

**Built-up cladding products, veture, cladding products and soffit products**

## **Technical document 15-01**

Relative to built-up cladding products, cladding products and soffit products

Technical document 15-01 rev 00  
28/02/2018



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## Part 1

# Organisation

This technical document defines for each product or procedure:

- The certified characteristics;
- The product evaluation method;
- The classification of the standard;
- The list of available standards.

For the standards that indicate a date of application or an index, only the version cited is applicable. For standards that do not indicate a date of application or index, the most recent version of the reference document applies (including any amendments).

### Certified characteristics:

- Dimensions;
- Composition;
- Mechanical strength to instantaneous actions according to the product family (bending, traction, compression, etc.);
- Mechanical strength linked to implementation of the product (insert pull-out, strength of the fastening sockets, etc.).

Supplementary characteristics in the technical file of the assessment of fitness for use (ATEC, DTA, ATEEx, etc.) may also be covered in the certificate.

A statistical analysis annually or between each audit is to be set up by the holder for the certified characteristics with at least the number of inspections conducted, the arithmetic mean, the standard deviation and the mean with a confidence level of at least 95% calculated according to Standard ISO 2602.

The records over a period equal to that elapsed between two audits and at least 1 year shall be available on the day of the audit in order to be sampled.

The records of the certified characteristics are archived for at least 10 years.

## **INFORMATION RELATIVE TO CE MARKING**

### **Reference documents**

- Type test reports used as justification for the CE marking by the standards-related method;
- Currently-valid European Technical Approval or European Technical Assessment issued for the product and its evaluation report;
- Certificate of conformity issued by an authorised body or attestation of conformity prepared by the manufacturer.

### **Class required by the Harmonised Standard**

If a class is required by the Harmonised Standard for applications of the product outdoors (such as built-up cladding, vetures or soffits), this requirement is re-stated in the admission procedures.

In no case may the product have certified characteristics less than the characteristics required for the declared use as part of CE marking

### **Product covered under an EAD**

For products not coming under a Harmonised Standard, the implementation of CE marking is equivalent to European Technical Approval Guideline (ETAG) 34 for outside wall cladding kits or an EAD.

Test standards are listed for the products concerned in Appendix B of ETAG 34.

The submission of an ETA application for products coming under an EAD is a voluntary procedure.

#### **Additional non-certified characteristics**

These characteristics are selected to corroborate the fitness for use of the product in a system of built-up cladding, veture and soffits.

These tests and the minimum frequencies concern, for all the product families:

- Dimensional inspections: at each production run start or change, at least once per shift;
- Functional inspections: at each production run start or change, at least once per shift;
- Visual appearance inspections (colour, surface state compliance): on all the elements; other ways and means can be used at frequencies defined by the manufacturer to check the colour, the gloss or the relief of the facing;
- Specific inspections: the inspections are defined in relation to the normative reference system of the product family and are indicated in its family-specific appendix. The test frequencies are also indicated therein.

The functional inspections cover the geometrical aspects for a satisfactory installation of the product (square, flatness, straightness of the edges, profiles of the element, mate fitting, dimension and position of groove, etc.); at each production run start-up or change, at least once per shift.

The specific inspections are physical-chemical inspections (water absorption, resistance to frost, etc.) or durability inspections (heat shrinkage, resistance to boiling water) to detect any abnormal deviation in the behaviour of the finished product.

Additional specific tests or documentary inspection of the internal procedures are required for the following situations:

- The element is equipped with a surface coating, applied by the manufacturer, that may present a risk of detachment: inspection of the adhesion of the coating to the substrate; at each production run start-up or change, at least once per shift; this inspection is proposed by the manufacturer given its experience in the field;
- The proficiency in installing the anti-fragmenting system;
- The proficiency in painting the elements.

These aspects (the list of which is not exhaustive) are covered by the audit

## Part 2

# Technical file per product family for built-up cladding, cladding and soffit products

### A. Wood/Thermosetting resin

#### A1. LAMINATES/THERMOSETTING RESINS

Reference document: STANDARD NF EN 438-6

#### Classification according to the standard

First letter	Second letter	Third letter
E (quality for use outside)	G (moderate use) or D (severe use)	S (standard quality) or F (quality with improved fire reaction)

#### Dimensional tolerances

Characteristics	Test method (EN 438-2, Article No.)	Requirements	
		Thickness t	Maximal variation
Thickness	5	$5.0 \leq t \leq 8.0$ mm	$\pm 0.40$ mm
		$8.0 \leq t \leq 12.0$ mm	$\pm 0.50$ mm
		$12.0 \leq t \leq 16.0$ mm	$\pm 0.60$ mm
Flatness	9	$6.0 \leq t \leq 10.0$ mm	5.0 mm/m
		$10.0 \text{ mm} \leq t$	3.0 mm/m
Length and width	6	+ 10 mm / - 0 mm	
Straightness of the edges	7	Maximal deviation 1.5 mm/m	
Squareness	8	Maximal deviation 1.5 mm/m	

**General requirements**

Characteristics	Test method (EN 438-2 Article No. unless stated otherwise)	Property or attribute	Unit (max. or min.)	Quality of laminate	
				EGS & EDS	EGF & EDF
Flexural modulus	NF EN ISO 178:2003	Stress	MPa (min.)	9,000	9,000
Flexural strength	NF EN ISO 178:2003	Stress	MPa (min.)	80	80
Tensile strength	NF EN ISO 527-2:1996	Stress	MPa (min.)	60	60
Density	NF EN ISO 1183-1:2004	Density	g/cm <sup>3</sup> (min.)	1.35	1.35
Resistance to impact of a large diameter ball (resistance to breakage)	21	Height of fall	t ≥ 6 (where t = nominal thickness)	1,800	1,800
Resistance to humidity	15	Increase in mass - Appearance	Thickness t % (max) t ≥ 5 Class (min.)	5 4	8 4
Dimensional stability at high temperatures	17	Accumulated dimensional variation	% (max.) t ≥ 5 mm Longitudinal Transversal	0.30 0.60	0.30 0.60

**Requirements in relation to resistance to weather conditions**

Characteristics	Test method (EN 438-2, article No.)	Property or attribute	Unit (max. or min.)	Quality of laminate	
				EGS & EGF	EDS & EDF
Resistance to thermal shock	19	Appearance	Rating (min)	4	4
		Flexural strength index D <sub>s</sub>	(min.)	0.95	0.95
		Flexural modulus D <sub>m</sub>	(min.)	0.95	0.95
Resistance to ultraviolet radiation	28	Contrast	Greyscale value (not worse than)	No requirement	3 (after 1,500 hours of exposure)
		Appearance	Classification (min.)	No requirement	4 (after 1,500 hours of exposure)
Resistance to artificial ageing (including colour fastness)	29	Contrast	Greyscale value (not worse than)	3 (after radiant exposure of 325 MJ/m <sup>2</sup> )	3 (after radiant exposure of 650 MJ/m <sup>2</sup> )
		Appearance	Classification (min.)	4 (after radiant exposure of 325 MJ/m <sup>2</sup> )	4 (after radiant exposure of 650 MJ/m <sup>2</sup> )



**Consistency of factory production self-inspection of panels**

<b>§</b>	<b>Inspections</b>	<b>Frequencies</b>
A1.0.	Resistance to light under xenon arc lamp after 3,000 h exposure (650 MJ/m <sup>2</sup> ) under the conditions set out in Standard NF EN 438-2 (Part 29): greyscale assessment (Standard EN 20105-A02) $\geq 3$	At each new colour
A1.1.	Dimensional inspections (length, width) Functional inspections (flatness, squareness, etc.)	At each change and random sampling once per shift
A1.2.	Inspection of visual appearance	Each panel
A1.3.	Density according to Standard ISO 1183 Check of the resistance to immersion in boiling water according to Standard NF EN 438-2 (Part 12) or Check of dimensional stability at 70°C according to Standard NF EN 438-2 (Part 17) or Resistance in wet environments according to Standard NF EN 438-2 (Part 15) Check of resistance to impacts of large diameter ball according to Standard NF EN 438-2 (Part 21)	Once a month
A1.4.	<b>Certified characteristics</b>	
	Composition Thickness Flexural strength and flexural modulus according to Standard NF EN ISO 178 Resistance to pull-out by perpendicular tensile stress of inserts according to Technical Document DT 15-03 method 1.8 (machining > 500 m <sup>2</sup> )	Once a week with recording
A1.5.	<b>Pre-cut plates</b>	
	Functional inspections (machining, groove, inserts)	At each change Once per shift

**Consistency of production self-inspection for transformers executing cut-outs and machining for seamless fixing systems**

§	Inspections	Frequencies
A1.6.	Project review, technical files Placing of component orders	At each project Establish whether the project is covered by the Technical Assessment
A1.7.	Internal procedures and documented quality assurance checks on in-bound deliveries of the elements to be processed, the components and the accessories	At each delivery
A1.8.	Inspection of visual appearance	Each element
A1.9.	<b>Certified characteristics</b>	At start-up, at every change of reference produced and every 50 elements  Once a week with recording
	Functional and dimensional inspections: width, length, size, flatness, straightness Dimensional inspection of the fixing system Assembly test Resistance to pull-out by perpendicular tensile stress of inserts according to DT 15-03 method 1.8 (machining > 500 m <sup>2</sup> ). Can be carried out by the manufacturer of the panels or inserts	

## A2. WOOD PARTICLES/THERMOSETTING RESINS

Reference document: STANDARD NF EN 622-2

### Classification according to the standard

Product class	Description
HB.E	Hardboard panel intended for outside use as a non-structural component

### Standards available

- Formaldehyde content according to Standard NF EN 120;
- Flexural strength and flexural modulus according to Standard NF EN 310;
- Swelling in thickness after immersion in water according to Standard NF EN 317;
- Boiling test according to Standard NF EN 1087-1;
- Resistance to pull-out by perpendicular tensile stress according to Standard NF EN 319;
- Determination of density according to Standard NF EN 323;
- Specifications for paints and varnishes for exterior wood according to Standard EN 927-2.

### General requirements

Characteristics	Test method	Unit	Nominal thickness ranges (mm)		
			≤ 3.5	> 3.5 to < 5.5	≥ 5.5
Swelling in thickness 24 hours	EN 317	%	12	10	8
Internal cohesion	EN 319	N/mm <sup>2</sup>	0.70	0.60	0.50
Flexural strength	EN 310	N/mm <sup>2</sup>	40	35	32
Flexural modulus	EN 310	N/mm <sup>2</sup>	3,600	3,100	2,900
Internal cohesion after the boiling water test*	EN 319 EN 1087-1	N/mm <sup>2</sup>	0.50	0.42	0.35

\* EN 1087-1:1995 is used with the modified procedure given in Appendix B

**Consistency of self-inspection of production in the factory**

§	Inspections	Frequencies
A2.1.	Dimensional inspections (length, width) Functional inspections (flatness, squareness, etc.)	At each change and random sampling once per shift
A2.2.	Inspection of visual appearance	Each panel
A2.3.	Moisture content Density Swelling in thickness at 24 hours according to Standard EN 317 Or Internal cohesion after the boiling water test according to standards EN 319 + EN 1087-1	Once a month
A2.4.	<b>Certified characteristics</b>	
	Composition Thickness according to Standard NF EN 324-1 or weight per linear meter Flexural strength according to Standard NF EN 310	Once a week with recording

**A3. WOOD STRANDS/THERMOSETTING RESINS**

**Standards available**

- Long oriented strand boards, definition, classifications and specification EN 300;
- Formaldehyde content according to Standard NF EN 717-1;
- Flexural strength and flexural modulus according to Standard NF EN 310;
- Swelling in thickness after immersion in water according to Standard NF EN 317;
- Boiling test according to Standard NF EN 1087-1;
- Resistance to pull-out by perpendicular tensile stress according to Standard NF EN 319;
- Particleboard, characteristics, conformity assessment and marking EN 13986;
- Determination of density according to Standard NF EN 323;
- Specifications for paints and varnishes for exterior wood according to Standard EN 927-2;
- Particleboard, Initial type testing and Production inspection EN 326-2.

**General requirements**

Characteristics	Test method	Unit	Requirements
			Nominal thickness ranges (mm)
			11
Flexural strength – lengthways	EN 310	N/mm <sup>2</sup>	35
Flexural strength – widthways	EN 310	N/mm <sup>2</sup>	20
Flexural modulus – lengthways	EN 310	N/mm <sup>2</sup>	4,850
Flexural modulus – widthways	EN 310	N/mm <sup>2</sup>	1,950
Internal cohesion	EN 319	N/mm <sup>2</sup>	0.6
Swelling in thickness after 24 h immersion	EN 317	%	9
Internal cohesion/boiling water test	EN 319	N/mm <sup>2</sup>	0.19

**Consistency of self-inspection of production in the factory**

§	Inspections	Frequencies
A3.1.	Dimensional inspections (length, width) Functional inspections (flatness, squareness, etc.)	At each change and random sampling once per shift
A3.2.	Inspection of visual appearance	Each panel
A3.3.	Moisture content Density Internal cohesion as per EN 319 Internal cohesion after test cycle EN321+EN319 or Internal cohesion after the boiling water test according to standards EN 319 + EN 1087-1	Once per shift
	<b>Certified characteristics</b>	
A3.4.	Composition Thickness according to Standard NF EN 324-1 or weight per linear meter Flexural strength according to Standard NF EN 310	Once per shift with recording

**A4. WOOD PARTICULATE/THERMOSETTING RESINS**

**Standards available**

- Particleboard–Requirements EN 312;
- Formaldehyde content according to Standard NF EN 717-1;
- Flexural strength and flexural modulus according to Standard NF EN 310;
- Swelling in thickness after immersion in water according to Standard NF EN 317;
- Boiling test according to Standard NF EN 1087-1;
- Resistance to pull-out by perpendicular tensile stress according to Standard NF EN 319;
- Determination of density according to Standard NF EN 323;
- Particleboard, Initial type testing and Production inspection EN 326-2;
- Particleboard, characteristics, conformity assessment and marking EN 13986;
- Specifications for paints and varnishes for exterior wood according to Standard EN 927-2.

**General requirements**

Characteristics	Test method	Unit	Requirements
			Nominal thickness ranges (mm)
			6 to 13
Flexural strength	EN 310	N/mm <sup>2</sup>	<u>15</u>
Flexural modulus	EN 310	N/mm <sup>2</sup>	<u>2.050</u>
Internal cohesion	EN 319	N/mm <sup>2</sup>	<u>0.6</u>
Swelling in thickness after 24 h immersion	EN 317	%	<u>7</u>
Internal cohesion after boiling water test	EN 1087-1	N/mm <sup>2</sup>	<u>0.15</u>
Water absorption	EN 317	%	<u>15</u>

**Consistency of self-inspection of production in the factory**

§	Inspections	Frequencies
A4.1.	Dimensional inspections (length, width) Functional inspections (flatness, squareness, etc.)	At each change and random sampling once per shift
A4.2.	Inspection of visual appearance	Each panel
A4.3.	Moisture content Density Internal cohesion as per EN 319 Water absorption Internal cohesion and swelling after cyclic tests or Internal cohesion after the boiling water test according to standards EN 319 + EN 1087-1	Once per shift
A4.4.	Certified characteristics	
	Composition Thickness according to Standard NF EN 324-1 or weight per linear meter Flexural strength according to Standard NF EN 310	Once per shift with recording



**A5. COMPOSITES MADE FROM CELLULOSE-BASED MATERIALS AND THERMOPLASTICS**

**Standards available**

- WPC and NFC slats for cladding, EN 15534-5 specifications
- WPC and NFC slats for cladding, EN 15534-1 test method
- Flexural strength and flexural modulus according to Standard NF EN 310 and ISO 178
- Swelling in thickness after immersion in water according to Standard NF EN 317;
- Boiling test according to Standard NF EN 1087-1;
- Behaviour under artificial ageing ISO 4892-2
- Termite attack EN 117
- Specifications for paints and varnishes for exterior wood according to Standard EN 927-2.

**General requirements**

<b>Characteristics</b>	<b>Test method</b>	<b>Unit</b>	<b>Requirements</b>
Bending on compound	ISO 178	N/mm <sup>2</sup>	Declared value
Bending on finished product 20°C and 65% RH	EN 15534-1	N/mm <sup>2</sup>	Declared value per profile. The moment of inertia for each profile to be provided
Bending at -18°C	EN 15534-1	N/mm <sup>2</sup>	Δ resistance and modulus ≤ 50% in relation to normal conditions
Bending at + 60°C	EN 15534-1	N/mm <sup>2</sup>	resistance and modulus ≤ 45% in relation to normal conditions
Creep behaviour	EN 15534-1	%	Creep coefficient, rate of recovery and elastic recovery < 10%
Impact strength normal condition and <0°C	EN 477	%	Maximum 1 breakage for 10 samples
Resistance to boiling water	EN 1087-1	%	Individual value Length ≤ 0.6% - width ≤ 1.5% Thickness ≤ 4% Mass ≤ 7%
Water absorption	EN 317	%	<u>15</u>
Resistance to artificial weathering	EN 15534-1		Declared by the manufacturer

**Consistency of self-inspection of production in the factory**

§	Inspections	Frequencies
A5.1.	Dimensional inspections (length, width, thickness, etc.) Functional inspections (flatness, squareness, assembly, etc.) Brinell hardness	At each change and random sampling once per shift
A5.2.	Inspection of visual appearance	Each panel
A5.3.	Density Heat shrinkage Moisture resistance - boiling test	Once per shift
A5.4	Peel-off test Impact strength (energy $\geq 5$ Joules, $t \leq 0^\circ\text{C}$ )	Once a week
A5.5.	Certified characteristics	
	Composition Flexural strength and flexural modulus according to Standard EN 15534-5 on finished product and/or Flexural strength and flexural modulus of the compound according to ISO 178	Once per shift with recording

## **B. Resin mortar and resin compound/filler**

### **B1. STONES AGGLOMERATED BY POLYESTER OR ACRYLIC RESIN**

Reference document: STANDARD NF EN 15286

#### **Standards available**

- Flexural strength and modulus according to Standard NF EN 14617-2;
- Apparent density and water absorption according to standard 14617-1;
- Freeze–thaw resistance according to Standard NF EN 14617-5;
- Thermal shock resistance according to Standard NF EN 14617-6;
- Linear thermal expansion coefficient according to Standard NF EN 14617-11;
- Dimensional stability EN14617-1;
- Tolerances for dimensions, geometrical characteristics and surface quality of modular tiles according to Standard EN 15286 class A.

#### **Consistency of self-inspection of production in the factory**

<b>§</b>	<b>Inspections</b>	<b>Frequencies</b>
B1.1.	Dimensional inspections (length, width) Functional inspections (flatness, squareness, etc.) Inspection of machining of the groove (according to the installation) Inspection of positioning of the fasteners or inserts (according to the installation)	At each change and random sampling once per shift
B1.2.	Inspection of visual appearance	Each panel
B1.3.	Certified characteristics	
	Composition Thickness Flexural strength according to Standard NF EN ISO 178 or Flexural strength according to Standard NF EN 14617-2 or Pull-out strength of fasteners or inserts according to DT 15-03 method 1.8	Once a week with recording

## **B2. POLYESTER RESIN LAMINATE**

### **Product evaluation method**

The European Standard or the EAD defining the minimum requirements is not available at this time.

Product family comes under an opt-in EAD certification procedure

The European Guideline ETAG No. 34 concerning exterior cladding kits can be used as one of the test reference documents.

### **Standards available**

- Flexural strength according to Standard NF EN ISO 14125;
- Mass per unit area according to Standard NF EN ISO 10352;
- Glass content according to Standard NF EN ISO 1172;
- Hardening characteristics according to Standard NF EN ISO 584 or NF EN ISO 12114;
- Barcol hardness according to Standard NF T 57-106;
- Method of exposure to natural ageing according to Standard ISO 4607;
- Method of exposure to Xenon-arc sources according to standards NF EN ISO 4892-1 and 2.

### **Consistency of self-inspection of production in the factory**

<b>§</b>	<b>Inspections</b>	<b>Frequencies</b>
B2.0.	Glass content Reactivity	Twice a year*
B2.1.	Dimensional inspections (length, width) Functional inspections (flatness, squareness, mate fitting, etc.) Barcol hardness test according to Standard NF T 57-106 or impact strength (D0.5,1 J) according to in-house method	At each change and random sampling once per shift
B2.2.	Inspection of visual appearance	Each panel
	<b>Certified characteristics</b>	
B2.3.	Composition Thickness or weight per m <sup>2</sup> Flexural strength according to Standard NF EN ISO 14125	Once a week with recording
* Tests that can be carried out by the supplier if the manufacturer of the cladding strips purchases the raw material from a supplier that makes the compound to order at the manufacturer's request.		

### **B3. POLYESTER RESIN COMPOUND**

#### **Product evaluation method**

The European Standard or the EAD defining the minimum requirements is not available at this time.

Product family comes under an opt-in EAD certification procedure.

The European Guideline ETAG No. 34 concerning exterior cladding kits can be used as one of the test reference documents.

#### **Standards available**

- Flexural strength according to Standard NF EN ISO 14125;
- Mass per unit area according to Standard NF EN ISO 10352;
- Glass content according to Standard NF EN ISO 1172;
- Hardening characteristics according to Standard NF EN ISO 584 or NF EN ISO 12114;
- Barcol hardness according to Standard NF T 57-106;
- Method of exposure to natural ageing according to Standard ISO 4607;
- Method of exposure to Xenon-arc sources according to standards NF EN ISO 4892-1 and 2.

**Consistency of self-inspection of production in the factory**

§	Inspections	Frequencies
B3.0.	Glass content Reactivity	Twice a year*
B3.1.	Dimensional inspections (length, width) Functional inspections (flatness, squareness, mate fitting, etc.) Barcol hardness test according to Standard NF T 57-106 or Impact strength (D0.5,1 J) according to in-house method	At each change and random sampling once per shift
B3.2.	Inspection of visual appearance	Each panel
B3.3.	Certified characteristics	
	Composition Thickness or weight per m <sup>2</sup> Flexural strength according to Standard NF EN ISO 14125 or Maximum moment of the panel calculated for the unit of width according to DT 15-03 method 2.1 on the vetures.	Once a week with recording

*\* Tests that can be carried out by the supplier if the manufacturer of the cladding strips purchases the raw material from a supplier that makes the compound to order at the manufacturer's request.*

**B4. PVC-U RIGID RESIN COMPOUND**

Reference document: STANDARD NF EN 13245-2

**Classification according to the standard**

<b>Characteristics</b>	<b>Test method</b>	<b>Property or attribute Unit</b>	<b>Class</b>
Impact strength	EN 13245-2	Temperature (T), °C and Energy (J), Joules	(T, J) min. code (23, 01)
Resistance to artificial ageing (A for artificial) or Resistance to natural ageing (N for natural)	Method A of Standard EN ISO 4892-2:1999  In listed sites, at 45° facing south	Total radiation GJ/m <sup>2</sup> (n) and Temperature (T), °C  or  Total radiation GJ/m <sup>2</sup> (n) and Temperature (T), °C	A, n, T  or  N, n, T
Impact strength after artificial ageing or Impact strength after natural ageing	EN 13245-2	Temperature (T), °C and Duration (h), hour  or  Total radiation GJ/m <sup>2</sup> (n) and Temperature (T), °C	A, h, T min. code (A, 2, 23)  or  N, n min. code (N, 2)

**Standards available**

- Density at 23°C according to Standard NF EN ISO 1183;
- Ash content according to Standard NF EN ISO 3451-5;
- Flexural strength and flexural modulus according to Standard NF EN ISO 527-2;
- Impact resistance according to Appendix A of Standard EN-13245-1;
- Method of exposure to natural ageing according to Standard ISO 4607;
- Method of exposure to Xenon-arc sources according to standards NF EN ISO 4892-1 and 2.

**Consistency of self-inspection of production in the factory**

<b>§</b>	<b>Inspections</b>	<b>Frequencies</b>
B4.0.	Density at 23°C Ash content	Twice a year*
B4.1.	Dimensional inspections (length, width) Functional inspections (flatness, squareness, mate fitting, etc.)	At each change and random sampling once per shift
B4.2.	Inspection of visual appearance	Each panel
B4.3	Impact strength (energy $\geq 5$ Joules, $t \leq 0^\circ\text{C}$ )	Once a week
	<b>Certified characteristics</b>	
B4.4.	Composition Thickness or weight per linear metre Stress at yield point and % elongation at break according to Standard NF EN ISO 527-2	Once a week with recording
<p><i>* Tests that can be carried out by the supplier if the manufacturer of the cladding strips purchases the raw material from a supplier that makes the compound to order at the manufacturer's request.</i></p>		



**B5. EXPANDED OR CO-EXTRUDED PVC-UE RESIN COMPOUND**

Reference document: STANDARD NF EN 13245-2

**Classification according to the standard**

<b>Characteristics</b>	<b>Test method</b>	<b>Property or attribute Unit</b>	<b>Class</b>
Impact strength	EN 13245-2 Appendix B	Temperature (T), °C and Energy (J), Joules	(T, J) min. code (23,01)
Resistance to artificial ageing (A for artificial) or Resistance to natural ageing (N for natural)	Method A of standard EN ISO 4892-3:1999 method 3, exposure no. 1 or In listed sites, at 45° facing south	Duration (h), hour and Temperature (T), °C  or Total radiation GJ/m <sup>2</sup> (n) and Temperature (T), °C	A, h, T  or  N, n, T
Impact strength after artificial ageing or Impact strength after natural ageing	EN 13245-2 Appendix B	Temperature (T), °C and Duration (h), hour  or Total radiation GJ/m <sup>2</sup> (n) and Temperature (T), °C	A, h, T min. code (A, 2, 23)  or  N, n, T min. code (N, 2, 23)

**Standards available**

- Density at 23°C according to Standard NF EN ISO 1183;
- Ash content according to Standard NF EN ISO 3451-5;
- Flexural strength and flexural modulus according to Standard NF EN ISO 178;
- Impact resistance according to Appendices B and D to Standard EN-13245-2;
- Method of exposure to natural ageing according to Standard ISO 4607;
- Method of exposure to Xenon-arc sources according to standards NF EN ISO 4892-1;
- Artificial Ageing: Method A of Standard EN ISO 4892-3: 1999.

**Consistency of self-inspection of production in the factory**

§	Inspections	Frequencies
B5.0.	Density at 23°C (core and skin) Ash content (core and skin)	Twice a year*
B5.1.	Dimensional inspections (length, width) Functional inspections (flatness, squareness, mate fitting, etc.) Thickness of the skin (for coextruded)	At each change and random sampling once per shift
B5.2.	Inspection of visual appearance	Each panel
B5.3	Impact strength (energy $\geq 5$ Joules, $t \leq 0^\circ\text{C}$ )	Once a week
B5.4.	<b>Certified characteristics</b>	
	Composition Thickness or weight per linear metre Flexural modulus according to Standard NF EN ISO 178	Once a week with recording
<p><i>* Tests that can be carried out by the supplier if the manufacturer of the cladding strips purchases the raw material from a supplier that makes the compound to order at the manufacturer's request.</i></p>		

**B6. ROCKWOOL/THERMOSETTING RESINS**

**Product evaluation method**

The European Standard or the EAD defining the minimum requirements is not available at this time.

Product family comes under an opt-in EAD certification procedure

The European Guideline ETAG No. 34 concerning exterior cladding kits can be used as one of the test reference documents.

**Standards available: No reference documents applicable**

**Consistency of self-inspection of production in the factory**

§	Inspections	Frequencies
B6.0.	Resistance to light under xenon arc lamp after 3,000 h of exposure (6 MJ/m <sup>2</sup> ) according to the procedures in Standard NF EN 438-2 (Part 28), greyscale assessment (Standard EN 20105-A02) ≥ 3	Each time a new colour goes into production
B6.1.	Dimensional inspections (length, width) Functional inspections (flatness, squareness, mate fitting, etc.) Check of loss on ignition check (in-house method)	At each change and random sampling once per shift
B6.2.	Inspection of visual appearance	Each panel
B6.3.	Water absorption test (in-house method) Check of swelling after immersion according to Standard NF EN 317 or or Check of transverse tensile strength after immersion in boiling water according to Standard NF EN 1087-1, then Standard NF EN 319	Per production run and sampling once a month
B6.4.	<b>Certified characteristics</b>	
	Thickness Check of apparent density according to Standard NF EN 323 Check of flexural strength according to Standard NF EN 310	Per production run and random sampling once a week

**B7. POLYESTER RESIN LAMINATE + CEMENT OR HYDRAULIC MORTAR**

**Product evaluation method**

The European Standard or the EAD defining the minimum requirements is not available at this time.

Product family comes under an opt-in EAD certification procedure

The European Guideline ETAG No. 34 concerning exterior cladding kits can be used as one of the test reference documents.

**Standards available**

- Flexural strength according to Standard NF EN ISO 14125;
- Mass per unit area according to Standard NF EN ISO 10352;
- Glass content according to Standard NF EN ISO 1172;
- Reactivity according to Standard NF EN ISO 584 or NF EN ISO 12114.

**Consistency of self-inspection of production in the factory**

§	Inspections	Frequencies
B7.0.	Glass content in the polyester laminate Reactivity of the polyester laminate	Twice a year*
B7.1.	Dimensional inspections (length, width) Functional inspections (straightness of edges, squareness, etc.)	At each change in dimension and/or raw material and random sampling once per shift
B7.2.	Inspection of visual appearance	Each panel
B7.3.	Flexural strength according to method A4 of DT 15-03	Once a month
	<b>Certified characteristics</b>	
B7.4.	Composition Thickness or weight per m <sup>2</sup> Pull-off strength of the facing on a composite built-up cladding or veture element according to DT 15-03 method 1.5	Once a week with recording
<p><i>* Tests that can be carried out by the supplier if the manufacturer purchases the raw material from a supplier that, at the manufacturer's request, makes the compound or composite panel to order.</i></p>		

**B8. RESIN MORTAR - GLASS FACING**

**Product evaluation method**

The European Standard or the EAD defining the minimum requirements is not available at this time.

Product family comes under an opt-in EAD certification procedure

The European Guideline ETAG No. 34 concerning exterior cladding kits can be used as one of the test reference documents.

**Standards available**

- Flexural strength according to Standard NF EN ISO 178;
- Mass per unit area according to Standard NF EN ISO 10352;
- Glass content according to Standard NF EN ISO 1172;
- Barcol hardness according to Standard NF T 57-106;
- Reactivity according to Standard NF EN ISO 584 or NF EN ISO 12114;
- Evaluation of conformity of toughened soda lime silicate safety glass according to Standard EN 12150-2.

**Consistency of self-inspection of production in the factory**

§	Inspections	Frequencies
B8.0.	Glass content of the mortar Reactivity CE mark certificate of compliance of the glass facing	Twice a year
B8.1.	Dimensional inspections of mortar-on-insulation (length, width, thickness) BARCOL hardness test of mortar-on-insulation according to Standard NF T 57-106 or other means Functional inspections of mortar-on-insulation (flatness, squareness, etc.) Inspection of position of fixings on mortar-on-insulation Inspection of bonding adhesive (reactivity, hardness and ratio) Bonding adhesive test (thickness and spread) Functional and dimensional tests on finished products (length, width, total thickness and component thicknesses, flatness, squareness, position of the fixing system)	At each change and random sampling once per shift
B8.2.	Flexural strength of the mortar-on-insulation according to Standard NF EN ISO 178	Once a week with recording
B8.3.	Inspection of visual appearance	Each panel
B8.4.	<b>Certified characteristics</b>	
	Composition Total and component thicknesses Pull-off strength of the facing according to DT 15-03 method 1.5.	Once a week with recording

## **C. Hydraulic mortar**

### **C1. HYDRAULIC MORTAR**

#### **Product evaluation method**

The European Standard or the EAD defining the minimum requirements is not available at this time.

Product family comes under an opt-in EAD certification procedure

The European Guideline ETAG No. 34 concerning exterior cladding kits can be used as one of the test reference documents.

#### **Standards available**

- Flexural strength and modulus according to Standard NF EN 14617-2;
- Apparent density and water absorption according to standard 14617-1;
- Freeze–thaw resistance according to Standard NF EN 14617-5;
- Thermal shock resistance according to Standard NF EN 14617-6;
- Linear thermal expansion coefficient according to Standard NF EN 14617-11;
- Tolerances for dimensions, geometrical characteristics and surface quality of modular tiles according to Standard NF EN 14617-16.

#### **Consistency of self-inspection of production in the factory**

<b>§</b>	<b>Inspections</b>	<b>Frequencies</b>
C1.1.	Dimensional inspections (length, width) Functional inspections (flatness, squareness, etc.) Inspection of machining of the groove (according to the installation) Inspection of positioning of the fasteners or inserts (according to the installation)	At each change and random sampling once per shift
C1.2.	Inspection of visual appearance	Each panel
C1.3.	<b>Certified characteristics</b>	
	Composition Thickness Flexural strength according to Standard NF EN 14617-2 and Pull-out strength of fasteners or inserts	Once a week with recording

## C2. GLASS FIBRE REINFORCED CEMENT

### Product evaluation method

The European Standard or the EAD defining the minimum requirements is not available at this time.

Product family comes under an opt-in EAD certification procedure.

The European Guideline ETAG No. 34 concerning exterior cladding kits can be used as one of the test reference documents.

### Standards available

- Consistency of the matrix, "Slump test" method, according to Standard NF EN 1170-1;
- Fibre content according to Standard NF EN 1170-2;
- Flexural strength according to standards NF EN 1170-4 and 5;
- Dry density and water absorption according to Standard NF EN 1170-6;
- Extremes of dimensional variations due to moisture content according to Standard NF EN 1170-7;
- Cyclic weathering test method according to Standard NF EN 1170-8;
- Freeze–thaw resistance according to Standard NF EN 14617-5;
- Thermal shock resistance according to Standard NF EN 14617-6;
- Linear thermal expansion coefficient according to Standard NF EN 14617-11;
- Tolerances for dimensions, geometrical characteristics and surface quality of modular tiles according to Standard NF EN 14617-16.

### Consistency of self-inspection of production in the factory

§	Inspections	Frequencies
C2.1.	Dimensional inspections (length, width) Functional inspections (flatness, squareness, etc.) Inspection of machining of the groove (according to the installation) Inspection of positioning of the fasteners or inserts (according to the installation)	At each change and random sampling once per shift
C2.2.	Inspection of visual appearance	Each panel
	<b>Certified characteristics</b>	
C2.3.	Composition Thickness Flexural strength according to Standard NF EN 1170-5 and Pull-out strength of fasteners or inserts	Once a week with recording



### **C3. FIBRE CEMENT**

Reference document: STANDARD NF EN 12467

#### **Classification according to the standard**

The mechanical strength class is defined in Standard EN 12467 and applies to finished products ready for delivery.

Weather resistance category: A for severe external grade.

Category of tolerances on the nominal dimensions: Level 1.

N.B. The QB mark of fibre-cement flat panels applies, on the date of approval of this reference system, to NT type products only, due to decree no. 96-1133 of 24 December 1996 relating to the asbestos ban.

#### **Standards available**

- Geometric tests according to Standard NF EN 12467;
- Functional tests according to Standard NF EN 12467;
- Wet density and flexural strength in wet conditions according to standard NF EN 12467;
- Dry density and watertightness according to Standard NF EN 12467;
- Climatic performance tests according to Standard NF EN 12467.

#### **Consistency of self-inspection of production in the factory**

§	Inspections	Frequencies
C3.1.	Dimensional inspections (length, width) Functional inspections (flatness, squareness, etc.) Inspection of positioning of the fasteners or inserts (according to the installation)	At each change and random sampling once per shift
C3.2.	Inspection of visual appearance	Each panel
C3.3.	Apparent dry density according to Standard NF EN 12467 or wet density (according to in-house method)	Once a week
	<b>Certified characteristics</b>	
C3.4.	Composition Thickness Flexural strength in wet conditions according to Standard NF EN 12467 and Pull-out strength of fasteners or inserts according to DT 15-03 method 1.8	Once a week with recording

**C4. CEMENT MORTAR AND CLAY SLIPS**

**Product evaluation method**

The European Standard or the EAD defining the minimum requirements is not available at this time.

Product family comes under an opt-in EAD certification procedure.

The European Guideline ETAG No. 34 concerning exterior cladding kits can be used as one of the test reference documents.

**Standards available**

- Specifications and test methods according to Standard NF P 13-307;
- Principles and general test procedures for impact tests according to Standard NF P 08-301;
- Adhesive strength of hardened rendering and plastering mortars on clay units according to Standard NF EN 1015-12.

**Consistency of self-inspection of production in the factory**

§	Inspections	Frequencies
C4.0	Check of the colour and appearance of the tiles	At each delivery
C4.1.	Dimensional inspections (length, width) Functional inspections (flatness, squareness, etc.)	At each change and random sampling once per shift
C4.2.	Inspection of visual appearance	Each panel
C4.3.	Resistance to impact from a soft body (M50-130J) on an element according to Standard NF P 08-301	Once a month
	<b>Certified characteristics</b>	
C4.4.	Composition Thickness Adhesive strength of hardened rendering and plastering mortars on clay units according to Standard NF EN 1015-12	Once a week with recording

## D. Clay and ceramic

Reference documents: STANDARD NF EN 1304 (outdoor clay cladding) or  
 STANDARD NF EN 14411 (ceramic tiles)

### Classification according to the standard

The product class is defined in Standard EN-1304:

- Level for waterproofing of the products: level 1.

The product class for outdoor use according to Standard EN-14411 is defined in § ZA.1.:

- The product can be made by drawing (Group A) or by pressing (Group B);
- Drawn ceramic tiles and panels of Group A Ia or A Ib ( $E \leq 3\%$ );
- Pressed ceramic tiles and panels of Group B Ia or B Ib ( $E \leq 3\%$ ).

For use in cladding or cladding products, the products in the classes indicated below can be admitted if the frost behaviour of the product has been proven by a flexural strength test after freeze/thaw cycle:

<b>Production method</b>	<b>Group II<sub>a</sub></b> <b>3% &lt; E ≤ 6%</b>	<b>Group II<sub>b</sub></b> <b>6% &lt; E ≤ 10%</b>
<b>A - Drawn</b>	A II <sub>a</sub> -part 1	A II <sub>b</sub> -part 1
<b>B – Dry pressed</b>	B II <sub>a</sub>	B II <sub>b</sub>

### Standards available

- Geometrical characteristics according to Standard NF EN 1024;
- Flexural strength according to Standard NF EN 538;
- Water absorption according to Appendix B of Standard NF EN 539-2;
- Frost resistance according to method C of Standard NF EN 539-2;
- Dimensional characteristics according to Standard NF EN ISO 10545-2;
- Water absorption, apparent porosity and apparent relative density according to Standard NF EN ISO 10545-3;
- Flexural strength according to Standard NF EN ISO 10545-4;
- Moisture expansion according to Standard NF EN ISO 10545-10;
- Freeze-thaw resistance according to Standard NF EN ISO 10545-12.

**Consistency of production self-inspection at the factory and/or at the transformer's site**

§	Inspections	Frequencies
D1.	Dimensional inspections (length, width) Functional inspections (flatness, squareness, straightness of edges, etc.) Edge profile, dimensions of the fastening lips and the insert notching Water absorption (according to in-house method) Proficiency in installing the anti-fragmenting system for the tiles: inspection of adhesive reactivity, hardness, ratio and quantity Strength test on the anti-fragmentation mesh according to in-house method	At each change and random sampling once per shift
D2.	Inspection of visual appearance (bursting and cracking, bloom, crazing, etc.)	Each panel
D3.	Water absorption according to Appendix B of Standard NF EN 539-2 or Water absorption, apparent porosity and apparent relative density according to Standard NF EN ISO 10545-3 Frost resistance according to method C of Standard NF EN 539-2, followed by: Flexural strength according to Standard NF EN 538 or Freeze-thaw resistance according to Standard NF EN ISO 10545-12 followed by: Flexural strength according to Standard NF EN ISO 10545-4	Once per quarter
D4.	<b>Certified characteristics</b>	Once a week with recording
	Composition Thickness or weight per linear metre Flexural strength according to Standard NF EN 538 or Flexural strength according to Standard NF EN 10545-4 Pull-out strength of fastening lips according to DT 15-03 method 1.10 or Pull-out strength of the fastening sockets according to DT 15-03 method 1.11 or Tensile pull-out strength of inserts according to DT 15-03 method 1.8	

## **E. Composite panels and composite panels with metal facing**

### **E1. ALUMINIUM SHEET AND POLYURETHANE LAYER COMPOSITE PANEL**

#### **Product evaluation method**

The European Standard or the EAD defining the minimum requirements is not available at this time.

Product family comes under an opt-in EAD certification procedure.

The European Guideline ETAG No. 34 concerning exterior cladding kits can be used as one of the test reference documents.

#### **Standards available**

- Dimensional tolerances: Appendix D of Standard NF EN 14509;
- Characteristics of the material: Appendix A3 of Standard NF EN 14509, Appendices C3 and C4 of European Technical Approval Guideline no. 16;
- Mechanical properties of aluminium or aluminium alloy sheets, strips and plates according to Standard EN 485-2;
- Chemical composition of aluminium and aluminium alloy according to standard EN 573;
- Specifications for aluminium and aluminium alloy coil coated sheets and strips according to Standard EN 1396.

#### **Consistency of self-inspection of production in the factory**

<b>§</b>	<b>Inspections</b>	<b>Frequencies</b>
E1.0.	For sheet metal: acceptance certificate 3.1. A according to Standard EN 10204	At each delivery
E1.1.	Dimensional inspections (length, width) Functional inspections (flatness, squareness, mate fitting, straightness of edges, etc.)	At each change and random sampling once per shift
E1.2.	Inspection of visual appearance	Each panel
E1.3.	Certified characteristics	
	Composition Thickness or mass per unit area Flexural shear strength according to Standard NF EN 14509	Once a week with recording

## **E2. ALUMINIUM SHEET AND POLYETHYLENE COMPOSITE PANEL**

### **Product evaluation method**

The European Standard or the EAD defining the minimum requirements is not available at this time.

Product family comes under an opt-in EAD certification procedure.

The European Guideline ETAG No. 34 concerning exterior cladding kits can be used as one of the test reference documents.

### **Standards available**

- Dimensional tolerances: Appendix D of Standard NF EN 14509;
- Characteristics of the material: peel strength according to standard ASTM D-1781, ASTM D 903 or standard ASTM D-1876;
- Mechanical properties of aluminium or aluminium alloy sheets, strips and plates according to Standard EN 485-2;
- Chemical composition of aluminium and aluminium alloy according to Standard EN 573;
- Specifications for aluminium and aluminium alloy coil coated sheets and strips according to Standard EN 1396.

### **General requirement**

**Minimum peel value according to ASTM 903: PE core: 4 N/mm – FR: 4 N/mm – A2: 3 N/mm**

### **Consistency of factory production self-inspection of manufactured panels**

<b>§</b>	<b>Inspections</b>	<b>Frequencies</b>
E2.0.	For sheet metal: acceptance certificate 3.1 A according to Standard EN 10204	At each delivery
	HHV tests for FR and A2 cores	Coils: Once every 5 coils Granules (external or internal) once every 5 batches
E2.1.	Dimensional inspections (length, width) Functional inspections (flatness, squareness, mate fitting, straightness of edges, etc.) Dimensional inspections of cassettes and catches (making cassettes using panels)	At each change and random sampling once per shift
E2.2.	Inspection of visual appearance	Each panel
E2.3	4-point bending tests according to method A4 of DT 15-03	Once per quarter
E2.4.	Peel strength according to standard ASTM D 1781, ASTM D 903 or ASTM D 1876 after heat conditioning (6 hours in boiling water – test on samples at ambient	Once a month

	temperature) – unchanged performance.	
E2.4.	<b>Certified characteristics</b>	
	Composition Thickness or mass per unit area Peel strength according to standard ASTM D 903 after 24 hours.*	Once a week with recording

**\* If the manufacture wishes to use another method, it must prepare a graph showing correlation with the ASTM D 903 for each type of core and thickness.**

**The laboratory of the mark will only use standard ASTM D903 for corroboration tests for any type of core.**

**The current certificates will be revised before December 2018 to indicate the certified peel value only according to ASTM D 903.**

**The bending test (in-house or subcontracted) must be set up by the holder before December 2018.**

**Consistency of self-inspection for reprocessing the cassettes**

§	Inspections	Frequencies
E2.5.	Project review, technical files. Placing of component orders	At each project. Establish whether the project is covered by the Technical Assessment
E2.6.	Internal procedures and documented inspections on in-bound deliveries of the elements to be processed, the components and the accessories	At each delivery
E2.27	Inspection of visual appearance	Each element
E2.8	<b>Certified characteristics</b>	
	Functional and dimensional inspections: width, length, size and catch position, flatness, straightness, assembly test. Machining inspection: angle, depth, residual thickness.	At start-up, at every change in reference produced and every 50 elements

**Case of stiffeners with structural bonding:**

**An investigation must be formalised in agreement with the adhesive supplier**

**The batches of each component must be recorded.**

**Recording of the temperature and humidity during each shift**

**Suitability test on each face of the stiffener, can be conducted by the sealant supplier.**

**Frequency: Once per project and each change of adhesive, stiffener and facing batch peeling on anodised finish:**

- 3 test specimens in the initial state 100% cohesive
- 3 test specimens after 7 days at 23°C in water 100% cohesive

- 3 test specimens with 7 days in drying oven at 100°C 100% cohesive

Peeling on lacquered finish:

- 3 test specimens in the initial state 100% cohesive
- 3 test specimens after 7 days at 23°C in water 100% cohesive
- 3 test specimens after 7 days at 23°C in water + 7 days at 55°C in water. 100% cohesive



**E3. COMPOSITE PANEL OF STEEL SHEET AND VARIOUS CORES**

**Product evaluation method**

The European Standard or the EAD defining the minimum requirements is not available at this time.

Product family comes under an opt-in EAD certification procedure.

The European Guideline ETAG No. 34 concerning exterior cladding kits can be used as one of the test reference documents.

**Standards available**

- Dimensional tolerances: Appendix D of Standard NF EN 14509;
- Characteristics of the material: Appendix A3 of Standard NF EN 14509, Appendices C3 and C4 of European Technical Approval Guideline no. 16.

**Consistency of self-inspection of production in the factory**

§	Inspections	Frequencies
E3.0.	For sheet metal: acceptance certificate 3.1. A according to Standard EN 10204	At each delivery
E3.1.	Dimensional inspections (length, width) Functional inspections (flatness, squareness, mate fitting, straightness of edges, etc.)	At each change and random sampling once per shift
E3.2.	Inspection of visual appearance	Each panel
<b>Certified characteristics</b>		
E3.3.	Composition Thickness or mass per unit area Bending force causing a deformation of 1/200 of the span according to DT 15-03 method 2.1 and Strength of inserts according to DT 15-03 method 1.8	Once a week with recording

#### **E4. COMPOSITE PANEL OF STONE AND VARIOUS CORES**

##### **Product evaluation method**

The European Standard or the EAD defining the minimum requirements is not available at this time.

Product family comes under an opt-in EAD certification procedure.

The European Guideline ETAG No. 34 concerning exterior cladding kits can be used as one of the test reference documents.

##### **Standards available**

- Requirements for stone used for cladding according to Standard EN 1469;
- Density and porosity according to Standard NF EN 1936;
- General prescriptions for use of natural stones according to Standard NF B 10-601;
- Flexural strength according to Standard NF EN 12372;
- Frost resistance according to Standard NF EN 12371;
- Breaking load at a dowel hole according to Standard NF EN 13364.

**Consistency of self-inspection of production in the factory**

§	Inspections	Frequencies
E4.0.	Documented internal procedure for acceptance inspection of stones Porosity and apparent density according to Standard NF EN 1936 Flexural strength according to standard NF EN 12372	At each delivery Once every two years Once every two years
E4.1.	Dimensional inspections (length, width) Functional inspections (flatness, squareness, mate fitting, straightness of edges, etc.) Check of the positioning of the inserts	At each change and random sampling once per shift
E4.2.	Inspection of visual appearance and defects (of the stone)	Each panel
E4.3.	Bending force causing a deformation of 1/200 of the span according to DT15-03 method 2.1 or Resistance to perpendicular tensile stress according to DT 15-03 method 2.27	Once a month
E4.4.	<b>Certified characteristics</b>	
	Thickness Resistance to pull-out by perpendicular tensile stress of inserts according to DT 15-03 method 1.8	Once a week with recording

## **F. Thermally modified natural wood**

Reference document: NF EN 14915

### **Classification according to the standard**

The standard does not define the product class for outside use.

### **Standards available**

- Moisture content, density and flexural strength according to Standard NF EN 408;
- Principles of testing and classification of the natural durability of wood according to Standard EN 350-1;
- Dimensional tolerances according to Standard NF EN 13647;
- Moisture content according to Standard EN 13183-1;
- Dimensional stability according to Standard EN 1910;
- Radial and tangential swelling according to Standard ISO 4859.

### **Consistency of self-inspection of production in the factory**

<b>§</b>	<b>Inspections</b>	<b>Frequencies</b>
F.0.	Documented internal procedure for acceptance inspection of wood	At each delivery
F.1.	Dimensional inspections (length, width) Functional inspections (flatness, squareness, mate fitting, straightness of edges, etc.)	At each change and random sampling once per shift
F.2.	Inspection of visual appearance	Each panel
F.3.	Moisture content according to Standard NF EN 408 Determination of radial and tangential swelling according to Standard ISO 4859	At each loading and random sampling once per shift
F.4.	<b>Certified characteristics</b>	
	Species Thickness or mass per unit length Bending force according to Standard NF EN 408	Once a week with recording

## G. Natural stone

Reference document: NF EN 1469 (wall cladding in natural stone slabs)

### Requirements

Characteristics	Classes	Tolerance
Nominal thickness in mm	12 < to ≤ 30 mm	± 10%
	30 < to ≤ 80 mm	± 3 mm
Length and width	e ≤ 50 mm and dimension < 600 mm	± 1 mm
	e ≤ 50 mm and dimension ≥ 600 mm	± 1.5 mm
Location of the stud holes	In relation to an edge	± 2 mm
	In relation to the exposed face	± 1 mm
	In depth	+ 3 mm / - 1 mm
	Diameter	+ 1 mm / - 0.5 mm

Requirement relative to surface finish: defined under § 4.1.8.

Flexural strength, water absorption, apparent relative density and apparent porosity: no level or performance class required.

### Standards available

- Requirements for stone used for cladding according to Standard EN 1469;
- Water absorption by capillarity according to Standard NF EN 1925;
- Density and porosity according to Standard NF EN 1936;
- General prescriptions for use of natural stones according to Standard NF B 10-601;
- Permeability to water vapour according to Standard NF EN 12524;
- Frost resistance according to Standard NF EN 12371;
- Flexural strength according to Standard NF EN 12372;
- Breaking load at dowel hole according to Standard NF EN 13364;
- Thermal shock resistance according to Standard NF EN 14066;
- Water absorption at atmospheric pressure according to Standard NF EN 13755.

**Consistency of self-inspection of production in the factory**

§	Inspections	Frequencies
G.0.	Documented internal procedure for acceptance inspection of stones Porosity and apparent density according to Standard NF EN 1936 Flexural strength according to Standard NF EN 12372	At each delivery  Once every two years  Once every two years
G.1.	Dimensional inspections (length, width) Functional inspections (flatness, squareness, mate fitting, straightness of edges, etc.)	At each change and random sampling once per shift
G.2.	Inspection of visual appearance	Each panel
G.3.	<b>Certified characteristics</b>	
	Thickness Geometrical inspection of the groove (if fitted in continuous rabbet) Resistance of the catches according to DT 15-03 method 1.9 or Tensile pull-out strength of inserts according to DT 15-03	Once a week with recording