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European Technical Assessment

ETA 24/1110 of 29/07/2025

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General Part

Technical Assessment Body issuing the ETA:

Instituto de Ciencias de la Construcción Eduardo Torroja (IETcc)

Trade name of the construction product:

BB-T-SZ (kit based on TMCS Buildbond® FR)

Product family to which the construction product belongs:

Kits for external wall claddings mechanically fixed

Manufacturer:

ALUBUILD L.d.a.
Rua da Indústria, n. 433.
4730-290 Vila Verde (Portugal).
www.alubuild.com

Manufacturing plant(s):

ALUBUILD L.d.a.
Parque Industrial de Gême.
4730-180 Vila Verde (Portugal).

This European Technical Assessment contains:

13 pages including 3 Annexes which form an integral part of the assessment. Annex C contains confidential information and is not included in the ETA when is publicly available.

This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of:

European Assessment Document (EAD) 090062-01-0404. Ed. October 2021. Kits for external wall claddings mechanically fixed.

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

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SPECIFIC PARTS

1. Technical description of the product (kit)

The assessed kit for ventilated external wall cladding mechanically fixed “BB-T-SZ” (family F)¹, is based on Thin Metal Composite Sheets² (hereinafter TMCS) “Buildbond® FR”, which are manufactured by the ETA-holder. This cladding kit is mechanically fastened to its subframe, fixed to the external walls of new or existing buildings (retrofit). An insulation layer can be fixed on the external wall. The kit comprises other components as specified in Table 1, which are factory produced by the ETA – holder or by suppliers.

Table 1: Definition of components of the kit BB-T-SZ

Component	Material (Reference)	Size (mm) [Tolerances]
Subframe (used to fix the cladding elements)	T-70 (ref: 01.00.002): T-shape section vertical profiles made of raw finished extruded alloyed aluminium 6063 T5/T6. Inertia: $I_x = 8.36 \text{ cm}^4$.	Length:2000-6000 [0;+20]
	T-40 (ref: 01.00.003): T-shape section vertical profiles made of raw finished extruded alloyed aluminium 6063 T5/T6. Inertia: $I_x = 7.04 \text{ cm}^4$.	Length:2000-6000 [0;+20]
	Ref. 01.03.002 (“D-clamp”) and ref. 01.03.003 (“S-clamp”): Clamps made of raw finished alloyed aluminium 6063 T5/T to hang S profile at start of façade	--
Cladding	Fixed cassettes with lateral simple folded flanges $\geq 30 \text{ mm}$ depth, top horizontal folded flange, and bottom horizontal simple folded flange made from TMCS Buildbond® FR. This TMCS is composed by two external alloyed aluminium skins EN AW 3005 H42/H44/H46 or 3105 H42/H44/H46 or 5005 H42/H44/H46 (laquered) or 5754 H24 (Mirror), and an internal core made mainly of mineral compounds plus recycled low density polyethylene (LDPE). On its horizontal flanges, cassettes present a tongue and groove joint between them, thanks to the profiles S and Z described below.	Standard lengths: 3200 [0.0 /+3] 4000 [0.0 /+3] 5000 [0.0 /+3] 6000 [0.0 /+3] Standard widths: 1000 [0;+2] 1194 [0;+2] 1250 [0;+2] 1500 [0;+2] 1600 [0;+2] 2000 [0;+2] Standard thickness: 4 [± 0.15 ;+0.00]
	Ref.01.00.003 (“S-profile”): S-shape section profiles made of raw finished extruded alloyed aluminium 6063 T5/T6, cut to size, to be fixed to bottom horizontal flange of cassettes, allowing a tongue and groove joint between them.	Length: 2000-6000 [0;+20]
	Ref.01.00.006 (“Z-profile”): Z-shape section profiles made of raw finished extruded alloyed aluminium 6063 T5/T6, cut to size, to be fixed to upper horizontal flange of cassettes, allowing a tongue and groove joint between them and its fixing to the subframe	Length: 2000-6000 [0;+20]
Fixings Elements used to fix cladding to subframe elements	ISO 15977 - 4,8 x 15 AIA/St, blind rivets made of aluminium head 14 mm and body made of stainless steel A2, according to EN ISO 15977 (e.g. SFS ASO-D-48150), and for aggressive exposure conditions (e.g. to chlorides), rivets have body made of stainless steel A4 (SFS SSO-D15-50140-A4).	--
	Self-drilling screws [$\varnothing \times L$] 4.2x16 DIN 7504 N A2 (e.g. SFS SN3/6-S-7049/SR2 - 4,2 x 13 or SFS SN3/9-S-7049/SR2-4,2 x 16). For aggressive exposure conditions (e.g. to chlorides), screws made of stainless steel A4 (e.g. Wurth DIN 7504-N A4 – 4,2 x 16 mm ref. 018564216).	--
Brackets: Elements used as load transmission between the subframe and the substrate wall.	Ref. ALB-L-50/ALB-L-90: L-shape profiles made of extruded and mechanized alloyed aluminium EN AW 6063 T5/T6, raw finished sheet with perforation (and lateral tongues) for fastening vertical profiles with fixings described below	Depth: 50-186 Height: 50 Width: 48 Thickness 3-5
Fixings between subframe elements (vertical profiles to brackets)	Self-drilling screws [$\varnothing \times L$] 5.5 x 19 stainless steel A2 (SFS SDA 5/3.5-H 13- S4-5.5x20 - 2 units (1 each side)	--
	Self-drilling screws [$\varnothing \times L$] 4.2 x 16 “type DIN 7504 N”, stainless steel A2 (e.g. SFS N3/6-S 7049/SR2) foreseen to fix clamps “D” and “S” vertical profiles T-70 or T-40 at start of façade	--

¹ Families described at Table 1.1.1 of EAD 090062-01-0404 ed. October 2021 (hereafter EAD).

² Also known as Aluminium Composite Panel (ACP)



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

2.1 Intended use

The kit is intended to be used for ventilated external wall claddings which can be fixed to the external walls of new or existing buildings. The assessed kit is a non-load-bearing construction system, and therefore, does not contribute to the stability of the wall on which are installed, neither to ensure the air tightness of the building structure, but it can contribute to durability of the works by providing enhanced protection from the effect of weathering.

2.2 Relevant general conditions for the use of the kit

The provisions made in this European Technical Assessment are based on an assumed working life of 25 years as minimum according to the EAD, provided that the conditions lay down for the installation, packaging, transport and storage as well as appropriate use, maintenance and repair are met. 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 mean for choosing the right product in relation to the expected economically reasonable working life of the works.

2.3 Design of the kits in works

The design of external wall cladding for ventilated façade using the kit should consider:

- The mechanical characteristic values of the components (e.g. cladding, fixings and subframe) in order to resist the actions applying on the specific work.
- The substrate material to define the suitable anchorages.
- The possible movements of substrate and the position of the building expansion joints.
- The dilatation of components of the kits and of the panels.
- The category of corrosivity of the atmosphere of the works³.
- Because joints are not watertight, the first layer behind ventilated air space must be composed by materials with low water absorption.
- The construction of singular parts of façade (e.g. base, top, corners, windows, etcetera).
- If the entire building must comply with the specific building regulations, particularly concerning fire and wind load resistance, of the Member States in which the work has been built.

2.4 Installation of the kits in works

Installation should be carried out according to the ETA holder's specifications and using the specific components of the kit, manufactured by the ETA holder or by suppliers recognized by the ETA holder. Installation should be carried out by appropriately qualified staff and under the supervision of the technical responsible of the site.

2.5 Use, maintenance and repair of the works

Maintenance of the assembled system or components of the kit includes inspections on site, taking into account the following aspects:

- Regarding the panels: Appearance of any damage such as cracking, delamination o detachment due to permanent and irreversible deformation.
- Regarding metallic components: Presence of corrosion or water accumulation.
- Necessary repairs should be done rapidly, using the same kit components and following the repair instructions given by ETA holder.

³ E.g. See Table 1 of Standard EN ISO 12944-2:2017. Paints and varnishes. Corrosion protection of steel structures by protective paint systems. Part 2: Classification of environments.



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

The assessment of the kit for ventilated external wall claddings according to the Basic Work Requirements (BWR) was carried out in compliance with the applicable EAD. Characteristics of the components shall correspond to respective values laid down in the technical documentation of this ETA, checked by IETcc.

- **Basic Work Requirement 2: Safety in case of fire**

- 1 **Reaction to fire:**

Kit has been assessed⁴ with cladding based on Buildbond® FR, and classified as B-s1,d0, according to Tests/Classifications Reports 4601T22/-2 issued by AFITI, 2023. This classification is referred to Standard EN 13501-1⁵ and have been obtained from tests results carried out according to their applicable Standards EN ISO 11925-2⁶, EN 13823⁷. In relation to the reaction to fire on rear side, it is considered above classifications are applicable.

- 2 **Façade fire performance of kit:** No performance assessed

- 3 **Propensity to undergo continuous smouldering:** No performance assessed.

- **Basic Work Requirement 3: Hygiene, health and the environment**

4. **Watertightness of joints (protection against driving rain):**

Purposeless for claddings kits with open joints. Kit is not watertight according to cl. 2.2.4 of EAD.

- 5 **Water absorption of cladding:** No performance assessed.

- 6 **Water permeability and water vapour permeability:**

No performance assessed, as it is not relevant for ventilated façades according to cl. 2.2.6 of EAD.

7. **Drainability:**

According to cl. 2.2.7 of EAD, on the basis of the standard construction details the installation criteria of these kit and the technical knowledge and experience, it may be said the water which penetrates through joints into the air space or the condensation water can be drained out from the cladding without accumulation or moisture damage into the substrate.

- 8 **Content, emission and/or release of dangerous substances:** No performance assessed.

- **Basic Work Requirement 4: Safety and accessibility in use**

- 9 **Wind load resistance:**

The kit behaviour exposed to wind pressure is most favourable than when exposed to wind suction. Therefore, wind pressure tests have been avoided and wind pressure resistance of kit can be considered as equal to wind suction resistance. Wind suction resistance of cladding kit has been determined by structural calculations supplemented by test carried out according to cl. 2.2.9 of EAD, on a rig of most unfavourable module but representative enough of the cladding kit based on. Criteria for the validation of the calculation and summary of test results are indicated in Table 2 at the following pages:

⁴ An European reference fire scenario has not been laid down for facades. In some Member States, the classification of the cladding kits according to Standard EN 13501-1 might not be sufficient for the use in façades. An additional assessment of the kits according to the national provision (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.

⁵ EN 13501-1:2019. Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests.

⁶ EN ISO 11925-2:2020. Reaction to fire tests - Ignitability of products subjected to direct impingement of flame - Part 2: Single-flame source test.

⁷ EN 13823:2021. Reaction to fire tests for building products - Building products excluding floorings exposed to the thermal attack by a single burning item.



Criteria for the validation of the calculation:

1. Maximum tensile strength for calculation on aluminium skins: min. $R_{p0,2}/1,5= 80 \text{ MPa}/1,5=51 \text{ MPa}$
2. Maximum wind load obtained by testing $Q_{\text{test}} \geq Q_{\text{cal}}$ in kN/m^2 .
3. Maximum deflection d of vertical profiles vs wind suction: $\leq L/200 \text{ mm}$ and $\leq 15 \text{ mm}$, where L is distance between brackets.
4. Maximum admissible displacement in the centre of the rear side of the cladding element shall be:
 - o Instantaneous displacement:
 - $f_{\text{test, inst}} \leq f_{\text{cal}}=L/30$, (where L is the maximum horizontal distance between vertical profiles or dimension (length or height, of cladding element), and
 - $f_{\text{test, inst}} \leq f_{\text{cal}} = 40\text{mm}$ (in any case).
 - o Permanent accumulated displacement:
 - $f_{\text{test, perm}} \leq 1.5 \text{ mm}$ (in any case).
5. Failure criteria: f_1 : Breakage of any cladding element • f_2 : Failure of fixing • f_3 : Failure of detachment off subframe • f_4 : Significant permanent deflection affecting stability or agreed to applicant $\geq 3 \text{ mm}$.

Table 2: Wind load resistance

Cassette	Load Q_{test} (kN/m^2)	Type of failure	Max. displacement (mm)	
			Instantaneous	Permanent
B1: L-H-E=1880-1103-30 mm fixed to 3 profiles Max. wind load resistance Q_{cal}: 0.6 kN/m^2 - 3 Vert. profiles T -70 distanced 905 mm - 2 Brackets L per vert. profile distanced: 973 mm - 1 Profile Z at the top horizontal flange of cassette - 1-Profile S at bottom horizontal flange of cassette - 1 Clamp D per vertical profile receiving S profile at start.	0.6	None	17.96	0.99
	Remarks: - At 1.2 kN/m^2 , reached ultimate limit state and max. permanent deflection ($\geq 3 \text{ mm}$) - At 1.6 kN/m^2 , buckling of left vertical flange of cassette			

10 Resistance to horizontal point loads

It has been assessed according to cl. 2.2.10 of EAD on the kit configuration cited below. Results are shown in Table 3.

Table 3: Resistance of horizontal point loads

Cassette B2 LxH: 535x1180 mm	Deformation (mm)			Remarks
	Initial loaded 500 N	After 1 minute loaded 500 N	After 1 minute unloaded	
Buildbond® FR	0.00	10.21	0.13	No reduction of performances

11 Impact resistance

It has been assessed according to cl. 2.2.11 of EAD on rig cladded with cassettes made of Buildbond® FR. Results and use category obtained are described below in Table 4.

Table 4: Impact test results

Kit	Impact	Energy	Ball	Remarks	
Cassettes LxH (mm) a: 900x665 b: 900x1165	hard body	1 J	0.5 kg	No deterioration (superficial damage without cracking).	
		3 J	0.5 kg		
		10 J	1.0 kg		
	soft body	10 J	3.0 kg		No deterioration (significant permanent deflection without cracking).
		60 J	3.0 kg		
		300 J	50 kg		
Use category		400 J	50 kg	(I) A zone readily accessible at ground level to the public and vulnerable to hard body impacts but not subjected to abnormally rough use.	



12-28 Mechanical resistance

They have been assessed according to the respective parts of cl. 2.2.12 to 2.2.15 of EAD, on the relevant components of the family F when applicable, as indexed below:

- Related to the cladding element:
 12. Bending strength of cladding element (TMCP): Table 5
 13. Resistance of the grooved cladding element: Not applicable for family F.
 14. Resistance of the cladding element at dowel hole: Not applicable for family F.
 15. Resistance to long term or permanent dead load: No performance assessed
- Resistance of the connection between the cladding element and the cladding fixing:
 16. Pull through resistance: Not applicable for family F.
 17. Pull through resistance under shear loads: Not applicable for family F.
 18. Axial resistance: Not applicable for family F.
 19. Shear load resistance: Not applicable for family F.
 20. Combined tension and shear load resistance: Not applicable for family F.
 21. Resistance of slot: Not applicable for family F.
- Mechanical resistance of cladding fixing:
 22. Resistance to vertical load: No performance assessed.
 23. Pull-through resistance of fixings from profile: Table 6
 24. Resistance of punctual cladding fixing: Table 7.
- Mechanical resistance of subframe components:
 25. Resistance of profiles: Table 8.
 26. Subframe fixings. Tension/pull out resistance: Table 9.
 27. Subframe fixings. Shear resistance: No performance assessed
 28. Bracket resistance (horizontal and vertical loads): Table 10 and Table 11.

12. Bending strength of cladding element

It has been assessed according to cl. 2.2.12.1 and 2.2.16.9* of EAD on cladding material (thin metal composite sheet Buildbond® FR). Results obtained are described below in Table 5.

Table 5: Bending strength results of cladding element (TMCS Buildbond® FR)

Test arrangement	Resistance (N/mm ²)		
	R _m (average value)	R _c (characteristic value)	Remarks
4P-Bending test	116.08	114.75	*Test method clause 2.2.4 of EAD 210046-00-1201: - 2.2.4.1: Four-point test arrangement - 2.2.4.2: Three point test arrangement - *Calculations according to clause N.1.of EAD
3P-Bending test	117.85	114.20	

23. Pull through resistance of fixings from profile

It has been assessed according to cl. 2.2.12.12 of EAD. Results obtained are described below in Table 6.

Table 6: Pull-through resistance of fixings from profiles

Sample	Failure* load (KN)	
	F _{u,m}	F _{u,c}
Screw to profile Z	1.89	1.70
Screw to profile T-40	2.31	2.10

24. Resistance of punctual (linear) cladding fixing (family F):

It has been assessed according to cl. 2.2.12.13 of EAD. Results obtained are described in Table 7:



Table 7: Resistance of punctual cladding fixings

Sample	Failure* horizontal load (N)				Failure* vertical load (N)			
	F _{1,m}	F _{1,c}	F _{u,m}	F _{u,c}	F _{1,c}	F _{u,m}	F _{u,m}	F _{u,c}
Clamp D	232.56	139.10	342.25	240.20	No performance assessed		1.43	1.30
Clamp S	51.63	26.30	102.46	43.90			0.97	1.0
Profile S	357.92	264.20	817.74	751.3	No performance assessed		No performance assessed	
Profile Z	219.81	173.8	537.76	509.1			3.79	3.50
* Key	F _{1,m} : Mean value for 1 mm permanent deflection F _{1,c} : Characteristic value for 1 mm permanent deflection F _{u,m} : Mean value for 4 mm permanent deflection F _{u,c} : Characteristic value for 4 mm permanent deflection				F _{1,m} : Mean value for 1 mm permanent deflection F _{1,c} : Characteristic value for 1 mm permanent deflection F _{u,m} : Mean value of maximum load registered F _{u,c} : Characteristic value of maximum load registered			

25. Resistance of profiles:

It has been assessed according to cl. 2.2.12.14 of EAD. Results obtained are described below in Table 8:

Table 8: Resistance results of aluminium profiles

Ref.	Type	Area (mm ²)	Moment of Inertia (mm ⁴)	E mod. (GPa) (EN 1999 1-1)	Alloy EN AW	Mechanical characteristics (minimum)				
						R _m (MPa)	R _{p0,2} (MPa)	A (%)	A _{50m} (%)	HBW
01.00.002	Extruded T-shape. Wing thickness 2 mm	184.453	I _x : 83600	70	6063 T5/T6	≥ 270	≥ 225	≥ 8	≥ 6	90

26. Pull out resistance of subframe fixings:

It has been assessed according to cl. 2.2.12.15 of EAD. Results obtained are described below in Table 9:

27. Shear load resistance of subframe fixings: No performance assessed.

Table 9: Pull-out resistance results of fixings from profile

Specimen	Failure load (kN)		
	F _{u,m} (average value)	F _{u,c} * (characteristic value)	Remarks
Screw to profile T 01.00.002	2.40	1.90	Thickness of aluminium base: 2.0 mm

28. Bracket resistance:

It has been assessed according to cl. 2.2.12.17 of EAD on brackets as described at Table 1 of ETA. Results obtained are described below in Tables 10 and 11:

Table 10: Resistance results of brackets to vertical loads

Alu- L bracket Lw=50mm Ref.ALB-L-50	Load (N)				Remarks
	F _{i,r} . Permanent def. ΔL= (0,2%·Lw=0.10 mm)	F _{1,d}	F _{3,d}	F _{i,u}	
Mean value F _{i,m}	19.96	201.14	394.26	488.85	Results can be extended to brackets Lw<55 mm
Characteristic value F _{i,c}	16.34	164.30	359.58	472.58	
Alu- L-bracket Lw=90mm Ref.ALB-L-90	Load (N)				Remarks
	F _{i,r} . Permanent def. ΔL= (0,2%·Lw=0.18 mm)	F _{1,d}	F _{3,d}	F _{i,u}	
Mean value F _{i,m}	12.68	64.44	163.29	222.76	Results can be extended to brackets Lw<125 mm
Characteristic value F _{i,c}	10.42	51.17	145.69	196.95	

Table 11: Bracket resistance to horizontal loads

Alu- L-bracket Ref.ALB-L-50	Load (N)		Remarks
	F _{i,1}	F _{i,u}	
Mean value F _{i,m}	2778.53	6526.39	--
Characteristic value F _{i,c}	2655.6	6425.40	
Alu- L-bracket Ref.ALB-L-120	Load (N)		Remarks
	F _{i,1}	F _{i,u}	
Mean value F _{i,m}	2528.91	5364.77	--
Characteristic value F _{i,c}	2195.03	4673.41	



29. Resistance to seismic loads (out of plane fund.l vibration period): No performance assessed.

30. Resistance to seismic loads. Out of plane acceleration: No performance assessed.

31. Resistance to seismic loads. In-plane displacement: No performance assessed.

- **Basic Work Requirement 5: Protection against noise**

32. Airborne sound insulation: No performance assessed.

- **Basic Work Requirement 6: Energy economy and heat retention**

33. Thermal resistance: Not relevant as the cladding kit does not include the thermal insulation.

- **Aspects of Durability**

They have been assessed according to cl. 2.2.16 of EAD, which address cl. 2.2.16.9 when cladding kits are based on TMCS Buildbond® FR. The related characteristics (expressed in general as decay after required exposures) and obtained results are indexed below and shown in Tables 12 to 14.

34. Hygrothermal behaviour:

- 34.1. Kit family F: Not applicable.
- 34.2. Cladding material: See § 43.

35. Behavior after pulsating loads:

- 35.1. Kit family F: Not applicable.
- 35.2. Cladding material: See § 43.

36. Freeze-thaw resistance:

- 36.1. Kit family F: Not applicable.
- 36.2. Cladding material: See § 43.

37. Behaviour after immersion in water

- 37.1. Kit family F: Not applicable.
- 37.2. Cladding material: See § 43.

38. Dimensional stability:

- 38.1. Kit family: Not applicable.
- 38.2. Cladding material: See § 43.

39. Linear thermal expansion:

- 39.1. Kit family F: Not applicable.
- 39.2. Cladding material: No performance assessed.

40. Chemical and biological resistance:

- 40.1. Kit family F: Not applicable.
- 40.2. Cladding material: Not performance assessed.

41. UV radiation resistance:

- 41.1. Kit family F: Not applicable.
- 41.2. Cladding material: See § 43.

42. Corrosion:

- 42.1. Metallic components of kit: Table 12.
- 42.2. Cladding material: See Table 13.

43. Accelerated ageing behaviour of kit when cladding element is made of TMCS:

- 43.1. Buildbond® FR: Decay of delamination resistance by peeling test (torque peel strength):
 - After hygrothermal cycles: Table 14.
 - After immersion 6 h in boiling water (torque peel strength): Table 14.
 - After immersion in water 500 h at 20 °C: Table 14.
 - After freeze-thaw cycles: Table 14.
 - After long term exposure to heat: Table 14.
- 43.2. Buildbond® FR: Decay of flexural resistance (bending strength in four point tests):
 - After hygrothermal cycles: No performance assessed.
 - After immersion 6 h in boiling water (torque peel strength): No performance assessed.
 - After immersion in water 500 h at 20 °C: No performance assessed.
 - After freeze-thaw cycles: No performance assessed.
 - After long term exposure to heat: No performance assessed.
- 43.3. Buildbond® FR: Decay of other characteristics:
 - Flexural stiffness after short term exposure: No performance assessed.
 - Resistance of routed and returned edge of TMCP after TPB test: Table 15
 - Resistance of slot and its fixing devices after pull-out-pulsating loads: No performance assessed.



Table 12: Corrosion resistance of subframe components made of aluminium profiles

Kit	Type	Alloy	Protection	Corrosion resistance
Aluminium profiles	Vertical profiles	EN AW 6063 T5/T6	Raw finished	Durability rating: B (Eurocode 9) ⁸
	Bracket	EN AW 6063 T5/T6 EN AW 6005 A T6	Raw finished	

According to ch. 4 Durability of Eurocode 9, under normal atmospheric conditions (e.g. rural, moderate industrial or urban areas), aluminium alloys profiles as listed above can be used without the need for surface protection to avoid loss of bearing capacity. In severe environments, especially those with a high chloride content, attention must be paid to the risk of galvanic corrosion. Some form of insulation between aluminium and more noble metals (e.g. carbon steel, stainless steel, copper) is recommended.

Table 13: Corrosion resistance of cladding element made of coil coated aluminium after exposure to spray salt fog

Component		Corrosion infiltration	Blistering
Cladding material	Lacquering material		
Buildbond® FR	PVDF	No defects after 500 and 1000 h*	

*Key: Index 3 according to EN 1396: Aluminium and aluminium alloys. Coil coated sheet and strip for general applications. Specifications
Corrosivity category: No performance assessed

Table 14: Torque peel strength results at initial conditions and after exposures

TMCS	Specimen	Torque peel strength (N.mm/mm)					
		Initial state T _{INI}		38. Hygrothermal cycles		39. 6h water 90° C	
		Front sheet	Rear sheet	Front sheet	Rear sheet	Front sheet	Rear sheet
Buildbond® FR	1	361.2	296.6	356.0	259.3	343.6	271.4
	2	355.9	303.5	348.5	241.4	324.7	259.8
	3	356.3	289.3	341.6	242.0	349.0	224.1
	Av.value per sheet	357.8	296.5	348.7	247.6	339.1	251.8
	Av.value (N.mm/mm)	T _{INI,av} = 327.1		T _{INI,av} = 298.1		T _{i,6h,90°C} = 295.4	
	Relative change ΔT (%)	--		ΔT _h = 91.1		ΔT _{i,6h,90°C} = 90.3	
	Defects	None		None		None	
TMCS	Specimen	Torque peel strength (N.mm/mm)					
		40. 500 h water 20°C		41. 2500 h. 80°C		42. Freeze-Thaw cycles	
		Front sheet	Rear sheet	Front sheet	Rear sheet	Front sheet	Rear sheet
Buildbond® FR	1	356.5	232.8	308.7	239.5	305.6	267.9
	2	370.5	278.8	316.7	197.1	311.2	287.5
	3	353.6	280.5	310.7	235.6	346.1	256.3
	Av.value per sheet	360.2	264.0	312.0	224.1	321.0	270.6
	Av.value (N.mm/mm)	T _{i,500h,20°C} =		312,1		T _{It,80°C,av} =	
	Relative change ΔT (%)	ΔT _{i,500h,20°C} =		95,4		ΔT _{It,80°C,av} =	
	Defects	None		None		None	

Table 15: Resistance to 3PB test of routed and returned edge (flange)

TMCS	Initial exposure			Tras 10.000 cycles		
	Av.value F _{u,m}	Characteristic value F _{u,5}	Remarks	Av.value F _{u,m}	Characteristic value F _{u,5}	Remarks
Buildbond® FR	43,40	42,1	No defects, no breakage	53,00	53,00	No defects, no breakage

⁸ (Eurocode 9): EN 1999-1-1:2007+A1:2009 Design of aluminium structures. General structural rules. Annex C. Tables C.1 and 3.1.



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

4.1 System of assessment and verification of constancy of performances

According to the decision 2003/640/EC of the European Commission⁹ the system of assessment and verification of constancy of performances (see Annex V to Regulation (EU) N. 305/2011) given in the following Table applies:

Table 16: System AVCP applied

Product(s)	Intended use(s)	Level(s) or class (es)	System (s)
Kit based on Buildbond® FR	Kit for external wall claddings	All / any	1

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

The ETA is issued for the kit on the basis of agreed data / information which identify the products that have been assessed and judged. Detailed description and conditions of the manufacturing process of the kits, and all the relevant design and installation criteria of the kit are specified in the manufacturer's technical documentation deposited with the IETcc. It is the manufacturer's responsibility to make sure that all those who use the kit are appropriately informed of specific conditions according to sections 1, 2, 4 and 5 and including the annexes of this ETA.

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Madrid, 29th July 2025

Director
On behalf of the Instituto de Ciencias de la Construcción Eduardo Torroja

⁹ Published at Official Journal of the European Union (OJEU) L226/21 of 10.09.2003. www.new.eur-lex.europa.eu/oj/direct-access.html



Annex A: General scheme

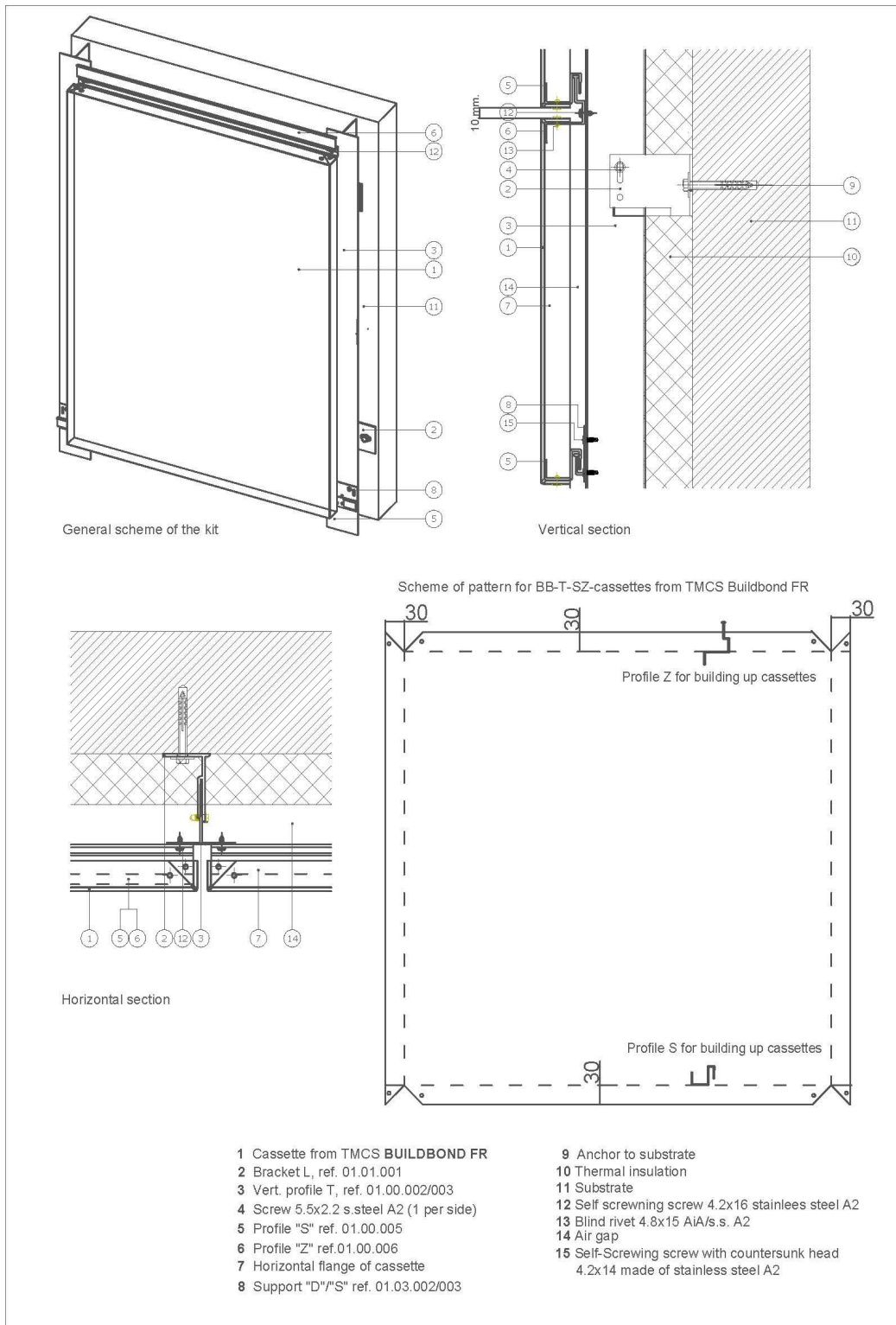
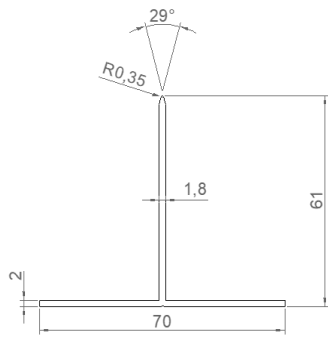
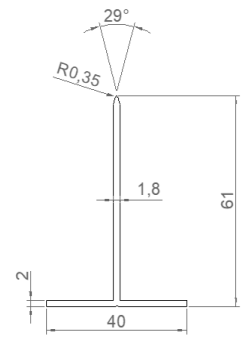


Figure 1. Scheme of example of BB-T – SZ cladding kit





Ref. 01.00.002



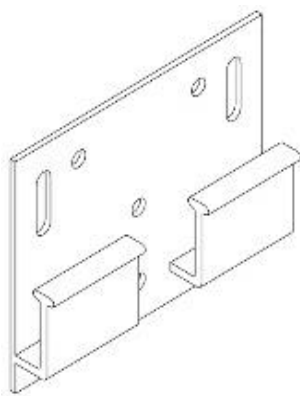
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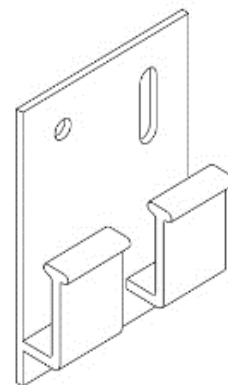
Ref. 01.00.005



Ref. 01.00.006



Ref. 01.03.002



Ref. 01.03.003

Figure 2. Schemes of profiles and clamps



Annex B: Complementary physical and mechanical data of cladding kit elements

Table B.1: Physical declared data of components Buildbond® FR

TMCS	Material	Characteristics	Value	
Buildbond® FR 4±0.2 mm	Removable protection film	Aspect: Thickness (µm):	White and grey 100	
	Coating of alloyed aluminium external sheet	HDPE	Thickness primer (mm): Thickness lacquered layer (mm):	≥ 10 ≥ 20
		PVDF 70/30	Thickness bi-layer (µm): Thickness three-layer(µm):	25±4 40±6
	External sheet of coated alloyed aluminium. See Table B.2 for alloys	Thickness (mm): Linear thermal expansion coefficient (K ⁻¹):	0.5±0.05 23 x 10 ⁻⁶	
	Adhesive	Thickness (mm):	0.05	
		Colour:	Transparent	
	Solid core FR: LDPE and mineral fire retardand compounds	Aspect:	Black	
		Thickness (mm):	3	
		Composition:	Confidential (Annex B)	
		Density (kg/m ³):	1 400-1 600	
Adhesive	Thickness (mm):	0.05		
	Colour:	Transparent		
Rear sheet of coated alloyed aluminium. See Table B.2 for alloys	Thickness (mm): Linear thermal expansion coefficient (K ⁻¹):	0.5±0.05 23 x 10 ⁻⁶		
Coating of alloyed aluminium inner sheet PE coating	Thickness (µm):	5±2		

Table B.2: Mechanical declared data of aluminium alloys of Buildbond® FR

TMCS	Material	Characteristic	Value		
Buildbond® FR 4±0.2 mm	External/rear sheet of coated alloyed aluminium EN AW 5005/3005/3105 H42 or H44 or H46 and 5754 H24	E Modulus (MPa)	70 000		
		Tensile strength R _m (MPa)	5005	H42	125-165
			3005	H44	145-185
			3105	H46	165-205
			5754	H24	240-280
		Yield strength R _p 0,2 (MPa)	5005	H42	>80
			3005	H44	>110
			3105	H46	>135
			5754	H24	>160
		Elongation A ₅₀ (%)	5005	H42	>4
			3005	H44	>3
			3105	H46	>2
			5754	H24	>6

Annex C: Confidential information

This confidential information and is not included in the European Technical Assessment when that assessment is publicly available: C.1. Quality control of components of kits manufactured by suppliers or ETA holder.

