



DECLARATION OF PERFORMANCE

No.: DOP-170530F

1. Product		VANGUARD exterior wall claddings composed by the following components		
Components		VANGUARD FULL Kit	VANGUARD MEDIUM Kit	VANGUARD BASIC
Cladding elements		Agglomerated stone panels with groove		
Cladding fixings		Aluminium alloy continuous profiles		
Subframe components	Vertical profiles	Aluminium alloy profiles		
	Brackets	Aluminium alloy brackets	-	-
	Screws	Stainless steel and galvanized screws		
2. Intended use		External wall claddings in ventilated façade (rainscreens)		
3. Manufacturer		ULMA Architectural Solutions Barrio Zubillaga, 89 20560 Oñati - SPAIN		
4. Authorised representative		-- (see 3.)		
5. System of AVCP		System 1		
6.				
European Assessment Document		EAD 090020-00-0404		
European Technical Assessment		ETA 16/0519 of 29/5/2017		
Technical Assessment Body		ITeC Instituto de Tecnología de la Construcción de Cataluña		
Notified Body		1220. IteC		

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

Signed for and on behalf of the manufacturer by:

Eneko Ugalde
Managing Director

Oñati 30/5/2017

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7. Declared performance

Table 1. Declared performance

Essential characteristic	Performance		
	VANGUARD FULL Kit	VANGUARD MEDIUM Kit	VANGUARD BASIC
Reaction to fire	VANGUARD B-s2 d0		
Watertightness of joints (protection against driving rain)	Not watertight (open joints)		
Drainability	Capacity to drain out the water that may penetrate into the air space or condensation water		
Wind load resistance	> 2500 Pa		
Resistance to vertical load	< 0,12 mm after 24 hours		
Impact resistance	See table 2		
Bending strength of cladding element (Mean)	> 18 N/mm ²		
Resistance of grooved cladding element (Mean)	> 1300 N		
Resistance of profiles	See tables 3, 4 y 5		
Pull-through resistance of fixing from profile	6000 N		
Pull-out resistance of fixing from profile	2800 N		
Bracket resistance	Horizontal load	See table 6 and 7	
	Vertical load	See table 6 and 8	
Dimensional stability by humidity of the cladding element	See table 9		
Linear thermal expansion coefficient of the cladding element	13,4 · μm/(m·°C)		
Freeze-thaw resistance of the cladding element	> 75 %		
Thermal shock resistance of the cladding element	> 75 %		
Corrosion of metal components	See table 10.1 and table 10.2		

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Table 2. Impact resistance.

Cladding element			Cladding fixing and subframe	Impact resistance passed	Degree of exposure in use (*)
Type	Length, L (mm)	Width, H (mm)			
VANGUARD 11+	≥300	≤900	The mechanically weakest case	<ul style="list-style-type: none"> • Hard body 0,5kg) impacts of 3J • Soft body (3kg) impacts of 10J 	Category III
	≥900	≤900			
VANGUARD 14 & 14+	≥300	≤900		<ul style="list-style-type: none"> • Hard body (0,5kg) impacts of 3J • Soft body (3kg) impacts of 10J 	
	≥900	≤900			
VANGUARD 11+	≥300	≤900	Reinforced case (**)	<ul style="list-style-type: none"> • Hard body (0,5kg) impacts of 3J • Soft body (3kg) impacts of 10J 	Category III
	≥900	≤900			
VANGUARD 14 & 14+	≥300	≤900		<ul style="list-style-type: none"> • Hard body (0,5kg) impacts of 3J • Soft body (3kg) impacts of 10J • Soft body (3kg) impacts of 60J 	
	≥900	≤900			

- (*) Category I: This category means that the degree of exposure in use should be a zone readily accessible at ground level to the public and vulnerable to hard body impacts but not subjected to abnormally rough use.
- Category II: This category means that the degree of exposure in use should be a zone liable to impacts from thrown or kicked objects, but in public locations where the heights of the kit will limit the size of the impact; or at lower level where access to the building is primarily to those with some incentive to exercise care.
- Category III: This category means that the degree of exposure in use should be a zone not likely to be damaged by normal impacts caused by people or by thrown or kicked objects.
- Category IV: This category means that the degree of exposure in use should be a zone out of reach from ground level.

(**) Reinforced assembled system includes vertical profiles span 450 mm and two ancillary horizontal Ω-profiles, span 300 mm, installed between VANGUARD rail profiles.

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Table 3. Vanguard rail profiles material properties.

Characteristic	Reference	Value			
		AW 6063 T5	AW 6063 T6	AW6060 T6	AW6060 T66
Type of material		AW 6063 T5	AW 6063 T6	AW6060 T6	AW6060 T66
Durability class		Class B			
Specific gravity (kg/m ³)		2700			
Elastic limit R _{p0.2} (MPa)		≥130MPa	≥170 MPa	≥150 MPa	≥150 MPa
Tensile strength R _m (MPa)		≥175MPa	≥215 MPa	≥190 MPa	≥195 MPa
Elongation (%)		≥8			
Modulus of elasticity (a 20 °C) (MPa)	EN 1999-1-1 EN 755-2	70000			
Poisson coefficient		0.3			
Thermal expansion coefficient between 50°C and 100 °C (µm/m·°C)		23			
Maximum deflection		L/100			

Table 4. Characteristics of screws.

Characteristic	Reference	Value	
		Stainless steel A2-70 or A4-70	Galvanized steel
Generic type		Self drilling screw with hexagonal head and integrated washer	
Material		Stainless steel A2-70 or A4-70	Galvanized steel
Corrosion protection	UNE EN ISO 15480	---	≥3 µm
Dimensions (mm)	UNE EN ISO 1478	≥5,5 x (length ≥25)	≥6,3 x (length ≥25)
	UNE EN ISO 4759-1	≥ 10,5	≥12,5
Drilling capacity		≥ 5	
Shear strength (KN)		≥ 2,2	
Pull out strength (KN)		≥ 2,1	

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Table 5. VANGUARD subframe vertical profiles material properties.

Characteristic	Reference	Value			
		AW 6063 T5	AW 6063 T6	AW6060 T6	AW6060 T66
Type of material		AW 6063 T5	AW 6063 T6	AW6060 T6	AW6060 T66
Durability class		Class B			
Specific gravity (kg/m ³)		2700			
Elastic limit R _{p0.2} (MPa)		≥130MPa	≥170 MPa	≥150 MPa	≥150 MPa
Tensile strength R _m (MPa)		≥175MPa	≥215 MPa	≥190 MPa	≥195 MPa
Elongation (%)		≥8			
Modulus of elasticity (a 20 °C) (MPa)	EN 1999-1-1 EN 755-2	70000			
Poisson coefficient		0.3			
Thermal expansion coefficient between 50°C and 100 °C (µm/m·°C)		23			
Maximum deflection		L/200			

Table 6. VANGUARD subframe bracket material properties.

Characteristic	Reference	Value			
		AW 6063 T5	AW 6063 T6	AW6060 T6	AW6060 T66
Type of material		AW 6063 T5	AW 6063 T6	AW6060 T6	AW6060 T66
Durability class		Class B			
Specific gravity (kg/m ³)		2700			
Elastic limit R _{p0.2} (MPa)		≥130MPa	≥170 MPa	≥150 MPa	≥150 MPa
Tensile strength R _m (MPa)		≥175MPa	≥215 MPa	≥190 MPa	≥195 MPa
Elongation (%)	EN 1999-1-1	≥8			
Modulus of elasticity (a 20 °C) (MPa)	EN 755-2	70000			
Poisson coefficient		0.3			
Thermal expansion coefficient between 50°C and 100 °C (µm/m·°C)		23			

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Table 7. Bracket resistance to horizontal loads.

Bracket	Load that causes a residual distortion equal to 1 mm (N)		Ultimate load (N) (**)	
	Fm_r	Fc_r (*)	Fm_u	Fc_u (*)
L40x100x30x3	2089	1225	4932	4613
L40x100x80x3				
L40x100x120x3	1679	1218	4350	4011
L45x100x80x3,5-4				
L45x100x120x3,5-4	5594	5040	6978	6190
L45x150x180x3,5-4				
L45x150x180x3,5-4	3142	1292	6996	6766
L55x150x220x3,5-4				
L55x150x220x3,5-4	5029	4295	6402	5620

(*) Characteristic values giving 75% confidence that 95% of test results will be higher than this value.
(**) Load at 10 mm displacement.

Table 8. Bracket resistance to vertical loads.

Bracket	Load that causes a residual distortion equal to 0,2%·L (N)		Load at 1 mm displacement (N)		Load at 3 mm displacement (N)		Ultimate load (N) (**)	
	Fm_r	Fc_r (*)	Fm_1d	Fc_1d (*)	Fm_3d	Fc_3d (*)	Fm_u	Fc_u (*)
L40x100x30x3	1462	1209	1349	1176	3615	3226	6875	6004
L40x100x80x3								
L40x100x120x3	870	436	651	431	1806	1372	3928	3746
L45x100x80x3,5-4								
L45x100x120x3,5-4	1256	812	1155	807	2740	2388	4135	3785
L45x150x180x3,5-4								
L45x150x180x3,5-4	1756	1507	1407	1184	3167	2997	6252	5901
L55x150x220x3,5-4								
L55x150x220x3,5-4	1062	641	863	553	2137	1759	4282	3884

(*) Characteristic values giving 75% confidence that 95% of test results will be higher than this value.
(**) Load at 10 mm displacement.

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Table 9. Dimensional stability by humidity of the cladding element.

Characteristic		Relative humidity RH	Mean value
Moisture content (%)		30%	0,19
		65%	0,22
		85%	0,23
Length variation (mm/m)	Relative	de 65% a 85%	0,07
		de 65% a 30%	-0,02
	Total	de 30% a 85%	0,09

Table 10.1 Corrosion of metallic elements (brackets and profiles).

Characteristic	Reference	Value			
		AW 6063 T5	AW 6063 T6	AW6060 T6	AW6060 T66
Material type	EN 755-2				
Durability class	EN 1999-1-1	Class B			

Table 10.2 Corrosion of metallic elements (screws).

Characteristic	Reference	Value	
Generic type	UNE EN ISO 3506-1	Self-drilling screw with hexagonal head and integrated washer	
Material		Stainless steel A2-70 o A4-70	Galvanized steel
Corrosion protection	UNE EN ISO 4042	---	≥3 μm