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European Technical Assessment

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General part

Technical Assessment Body issuing the ETA: ITeC ITeC has been designated according to Article 29 of Regulation (EU) No 305/2011 and is member of EOTA (European Organisation for Technical Assessment).	
Trade name of the construction product	**Coverlam**
Product area to which the construction product belongs	Ceramic Multilayer Slab For Wall Claddings And Floorings.
Manufacturer	**GRESPANIA, S.A.** CV-16 (Ctra. Castellón-Alcora) km. 2,200 P.O.Box 157 ES-12080 Castellón Spain
Manufacturing plant(s)	**GRESPANIA, S.A.** CV-16 (Ctra. Castellón-Alcora) km. 2,200 P.O.Box 157 ES-12080 Castellón Spain
This European Technical Assessment contains	11 pages
This European Technical Assessment is issued in accordance with Regulation (EU) 305/2011, on the basis of	European Assessment Document EAD 090078-00-0504 *Ceramic multilayer slab for wall claddings and floorings*.

General Comments

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document.

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full (excepted the confidential Annex(es)).

Specific parts of the European Technical Assessment

1 Technical description of the product

This ETA refers to **Coverlam**, a ceramic multilayer slab for wall claddings and floorings.

Coverlam slab is manufactured in large dimensions (length and width), e.g. 1620 mm x 3240 mm, however, the manufactured slab may be provided either in its original dimensions or cut in smaller size.

Coverlam components are given in table 1.1.

Table 1.1: Product components.

N.	Generic component	Description
1	Ceramic slab	One layer of dry-pressed ceramic slab that has nominal thickness: 3 mm – 20 mm, with low water absorption (≤ 0,5%) according to the harmonized standard EN 14411.
2	Glass fibre mat/mesh	One layer of glass fibre mat/mesh on the back.
3	Adhesive	The glass fibre is applied by means of an adhesive with controlled industrial process.

Coverlam is ceramic multilayer slab with reinforcing backing layer glued to the ceramic slab, and it is classified as type A according to the description in clause 1.1 of EAD 090078-00-0504. It is available in different thicknesses of the ceramic slab (see Figure 1).

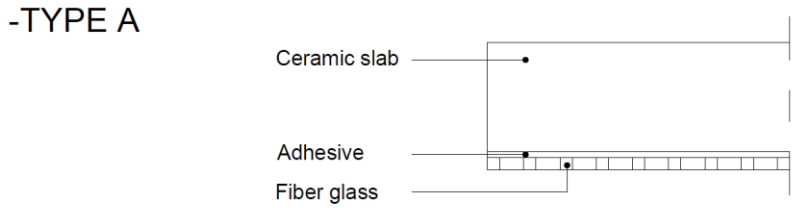


Figure 1: Stratigraphy of type A multilayer ceramic slab.

The application of the product can be done using adhesives and/or mechanical fixings commonly available in the market. The adhesives and the mechanical fixings between the product and substrate are not part of the scope assessed in this ETA.

Nominal thickness of Coverlam slabs (ceramic tile and glass fibre mat thick, bonded by an adhesive) are as per the table 1.2:

Table 1.2: Nominal thickness of the Coverlam slabs.

Characteristic	**Nominal thickness [mm]**		
Trade name	Ceramic tile	Glass Fibre Mat + Adhesive	Total thickness (mm)
Coverlam 3,5	3,0 mm	0,5 mm	3,3 up to 3,8
Coverlam 5,6	5,6 mm	0,5 mm	5,9 up to 6,4
Coverlam 10,5	10,0 mm	0,5 mm	10,3 up to 10,8
Coverlam 12	12,0 mm	0,5 mm	12,3 up to 12,8
Coverlam 20	20,0 mm	0,5 mm	20,3 up to 20,8

2 Specification of the intended use(s) in accordance with the applicable EAD

Coverlam can be used for the following three uses, as defined in the EAD 090078-00-0504:

- Use 1: as a cladding element for internal and external walls in which the product can be applied with common adhesives for ceramic tiles.
- Use 2: as a cladding element for external wall cladding systems in non-ventilated(*) facades in which the product is fixed on a subframe (mechanically or glued by means of an adhesive system).
- Use 3: as a paving element for internal and external floorings, including stairs(**).

(*) The use of the product in ventilated façades has not been assessed in this ETA, since the reaction to fire test is done in non-ventilated conditions (see clause 3.1).

(**) The use as tactile paving surfaces, i.e., for blind or vision impaired people has not been assessed.

The ceramic multilayer slab **Coverlam** is intended to be used for external and internal uses as the following:

Table 2.1: Intended use(s) of the Coverlam slabs.

Trade name	Use 1	Use 2	Use 3
Coverlam 3,5	✓	✓	✓
Coverlam 5,6	✓	✓	✓
Coverlam 10,5		✓	
Coverlam 12		✓	
Coverlam 20		✓	

Regarding product packaging, transport, storage, maintenance, replacement and repair it is the responsibility of the manufacturer to undertake the appropriate measures and to advise his clients on the transport, storage, maintenance, replacement and repair of the product as he considers necessary.

Installation of the **Coverlam** product should be carried out:

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

The provisions made in this European Technical Assessment are based on an assumed working life of at least 25 years for **Coverlam**. The indications given on the working life cannot be interpreted as a guarantee given by the producer but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

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

The assessment of **Coverlam** for the intended use was performed following the EAD 090078-00-0504 *Ceramic multilayer slab for wall claddings and floorings*.

Table 3.1: Summary of the Coverlam performance for Use 1 (as per EAD table 2.1.1).

Basic Works Requirement	Essential characteristic		Performance
BWR 2 Safety in case of fire	Reaction to fire		B-s1,d0
BWR 3 Hygiene, health and the environment	Water absorption		See clause 3.2
	Moisture expansion		Not assessed
	Content, emission and/or release of dangerous substances SVOC and VOC		Not assessed
BWR 4 Safety and accessibility in use	Breaking strength		See clause 3.3
	Flexural tensile strength or modulus of rupture		See clause 3.4
	Bond strength between layers – strength perpendicular to the faces		See clause 3.6
	Bond strength between layers – shear strength		Not assessed
	Bond strength between layers after freeze and thaw conditioning (only for external uses)	Strength perpendicular to the faces	Not assessed
		Shear strength	Not assessed
	Bond strength between layers after alkaline ageing	Strength perpendicular to the faces	See clause 3.7
		Shear strength	Not assessed
	Bond strength/adhesion: - cementitious adhesives - dispersion adhesives - reaction resin adhesives		Not assessed
	Coefficient of linear thermal expansion		See clause 3.8
	Freeze and thaw resistance		Not assessed
	Thermal shock resistance		See clause 3.9
	Durability for internal uses		See clause 3.10
	Resistance to chemicals		See clause 3.11

Table 3.2: Summary of the Coverlam performance for Use 2 (as per EAD table 2.1.2).

Basic Works Requirement	Essential characteristic	Performance
BWR 2 Safety in case of fire	Reaction to fire	B-s1,d0 (*)
BWR 3 Hygiene, health and the environment	Water absorption	See clause 3.2
	Moisture expansion	Not assessed
	Content, emission and/or release of dangerous substances - Leachable substances	Not assessed
BWR 4 Safety and accessibility in use	Breaking strength	See clause 3.3
	Flexural tensile strength or modulus of rupture	See clause 3.4
	Bond strength between layers – strength perpendicular to the faces	See clause 3.6

Table 3.2: Summary of the Coverlam performance for Use 2 (as per EAD table 2.1.2).

Basic Works Requirement	Essential characteristic		Performance
	Bond strength between layers – shear strength		Not assessed
	Bond strength between layers after freeze and thaw conditioning	Strength perpendicular to the faces	Not assessed
		Shear strength	Not assessed
	Coefficient of linear thermal expansion		See clause 3.8
	Freeze and thaw resistance		Not assessed
	Thermal shock resistance		See clause 3.9
	Resistance to chemicals		See clause 3.10

Table 3.3: Summary of the Coverlam performance for Use 3 (as per EAD table 2.1.3).

Basic Works Requirement	Essential characteristic		Performance
BWR 2 Safety in case of fire	Reaction to fire		$A2_{FL}$-s1
BWR 3 Hygiene, health and the environment	Water absorption		See clause 3.2
	Moisture expansion		Not assessed
	Content, emission and/or release of dangerous substances SVOC and VOC		Not assessed
BWR 4 Safety and accessibility in use	Breaking strength		See clause 3.3
	Flexural tensile strength or modulus of rupture		See clause 3.4
	Deep abrasion resistance		See clause 3.5
	Slipperiness		Not assessed
	Impact resistance		Not assessed
	Bond strength between layers – strength perpendicular to the faces		See clause 3.6
	Bond strength between layers – shear strength		Not assessed
	Bond strength between layers after freeze and thaw conditioning (only for external uses)	Strength perpendicular to the faces	Not assessed
		Shear strength	Not assessed
	Bond strength between layers after alkaline ageing	Strength perpendicular to the faces	See clause 3.7
		Shear strength	Not assessed
	Coefficient of linear thermal expansion		See clause 3.8
	Freeze and thaw resistance		Not assessed
	Thermal shock resistance		See clause 3.9
	Durability for internal uses		See clause 3.10
	Resistance to chemicals		See clause 3.11
	Tactility		Not assessed

3.1 Reaction to fire

Reaction to fire of Coverlam Slabs according to Commission Delegated Regulation (EU) 2016/364 and EN 13501-1 is:

- For use 1: Cladding element for internal and external walls
  - B-s1,d0.
  - Substrate: Class A2-s1,d0 or better.
- For use 2: Cladding element for external wall cladding systems in non-ventilated facades.
  - Class B-s1,d0.
  - Substrate: Class A2-s1,d0 or better.
  - Joints: maximum horizontal joint width of 8 mm and closed vertical joints (closed with an aluminium T profile).
  - Air cavity: non-ventilated with minimum width of 40 mm with mineral wool insulation of reaction to fire class A1 or without this insulation.
  - Coverlam slab: thickness of 5,6 mm or greater.
- For use 3: Paving element for internal and external floorings
  - Class $A2_{FL}$-s1
  - Substrate: material of class A2-s1,d0 or A1 and density ≥ 1350 kg/m³

The classifications are based on the relevant tests according to EN 13501-1.

3.2 Water absorption

Ceramic multilayer slabs **Coverlam** have low water absorption, i.e., ≤ 0,5%.

The average values of water absorption are stated in table 3.4.

Table 3.4: Water absorption.

Trade name	Average value
	Ev [%]
Coverlam 3,5	0,5 %
Coverlam 20	< 0,1 %

3.3 Breaking strength

Breaking strength of ceramic multilayer slabs **Coverlam** has been tested according to EN ISO 10545-4. The average values of the breaking load, and breaking strength are stated in table 3.5.

Table 3.5: Breaking strength.

Trade name	Average value	
	Breaking load [N]	Breaking strength S [N]
Coverlam 3,5	530	480
Coverlam 5,6	1960	1760

3.4 Flexural tensile strength or modulus of rupture

Modulus of rupture of ceramic multilayer slabs **Coverlam** has been tested according to EN ISO 10545-4. The average values of the breaking load and characteristic value of the modulus of rupture are stated in table 3.6.

Table 3.6: Modulus of rupture.

Trade name	Average value	Average value	Characteristic value
	Breaking load [N]	Modulus of rupture R [MPa]	Modulus of rupture R [MPa]
Coverlam 3,5	530	64	54
Coverlam 5,6	1960	72	65

3.5 Deep abrasion resistance

This characteristic is only relevant for Use 3. Abrasion resistance test has been performed according to EN ISO 10545-6.

The average value of the of the resistance to deep abrasion is stated in table 3.7.

Table 3.7: Deep abrasion resistance.

Trade name	Average volume of material removed
	V [mm^3]
Coverlam 5,6	127

3.6 Bond strength between layers – strength perpendicular to the faces

Bond strength tests have been performed according to Annex A of the EAD 090078-00-0504. The values of this characteristic are stated in table 3.8.

Table 3.8: Bond strength between layers – strength perpendicular to the faces.

Trade name	23ºC		-20ºC		80ºC	
	σ^T_m [MPa]	σ^T_c [MPa]	σ^T_m [MPa]	σ^T_c [MPa]	σ^T_m [MPa]	σ^T_c [MPa]
Coverlam 3,5	3,35	2,04	2,60	2,03	2,66	1,96
Coverlam 20	3,31	2,12	2,63	2,11	2,75	2,07

* The values given in this table are maximum tensile stress values measured during the test on the specimens, since it was not possible to achieve the breaking in the test specimens.

3.7 Bond strength between layers after alkaline ageing

This characteristic is only relevant for Use 1 and Use 3. The ageing of the sample has been realized according to clause 2.2.13 of the EAD 090078-00-0504. Bond strength between layers (strength perpendicular to the faces) has been performed after alkaline ageing. Mean and characteristic values as percentage of the as-delivered state (clause 3.6 of this ETA) are calculated and stated in table 3.9.

Table 3.9: Bond strength between layers after alkaline ageing.

Trade name	Percentage of the as-delivered state
	Residual strength R_σ[a] [%]
Coverlam 3,5	88,9
Coverlam 20	72,4

* Ambient conditions: T = (23 ± 2) °C; R.H. = (50 ± 5) %.

3.8 Coefficient of linear thermal expansion

The evaluation of the coefficient of linear thermal expansion of ceramic multilayer slabs has been realized for the temperature range from ambient temperature to 100 °C. The test has been performed on ceramic multilayer slabs **Coverlam** according to EN ISO 10545-8, the values of the of the linear thermal expansion coefficient are stated in table 3.10.

Table 3.10: Coefficient of linear thermal expansion.

Trade name	Individual values α_l [10^{-6}/°C]	
	Specimen 1	Specimen 2
Coverlam 3,5	6,7 × 10^{-6} / ºC	6,5 × 10^{-6} / ºC
Coverlam 5,6	6,3 × 10^{-6} / ºC	6,5 × 10^{-6} / ºC
Coverlam 12	6,1 × 10^{-6} / ºC	6,0 × 10^{-6} / ºC

3.9 Thermal shock resistance

The test of this characteristic has been performed on unglazed ceramic multilayer slabs **Coverlam**, according to UNE-EN-ISO 10545 Part 9:2013. The results are stated in table 3.11.

Table 3.11: Thermal shock resistance.

Trade name	Characteristics	Results
Coverlam 5,6	Water absorption of the tiles	Less than 10 %.
	Type of test performed	With immersion
	Number of test specimens with visible defects	None

Therefore, the thermal shock resistance of Coverlam slabs is: Pass.

3.10 Durability for internal uses

With regard to the internal uses, the durability aspect of ceramic tiles is considered as deem to be satisfied, if all other essential characteristics of ceramic tiles, listed above, comply with this European Standard. This statement is based on practical experience of at least 50 years in this field showing that durability of ceramic tiles can be the same as the lifetime of the building.

3.11 Resistance to chemicals

Resistance to chemicals test has been performed on ceramic multilayer slabs **Coverlam**, according to EN ISO 10545-13: 2017 and the results are stated in table 3.12.

Table 3.12: Resistance to chemicals.

Trade name	Test solutions	Classification			Visual Changes
		Specimen nº			
		1	2	3	
Coverlam 5,6	Household chemicals - Ammonium Chloride (100 g/l)	A	A	A	No visible effects. Lines pencil removed
	Swimming pool salts - Sodium Hypochlorite (20 mg/l)	A	A	A	No visible effects. Lines pencil removed
	Acids and Alkalis (Low concentrations)				
	Hydrochloric Acid (3% v/v)	LA	LA	LA	No visible effects. Lines pencil removed
	Citric Acid (100 g/l)	LA	LA	LA	No visible effects. Lines pencil removed
	Potassium Hydroxide (30 g/l)	LA	LA	LA	No visible effects. Lines pencil removed
	Acids and Alkalis (high concentrations)				NPA

* Testing method: contact with the test surface.

* Class A: no visible effect, for aqueous test solutions: household chemicals and swimming pool salts, according to EN ISO 10545-13.

* Class LA: no visible effect for aqueous test solution: acids and alkalis - low concentrations (L), according to EN ISO 10545-13.

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

According to the EAD 090078-00-0504, the applicable European legal act is given in the following table:

Table 4.1: AVCP system.

Product(s)	Intended use(s)	Decision	System
Coverlam	Use 1 (see clause 2)	Decision 98/437/EC as amended by Decision 2001/596/EC for internal and external walls and ceiling finishes.	4
	Use 2 (see clause 2)		4
	Use 3 (see clause 2)	Decision 97/808/EC, as amended by Decision 1999/453/EC and Decision 2001/596/EC and Decision 2006/190/EC for floorings.	4
	For uses subject to regulations on dangerous substances	See above decisions	3
	For uses subject to regulations on reaction to fire		3

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

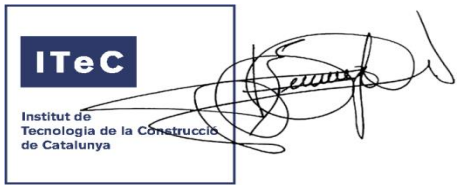
All the necessary technical details for the implementation of the AVCP system are laid down in the Control Plan deposited with the ITeC and agreed in accordance with EAD 090078-00-0504, clause 3.

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

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

Issued in Barcelona on 19th September 2024

by the Catalonia Institute of Construction Technology.



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