcinogenic No biocides are used in the RockPanel boards No flame retardant is used in the boards Formaldehyde concentration 10,5 µg/m^3
	2.4 Safety in use	
5.4.1	Fixing position and characteristic fixing load M/E/C (Middle/Edge/Corner) of mechanical fixings corresponding to the wind load resistance (load acting perpendicular to the façade)	**Rockpanel screws: 990/547/268 N** **Rockpanel rivets: 1308/700/353 N** **Rockpanel nails: 570/570/397 N** (for edge distances and distances between fasteners; see annex 2)
	Characteristic shear strength mechanical fixings Average values	**RockPanel nails:** Failure load: **1325 N** Deformation: **15 mm** **RockPanel rivets:** Failure load: **1722 N** Deformation: **1,7 mm** **RockPanel screws:** Failure load: **1549 N** Deformation: **9 mm**
	Characteristic fixing load of Tack-S adhesive	**0,33 N/mm^2**
	Characteristic shear strength of Tack-S adhesive Average values Adhesion to aluminium	Failure load: **5460 N/m** Deformation: **5,6 mm**
	Adhesion to wood (board to Colours strip)	Failure load: **5250 N/m** Deformation: **5,5 mm**

	Characteristic		Assessment of characteristic
		Mechanical resistance of panels	**See section 1, table 1**
5.4.3		Dimensional stability	Cumulative dimensional change % Length: **0,088** Width: **0,094**
	2.5	**Protection against noise**	Not relevant
	2.6	**Energy economy and heat retention**	Not relevant
	2.7	**Related aspects of serviceability**	
5.7.1		Resistance to Hygrothermal cycles	**Pass**
5.7.2		Resistance to Xenon Arc exposure	**Pass**
5.7.3		Immersion in water without UV	
		21 Days	**Minimum failure tensile strength 0,38 N/mm^2** **Elongation 2,57 mm**
		42 days	**Minimum failure tensile strength 0,33 N/mm^2** **Elongation 1,69 mm**
5.7.4		Humidity and NaCl	**Minimum failure tensile strength 0,56N/mm^2** **Elongation 1,70 mm**
5.7.5		Humidity and SO_2	**Minimum failure tensile strength 0,61 N/mm^2** **Elongation 1,13 mm**

*) In accordance with http://europa.eu.int-/comm/enterprise/construction/internal/dangsub/dangmain.htm In addition to the specific clauses relating to dangerous substances contained in this European Technical Approval, 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 EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.

Table 4 Reaction to fire classification
The panels have been classified in accordance with EN 13501-1 with the following parameters:

Fixing method	**Ventilated or non-ventilated**	**Vertical wooden battens**		**Vertical aluminium rails**	
		Durable AG	Durable Colours	Durable AG	Durable Colours
Mechanically fixed	Ventilated	**B-s2,d0**	**B-s2,d0**	**B-s2,d0** 'semi-open' 8 mm horizontal joint [a]	**B-s1,d0 or B-s2,d0** [b] open 8 mm horizontal joint
	Ventilated with RockPanel strips on the battens	**B-s2,d0**	**B-s1,d0 or B-s2,d0** [b]		
	Non-ventilated	**B-s2,d0**	**B-s1,d0**		
Adhesive RockPanel Tack-S	Ventilated			**B-s2,d0** open 6 mm horizontal joint	**B-s2,d0** open 6 mm horizontal joint
	Ventilated with RockPanel strips on the battens	**B-s2,d0** open 6 mm horizontal joint	**B-s2,d0** open 6 mm horizontal joint		

[a] at the back of panel joints a nose shaped aluminium profile was used
[b] finish white and black; s1; finish red: s2

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 1 is valid for the following end use conditions:

Mounting:
- Mechanically fixed or adhered to wood battens or aluminium rails as described in table 1, which are attached to the substrate mentioned below
- The panels are backed with min. 25 mm mineral wool insulation with density 100 – 120 kg/m^3 with or without an air gap between the panels and the insulation (mechanically fixed)
- The panels are backed with min. 50 mm mineral wool insulation with density 51 – 69 kg/m^3 with an air gap between the panels and the insulation (fixing method Adhesive RockPanel Tack-S)

Substrates:
- Any end use substrate of Euroclass A1 or A2 having a density ≥ 700 kg/m^3

Cavity:
- Unfilled or filled with insulation of stone wool with a nominal density ≥ 28 kg/m^3
- The depth of the cavity is 40 mm in the case of wooden battens and 50 mm in the case of aluminium rails and as described in table 4.

Joints:
- Vertical and horizontal joints. Vertical joints are with an EPDM foam gasket backing or RockPanel strip backing as described in table 4 and horizontal joints can be open or with an aluminium profile.

The classification is also valid for the following product parameters:

Thickness:
- Nominal 8 mm, individual tolerances ± 0,5 mm

Density
- Nominal 1050 kg/m^3 , individual tolerances ± 150 kg/m^3

3 Attestation of Conformity and CE marking

3.1 Attestation of Conformity system

The attestation of conformity applied to this product specified by the European Commission in Mandate Construct 98/437/EC, Annex 3 is System 3, since there is no improvement of the reaction to fire classification in the production process.

a) Tasks for the manufacturer:
   (1) Factory production control,

b) Tasks for the notified body:
   (1) Initial type testing of the product,

3.2 Responsibilities

3.2.1 Tasks of the manufacturer

3.2.1.1 Factory production control

The manufacturer has a factory production control system in the plant and exercises permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer are documented in a systematic manner in the form of written policies and procedures. This production control system ensures that the product is in conformity with the European Technical Approval.

The manufacturer shall only use raw materials supplied with the relevant inspection documents as laid down in the control plan[1]. The incoming raw materials shall be subject to controls and tests by the manufacturer before acceptance.

The quality control on the components includes checks on:

Dimensions
Material quality
Density

The control plan, which is part of the technical documentation of this European Technical Approval includes details of the extent, nature and frequency of testing and controls to be performed within the factory production control and has been agreed between the approval holder and ETA-Danmark A/S.

The results of factory production control are recorded and evaluated. The records include at least the following information:

- Designation of the product, basic material and components;
- Type of control or testing;
- Date of manufacture of the product and date of testing of the product or basic material and components;
- Result of control and testing and, if appropriate, comparison with requirements;
- Signature of person responsible for factory production control.

The records shall be presented to ETA-Danmark A/S on request

ETA-Danmark A/S maintains a file describing the tasks and tests imposed on the component manufacturers by the approval holder.

This file includes information on the boards, the specified fasteners and adhesives, and other associated components, and also on the control plan, which includes type and frequencies of the control, agreed between ETA-Danmark A/S and the approval holder.

3.2.2. Tasks of notified bodies

3.2.2.1 Initial type testing of the product

For initial type testing the results of the tests performed as part of the assessment for the European Technical Approval shall be used unless there are changes in the production line or plant. In such cases the necessary initial type testing has to be agreed between ETA-Danmark A/S and the notified body

3.3 CE marking

The CE marking shall be affixed on the accompanying documents of each delivery. The CE symbol shall be in accordance with Directive 93/68/EC and accompanied by the following information:

- name or identification mark of producer and his registered address
- the last two digits of the year in which the CE marking was affixed
- the number of the European Technical Approval
- declaration concerning dangerous substances

1 The control plan has been deposited at the ETA-Danmark A/S and is only made available to the approved bodies involved in the conformity attestation procedure.

4 Assumptions under which the fitness of the product for the intended use was favourably assessed

4.1 Manufacturing

All materials shall be manufactured by Rockwool Lapinus Productie B.V. or by subcontractors under the responsibility of Rockwool Rockpanel B.V.

The European Technical Approval is issued for the product on the basis of agreed data/information, deposited with ETA-Danmark, which identifies 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.

4.2 Installation

Installation details and application details for the man on site are given by Rockwool Rockpanel B.V. in the manufacturer's technical dossier, which forms part of the documentary material for this ETA and which shall always accompany the kit delivered to the site.

For non-ventilated use, the substrate shall be airtight.

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

If the joints 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 substrate, 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 water diffusion resistance of the boards is declared as a means for the designer to decide whether they are sufficiently vapour permeable, especially when used for cladding without ventilated cavities at the back. The designer can then establish that condensation in the entire wall as a result of water vapour diffusion will not occur or will occur only to an extent where damage is not caused during the condensation period and the wall will dry out again during the evaporation period.

For non-ventilated intended use, the pressure level preceding the pressure level where leakage occurs is declared as a means for the designer to decide on the necessity of the use of a vapour control membrane.

4.3 Packaging, storage and transportation

The panels are delivered on pallets and with a protective cover and edge protection.

The panels shall be stacked on a dry sub-soil and protected against rain.

Pallets shall be stacked no more than two high.

4.4 Maintenance and repair

A circular saw with hard point teeth is used for cutting of the boards. For special shapes a jigsaw with wolfram grid can be used. Edge painting after cutting for durability reasons is not necessary; edge painting has only an aesthetic function.

The choice of fixing (nails, screws, rivets or adhesive) depends on the substrate and the aesthetical view. The edge distance of the mechanical fixing depends on the position of the fixing (corner or edge).

If the product is used in a not ventilated construction, repainting of the Durable Colours is only allowed with a vapour permeable finish with an S_d- value no more then 0.2 m; in general waterborne acrylic paint meets this requirement. Repainting of Durable AG is not allowed

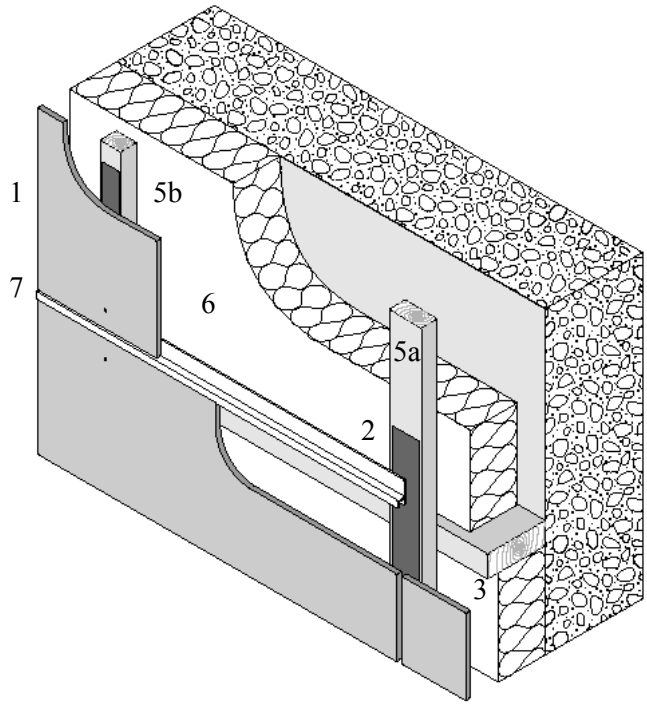
Depending on the surface treatment, the boards can be cleaned with ordinary cleaning agents dissolved in hand warm water. Organic solvents for the Durable AG finish are in general also allowed (such as turpentine and acetone). To remove graffiti, the manufacturer can supply a special cleaner.

Thomas Bruun
Manager, ETA-Danmark

Annex 1

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

Figure 1. Ventilated intended use



1. Compressed mineral wool board with organic or inorganic finish
2. EPDM foam gasket
3. Timber beam
4. Vapour barrier
5. Batten: a - joint and b - intermediate
6. Insulation
7. Protektor 9087 extruded aluminium chairprofile

Figure 2. Non-ventilated intended use

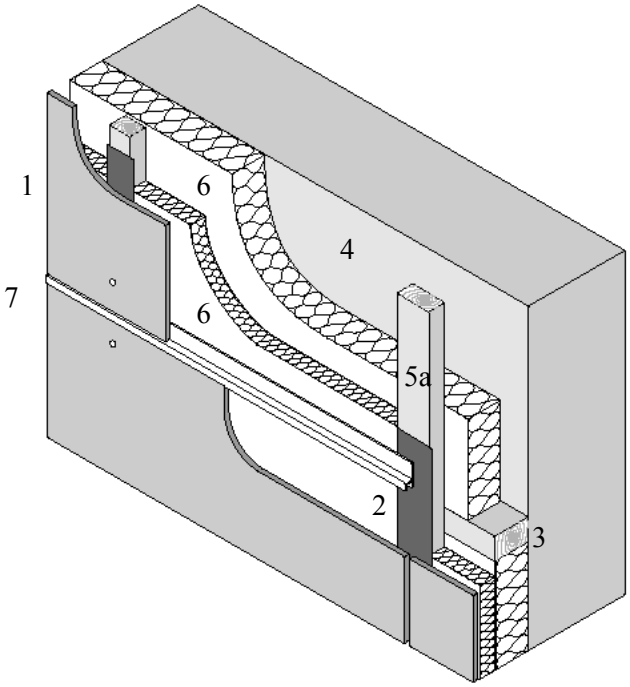
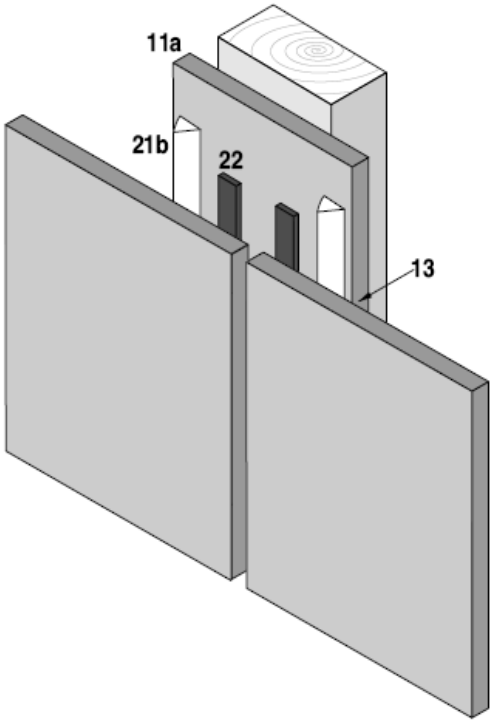
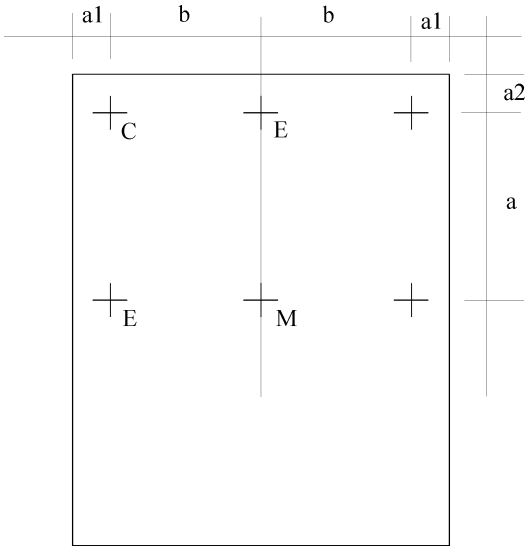


Figure 3. Bonding with Tack-S. Only on ventilated intended use



11a. 8 mm Rockpanel Durable Colours Durable strip; coated surface cleaned prior to bonding with 'Liquid 1'; strips mechanically fixed with Rockpanel nails or screws
13. Reverse of the board primed with 'MSP Transparent'
21b. Triangular glue ridge with a height of 9 mm
22. Foam tape self adhesive on two sides 3*12 mm

Annex 2
Maximum edge distances, maximum characteristic loads and hole diameter



C: Fixing in corner
E: Fixing at edge
M: Fixing at intermediate position

Table 5: Maximum edge distances and maximum distances between fastenings in mm				
Fixing type	b_{max}	a_{max}	a1	a2
Screw	600	600	15	50
Nail	600	400	15	50
Rivet	600	600	15	50
Adhesive	600	Continuously applied triangular adhesive ridge of 9 mm		

Table 6: Characteristic fixing loads in 8 mm boards For the design values the national safety factors must be taken.			
Fixing type	Position M	Position E	Position C
Screw [b]	990	547	268
Nail [b]	570	570	397
Rivet [a]	1308	700	353
Adhesive	0,33 N/mm^2 With a triangle of 9 by 9 mm, deformed to a rectangle with a thickness of 3 mm (thickness of foam tape), see annex 1		

[a] For correct fixing, a riveting tool with rivet spacer must be used
[b] If a RockPanel strip is used between the board and the battens, the fixing load should be reduced or the length of the fastener should be increased with the thickness of the strip.

For bonded applications The RockPanel strip (item 11.a on figure 3 in annex 1) must be mechanically fixed in such a way that it can move tension free on the wooden battens**.**

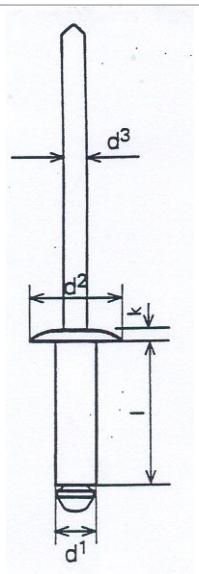
Therefore, The RockPanel strip is mounted with fixed points and with moving points. The hole diameters for the fixing points are indicated in table 7.

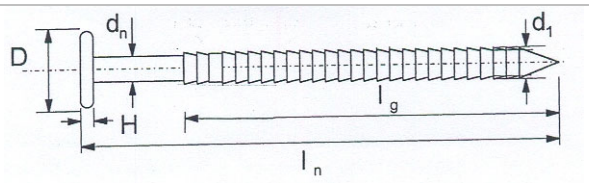
The characteristic loads which may be taken by the fixings, are given in table 6 (position E and C).

hole diameter [mm]			
Fixing	Fixed point	Moving point	Board dimension considered
Rockpanel nail	2,5	3,8	1200*2420
Rockpanel screw	3,2	6,0	1200*3050
Rivet	5,2	8,0	1200*3050
Edge distance: a_1 >= 15 mm and a_2 >= 50 mm			

Table 7. Hole diameters for RockPanel boards mechanically fixed and RockPanel strip in bonded applications

Annex 3
Fastener specification

Rivet AP14-50180-S	
Material EN AW-5019 (AlMg5) in accordance with EN 755-2 Nail material number 1.4541 in accordance with EN 10088 Failure tensile strength Z_b = 3920 N	
d^1 = 5 d^2 = 14 d^3 = 2,75 l = 18 k = 1,5	

Ring-shank nail	
Stainless steel in accordance with EN 10088 Material number 1.4401 or 1.4578	
d_n = 2,6 – 2,8 d_1 = 2,8 – 3,0 l_n = 31 – 32,5 l_g = 24 – 26 D = 5,8 – 6,3 H = 0,8 – 1,0	

Torx screws	
Stainless steel in accordance with EN 10088 Material number 1.4401 or 1.4578	
d_s = 3,3 – 3,4 d_g = 4,3 – 4,6 l = 35 -1,25 b = 26,25 – 28,5 D = 9,6 - 0,4