INSTYTUT TECHNIKI BUDOWLANEJ

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European Technical Assessment

ETA-07/0316 of 30/09/2024

General Part

Technical Assessment Body issuing the European Technical Assessment	Instytut Techniki Budowlanej
Trade name of the construction product	ATLAS XPS
Product family to which the construction product belongs	External Thermal Insulation Composite System (ETICS) with rendering
Manufacturer	ATLAS spółka z o.o. ul. Jana Kilińskiego 2 91-421 Łódź, Poland
Manufacturing plant	ATLAS spółka z o.o. ul. Jana Kilińskiego 2 91-421 Łódź, Poland
This European Technical Assessment contains	19 pages including 3 Annexes which form an integral part of this Assessment
This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of	European Assessment Document (EAD) 040083-00-0404 "External thermal insulation composite systems (ETICS) with renderings"
This version replaces	ETA-07/0316 issued on 08/12/2017

This European Technical Assessment is issued by the Technical Assessment Body in its official language. Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and shall be identified as such.

Specific Part

1 Technical description of the product

External Thermal Insulation Composite System with rendering ATLAS XPS called ETICS in the following text is a kit comprising components which are factory-produced by the manufacturer or purchased by the ETICS manufacturer from suppliers. ETICS is made up on site from these components. The ETICS manufacturer is ultimately responsible for all components of the ETICS kit specified in this ETA.

The ETICS comprises a factory-made thermal insulation product made of extruded polystyrene (XPS) to be bonded onto a wall. The methods of fixing and the ETICS composition are specified in Table 1.

The thermal insulation product is faced with a rendering system consisting of several layers (site applied), one of which contains reinforcement. The rendering system is applied directly to the insulating panels, without any air gap or disconnecting layer.

Table 1

	Components	Coverage (kg/m²)	Thickness (mm)
Thermal insulation products with method of fixing	**Bonded ETICS:** fully bonded or partially bonded (bonded surface shall be at least 40%). National application documents shall be taken into account.		
	• **Insulation product:** Extruded polystyrene (XPS) panels according to EN 13164; see Annex B – thermal insulation product characteristics	-	≤ 200
	• **Adhesives:** **ATLAS STOPTER K-10** cement based powder requiring addition of 0,20 to 0,22 l/kg of water	4,0 to 5,0 (1) (powder)	-
	ATLAS STOPTER K-20 cement based powder requiring addition of 0,20 to 0,22 l/kg of water	4,0 to 5,0 (1) (powder)	-
	ATLAS HOTER S cement based powder requiring addition of 0,20 to 0,22 l/kg of water	4,0 to 5,0 (1) (powder)	-
	ATLAS HOTER U cement based powder requiring addition of 0,20 to 0,22 l/kg of water	4,0 to 5,0 (1) (powder)	-
Base coats	• **ATLAS STOPTER K-20** cement based powder requiring addition of 0,20 to 0,22 l/kg of water composition: sand, cement, mineral fillers, synthetic resin, additives	3,0 to 3,5 (powder)	2,0 to 3,0
	• **ATLAS HOTER U** cement based powder requiring addition of 0,20 to 0,22 l/kg of water composition: sand, cement, mineral fillers, synthetic resin, additives	3,0 to 3,5 (powder)	2,0 to 3,0
Glass fibre meshes	• **Standard glass fibre meshes:** see Annex C – glass fibre mesh characteristics	-	-

(1) refers to fully bonded system

Table 1

	Components	Coverage (kg/m²)	Thickness (mm)
Key coats	• **ATLAS CERPLAST** composition: water, styrene-acrylic binder, mineral fillers, additives; ready to use liquid to be used with ATLAS CERMIT mineral and ATLAS CERMIT acryl	0,25 to 0,35	-
	• **ATLAS SILKAT ASX** composition: water, styrene-acrylic binder, silicone resin, additives; ready to use liquid to be used with ATLAS SILKAT and Tynk silikatowy ATLAS	0,25 to 0,35	-
	• **ATLAS SILKON ANX** composition: water, styrene-acrylic binder, silicone resin, mineral fillers, additives; ready to use liquid to be used with ATLAS SILKON	0,25 to 0,35	-
Finishing coats	• **Mineral finishing coats** composition: sand, cement, mineral fillers, additives powder requiring addition of water		
	ATLAS CERMIT SN mineral powder requiring addition of 0,18 to 0,26 l/kg of water; particle size 1,5; 2,0; 2,5; 3,0 mm; floated structure	2,5 to 4,5	regulated by particle size
	ATLAS CERMIT DR mineral powder requiring addition of 0,18 to 0,26 l/kg of water; particle size 2,0; 3,0 mm; ribbed structure	2,5 to 4,5	
	• **Acrylic finishing coat** composition: sand, acryl-copolymer binder, mineral fillers, additives ready to use paste		
	ATLAS CERMIT N acryl particle size: 1,5; 2,0; 3,0 mm; floated structure	2,5 to 4,5	regulated by particle size
	ATLAS CERMIT R acryl particle size: 2,0; 3,0 mm; ribbed structure	2,5 to 4,5	
	• **Silicate finishing coats** composition: sand, silicate binder, mineral fillers, additives ready to use paste		
	ATLAS SILKAT N / Tynk silikatowy ATLAS particle size: 1,5; 2,0 mm; floated structure	2,5 to 3,5	regulated by particle size
	ATLAS SILKAT R particle size: 2,0 mm; ribbed structure	2,5 to 3,5	
	• **Silicone finishing coats** composition: sand, silicone binder, mineral fillers, additives ready to use paste		
	ATLAS SILKON N particle size: 1,5; 2,0 mm; floated structure	2,5 to 3,5	regulated by particle size
	ATLAS SILKON R particle size: 2,0 mm; ribbed structure	2,5 to 3,5	

Table 1

	Components	Coverage (kg/m²)	Thickness (mm)
Primers	• **ATLAS ARKOL SX** composition: water, styrene-acrylic binder, mineral fillers, silicone emulsion, additives ready to use liquid to be used with ATLAS ARKOL S / SALTA S	0,05 to 0,20	-
	• **ATLAS ARKOL NX** composition: water, styrene-acrylic binder, mineral fillers, silicone emulsion, additives ready to use liquid to be used with ATLAS ARKOL N and ATLAS FASTEL NOVA / SALTA	0,05 to 0,20	-
Decorative coats (paints)	• **ATLAS ARKOL E** to be used optionally with all finishing coats composition: acrylic binder, pigments, additives ready to use liquid	0,125 to 0,25 (2)	-
	• **ATLAS ARKOL S / SALTA S** to be used optionally with all finishing coats composition: silicate binder, pigments, additives ready to use liquid	0,20 to 0,28 (2)	-
	• **ATLAS ARKOL N** to be used optionally with all finishing coats composition: silicone resin, pigments, additives ready to use liquid	0,125 to 0,25 (2)	-
	• **ATLAS FASTEL NOVA / SALTA** to be used optionally with all finishing coats composition: silicone resin, pigments, additives ready to use liquid	0,125 to 0,25 (2)	-
Ancillary materials	Remain under the ETICS manufacturer responsibility. The ETICS is supported with ancillary materials which are defined in EAD 040083-00-0404, clause 1.3.13.		

(2) decorative coats coverage in dm^3/m^2

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

This ETICS is intended to be used as external thermal insulation applied on the walls of buildings. The walls are made of masonry (bricks, blocks, stones, etc.) or concrete (cast on site or as prefabricated panels) with or without rendering.

The ETICS may be used on new or existing (retrofit) vertical building walls. They may also be used on horizontal or inclined surfaces which are not exposed to precipitation.

The ETICS gives the building wall to which it is applied additional thermal insulation and protection from effects of weathering.

The ETICS are non-load-bearing construction elements. They do not contribute directly to the stability of the wall on which they are installed.

The ETICS is not intended to ensure the air tightness of the building structure.

The provisions made in this European Technical Assessment are based on an assumed working life of the ETICS of at least 25 years, provided that the conditions for the packaging, transport, storage, installation 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 manufacturer or the Technical Assessment Body, but should only be regarded as a means for choosing the appropriate products in relation to the expected economically reasonable working life of the product.

The information concerning packaging, transport, storage, maintenance and repair shall be given in the manufacturer's technical documentation.

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

Performance of the ETICS related to the Basic Requirements is given in Table 2.

Table 2

No	Essential characteristic	Assessment method (EAD clause)	Performance
Safety in case of fire (BWR 2)			
1	Reaction to fire:	2.2.1	-
	– reaction to fire of ETICS	2.2.1.1	Annex A1
	– reaction to fire of the thermal insulation product	2.2.1.2	no performance assessed (see Annex B for thermal insulation product characteristics)
2	Façade fire performance	2.2.2	no performance assessed
Hygiene, health and the environment (BWR 3)			
3	Content, emission and/or release of dangerous substances – leachable substances	2.2.4	no performance assessed
4	Water absorption:	2.2.5	-
	– of the base coat and the rendering system	2.2.5.1	Annex A2
	– of the thermal insulation product	2.2.5.2	no performance assessed (see Annex B for thermal insulation product characteristics)
5	Water-tightness of the ETICS: Hygrothermal behaviour	2.2.6	Annex A3
6	Water-tightness: Freeze-thaw performance	2.2.7	Annex A3
7	Impact resistance	2.2.8	Annex A4
8	Water vapour permeability:	2.2.9	-
	– of the rendering system (equivalent air thickness s_d)	2.2.9.1	Annex A5
	– of thermal insulation product (water-vapour resistance factor)	2.2.9.2	no performance assessed (see Annex B for thermal insulation product characteristics)
Safety and accessibility in use (BWR 4)			
9	Bond strength:	2.2.11	-
	– bond strength between the base coat and the thermal insulation product (mortar or paste)	2.2.11.1	Annex A6
	– bond strength between the adhesive and the substrate	2.2.11.2	Annex A6
	– bond strength between the adhesive and the thermal insulation product	2.2.11.3	Annex A6
10	Fixing strength (transverse displacement test)	2.2.12	test not required because the ETICS fulfils the criteria $E \cdot d \leq 50.000$ N/mm
11	Wind load resistance of ETICS:	2.2.13	-
	– pull-through tests of fixings	2.2.13.1	no performance assessed
	– static foam block test	2.2.13.2	no performance assessed
	– dynamic wind uplift test	2.2.13.3	no performance assessed

Table 2

No	Essential characteristic	Assessment method (EAD clause)	Performance
12	Tensile test perpendicular to the faces of the thermal insulation product:	2.2.14	-
	– in dry conditions	2.2.14.1	no performance assessed (see Annex B for thermal insulation product characteristics)
	– in wet conditions	2.2.14.2	no performance assessed
13	Shear strength and shear modulus of elasticity test of ETICS	2.2.15	no performance assessed (see Annex B for thermal insulation product characteristics)
14	Render strip tensile test	2.2.17	no performance assessed
15	Bond strength after ageing:	2.2.20	-
	– bond strength after ageing of finishing coat tested on the rig	2.2.20.1	Annex A7
	– bond strength after ageing of finishing coat not tested on the rig	2.2.20.2	no performance assessed
16	Mechanical and physical characteristics of the mesh:	2.2.21	-
	Tensile strength of the glass fibre mesh	2.2.21.1	no performance assessed (see Annex C for glass fibre mesh characteristics)
Protection against noise (BWR 5)			
17	Airborne sound insulation of ETICS	2.2.22.1	no performance assessed
18	Dynamic stiffness of the thermal insulation product	2.2.22.2	no performance assessed
19	Air flow resistance of the thermal insulation product	2.2.22.3	no performance assessed
Energy economy and heat retention (BWR 6)			
20	Thermal resistance and thermal transmittance of ETICS	2.2.23	Annex A8

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

According to Decision 97/556/EC of the European Commission amended by the Decision 2001/596/EC, the systems of assessment and verification of constancy of performance (see Annex V to regulation (EU) No 305/2011) given in Table 3 apply.

Table 3

Product	Intended use	Level or class (Reaction to fire)	System
External thermal insulation composite systems/kits (ETICS) with rendering	in external wall subject to fire regulations	A1 (1), A2 (1), B (1), C (1)	1
		A1 (2), A2 (2), B (2), C (2), D, E, (A1 to E) (3), F	2+
	in external wall not subject to fire regulations	any	2+

(1) Products/materials for which a clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g. an addition of fire retardants or a limiting of organic material)

(2) Products/materials not covered by footnote (1)

(3) Products/materials that do not require to be tested for reaction to fire (e.g. products/materials of Class A1 according to Commission Decision 96/603/EC)

5 Technical details necessary for the implementation of the AVCP system, as provided in the applicable European Assessment Document (EAD)

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited in Instytut Techniki Budowlanej.

For type testing the results of the tests performed as part of the assessment for the European Technical Assessment shall be used unless there are changes in the production line or plant. In such cases the necessary type testing has to be agreed between Instytut Techniki Budowlanej and the notified body.

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Deputy Director of ITB

Table A1

Configurations	Maximum declared organic content	Declared flame retardant content	Reaction to fire class according to EN 13501-1
ETICS ATLAS XPS: • Adhesives: ATLAS STOPTER K-10, ATLAS STOPTER K-20, ATLAS HOTER S, ATLAS HOTER U	3,5%	0% (no flame retardant)	**B – s2, d0**
• XPS panels: Class E according to EN 13501-1	-		
• Glass fibre meshes: R 117 A 101 / AKE 145 / VERTEX 145, SSA 1363-145	-		
• Base coats: ATLAS STOPTER K-20, ATLAS HOTER U	3,5%		
• Key coats: ATLAS CERPLAST, ATLAS SILKAT ASX, ATLAS SILKON ANX	15,55%		
• Finishing coats: ATLAS CERMIT SN mineral, ATLAS CERMIT DR mineral, ATLAS SILKAT R, ATLAS SILKAT N / Tynk silikatowy ATLAS	4,9%		
• Decorative coats: ATLAS ARKOL S/SALTA S, ATLAS ARKOL N, ATLAS ARKOL E, ATLAS FASTEL NOVA/SALTA (with primers ATLAS ARKOL NX, ATLAS ARKOL SX)	13,5%		
ETICS ATLAS XPS: • Adhesives: ATLAS STOPTER K-10, ATLAS STOPTER K-20, ATLAS HOTER S, ATLAS HOTER U	3,5%	0% (no flame retardant)	**C – s2, d0**
• XPS panels: Class E according to EN 13501-1	-		
• Glass fibre meshes: R 117 A 101 / AKE 145 / VERTEX 145, SSA 1363-145	-		
• Base coats: ATLAS STOPTER K-20, ATLAS HOTER U	3,5%		
• Key coats: ATLAS CERPLAST, ATLAS SILKAT ASX, ATLAS SILKON ANX	15,55%		
• Finishing coats: ATLAS CERMIT N acryl, ATLAS CERMIT R acryl, ATLAS SILKON N, ATLAS SILKON R	10,3%		
• Decorative coats: ATLAS ARKOL S/SALTA S, ATLAS ARKOL N, ATLAS ARKOL E, ATLAS FASTEL NOVA/SALTA (with primers ATLAS ARKOL NX, ATLAS ARKOL SX)	13,5%		
Any other configuration – no performance assessed			

Table A2.1

Water absorption of the reinforced base coat	After 1 hour (kg/m^2)	After 24 hours (kg/m^2)
ATLAS STOPTER K-20	**0,03**	**0,35**
ATLAS HOTER U	**0,03**	**0,27**

Table A2.2

Water absorption of the complete rendering		After 1 hour (kg/m^2)	After 24 hours (kg/m^2)
Rendering system: base coat: **ATLAS STOPTER K-20** + key coat + finishing coats indicated hereafter:	ATLAS CERMIT SN mineral ATLAS CERMIT DR mineral	**0,03**	**0,25**
	ATLAS CERMIT N acryl ATLAS CERMIT R acryl	**0,03**	**0,11**
	ATLAS SILKAT N / Tynk silikatowy ATLAS ATLAS SILKAT R	**0,03**	**0,45**
	ATLAS SILKON N ATLAS SILKON R	**0,02**	**0,10**
Rendering system: base coat: **ATLAS HOTER U** + key coat + finishing coats indicated hereafter:	ATLAS CERMIT SN mineral ATLAS CERMIT DR mineral	**0,02**	**0,25**
	ATLAS CERMIT N acryl ATLAS CERMIT R acryl	**0,01**	**0,13**
	ATLAS SILKAT N / Tynk silikatowy ATLAS ATLAS SILKAT R	**0,12**	**0,46**
	ATLAS SILKON N ATLAS SILKON R	**0,02**	**0,13**

Table A3.1

Water-tightness of the ETICS: Hygrothermal behavior
The ETICS is assessed resistant to hygrothermal cycles on a rig. ETICS passed the test without defects. **Resistant to hygrothermal cycles.**

Table A3.2

Water-tightness of the ETICS: Freeze-thaw performance
The ETICS with the base coat **ATLAS STOPTER K-20,** the key-coats and **all finishing coats** according to Table 1 is assessed freeze-thaw resistant because of the water absorption of base coat and the rendering system is less than 0,5 kg/m² after 24 hours.
The ETICS with the base coat **ATLAS HOTER U,** the key-coats and **all finishing coats** according to Table 1 is assessed freeze-thaw resistant because of the water absorption of base coat and the rendering system is less than 0,5 kg/m² after 24 hours.

Table A4

Impact resistance				
ETICS after hygrothermal cycles on the rig				
ETICS with XPS panels according to Annex B and standard mesh (single layer)		**Cracks**	**Max. crack diameter (mm)**	**Impact resistance category**
Rendering system: base coat **ATLAS STOPTER K-20** + key-coat + finishing coats indicated hereafter:	ATLAS CERMIT SN mineral * ATLAS CERMIT DR mineral *	Yes – 3J Yes – 10J	50,0 50,0	III
	ATLAS CERMIT N acryl * ATLAS CERMIT R acryl *	Yes – 3J Yes – 10J	25,0 40,0	III
	ATLAS SILKAT N / Tynk silikatowy ATLAS * ATLAS SILKAT R *	Yes – 3J Yes – 10J	33,0 38,0	III
	ATLAS SILKON N * ATLAS SILKON R *	Yes – 3J Yes – 10J	30,0 40,0	III
Rendering system: base coat **ATLAS HOTER U** + key-coat + finishing coats indicated hereafter:	ATLAS CERMIT SN mineral * ATLAS CERMIT DR mineral *	Yes – 3J Yes – 10J	30,0 41,0	III
	ATLAS CERMIT N acryl * ATLAS CERMIT R acryl *	Yes – 3J Yes – 10J	23,0 41,0	III
	ATLAS SILKAT N / Tynk silikatowy ATLAS * ATLAS SILKAT R *	Yes – 3J Yes – 10J	23,0 39,0	III
	ATLAS SILKON N * ATLAS SILKON R *	Yes – 3J Yes – 10J	23,0 40,0	III
* particle size 2,0 mm				
Any other configuration – no performance assessed				

Table A5

	Finishing coat	Equivalent air thickness s_d m
Rendering system: base coat **ATLAS STOPTER K-20** (thickness 3 - 4 mm) + key-coat + finishing coats and decorative coat indicated hereafter:	ATLAS CERMIT SN, DR mineral	**0,3**
	thickness 3,0 mm	
	ATLAS SILKAT N / Tynk silikatowy ATLAS, R	**0,2**
	thickness 2,0 mm	
	ATLAS CERMIT N, R acryl + ATLAS ARKOL E	**1,0**
	thickness 3,1 m	
Rendering system: base coat **ATLAS HOTER U** (thickness 3 - 4 mm) + key-coat + finishing coats and decorative coat indicated hereafter:	ATLAS CERMIT SN DR, mineral	**0,3**
	thickness 3,0 mm	
	ATLAS SILKAT N / Tynk silikatowy ATLAS, R	**0,2**
	thickness 2,0 mm	
	ATLAS CERMIT N, R acryl + ATLAS ARKOL E	**0,8**
	thickness 3,1 m	
Any other configuration – no performance assessed		

Table A6.1

Bond strength between the base coat and the insulation product					
Insulation product	**Base coat**	**Conditioning before the test**	**Rupture type**	**Bond strength (kPa)**	
				Min.	**Mean**
XPS panels	**ATLAS STOPTER K-20 (approx. 3 mm)**	Initial state (dry conditions)	failure in the insulation product	**190**	**250**
		After hygrothermal cycles (on the rig)		**270**	**370**
	ATLAS HOTER U (approx. 3 mm)	Initial state (dry conditions)	failure in the insulation product	**150**	**170**
		After hygrothermal cycles (on the rig)		**270**	**330**

Table A6.2

Bond strength between the adhesive and the substrate					
Substrate	**Adhesive (and tested thickness)**	**Conditioning before the test**	**Rupture type**	**Bond strength (kPa)**	
				Min.	**Mean**
Concrete	**ATLAS STOPTER K-10 (approx. 3 mm)**	Initial state (dry conditions)	failure in the adhesive	**920**	**1090**
		2 days immersion and 2 hours drying	failure in the adhesive	**390**	**420**
		2 days immersion and min. 7 days drying	failure in the adhesive	**1490**	**1950**
	ATLAS STOPTER K-20 (approx. 3 mm)	Initial state (dry conditions)	failure in the adhesive	**940**	**1260**
		2 days immersion and 2 hours drying	failure in the adhesive	**360**	**380**
		2 days immersion and min. 7 days drying	failure in the adhesive	**1620**	**1840**
	ATLAS HOTER S (approx. 3 mm)	Initial state (dry conditions)	failure in the adhesive	**610**	**1140**
		2 days immersion and 2 hours drying	failure in the adhesive	**770**	**860**
		2 days immersion and min. 7 days drying	failure in the adhesive	**690**	**1670**
	ATLAS HOTER U (approx. 3 mm)	Initial state (dry conditions)	failure in the adhesive	**530**	**1180**
		2 days immersion and 2 hours drying	failure in the adhesive	**320**	**390**
		2 days immersion and min. 7 days drying	failure in the adhesive	**850**	**1250**

Table A6.3

Bond strength between the adhesive and the insulation product					
Insulation product	**Adhesive (and tested thickness)**	**Conditioning before the test**	**Rupture type**	**Bond strength (kPa)**	
				Min.	**Mean**
XPS panels	**ATLAS STOPTER K-10 (approx. 3 mm)**	Initial state (dry conditions)	failure in the insulation product	**150**	**170**
		2 days immersion and 2 hours drying		**100**	**120**
		2 days immersion and min. 7 days drying		**150**	**190**
	ATLAS STOPTER K-20 (approx. 3 mm)	Initial state (dry conditions)	failure in the insulation product	**170**	**270**
		2 days immersion and 2 hours drying		**150**	**190**
		2 days immersion and min. 7 days drying		**230**	**300**
	ATLAS HOTER S (approx. 3 mm)	Initial state (dry conditions)	failure in the insulation product	**110**	**150**
		2 days immersion and 2 hours drying		**100**	**140**
		2 days immersion and min. 7 days drying		**160**	**250**
	ATLAS HOTER U (approx. 3 mm)	Initial state (dry conditions)	failure in the insulation product	**150**	**170**
		2 days immersion and 2 hours drying		**110**	**120**
		2 days immersion and min. 7 days drying		**160**	**210**

Table A7

Bond strength after ageing of finishing coat tested on the rig					
Insulation product	**ETICS configuration**		**Rupture type**	**Bond strength (kPa)**	
				Individual	**Mean**
XPS panels	**Rendering system:** base coat **ATLAS STOPTER K-20** + key-coat + finishing coats indicated hereafter:	ATLAS CERMIT SN mineral ATLAS CERMIT DR mineral	failure in the insulation product	210	**140**
				110	
				170	
				190	
				150	
		ATLAS CERMIT N acryl ATLAS CERMIT R acryl	failure in the insulation product	270	**330**
				340	
				350	
				370	
				340	
		ATLAS SILKAT N / Tynk silikatowy ATLAS ATLAS SILKAT R	failure in the insulation product	130	**250**
				360	
				280	
				330	
				160	
		ATLAS SILKON N ATLAS SILKON R	failure in the insulation product	300	**310**
				360	
				300	
				340	
				260	
	Rendering system: base coat **ATLAS HOTER U** + key-coat + finishing coats indicated hereafter:	ATLAS CERMIT SN mineral ATLAS CERMIT DR mineral	failure in the insulation product	320	**280**
				290	
				270	
				270	
				260	
		ATLAS CERMIT N acryl ATLAS CERMIT R acryl	failure in the insulation product	180	**190**
				230	
				220	
				180	
				140	
		ATLAS SILKAT N / Tynk silikatowy ATLAS ATLAS SILKAT R	failure in the insulation product	340	**280**
				230	
				350	
				230	
				280	
		ATLAS SILKON N ATLAS SILKON R	failure in the insulation product	180	**210**
				140	
				250	
				250	
				250	

Table A8

Thermal resistance	[(m²·K)/W]
R_{render}	0,02
R_{ETICS}	≥ 1,00

Information on calculation of thermal resistance and thermal transmittance of ETICS:

The additional thermal resistance provided by the ETICS (R_{ETICS}) to the substrate wall is calculated from the thermal resistance of the thermal insulation product ($R_{insulation}$), determined in accordance with 2.2.23.1, and from either the tabulated R render value of the render system (R_{render} is about 0.02 m²K/W) or R_{render} determined by test according to EN 12667 or EN 12664 (depending on expected thermal resistance).

$$R_{ETICS} = R_{insulation} + R_{render} \ [(m^2 \cdot K)/W]$$

as described in EN ISO 10456.

The thermal bridges caused by mechanical fixing devices influence the thermal transmittance of the entire wall and shall be taken into account using the following calculation:

$$U_c = U + \Delta U \ [W/(m^2 \cdot K)]$$

with: U_c corrected thermal transmittance of the entire wall, including thermal bridges

U thermal transmittance of the entire wall, including ETICS, without thermal bridges

$$U = \frac{1}{R_{ETICS} + R_{substrate} + R_{se} + R_{si}}$$

$R_{substrate}$ thermal resistance of the substrate wall [(m²·K)/W]

R_{se} external surface thermal resistance [(m²·K)/W]

R_{si} internal surface thermal resistance [(m²·K)/W]

ΔU correction term of the thermal transmittance for mechanical fixing devices

$= \chi_p \cdot n$ (for anchors) (formula for U_c)

χ_p point thermal transmittance value of the anchor [W/K]. If not specified in ETA for anchors, the following values apply:

= 0.002 W/K for anchors with a plastic screw/nail, stainless steel screw/nail with the head covered by at least 15 mm plastic material, or with a minimum 15 mm air gap at the head of the screw/nail

= 0.004 W/K for anchors with a galvanized carbon steel screw/nail with the head covered by at least 15 mm plastic material or a minimum 15 mm air gap at the head of the screw/nail

= 0.008 W/K for all other anchors (worst case)

n number of anchors per m². In case n is more than 16, the formula for U_c is not applied

The influence of thermal bridges can also be calculated as described in EN ISO 10211.

It shall be calculated according to this standard if there are more than 16 anchors per m² foreseen. The declared χ_p values do not apply in this case.

Table B1

Factory-prefabricated extruded polystyrene (XPS) panels according to EN 13164		
Description and characteristics		**XPS panels**
Reaction to fire EN 13501-1		Class E
Thermal resistance ($m^2 \cdot K$)/W		Defined in the CE marking in reference to EN 13164
Thickness tolerance EN 823		XPS-EN 13164 – T1 or T2
Length tolerance EN 822		± 8 mm
Width tolerance EN 822		± 8 mm
Squarness tolerance EN 824		≤ 5 mm/m
Flatness tolerance EN 825		≤ 6 mm
Dimensional stability	**under specified temperature and humidity** EN 1604	XPS-EN 13164 – DS(70,90)
Short-term water absorption (partial immersion) (kg/m^2) EN 1609		≤ 1,0
Water vapour diffusion resistance factor (μ) EN 12086		100 to 200
Tensile strength perpendicular to the faces in dry conditions EN 1607		XPS-EN 13164 – TR100
Shear strength (kPa) EN 12090		≥ 20
Shear modulus (kPa) EN 12090		≥ 1000

Table C1

Glass fibre mesh trade name	Description	Direction	Tensile strength N/mm (average value)		Elongation ε % (average value)	
			In the as-delivered state	After alkalis conditioning	In the as-delivered state	After alkalis conditioning
R 117 A 101 / AKE 145 / VERTEX 145	ETA-13/0392	warp	23	23	2,1	2,1
		weft	28	28	2,4	2,4
SSA 1363-145	ETA-16/0526	warp	49	25	3,8	2,1
		weft	50	29	3,7	2,3
ATLAS 150	ETA-16/0526	warp	46	24	3,7	1,9
		weft	44	24	3,5	1,9
ATLAS 165	ETA-16/0526	warp	43	26	3,6	2,3
		weft	45	29	3,9	2,3

ATLAS XPS	**Annex C** of European Technical Assessment ETA-07/0316
Glass fibre mesh characteristics	