

#### Organismo nazionale per la valutazione tecnica

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# European Technical Assessment ETA 23/0884 of 29/01/2024

#### GENERAL PART

Trade name of the construction product

Product family to which the construction product belongs

Manufacturer

Manufacturing plant

This European Technical Assessment contains:

This European Technical Assessment is issued in accordance with Regulation (EU) n° 305/2011, on the basis of

This version is a *corrigendum* to

# **FASSATHERM RESPHIRA**

PAC 04: THERMAL INSULATION PRODUCTS. COMPOSITE INSULATING KITS/SYSTEMS External Thermal Insulation Composite Systems (ETICS) with renderings

Fassa S.r.l. via Lazzaris, 3 31027 Spresiano (TV) - Italy

Plants: n. 1, 2, 3. See Annex A1

16 pages, including 10 annexes which form an integral part of this assessment

EAD 040083-00-0404 – External Thermal Insulation Composite Systems (ETICS) with renderings

ETA 23/0884 (version 01) of 29/01/2024 issued on 28/02/2024

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#### SPECIFIC PARTS

#### 1. TECHNICAL DESCRIPTION OF THE PRODUCT

The product "FASSATHERM RESPHIRA" is an External Thermal Insulation Composite Systems (ETICS) with renderings (rendering system) to be applied as external thermal insulation on the walls of buildings. The walls are made of masonry (bricks, blocks, stones) or concrete (cast on site or as prefabricated panels) with or without rendering systems.

The ETICS kit comprises a prefabricated insulation product of expanded polystyrene (EPS) to be bonded to the wall with 50 % supplementary adhesive. The methods of fixing and the relevant components are specified in Table 1.

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

## 1.1 COMPONENTS OF THE KIT "FASSATHERM RESPHIRA"

The components of the kit, as specified by the manufacturer, are reported in Table 1.

#### Table 1: Components of the kit

<i>Components</i> (see Annexes A2-A3 for further descript the components)	ion, characteristics and performances of	Quantity	Thickness [mm]			
Mechanically fixed ETICS with suppl surface is ≥ 50%). National application	Mechanically fixed ETICS with supplementary adhesive (according to manufacturer's instructions bonded surface is $\geq$ 50%). National application documents shall be taken into account.					
	Insulation product 1: " <b>EPS RESPHIRA</b> " EPS graphite panel according to EN 13163 (see Annex A2)	//	60 - 240			
Insulation material with associated method	Adhesive: <b>*A96 RESPHIRA</b> ": cement based powder requiring addition of 30.5 - 32.5% of water. White CEM I 52.5 R Grain size: 1.2 mm ± 0.2 mm	3 – 5.8 kg/m²	5 - 10			
	Anchors: <b>"FASSA TOP FIX 2G";</b> <b>"FASSA COMBI FIX PLUS";</b> <b>"FASSA WKTHERM FIX"</b> <b>"FASSA WKTHERM ROTO FIX".</b> Properties equal or higher than those reported in Table A3 of Annex A3	6/m²	//			
Base coat	"A96 RESPHIRA": cement based powder requiring addition 30.5-32.5% of water. White CEM I 52.5 R Grain size: 1.2 mm ± 0.2 mm	3 - 5.8 kg/m²	4 - 6			
Reinforcement	Standard Glass fibre mesh <b>"FASSANET 160"</b> mesh size: 4.0 x 3.5 mm ± 0.5 mm, Mass per unit area: 160 g/m <sup>2</sup>	//	//			
	Key coat 1 (to be used with finishing coat 1):" <b>FA 249</b> " water based product.	30-50 g/m <sup>2</sup>	//			
Key coat	Key coat 2 (to be used with finishing coat 2): " <b>FS 412</b> " water based product	100-150 g/m <sup>2</sup>	//			
	Key coat 3 (to be used with finishing coat 3): " <b>FX 526</b> " White or pigmented filler	100-150 g/m <sup>2</sup>	//			

Components (see Annexes A2-A3 for further descrip the components)	tion, characteristics and performances of	Quantity	Thickness [mm]
	Ready to use paste - acrylic resin binde	r to be used with t	he key coat of
	the same number		
	Finishing coat 1: "RTA 549" acrylic co-		
	polymer	2.2 - 4.6	According to
	Particle size:	kg/m²	grain size
	1.0 mm; 1.5 mm; 2.0 mm; 3.0 mm	-	-
Finishing cost	Finishing coat 2: "RSR 421"		
Finishing coat	Acrylic-silicone copolymer blend	2.2 - 4.6	According to
	Particle size:	kg/ m <sup>2</sup>	grain size
	1.0 mm; 1.5 mm; 2.0 mm; 3.0 mm		-
	Finishing coat 3 "RX 561" Acrylic -		
	polysiloxane copolymer blend	2.2 - 4.6	According to
	Particle size:	kg/m²	grain size
	1.0 mm; 1.5 mm; 2.0 mm; 3.0 mm.	-	-
	DESIDERI VELLUTO (only in		
Decorative coat	combination with RSR 421)	÷ 2.5	÷02
(Optional)	(Siloxane-enhanced smooth coating with	kg/m²	÷ 0.3
	a mineral appearance)	-	

#### 2. SPECIFICATION OF THE INTENDED USE IN ACCORDANCE WITH EUROPEAN ASSESSMENT DOCUMENT N° 040083-00-0404 (hereinafter EAD)

The "FASSATHERM RESPHIRA" is intended to be used on new or existing (retrofit) vertical building walls. The ETICS 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. ETICS are non-load-bearing construction elements. They do not contribute directly to the stability of the building wall on which they are installed.

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

Concerning product packaging, transport and storage it is the responsibility of the manufacturer to undertake the appropriate measures and to advise his clients on the transport and storage, as he considers necessary in order to reach the declared performances.

The information about installation is provided with the technical documentation from the Manufacturer and it is assumed that the product will be installed according to it or (in absence of such instructions) according to the usual practice of the building professionals.

The performances assessed in this European Technical Assessment, according to the applicable EAD, are based on an assumed intended working life of at least 25 years, provided that the conditions for 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, 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 REFERENCES TO THE METHODS USED FOR ITS ASSESSMENT

The tests for performance assessment of "FASSATHERM RESPHIRA" were carried out in compliance with EAD 040083-00-0404 according to the test methods reported herein, as well for what concerns sampling, conditioning and testing provisions.

The performances of the kit as described in this chapter are valid provided that the components of the kit comply with Section 1 of the ETA and the relative Annexes A2–A3.

The numbering (#) in the following tables corresponds to the numbering of Table 1 of EAD 040083-00-0404.

# 3.1 SAFETY IN CASE OF FIRE (BWR 2)

#	Essential characteristic	Performance		
	Reaction to fire			
1	- Reaction to fire of ETICS	Euroclass B – s1, d0.		
		(see Annex B1, Table B1).		
	<ul> <li>Reaction to fire of thermal insulation material</li> </ul>	Euroclass E.		
	- Reaction to fire of PU foam adhesive	Not applicable.		
2	Façade fire performance	No performance assessed.		
3	Propensity to undergo continuous smouldering of ETICS	No performance assessed.		

#### 3.2 HYGIENE, HEALTH AND THE ENVIRONMENT (BWR 3)

#	Essential characteristic	Performance
4	Content, emission and/or release of dangerous substances – leachable substances	No performance assessed.
	Water absorption	
5	<ul> <li>of the base coat and the rendering system</li> </ul>	See Annex B2, Table B2.
	- of the thermal insulation product	≤ 0.5 kg/m²
6	Water-tightness of the ETICS: Hygrothermal behaviour	The ETICS passed the test without defects. The system FASSATHERM RESPHIRA is resistant to hygrothermal cycles. <i>Hygrothermal cycles have been performed on a rig.</i>
7	Water-tightness: Freeze thaw performance	See Annex B3, Table B6
8	Impact resistance	See Annex B2, Table B3.
	Water vapour permeability	
9	- of the rendering system	See Annex B3, Table B4.
	- of the thermal insulation product	µ ≤ 15

# 3.3 SAFETY AND ACCESSIBILITY IN USE (BWR 4)

#	Essential characteristic	Performance
	Bond strength	
	<ul> <li>Bond strength between the base coat and the thermal insulation product</li> </ul>	See Annex B3, Table B5.
10	<ul> <li>Bond strength between the adhesive and the substrate</li> </ul>	Not relevant because the system is mechanically fixed with supplementary
	<ul> <li>Bond strength between the adhesive and the thermal insulation product</li> </ul>	adhesive.
	<ul> <li>Bond strength of foam adhesives</li> </ul>	Not applicable.
11	Fixing strength (transverse displacement test)	Not applicable.
	Wind load resistance of ETICS	
12	- pull-through tests of fixings	See Annex B4, Table B7.
	- static foam block test	Not applicable.
	- dynamic wind uplift test	Not applicable.
	Tensile test perpendicular to the faces of the thermal insulation product	
13	- in dry conditions	TR 150
	- in wet conditions	Not applicable.
	Shear strength and shear modulus of elasticity test of ETICS	Not relevant because the system is
14	- Shear strength	mechanically fixed with supplementary adhesive.
	- Shear modulus of elasticity	
15	Pull-through resistance of fixings from profiles	Not applicable.
		FASSANET 160 W <sub>rk</sub> warp = 0.16 mm
16	Render strip tensile test	W <sub>rk</sub> weft = 0.21 mm Simplified method.
17	Shear strength and shear modulus of foam adhesive	Not applicable.
18	Post expansion behaviour of foam adhesives	Not applicable.
	Bond strength after ageing	
19	<ul> <li>bond strength after ageing of finishing coat tested on the rig</li> </ul>	See Annex B5, Table B9.
	<ul> <li>bond strength after ageing of finishing coat not tested on the rig</li> </ul>	Not applicable.
	Mechanical and physical characteristics of the mesh	
20	<ul> <li>Tensile strength of the glass fibre mesh</li> </ul>	See Annex B6, Table B10.
	- Protection of metal mesh	Not applicable.

## 3.4 PROTECTION AGAINST NOISE (BWR 5)

#	Essential characteristic	Performance
	Airborne sound insulation of ETICS	No performance assessed.
21	Dynamic stiffness of the thermal insulation product	No performance assessed.
	Air flow resistance of the thermal insulation product	No performance assessed.

#### 3.5 ENERGY ECONOMY AND HEAT RETENTION (BWR 6)

#	Essential characteristic	Performance
22	Thermal resistance and thermal transmittance of ETICS	See Annex B7, Table B11.

#### 4. ASSESSMENT AND VERIFICATION OF CONSTANCY OF PERFORMANCE (AVCP) SYSTEM APPLIED, WITH REFERENCE TO ITS LEGAL BASE

In accordance with the European Assessment Document EAD No. 040083-00-0404, the applicable European legal act is: **Commission Decision 97/556/EC.** The system of assessment and verification of constancy of performance (AVCP) is **2+.** 

In addition, with regard to reaction to fire for products, the applicable European legal act is **Commission Decision 97/556/EC**, as amended by **Commission Decision 2001/596/EC**. The system of assessment and verification of constancy of performance (AVCP) is **2+**.

#### 5. TECHNICAL DETAILS NECESSARY FOR THE IMPLEMENTATION OF THE AVCP SYSTEM, AS PROVIDED FOR IN EAD 040083-00-0404

Technical details necessary for the implementation of the AVCP system are laid down in the Control Plan deposited at ITAB/ITC-CNR.

#### Issued in San Giuliano Milanese, Italy on 28/02/2024 by ITAB/ITC-CNR

#### Coordinator of ITAB Technical Committee Annalisa Franco, PhD

#### **Director of ITAB** Professor Antonio Occhiuzzi

Table A1: Manufacturing plants			
N. Manufacturing plant	Manufacturing plants	Address	
1	Spresiano	31027 - Spresiano (Treviso) via Fornaci, 8 - Italy	
2	Mazzano	25080 - Mazzano (Brescia) via S. Bocco, 23 - Italy	
3	Popoli	65026 - Popoli (Pescara) Strada Provinciale per Vittorito s.n.c - Italy	
	FASSATHERM RESPHIRA		
	Manufacturing plants		

Descriptions and characteristics	Reference standard	EPS RESPHIRA
Reaction to fire	EN 13501-1	Euroclass E Max. density: 20.38 kg/m <sup>3</sup>
Water absorption by partial immersion	EN 1609 Method A	WL(P) ≤ 0.5 kg/m²
Water vapour permeability (water – vapour resistance factor, µ)	EN 12086	≤ 15
Tensile strength	EN 1607	EPS - EN 13163 - TR 150
Shear strength	EN 12090	≥ 20 kPa
Shear modulus of elasticity	EN 12090	≥ 1000 kPa
Compression resistance	EN 826	-
Conductivity (λ <sub>D</sub> )	EN 12667	0.031 W/mK
Thermal resistance for the minimum thickness (60 mm)	EN 12667	1.93 m²K/W
Thickness	EN 823	T1 (EN 13163)
Length	EN 822	L2 (EN 13163)
Width	EN 822	W2 (EN 13163)
Squareness	EN 824	S2 (EN 13163)
Flatness	EN 825	P5 (EN 13163)
Surface conditions	-	Cut surface
Dimensional stability (23 ± 2°C, 50 ± 5% RH)	EN 1603	DSN(2) (EN 13163)
Dimensional stability (70 $\pm$ 2°C , 90 $\pm$ 5% RH for 48 hours)	EN 1604	DS(70,-)1 (EN 13163)

#### Table A2: Thermal insulation product characteristics

# FASSATHERM RESPHIRA

Product Description – Thermal insulation product - EPS RESPHIRA

Annex A2 of ETA N° 23/0884

Table A3: Anchors product characteristics					
Trade name <sup>(1)</sup>	ETA reference	Description	Size [mm]	Plate stiffness [kN/mm]	
EJOT STRU 2G	ETA-04/0023 (5/06/2023)	Screw-in high-density polyethylene (HDPE) anchor with the pin made of galvanized steel	Plate diameter: Ø 60 Ø nail: 8	0.60	
EJOTHERM H2 ECO	ETA-15/0740 (01/12/2016)	Screw-in high-density polyethylene (HDPE) anchor with the pin made of galvanized steel	Plate diameter: Ø 60 Ø nail: 8	0.97	
WKTHERM S	ETA-13/0724 (14/05/2018)	Screw-in polyamide anchor with the pin made of galvanized steel.	Plate diameter: Ø 60 Ø nail: 8	0.6	
KLIMAS WKRET-MET SCREW-IN PLUG ECO- DRIVE	ETA-13/0107 (09/02/2023)	Screw-in polyamide with the pin made of galvanized steel.	Plate diameter: Ø 60 Ø nail: 8	0.6	

<sup>(1)</sup>Other anchors can be used, provided they have plate dimension and stiffness equal or higher than those reported in this table.

# **FASSATHERM RESPHIRA**

Product Description – Anchors product characteristics

Annex A3 of ETA N° 23/0884

Table B1: Reaction to fire of ETICS				
Configuration	Organic content of the rendering system [%]	Flame retardant content of the rendering system [%]	Maximum thickness [mm]	Class
<ul> <li>FASSATHERM RESPHIRA:</li> <li>Adhesive/base coat: A96 RESPHIRA</li> <li>Insulation max thickness: 200 mm, max density: 20 ± 6% kg/m<sup>3</sup></li> <li>Reinforcement glass fiber: FASSANET 160</li> <li>Key coat: FA 249</li> <li>Finishing coat: RTA 549</li> </ul>	Base coat: 2.5 Finishing coat: 13.4	No flame retardant	200	B – s1, d0
FASSATHERM RESPHIRA all configurations with thermal insulation max density 20 kg/m <sup>3</sup>		B – s1, d0		
FASSATHE	ERM RESPHIRA		An	nov B1
Performances – Reaction to fire		- Annex B1 of ETA N° 23/088/		

after	1 hour	after 24	4 hours
< 1.0 kg/m <sup>2</sup>	≥ 1.0 kg/m <sup>2</sup>	< 0.5 kg/m <sup>2</sup>	≥ 0.5 kg/m <sup>2</sup>
Mean	value	Mean	value
0.065	not applicable	not applicable	0.704
0.0031	not applicable	0.367	not applicable
0.020	not applicable	0.298	not applicable
0.019	not applicable	0.117	not applicable
Table B3: Impa	ct test		
	after           < 1.0 kg/m²	after 1 hour         < 1.0 kg/m²       ≥ 1.0 kg/m²         Mean value       not applicable         0.065       not applicable         0.0031       not applicable         0.020       not applicable         0.019       not applicable	after 1 hour       after 24         < 1.0 kg/m²       ≥ 1.0 kg/m²       < 0.5 kg/m²         Mean       Mean       Mean         0.065       not applicable       not applicable         0.0031       not applicable       0.367         0.020       not applicable       0.298         0.019       not applicable       0.117

#### Table B2: Water absorption of the base coat and the rendering system

				Results	
Reinforced base coat	Key coat and finishing coat	Impact Energy [J]	Maximum impact diameter [mm]	Damage	Impact resistance category
with finishing coats	Key coat FA 249+	3	30	Cracks	
	RTA 549 (1 mm)	10	40	Cracks	111
	Key coat FX 526 RX 561 (1 mm)	3	26	Cracks	
		10	50	Cracks	111
	Key coat FS 412 +	3	22	Cracks	
	RSR 421 (1 mm)	10	30	Cracks	111

# **FASSATHERM RESPHIRA**

Performances – Water absorption of the base coat and of the rendering system and Impact resistance

Annex B2 of ETA N° 23/0884

Table B	4: Water vapour perm	eability of t	he re	endering sys	tem				
Configuration	Key coat and finishing coat Render syst				n Equi i] thickne va	ivalent air ess s <sub>d</sub> (mean lue) [m]			
Base coat A96 RESPHIRA	- RSR 421 + Desideri	Velluto		10.0		0.6 ≤ 2			
with key coat and finishing	- RTA 549			10.0		0.4 ≤ 2			
coat	- RX 561	12.0			0.6 ≤ 2				
	Table B5: B	ond strengt	th						
Configuration		Tested thickness of adhesive [mm]		Failure mode <sup>(1)</sup> [%]	Mean value [kPa]	Minimum value [kPa]			
Bond strength between bas	se coat and insulation	product TI	R150	00.0-					
under ary conditions		6		80 Cs 20 Aa-s	138	132			
After freeze-thaw cycles		6		100 Aa-s	97	81			
Aa-s Adhesive failu	Aa-s Adhesive failure between adhesive and insulation         Table B6: Freeze-thaw behaviour of ETICS								
Product/Config	juration	Results a	fter	30 cycles of	freeze-tha	w cycles			
Rendering system made of: - insulation EPS RESPHIRA - base coat A96 RESPHIRA		The system	with	basecoat 6mr	mm is freeze-thaw resistant.				
Rendering system made of: - insulation EPS RESPHIRA - base coat A96 RESPHIRA - finishing coat: RTA 549		No performance assessed							
Rendering system made of: - insulation EPS RESPHIRA - base coat A96 RESPHIRA - finishing coat: RSR 421		No performance assessed							
Rendering system made of:         - insulation EPS RESPHIRA         - base coat A96 RESPHIRA         finishing coat: RX 561					eassessed				
FASS									
Performances – Water va bond streng	ystem,	Ann of ETA N	ex B3 I° 23/0884						

Table B7: Pull-through tests of fixings								
Characteristics of components								
	Trade	name	Apply to all anchors lis	sted in the Annex A3				
Anchors	Plate diam	eter [mm]	60					
	Plate stiffnes	ss [kN/mm]	≥ 0.6					
Characteristics	Thicknes	s [mm]	≥ 60					
of EPS panels	Tensile strength pe face [kPa] in c	rpendicular to the dry condition	≥ 100					
Pull-through test in dry condition								
Failure load [N]	Failure load [N]Anchors not placed at the panel jointsRpanelMinimum: 553 Average: 575		Anchors placed at the panel joints	R <sub>joint</sub> Minimum: 501 Average: 564				



#### Figure B1 – Load-displacement graph of pull through tests in dry conditions at the body and at the joint

Table B8: Bond strength after ageing of base coat tested on the	ie rig
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Configuration	Failure mode <sup>(1)</sup> [%]	Individual value [kPa]	Mean Value [kPa]	
		172		
la sulsting	60	172		
Insulation Base cost	Cs	140	160	
Dase coat	40 Aa-s	164		
		172		

<sup>(1)</sup> Cs Cohesive failure into substrate (concrete or insulation) Aa-s Adhesive failure between adhesive and insulation

Configuration	Failure mode <sup>(1)</sup> [%]	Individual value [kPa]	Mean Value [kPa]
		164	
Insulation	60 42-6	164	
Base coat with key coat FA 249 and	10 Cs	196	180
Finishing coat: RTA 549	+0 03	172	
		200	
		184	
Insulation	60 40 0	172	
Base coat with key coat FS 412 and	00 Aa-s	176	190
Finishing coat: RSR 421	40 CS	196	
		204	
		204	
Insulation	60 Aa-s 40 Cs	164	
Base coat with key coat FX 526 and		164	170
Finishing coat: RX 561		168	
		164	

<sup>(1)</sup> Cs Cohesive failure into substrate (concrete or insulation) Aa-s Adhesive failure between adhesive and insulation

# **FASSATHERM RESPHIRA**

Performances – Bond strength after ageing

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Tensile strength of the glass fibre mesh										
	As-delivered state After ag						ageing			
Product	Ten strei [N/n	sile ngth nm]	Elong [%	gation Tensile Residu strength strengt [N/mm] [%]		dual sile ngth ⁄6]	Elongation h [%]			
FASSANET	warp	weft	warp	weft	warp	weft	warp	weft	warp	weft
160	43	53	3.7	4.4	35	44	81	83	3.1	3.5
	FAS	SSATH	IERM	RESP	HIRA					

# Table B10: Tensile strength of the glass fibre mesh

Table B11: Thermal resistance and thermal transmittance of ETICS								
Product Minimum Therma thickness resistan [mm] [m²K/V								
EPS RESPHIRA	60	1.93						
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 m <sup>2</sup> K/W) or $R_{render}$ determined by test according to EN 12667 or EN 12664 (depending on expected thermal resistance).								
R <sub>ETICS</sub> = R <sub>insulation</sub> + R <sub>render</sub> [(m <sup>2</sup> ·K)/W]								
as described in EN ISO 10456. The thermal bridges caused by mechanical fixing devices influence the thermal transmishall be taken into account using the following calculation: $U_c = U + \Delta U [W/(m^2 \cdot K)]$	nittance of the e	ntire wall and						
With: U <sub>c</sub> corrected thermal transmittance of the entire wall, including thermal U thermal transmittance of the entire wall, including ETICS, without the	bridges ermal bridges							
$U = \frac{1}{R_{\text{ETICS}} + R_{\text{enderseto}} + R_{\text{enderseto}} + R_{\text{enderseto}}}$								
R <sub>substrate</sub> thermal resistance of the substrate wall [(m <sup>2</sup> ·K)/W]								
$R_{se}$ external surface thermal resistance [( $m^2 \cdot K$ )/W]								
R <sub>si</sub> internal surface thermal resistance [(m²·K)/W]								
$\Delta U$ correction term of the thermal transmittance for mechanical fixing devices = $x_{r} * n$ (for anchors) + $\Sigma ui * li$ (for profiles) (formula for LL)								
$\gamma_{\rm p}$ point thermal transmittance value of the anchor [W/K]. If not specified in ETA	for anchors, th	e following						
values apply:	,	J						
<ul> <li>= 0.002 W/K for anchors with a plastic screw/nail, stainless steel screw/nail w 15 mm plastic material, or with a minimum 15 mm air gap at the head of the s = 0.004 W/K for anchors with a galvanized carbon steel screw/nail with the he plastic material or a minimum 15 mm air gap at the head of the screw/nail.</li> <li>= 0.008 W/K for all other anchors (worst case)</li> <li>n umber of anchors per m<sup>2</sup>. In case n is more than 16, the formula for U<sub>c</sub> is not series and the strew of the screw of the scre</li></ul>	vith the head co screw/nail. ead covered by ot applied.	vered by at least at least 15 mm a						
ψi linear thermal transmittance value of the profile [W/(m K)]	i i							
$\ell$ i length of the profile per m <sup>2</sup> .								
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 m <sup>2</sup> foreseen. The declared $\chi_p$ - values do not apply in this case.								
FASSATHERM RESPHIRA								
Performances – Thermal resistance and thermal transmittance of ETICS	Ann of ETA	nex B7 N° 23/0884						