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European Technical Assessment

ETA 25/0144
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General part

Technical Assessment Body issuing the ETA: ITeC
ITeC has been designated according to Article 29 of Regulation (EU) No 305/2011 and is member of EOTA (European Organisation for Technical Assessment)

Trade name of the construction product	**Hardie® Panel & Hardie® Architectural Panel Cladding**
Product family to which the construction product belongs	9 - Kits for external wall claddings mechanically fixed
Manufacturer	**JAMES HARDIE SPAIN SLU** Lugar Barrio la Estación, s/n ES-39719 Orejo (Cantabria) Spain www.jameshardie.eu
Manufacturing plant(s)	Lugar Barrio la Estación, s/n ES-39719 Orejo (Cantabria) Spain
This European Technical Assessment contains	22 pages including 3 Annex(es) which form an integral part of this assessment.
This European Technical Assessment is issued in accordance with Regulation (EU) 305/2011, on the basis of	European Assessment Document EAD 090062-01-0404. *Kits for external walls claddings mechanically fixed.*

General comments

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

Specific parts of the European Technical Assessment

1 Technical description of the product

This ETA is applicable to the Hardie® Panel & Hardie® Architectural Panel Cladding kit for external wall cladding in ventilated façades.

Hardie® Panel & Hardie® Architectural Panel Cladding kit is classified as family A according to the EAD 090062-01-0404. It includes three models of boards and three types of fixings. Components are given in table 1.1.

Detailed information and data of all the components are given in the annexes of this ETA.

Substructure, brackets, fixings between substructure and brackets, fixings between brackets and substrate and ancillary components are not part of the kit assessed in this ETA.

Substructure may be formed by timber batten or aluminium profiles. EPDM tape is used to cover the vertical joints for timber frame. In aluminium substructures EPDM tape is optional.

Table 1.1: Kit components.

N.	Generic component		Hardie® Panel & Hardie® Architectural Panel Cladding			Technical description in Annex 1
1	Cladding element (*)		**Hardie® Panel**	**Hardie® Architectural Panel Metallics**	**Hardie® Architectural Panel**	A1.1
			Fibre-cement board smooth	Fibre-cement board smooth with metallic pigments on the coating surface	Fibre-cement board textured finish (smooth sand or brushed concrete)	
2	Cladding fixing	Screws for wood substructure	Hardie™ Panel self-tapping stainless-steel screws			A1.2
		Screws for aluminium substructure	Hardie™ Panel self-drilling stainless steel screws			
		Blind rivets	Hardie™ Panel rivets Aluminium alloy body – Stainless steel mandrel			
3	Edge coating		Hardie™ Seal			A1.3

(*) Fibre-cement board according to EN 12467.

2 Specification of the intended use(s) in accordance with the applicable European Assessment Document (hereinafter EAD)

Hardie® Panel & Hardie® Architectural Panel Cladding kit is intended to be used as external wall claddings in ventilated façades. The walls are made of masonry (clay, concrete or stone), concrete (cast on site or as prefabricated panels), timber or metal frame in new or existing buildings (retrofit).

The characteristics of the walls shall be verified prior to use of Hardie® Panel & Hardie® Architectural Panel Cladding kit, especially regarding conditions for reaction to fire classification and for mechanical fixing of Hardie® Panel & Hardie® Architectural Panel Cladding kit.

The provisions made in this European Technical Assessment are based on an assumed working life of at least 25 years for Hardie® Panel & Hardie® Architectural Panel Cladding. The indications given on the working life cannot be interpreted as a guarantee given by the producer, 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.

Hardie® Panel & Hardie® Architectural Panel Cladding kit is made of non-load bearing construction components. They do not contribute directly to the stability of the wall on which they are installed, but they can contribute to its durability by providing enhanced protection from the effect of weathering.

Hardie® Panel & Hardie® Architectural Panel Cladding kit is not intended to ensure the airtightness of the building envelope.

Information and data regarding design, installation, maintenance and repair criteria are given in Annexes 2 and 3.

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

Performance of Hardie® Panel & Hardie® Architectural Panel Cladding kit related to the basic requirements for construction works (hereinafter BWR) were determined according to EAD 090062-01-0404 *Kits for external walls claddings mechanically fixed*. Essential characteristics of Hardie® Panel & Hardie® Architectural Panel Cladding are indicated in table 3.1.

Table 3.1: Performance of Hardie® Panel & Hardie® Architectural Panel Cladding.

Basic Works Requirement	**ETA section**	**Essential characteristic**			**Performance**
BWR 2 Safety in case of fire	3.1	Reaction to fire	Without EPDM tape		A2-s1,d0
			With EPDM tape	tape cover ≤ 0,165 m^2/m^2	A2-s1,d0
				0,165 < tape cover ≤ 0,346 m^2/m^2	B-s1,d0
				tape cover > 0,346 m^2/m^2	NPA
	---	Façade fire performance			NPA
	---	Propensity to undergo continuous smouldering			Not relevant (thermal insulation is not a kit component)
BWR 3 Hygiene, health and the environment	3.2	Watertightness of joints (protection against driving rain)			Not watertight (open joints)
	3.3	Water absorption			See clause 3.3
	---	Water vapour permeability			Not relevant
	3.4	Drainability			See figures in Annex 2
	---	Content, emission and/or release of dangerous substances.			NPA
BWR 4 Safety and accessibility in use	3.5	Wind load resistance			See table 3.2
	---	Resistance to horizontal point loads			NPA
	---	Impact resistance			NPA
	3.6	Mechanical resistance. Cladding element	Bending strength of cladding element		See table 3.3
	3.7	Mechanical resistance. Connection between	Pull-through resistance		See table 3.4

Table 3.1: Performance of Hardie® Panel & Hardie® Architectural Panel Cladding.

Basic Works Requirement	ETA section	Essential characteristic		Performance
		the cladding elements and the cladding fixings	Pull through resistance under shear loads	See table 3.5
	---	Resistance to seismic loads. Out-of-plane fundamental vibration period		NPA
	---	Resistance to seismic loads. Out-of-plane acceleration		NPA
	---	Resistance to seismic loads. In-plane displacement		NPA
BWR 5 Protection against noise	---	Airborne sound insulation		Not relevant
BWR 6 Energy economy and heat retention	---	Thermal resistance		Not relevant
Aspects of durability	3.8	Hygrothermal behaviour		See clause 3.8
	---	Behaviour after pulsating load		NPA
	3.9	Freeze-thaw resistance		See table 3.6
	3.10	Behaviour after immersion in water		See table 3.7
	3.11	Dimensional stability by humidity		See table 3.8
	3.12	Linear thermal expansion		See table 3.9
	---	Chemical and biological resistance of the cladding elements		Not relevant
	---	UV radiation resistance of the cladding elements		Not relevant
	3.13	Corrosion of metal components		See clause 3.13

3.1 Reaction to fire

The reaction to fire of Hardie® Panel & Hardie® Architectural Panel Cladding kit has been assessed according to section 2.2.1 of EAD 090062-01-0404.

The reaction to fire of Hardie® Panel & Hardie® Architectural Panel Cladding kit according to Commission Delegated Regulation (EU) 2016/364 and EN 13501-1 is class A2-s1,d0.

The kit has been mounted on timber substructure, so the classification is also valid for aluminium substructures.

When an EPDM tape is placed between the panels and the substructure (mandatory for wooden substructures and optional for aluminium substructures), the reaction to fire is A2-s1,d0 when the EPDM[1] tape does not exceed 0,165 m^2/m^2 (m^2 of EPDM tape / m^2 of façade). If the EPDM tape is between 0,165 m^2/m^2 and 0,346 m^2/m^2, the system classification is B-s1,d0. For higher EPDM tape cover values, the system has not been evaluated.

These classes are valid provided that the width of the joints between the boards are a maximum of 10 mm and the insulation layer placed behind the cladding elements is made of materials class A1 or A2-

[1] EPDM tape with a density ≤ 1000 kg/m^3, thickness ≤ 0,7 mm and a gross heat of combustion PCS ≤ 31,8 MJ/kg.

s1,d0 (e.g., mineral wool) and that the layer behind the cladding elements is a mineral substrate like masonry or concrete (class A1 or A2-s1,d0). This class is also valid for any thickness of ventilated cavity behind the Hardie® Panel kit.

For other end use conditions (for example: with insulation layer made of EPS, XPS, PUR or PF), the reaction to fire of the Hardie® Panel kit will be the reaction to fire of the insulation material.

Note: A European reference fire scenario has not been laid down for façades. In some Member States, the classification of external wall claddings according to EN 13501-1 might not be sufficient for the use in façades. An additional assessment of external wall claddings according to national provisions (e.g., on the basis of a large-scale test) might be necessary to comply with Member State regulations, until the existing European classification system has been completed.

3.2 Watertightness of joints (protection against driving rain)

Joints between the cladding elements in the external wall claddings for ventilated façades are open, therefore the Hardie® Panel & Hardie® Architectural Panel Cladding kit is not watertight.

3.3 Water absorption

Water absorption has been tested according to section EAD 090062-01-0404 clause 2.2.5 and EN 12467 section 7.3.3. In no case formation of water droplets occurred on the under face of the sheet.

3.4 Drainability

The assessment has been carried out by means of the analysis of available construction details of product assemblies, obtained from Manufacturer's Product Installation Instructions (MPII), according to clause 2.2.7 of EAD 090062-01-0404.

No potential accumulation of water behind the cladding kit has been detected.

3.5 Wind load resistance

Wind load resistance has been assessed taking into account the wind resistance tests and the mechanical resistance of components (see clauses 3.6 and 3.7).

The worst case has been calculated and tested:

- Hardie® Panel & Hardie® Architectural Panel Cladding: cladding elements with 4 to 9 fixings, maximum distances between cladding fixings, between vertical profiles (see table 3.2) and thickness of cladding element 8 mm.
- Cladding mounted on bearing vertical aluminium profiles

Calculated and test results are given in table 3.2.

For other assembled systems, wind load resistance obtained by calculation on the basis of the mechanical resistance of the kits components should not be higher than the maximum load obtained in the tests.

Table 3.2: Maximum wind load obtained by testing and wind load obtained by calculation for the assembled cladding kit configurations.

Number of fixings H x V	Configuration	Board horizontal dimension	Board vertical dimension	Distance between fixings in horizontal direction	Distance between fixings in vertical direction	Fixing type	Q_{cal} Wind load obtained by calculation (Pa)	Q_{test} Maximum wind load obtained by testing (Pa)
2 x 2		665	725	625	625	Rivet	2100 (B)	3000 (B)
						Screw	2100 (B)	3300 (B)
3 x 2		1220	725	590	625	Rivet	2500 (P)	5800 (P)
						Screw	2300 (P)	4400 (P)
2 x 3		665	1350	625	625	Rivet	2550 (B)	3200 (B)
						Screw	2550 (B)	3100 (B)
3 x 3		1220	1350	590	625	Rivet	2000 (P)	3500 (P)
						Screw	2200 (P)	3200 (P)

(H) = Horizontal fixings; (V) = Vertical fixings.
(B) = Cladding element bending failure; (P) = Pull-through failure.

3.6 Mechanical resistance of cladding element

Bending strength of the cladding element has been tested according to EN 12467. Mean values and characteristic values of the bending strength are given in table 3.3.

Table 3.3: Bending strength of the cladding element.

Trade name		Bending strength (MPa)			
		After dry storage		After storage in water	
		F_m	F_c	F_m	F_c
Hardie® Panel	Bending axis ⊥ to manufacturing direction	17,9	16,0	11,9	10,6
Hardie® Architectural Panel Metallics	Bending axis II to manufacturing direction	12,2	11,0	8,3	7,1
Hardie® Architectural Panel	Bending axis ⊥ to manufacturing direction	18,8	17,8	12,2	11,6
	Bending axis II to manufacturing direction	12,3	11,4	8,4	7,8

F_m = mean values; F_c = characteristic values giving 75% confidence that 95% of the test results will be higher than this value.

3.7 Mechanical resistance of connection between the cladding element and the cladding fixing

3.7.1 Pull through resistance

Pull through resistance of the connection between the cladding element and the cladding fixings has been tested according to EAD 090062-01-0404 clause 2.2.12.5. Mean values and characteristic values of the breaking load are given in table 3.4.

Table 3.4: Pull through resistance.

Diameter of supporting ring (mm)	Position of fixing in the cladding	Breaking load (N)					
		Screw for timber		Screw for aluminium		Rivet	
		F_m	F_c	F_m	F_c	F_m	F_c
620	Corner	339	302	329	307	337	324
	Edge	596	504	579	534	648	595
	Centre	*885 (*)*	828	*870* (*)	814	*1015 (*)*	964
350	Corner	352	296	374	340	3223	281
	Edge	614	568	587	557	592	574
	Centre	980	923	1.017	960	1.123	1.072
50	Corner	1.084	877	1.177	1.117	1.241	1.185

F_m = mean values; F_c = characteristic values giving 75% confidence that 95% of results will be higher than this value.

(*) Calculated values according to EAD 090062-01-404 Section I.1.1 Option 2.

3.7.2 Pull-through resistance under shear loads

Pull-through resistance under shear loads in the connection between the cladding element and the cladding fixings has been tested according to EAD 090062-01-0404 clause 2.2.12.6. Mean values and characteristic values of the breaking load are given in table 3.5.

Table 3.5: Pull-through resistance under shear loads.

Position of fixing in the cladding	Breaking load (N)					
	Screw for timber		Screw for aluminium		Rivet	
	F_m	F_c	F_m	F_c	F_m	F_c
Border. Hardie® Panel / Hardie® Architectural Panel Metallics	1.351	1.281	1.132	1.038	1.152	942
Border. Hardie® Architectural Panel	1.563	1.409	1.208	996	1.120	858

Fm = mean values; Fc = characteristic values giving 75% confidence that 95% of results will be higher than this value.

3.8 Hygrothermal behaviour

The hygrothermal behaviour has been tested according to EAD 090062-01-0404 clause 2.2.16.1 and the method specified in section M.1 of ANNEX M of EAD. During the test cycles or at the end of the test programme, none of the following defects occurs:

- Detachment of the cladding element.
- Deterioration such as cracking or delamination of the cladding element.
- Irreversible deformation.
- Discoloration of the boards.

This system is therefore assessed as resistant to hygrothermal cycles.

3.9 Freeze-thaw resistance

Freeze-thaw resistance of the cladding element has been tested according to EN 12467 clause 7.4.1.3 as indicated in EAD 090062-01-0404 annex M.3.

Table 3.6 shows R ratio and lower estimate value after 100 freeze-thaw cycles.

Table 3.6: Freeze-thaw resistance.

Model	Direction	Mean Value	Lower estimate value
		R	$R_{L,FT}$
Hardie® Panel	Bending axis ⊥ to manufacturing direction	1,02	1,00
Hardie® Architectural Panel Metallics	Bending axis II to manufacturing direction	1,06	1,04
Hardie® Architectural Panel	Bending axis ⊥ to manufacturing direction	1,22	1,19
	Bending axis II to manufacturing direction	1,23	1,19

R = mean ratio of the modulus of rupture of exposed and unexposed specimens.

$R_{L,FT}$ = lower estimate of the mean ratio at 95% confidence level.

3.10 Behaviour after immersion in water

Behaviour after immersion in water of the cladding element has been tested according to EN 12467 clause 7.3.6 as indicated in EAD 090062-01-0404 annex M.4.

Table 3.7 shows R ratio and lower estimate value after 50 water immersion-dry cycles.

Table 3.7: Behaviour after immersion in water.

Model	Direction	Mean Value	Lower estimate value
		R	$R_{L,NT}$
Hardie® Panel	Bending axis ⊥ to manufacturing direction	1,18	1,15
Hardie® Architectural Panel Metallics	Bending axis II to manufacturing direction	1,16	1,13
Hardie® Architectural Panel	Bending axis ⊥ to manufacturing direction	1,32	1,30
	Bending axis II to manufacturing direction	1,35	1,31

R = mean ratio of the modulus of rupture of exposed and unexposed specimens.

$R_{L,NT}$ = lower estimate of the mean ratio at 95% confidence level.

3.11 Dimensional stability by humidity

Dimensional stability by humidity of the cladding element has been tested according to EN 12467 clause 5.4.3 as indicated in EAD 090062-01-0404 clause 2.2.16.5.1. Results are given in table 3.8.

Table 3.8: Dimensional variations of the cladding element associated with changes in relative humidity.

Model	Direction	Maximum value [mm/m]
Hardie® Panel Hardie® Architectural Panel Metallics	⊥ to manufacturing direction	1,0
	II to manufacturing direction	1,0
Hardie® Architectural Panel	⊥ to manufacturing direction	1,0
	II to manufacturing direction	1,0

3.12 Linear thermal expansion

Linear thermal expansion of the cladding element has been tested according to EN 14617-11 as indicated in EAD 090062-01-0404 clause 2.2.16.5.2. Results are given in table 3.9.

Table 3.9: Dimensional variations of the cladding element associated with changes in temperature.

Model	Direction	Expansion coefficient α [10^{-6} °C^{-1}]
Hardie® Panel Hardie® Architectural Panel Metallics	⊥ to manufacturing direction	5,5
	II to manufacturing direction	6,8
Hardie® Architectural Panel	⊥ to manufacturing direction	8,9
	II to manufacturing direction	6,6

3.13 Corrosion of metal components

Stainless steel grade A2, according to EN ISO 3506-1, used in the screws specified for the Hardie® Panel & Hardie® Architectural Panel Cladding kit is equivalent in terms of its corrosion resistance to stainless steel grade 1.4301 according to EN 10088. Based on the procedure in Annex A of standard EN 1993-1-4, the stainless steels used in the fixings of the Hardie® Panel & Hardie® Architectural Panel Cladding kit are suitable in environments with a low risk of exposure to chlorides and sulphur dioxide (C2 class as defined in ISO 9223), and a medium risk (C3 class as defined in ISO 9223), when these will not occur simultaneously.

4 Assessment and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base

According to the Decision 2003/640/EC of the European Commission, the system of AVCP (see EC delegated Regulation (EU) No 568/2014 amending Annex V to Regulation (EU) 305/2011) given in the following table applies.

Table 4.1: AVCP system.

Product(s)	Intended use(s)	Level or class	System
Exterior wall claddings	External finishes of walls	Any	2+
	For uses subject to regulations on reaction to fire	A2-s1,d0 B-s1,d0	1

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

All the necessary technical details for the implementation of the AVCP system are laid down in the Control Plan deposited with the ITeC and agreed in accordance with EAD 090062-01-0404, clause 3.

The Control Plan is a confidential part of the ETA and only handed over to the notified product certification body involved in the assessment and verification of constancy of performance.

The factory production control operated by the manufacturer shall be in accordance with the above-mentioned Control Plan.

Issued in Barcelona on 24th March 2025

by the Catalonia Institute of Construction Technology.

Ferran Bermejo Nualart

Technical Director, ITeC

ANNEX 1: Hardie® Panel kit & Hardie® Architectural Panel Cladding

Hardie® Panel & Hardie® Architectural Panel Cladding kit for external wall claddings are composed of:

- Cladding elements: fibre-cement boards (see table A1.1) according to the harmonized standard EN 12467:
  - Hardie® Panel (see figure A1.1a);
  - Hardie® Architectural Panel Metallics (see figure A1.1b);
  - Hardie® Architectural Panel (see figure A1.1c & A1.1d).
- Cladding fixings
  - Hardie™ Panel screws for timber (see figure A1.2a and table A1.2a);
  - Hardie™ Panel screws for aluminium (see figure A1.2b and table A1.2b);
  - Hardie™ Panel rivets (see figure A1.2c and table A1.2c).
- Edge coating
  - Hardie™ Seal (see figure A1.3 and table A1.3)

A1.1 Cladding elements

Figure A1.1a:
Hardie® Panel (smooth).

Figure A1.1c:
Hardie® Architectural Panel (smooth sand).

Figure A1.1b:
Hardie® Architectural Panel Metallics (smooth).

Figure A1.1d:
Hardie® Architectural Panel (brushed concrete).

The cladding element is delivered with primer on both sides and colour coating on visible side.

Table A1.1: Hardie® Panel & Hardie® Architectural Panel Cladding.

Characteristic		**Value**			**Reference**
Trade name		**Hardie® Panel**	**Hardie® Architectural Panel Metallics**	**Hardie® Architectural Panel**	**---**
Form		Figure A1.1a	Figure A1.1b	Figure A1.1c	---
Surface finish	Texture	Smooth	Smooth with metallic pigments on the coating surface	Smooth sand / brushed concrete	---
	Coating	Acrylic primer on both sides + acrylic coating visible side			---
Classification	Category	A			EN 12467 §5.2
	Mechanical characteristics	Class 2			
	Group	Large size			
	Level	1			
Manufacturing dimensions (mm)	Nominal length	3048 ± 5,00			EN 12467 §5.3
	Nominal width	1220 ± 3,66			
	Thickness	8 ± 0,80			
Straightness of edges (%)		≤ 0,1			
Squareness of edges (mm/m)		≤ 2,0			
Apparent density (kg/m^3)		≥ 1300			EN 12467 §5.4.2
Moisture movement (relative humidity change from 30% to 90%) (mm/m)		≤ 1,0			EN 12467 §5.4.3
Thermal expansion coefficient a_T (10^{-6} K^{-1})		9			EN 14617-11
Characteristic bending strength (MPa) (*)		After dry storage 16,0 (⊥) 11,0 (II) After storage in water 10,6 (⊥) 7,1 (II)	After dry storage 16,0 (⊥) 11,0 (II) After storage in water 10,6 (⊥) 7,1 (II)	After dry storage 17,8 (⊥) 11,4 (II) After storage in water 11,6 (⊥) 7,8 (II)	EN 12467 §5.4.4
Mean modulus of elasticity (N/mm^2)		6200	6200	5100	---
Water impermeability		No drops of water			EN 12467 §5.4.5
Durability to freeze-thaw cycles		After 100 cycles $R_{L,FT}$ ≥ 0,75			EN 12467 §5.5.2
Durability to heat-rain cycles		After 80 cycles no affectation to performance in use			EN 12467 §5.5.3
Durability to warm water		After 56 days at 60ºC $R_{L,WW}$ ≥ 0,75			EN 12467 §5.5.4
Durability to soak-dry cycles		After 50 cycles $R_{L,NT}$ ≥ 0,75			EN 12467 §5.5.5
Reaction to fire (Euroclass)		A2-s1,d0			EN 13501-1
Release of dangerous substances		NPA			EN 12467 §5.6.2

(*) ⊥ = Bending axis is perpendicular to manufacturing direction.
|| = Bending axis is parallel to manufacturing direction.

A1.2 Cladding fixings

Figure A1.2a: Hardie™ Panel screw for timber.

Figure A1.2b: Hardie™ Panel screw for aluminium.

Figure A1.2c: Hardie™ Panel rivet for aluminium.

Table A1.2a: Hardie™ Panel screw for timber substructures.

Geometric properties			
Characteristic		**Value**	**Reference**
Form		Pan head with T-25 Torx®-drive	---
Generic type		Self-tapping screw	---
Dimensions (mm)	Head Ø (d_h)	12	EN 14592 §3.2
	Body Ø (d)	4,8	
	Length (L)	38	
Material of component			
Material		Stainless steel	EN ISO 3506-1
Head finish		Coated head to match board colour	---
Material properties			
Stainless steel grade		Austenitic A2	EN ISO 3506-1
Durability	Corrosion resistance in timber category	T3 / CRC II	EN 14592 §4.1.3

Table A1.2b: Hardie™ Panel screw for aluminium substructures.

Geometric properties			
Characteristic		**Value**	**Reference**
Form		Pan head with T-25 Torx®-drive	---
Type		Self-drilling screw	EN ISO 10666
Drilling capacity (mm)		$\Sigma t_i \leq 3,5$	ETA 10/0200 Annex 135
Dimensions (mm)	Head Ø (d_h)	12	ETA 10/0200 Annex 135
	Head height (h_t)	2	
	Body Ø (d)	5,5	
	Length (L)	25	
Material of component			
Material		Stainless steel with carbon steel drill point	EN ISO 3506-1
Head finish		Coated head to match board colour	---
Material properties			
Stainless steel grade		Austenitic A2	EN ISO 3506-1

Table A1.2c: Hardie™ Panel blind rivet.

Geometric properties			
Characteristic		**Value**	**Reference**
Type		Blind rivet with pan head	EN ISO 14588
Dimensions (mm)	Head Ø	14	ETA 13/0255 Annex 6
	Head height	1,8	
	Cylindrical part Ø	5	
	Cylindrical part length (l)	16	
	Maximum drilling Ø (dh)	5,1	
	Mandrel Ø	2,7	
Material of component			
Material	Body	Aluminium EN AW-5754 [Al Mg3]	EN 573-3
	Mandrel	Stainless steel (A2)	EN 10088-3

A1.3 Edge coating

The Hardie™ Seal Edge Coating is used for coating and sealing the cut ends of the siding boards.

Figure A1.3: Hardie™ Seal edge coating.

Table A1.3: Hardie™ Seal edge coating.

Characteristic	**Value**
Material	Acrylic based paint, color matched to Hardie® Panel.
Expiration	18 months from manufacturing.
Storage temperature	+5 to +35ºC
Application temperature	+5 to +35ºC
Presentation	0,5 litres tin.

ANNEX 2: Construction details

Hardie® Panel & Hardie® Architectural Panel Cladding on aluminium substructure

Legend

1. Hardie® Panel or Hardie® Architectural Panel board
2. Fixing
3. Substructure
4. Air gap
5. Bracket
6. Thermal insulation (if needed)
7. Substrate
8. Auxiliary metallic profile
9. Auxiliary perforated metallic profile

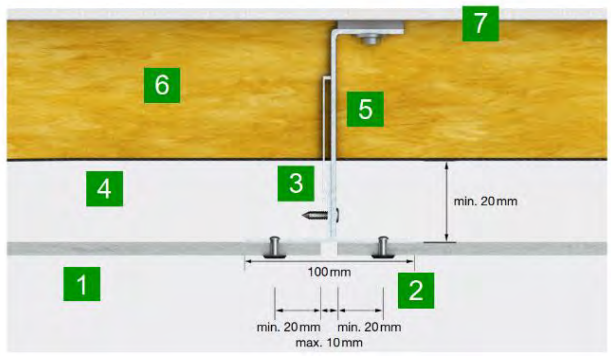

Figure A2.1.1: Horizontal section. Joint.

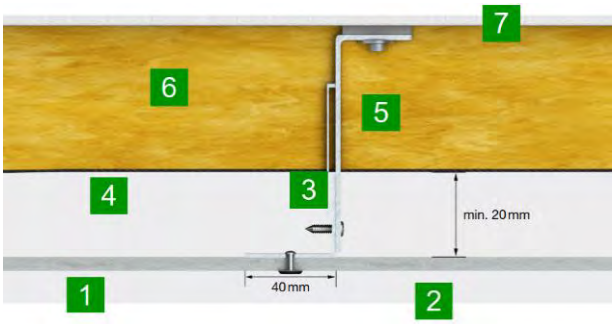

Figure A2.1.2: Horizontal section. Intermediate support.

Figure A2.1.3: Vertical section.

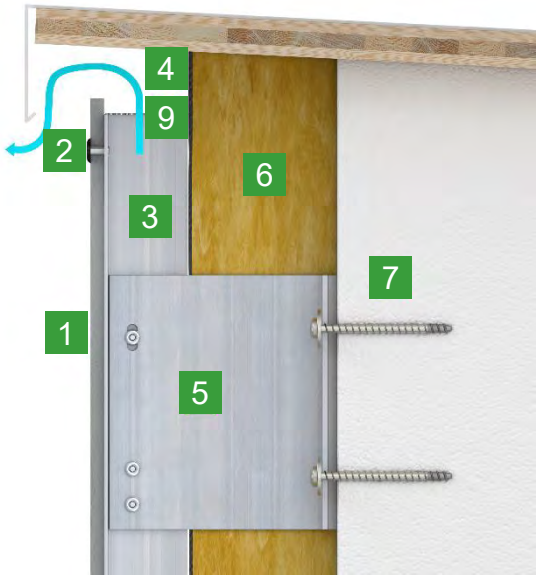

Figure A2.1.4: Vertical section. Roof edge.

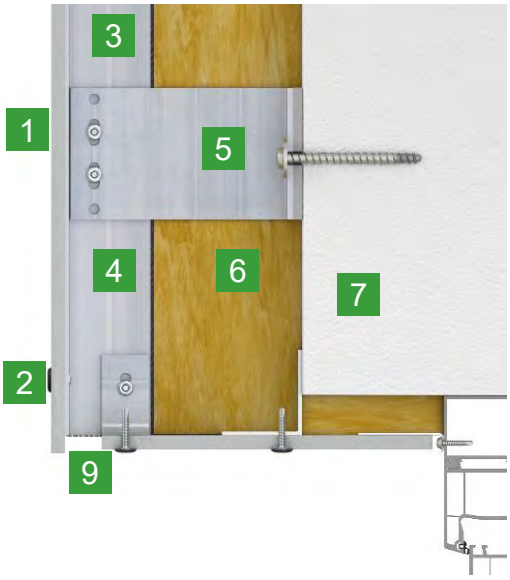

Figure A2.1.5: Vertical section. Lintel.

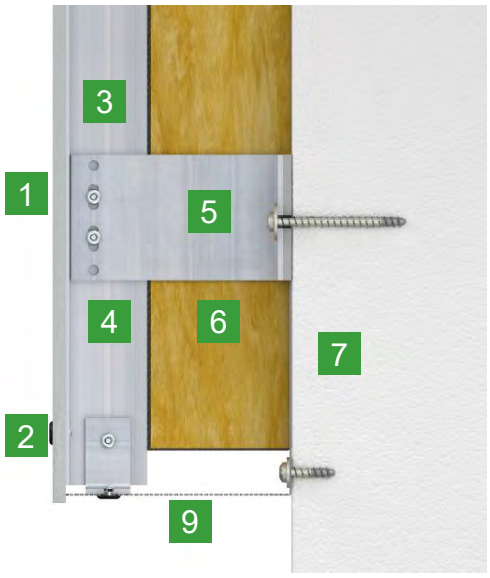

Figure A2.1.6: Vertical section. Base edge.

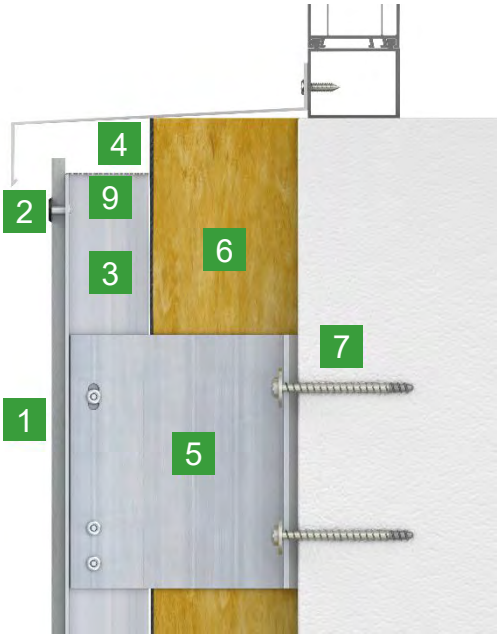

Figure A2.1.7: Vertical section. Sill.

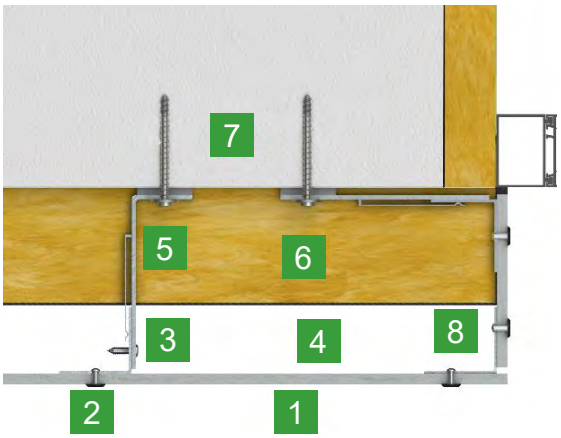

Figure A2.1.8: Horizontal section.
Jamb with Hardie® Panel board.

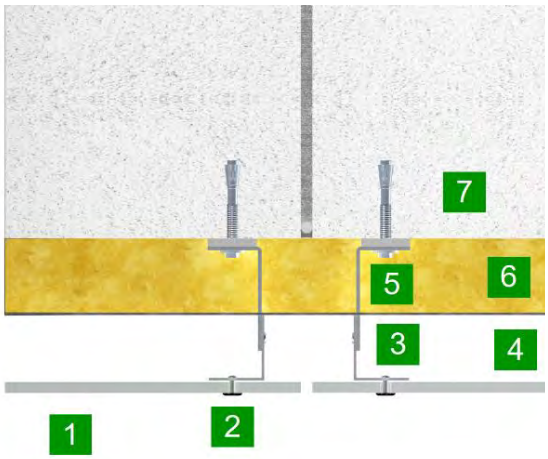

Figure A2.1.9: Horizontal section.
Structural joint.

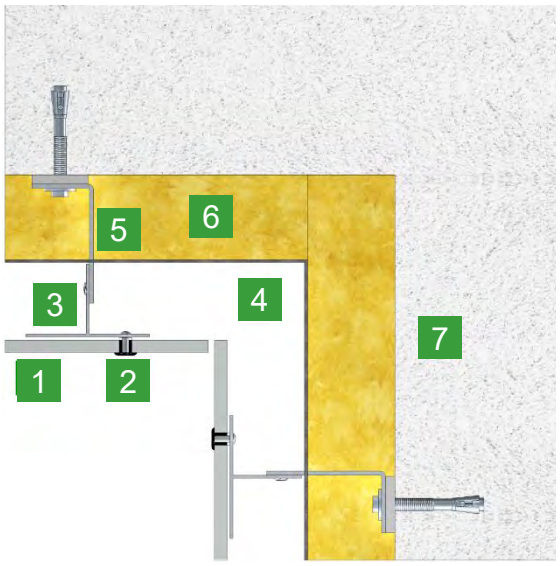

Figure A2.1.10: Internal corner.

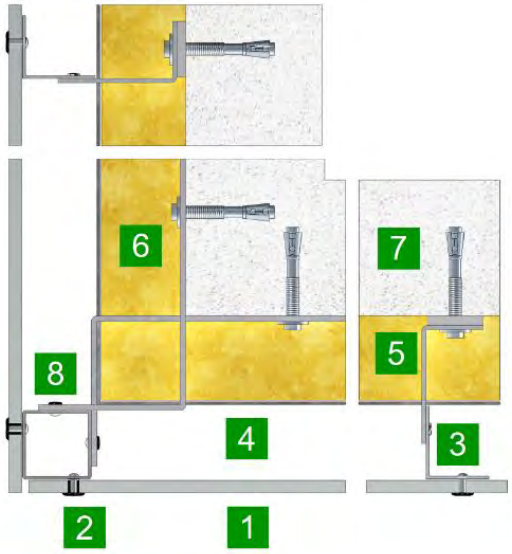

Figure A2.1.11: External corner.

Hardie® Panel & Hardie® Architectural Panel Cladding on timber substructure

Legend

1. Hardie® Panel & Hardie® Architectural Panel board
2. Fixing
3. Substructure
4. Air gap
5. EPDM tape
6. Thermal insulation (if needed)
7. Substrate
8. Auxiliary metallic profile
9. Auxiliary perforated metallic profile

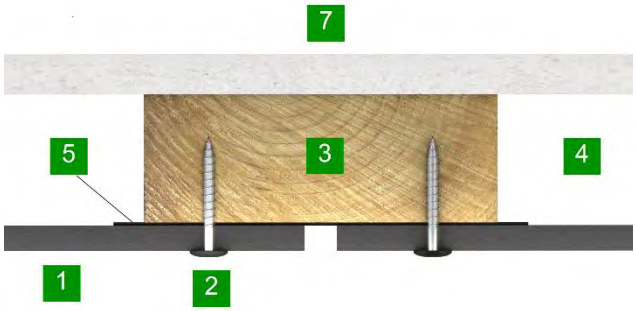

Figure A2.2.1: Horizontal section. Joint.

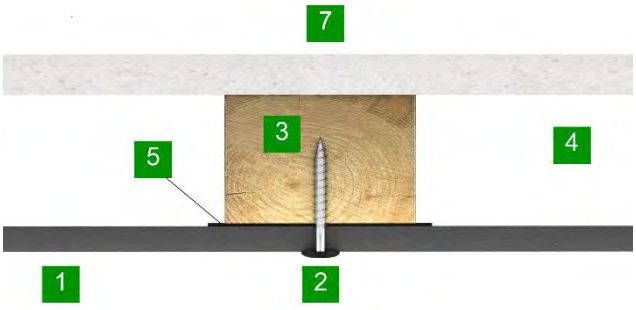

Figure A2.2.2: Horizontal section. Intermediate support.

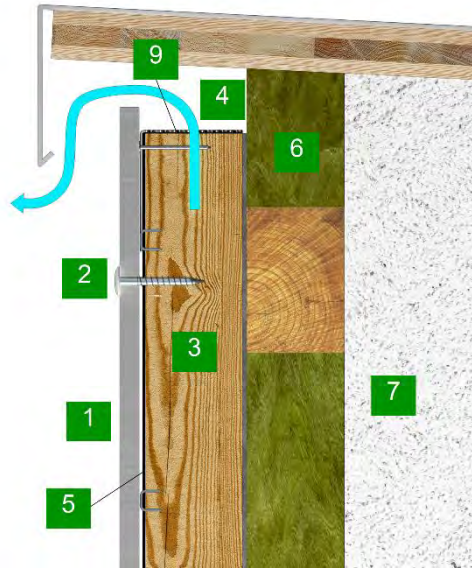

Figure A2.2.3: Roof edge.

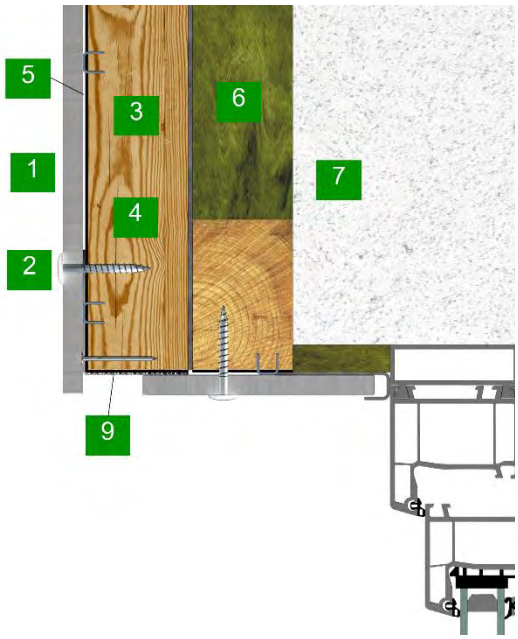

Figure A2.2.4: Lintel.

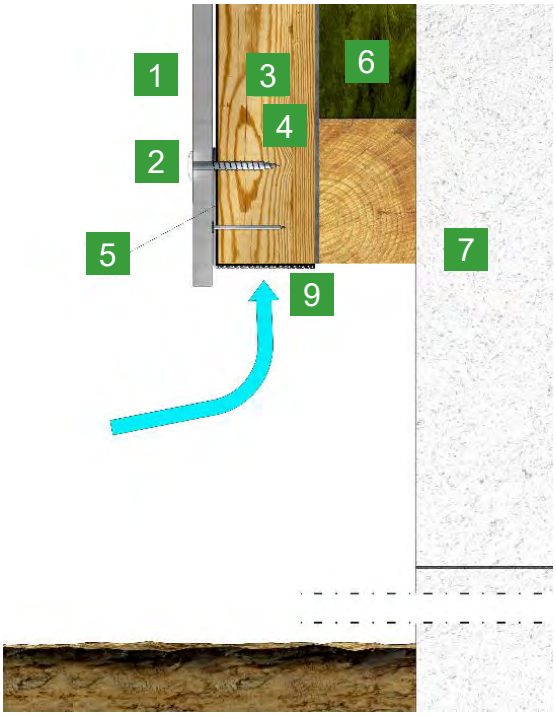

Figure A2.2.5: Base edge.

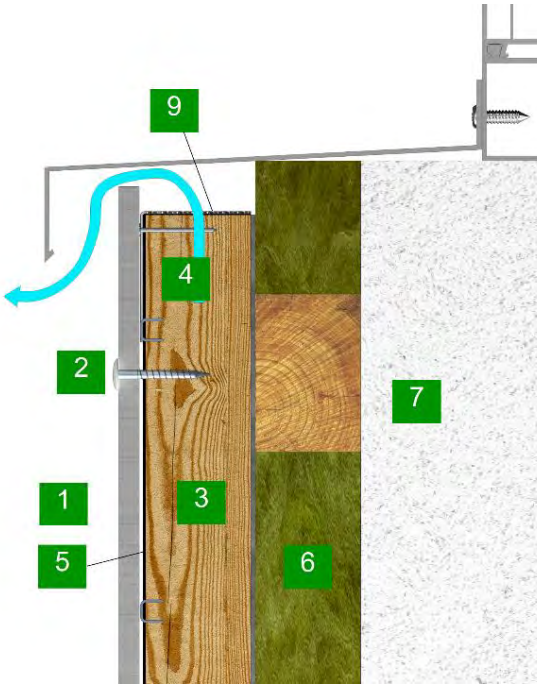

Figure A2.2.6: Sill.

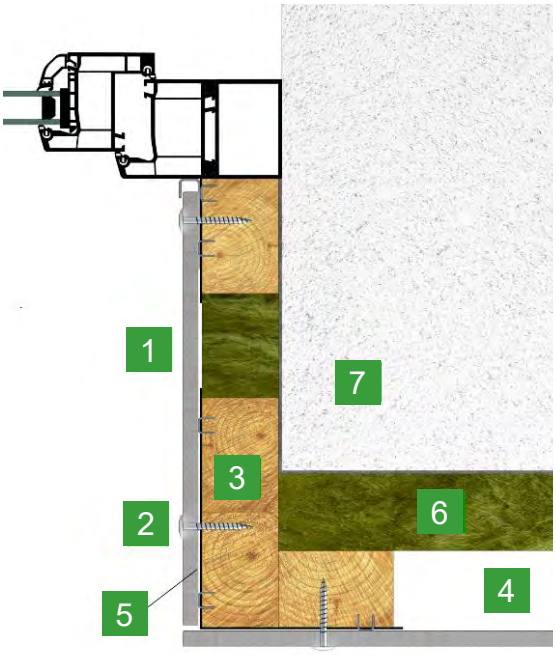

Figure A2.2.7: Horizontal section.
Jamb with Hardie® Panel board.

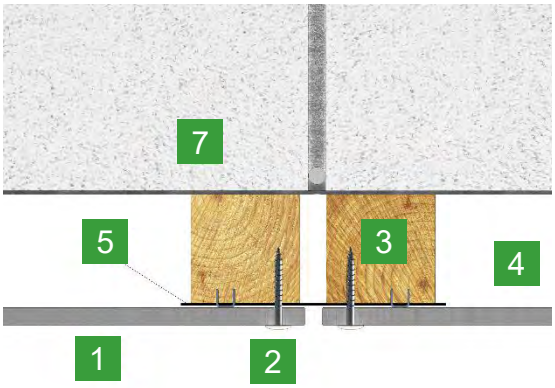

Figure A2.2.8: Horizontal section.
Structural Joint.

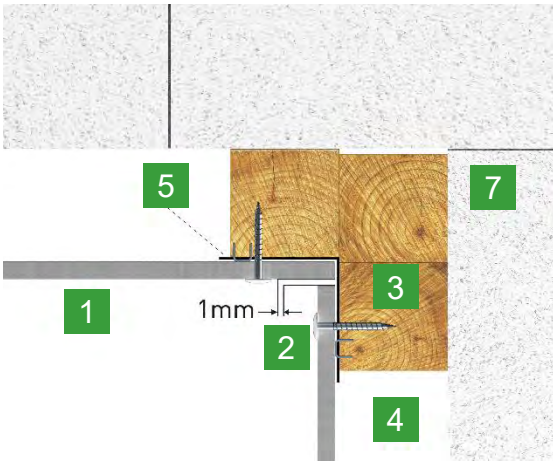

Figure A2.2.9: Internal corner.

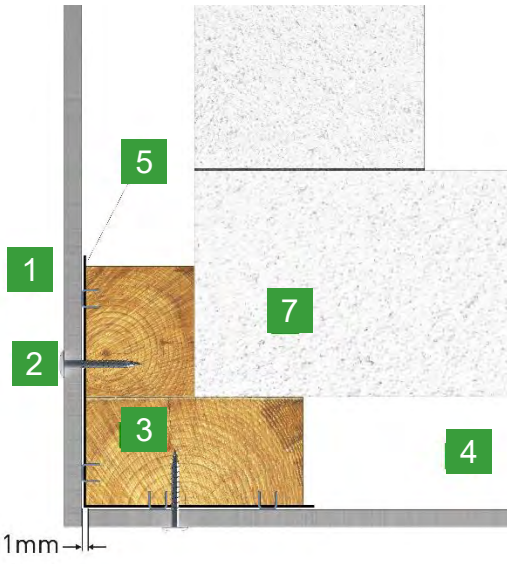

Figure A2.2.10: External corner.

ANNEX 3: Design, installation, maintenance and repair criteria

A3.1 Design

The design of the external wall claddings for ventilated façades using Hardie® Panel & Hardie® Architectural Panel Cladding kit should consider:

- It is assumed that the substrate wall meets the necessary requirements regarding the mechanical strength (resistance to static and dynamic loads) and the airtightness, as well as the relevant resistance regarding watertightness and water vapour.
- The verification of the designed system by means of calculation, taking into account the mechanical characteristic values of the kit components in order to resist the actions (dead loads, wind loads, etc.) applying on the specific works. National safety factors and other national provisions must be followed.
- The accommodation of the designed system movements to the substrate or structural movements.
- The execution of singular parts of the façade; some examples of construction details are indicated in Annex 2.
- The corrosion protection of the designed system metallic components taking into account the category of corrosivity of the atmosphere of works (e.g., acc. ISO 9223).
- The drainability of the ventilated air space between the cladding elements and the insulation layer or the external wall accordingly.
- An insulation layer is usually fixed on the external wall and should be defined in accordance with a harmonized standard or an ETA and taking into account the clause 3.1 of this ETA.
- Because the joints are not watertight, the first layer behind ventilated air space (e.g., insulation layer) should be composed by materials with low water absorption.

A3.2 Installation

Installation of the external wall claddings for ventilated façades using Hardie® Panel & Hardie® Architectural Panel Cladding kit should be carried out:

- According to the specifications of the manufacturer and using the components specified in this ETA.
- In accordance with the design and drawings prepared for the specific works. The manufacturer should ensure that the information on these provisions is given to those concerned.
- By appropriately qualified staff and under the supervision of the technical responsible of the specific works.

A3.3 Maintenance and repair

Maintenance of the external wall claddings for ventilated façades using Hardie® Panel & Hardie® Architectural Panel Cladding kit includes inspections on site, taking into account the following aspects:

- Regarding the cladding elements: the appearance of any damage such as cracking, detachment, delamination, and mould presence due to permanent moisture or permanent irreversible deformation.
- Regarding metallic components: the presence of corrosion or presence of water accumulation.

When necessary, any repair to localized damaged areas must be carried out with the same components and following the repair instructions given by the manufacturer.