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European Technical Assessment

ETA-10/0287
of 16.02.2018

General part

Technical Assessment Body issuing the European Technical Assessment:

Österreichisches Institut für Bautechnik

Trade name:

GUTEX Thermowall 1

Product family to which the construction product belongs:

External Thermal Insulation Composite Systems with rendering on wood fibre (WF) for the use as external insulation to walls of buildings.

Manufacturer:

GUTEX Holzfaserplattenwerk
H. Henselmann GmbH + CoKG
Gutenberg 5
79761 Waldshut-Tiengen
Germany

Manufacturing plant:

GUTEX Holzfaserplattenwerk
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This European Technical Assessment contains:

11 pages

This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of:

EAD 040089-00-0404 - ETICS WITH RENDERS FOR THE USE ON TIMBER FRAME BUILDINGS, edition May 2016

This European Technical Assessment replaces:

ETA-10/0287 with validity from 16.08.2010 to 10.11.2014

General part:

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Specific parts

1. Technical description of the product

1.1 General

This product is an ETICS (External Thermal Insulation Composite System) with rendering - a kit comprising components which are factory-produced by the manufacturer or component suppliers.

The ETICS manufacturer is ultimately responsible for all components of the ETICS specified in this ETA. The ETICS kit comprises a prefabricated wood fibre (WF) to be bonded or bonded and mechanically fixed onto a wall. The methods of fixing and the relevant components are specified in the table below. The insulation product is faced with a rendering system consisting of one or more layers (site applied), one of which contains reinforcement. The rendering is applied directly to the insulating panels, without any air gap or disconnecting layer.

The ETICS may include special fittings (e.g. base profiles, corner profiles,...) to treat details of ETICS (connections, apertures, corners, parapets, sills,...). Assessment and performance of these components is not addressed in this ETA, however the ETICS manufacturer is responsible for adequate compatibility and performance within the ETICS when the components are delivered as a part of the kit.

1.2 Composition of the kit

1.2.1 Composition of the ETICS

	Components	Coverage (kg/m ²)	Thickness (mm)
Insulation materials with associated methods of fixing	Mechanically fixed ETICS (see § 2.3.3 a) for possible associations insulation product/anchors)		
	➤ Insulation product: GUTEX Thermowall/-gf	/	60 to 300
	➤ Fixings: - GUTEX Holzschraube - Breitrückenklammern	/ /	/ /
Base coat	- GUTEX Klebe- und Spachtelputz: Mineral powder, cement base with silica sand, dispersion powder, additives	≥ 6,0 (powder)	≥ 5,0
Glass fibre mesh	➤ Standard glass fibre mesh: - GUTEX Universal-Armierungsgewebe grob mesh size 6 mm - GUTEX Universal-Armierungsgewebe: mesh size 4 mm	/	/
Key coat	- GUTEX Putzgrund: Ready to use pigmented liquid	0,25 to 0,30	/
	- GUTEX Isoliergrund: Ready to use pigmented liquid	0,25 to 0,30	/
Finishing coat	➤ Ready to use pastes – synthetic binder: - GUTEX Silikonputz K: particle size 1,0/1,5/2,0/3,0/6,0 mm - GUTEX Silikonputz R: particle size 1,5/2,0/3,0/6,0 mm - GUTEX Silikonputz MP: particle size 0,5 mm - GUTEX Faschenputz: particle size 0,5 mm	1,8 to 6,0 2,2 to 5,6 1,5 to 4,0 1,7	Regulated by particle size 2,0 to 3,0 1,0 to 1,5
	➤ Ready to use paste – silicon resin: - GUTEX Combi-Silikonharzputz K: particle size 1,0/1,5/2,0/3,0 mm - GUTEX Combi-Silikonharzputz R: particle size 1,5/2,0/3,0 mm - GUTEX Combi-Silikonharzputz MP: particle size 0,5 mm	2,2 to 4,0 2,2 to 4,0 1,5 to 4,0	Regulated by particle size 2,0 to 3,0
	➤ Ready to use paste – silicate binder: - GUTEX Combiputz K: particle size 1,5/2,0/3,0/6,0 mm - GUTEX Combiputz R: particle size 1,5/2,0/3,0/6,0 mm - GUTEX Combiputz MP: particle size 0,5 mm - GUTEX Silikatputz K: particle size 1,5/2,0/3,0 mm - GUTEX Silikatputz R: particle size 1,5/2,0/3,0 mm - GUTEX Silikatputz MP: particle size 0,5 mm	1,7 to 4,9 1,6 to 5,5 1,5 to 4,0 2,2 to 4,4 2,4 to 3,9 2,0 to 4,0	Regulated by particle size 2,0 to 4,0 Regulated by particle size 2,0 to 4,0

	Components	Coverage (kg/m ²)	Thickness (mm)
Decorative coats	➤ Ready to use paste – silicon resin: - GUTEX Combi-Mineralfarbe-PV: particle size 0,5 mm	0,18 to 0,20	/
Ancillary materials	Descriptions in accordance with § 3.2.2.5 of the ETAG 004 Remain under the ETA-holder responsibilities		

1.2.2 Characteristics of the insulation product

Descriptions and characteristics		GUTEX Thermowall/-gf	
Reaction to fire / EN 13501-1		Euroclass E - Thickness: 60 mm to 300 mm - density: 110 kg/m³ to 225 kg/m³	
Thermal resistance ((m².K)/W)		Defined in the CE marking in reference to EN 13171 "Thermal insulation products for buildings" – Factory made wood fibre (WF) products	
Thickness (mm) / EN 823		WF-EN 13171 – T5	
Length (mm) / EN 822		± 2 %	
Width (mm) / EN 822		± 1,5 %	
Squareness (MM) / EN 825		± 5 mm/m	
Dimensional stability under:	Specific temperature and humidity / EN 1604	Thickness $\Delta\epsilon_d$	± 1 %
		Length $\Delta\epsilon_l$	
		Width $\Delta\epsilon_b$	
	Laboratory conditions / EN 1603	Flatness $\Delta\epsilon_s$	1 mm/m
		Thickness $\Delta\epsilon_d$	± 1 %
		Length $\Delta\epsilon_l$	± 0,5 %
Width $\Delta\epsilon_b$			
Water absorption (partial immersion) / EN 1609		≤ 1,0 kg/m²	
Water vapour diffusion resistance factor (μ) / EN 12086		≤ 3	
Tensile strength perpendicular to the faces (kPa) / EN 1607		In dry and in wet condition: ≥ 10 (WF EN 13171 – TR10, TR15 and TR 30)	

1.2.3 Fixings

1.2.3.1 Anchors for insulation products:

Trade name	Plate diameter (mm)	characteristic resistances in the wooden substrate (solid wood)
GUTEX Holzschraube	≥ 60	0,133 kN

If the insulation product is installed on a substrate according to clause 2 the mechanically fixation shall be done through this substrate into the wooden frame construction (solid) with a depth of anchoring of at least 25 mm

1.2.3.2 Clips for insulation products:

Trade name	Plate diameter (mm)	characteristic resistances in the wooden substrate (solid wood)
Breitrückenklammer	---	0,053 kN

If the insulation product is installed on a substrate according to clause 2 the mechanically fixation shall be done through this substrate into the wooden frame construction (solid) with a depth of anchoring of at least 30 mm

1.2.4 Render

The average value of the crack width of the base coat with the glass fibre mesh, measured at a render strain value of 0,8‰ is about 0,1 mm.

1.2.5 Glass fibres meshes

	Alkalies resistance			
	Residual resistance after ageing (N/mm)		Relative residual resistance: % (after ageing) of the strength in the as delivered state	
	Warp	Weft	Warp	Weft
GUTEX Universal-Armierungsgewebe grob with mesh size 6 mm	≥ 20	≥ 20	≥ 50	≥ 50
GUTEX Universal-Armierungsgewebe with mesh size 4 mm	≥ 20	≥ 20	≥ 50	≥ 50

1.3 Manufacturing

The European Technical Assessment is issued for ETICS on the basis of agreed data / information, deposited with the Österreichisches Institut für Bautechnik, which identifies the ETICS that has been assessed and judged. Changes to the ETICS or production process, which could result in this deposited data/information being incorrect, shall be notified to the Österreichisches Institut für Bautechnik before the changes are introduced. The Österreichisches Institut für Bautechnik will decide whether or not such changes affect the ETA and consequently the validity of the CE marking on the basis of the ETA and if so whether further assessment or alterations to the ETA, shall be necessary.

1.4 Design and installation

The installation instructions including special installation techniques and provisions for the qualification of the personnel are given in the manufacturer's technical documentation. Design, installation and execution of ETICS are to be in conformity with national documents. Such documents and the level of their implementation in Member States' legislation are different.

Therefore, the assessment and declaration of performance are done taking into account general assumptions introduced in the EAD 040089-00-0404 "ETICS WITH RENDERINGS FOR THE USE ON TIMBER FRAME BUILDINGS", which summarizes how information introduced in the ETA and related documents is intended to be used in the construction process and gives advice to all parties interested when normative documents are missing.

1.5 Packaging, transport and storage

The information on packaging, transport and storage is given in the manufacturer's technical documentation. It is the responsibility of the manufacturer(s) to ensure that this information is made known to the concerned people.

1.6 Use, maintenance and repair

The finishing coat shall normally be maintained in order to fully preserve the ETICS performance. Maintenance includes at least:

- visual inspection of the ETICS
- the repairing of localized damaged areas due to accidents,
- the aspect maintenance with products adapted and compatible with the ETICS (possibly after washing or ad hoc preparation).

Necessary repairs should be performed as soon as the need has been identified. It is important to be able to carry out maintenance as far as possible using readily available products and equipment, without spoiling appearance. Only products which are compatible with the ETICS shall be used. The information on use, maintenance and repair is given in the manufacturer's technical documentation. It is the responsibility of the manufacturer(s) to ensure that this information is made known to the concerned people.

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

The ETICS are designed to give the timber frame building wall to which they are applied additional thermal insulation and protection from effects of weathering.

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

The surface for the application of ETICS can be a board substrate (wood based panels, solid wood panels, plasterboards, gypsum bonded boards, cement bonded boards, etc).

If the insulation layer of the ETICS is WF according to hEN 13171, the insulation product can also be mounted direct to the timber frame, but it must be guaranteed that penetrating humidity has no effect on the timber frame/second insulation layer.

The ETICS can contribute to the durability of a timber frame building by providing enhanced protection from the effects of weathering.

The board substrate must be suitable for humid conditions as specified in EN 13986.

ETICS are non load-bearing construction elements. They do not contribute directly to the stability of the timber frame building wall on which they are installed. The verification of the structural capacities of the wall and their suitability for the application of ETICS shall be in accordance with ETAG 007 (and its conversion into EAD), clause 5.1 using calculation methods (EN 1995-1-1, Eurocode 5 Part 1-1, etc) as well as verifications by testing (EN 380, EN 594, EN 595, EN 596, etc.) where the load bearing capacity is unable to calculate.

ETICS are not intended to ensure the air tightness of the timber frame building structure. The timber frame building wall as such has therefore to be airtight to:

- a) reduce the thermal transmittance of the wall
- b) avoid interstitial condensation due to convection.

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

3.1 **Reaction to fire**

Configuration according to clause 1.2.1	Maximum declared organic content of the rendering system	Minimum declared flame retardant content of the rendering system	Euroclass acc. to EN 13501-1:2002
GUTEX Thermowall 1	Base coat: 3,1 % Finishing coat: 9,8 %	Base coat: 0 % Finishing coat: 8,8 %	B-s1, d0

Note: A European reference fire scenario has not been laid down for facades. In some Member States, the classification of ETICS according to EN 13501-1: 2002 might not be sufficient for the use in facades. An additional assessment of ETICS according to national provisions (e.g. on the basis of a large scale test) might be necessary to comply with Member State regulations, until the existing European classification system has been completed.

3.2 Water absorption (capillarity test)

- Base coat:
 - Water absorption after 1 hour < 1 kg/m²
 - Water absorption after 24 hours < 0,5 kg/m²
- Rendering system:

		Water absorption after 24 hours	
		< 0,5 kg/m ²	≥ 0,5 kg/m ²
Rendering systems: base coat (including key coat according to clause 1.2.1) + finishing coats indicated hereafter:	GUTEX Silikonputz K/R/MP	X	
	GUTEX Faschenputz	X	
	GUTEX Combi-Silikonharzputz K/R/MP	X	
	GUTEX CombiputzK/R/MP	X	
	GUTEX Silikatputz K/R/MP		X

3.3 Watertightness

3.3.1 Moisture content and gradient

moisture content (% by mass): < 20 (< 15)
 moisture gradient (% by mass): < 3

3.3.2 Hygrothermal behaviour

The hygrothermal performance has been passed without defects

3.3.3 Freeze/thaw resistance

The Freeze/thaw resistance for the combination with GUTEX Silikatputz K/R/MP has been passed without defects.

3.4 Impact resistance

		Single standard layer
Rendering systems: base coat (including key coat according to clause 1.2.1) + finishing coats indicated hereafter:	GUTEX Silikonputz K/R/MP	Category I
	GUTEX Combi-Silikonharzputz K/R/MP	
	GUTEX Faschenputz	Category II
	GUTEX CombiputzK/R/MP	
	GUTEX Silikatputz K/R/MP	

3.5 Water vapour permeability

		Equivalent air thickness (m)
Rendering systems: base coat (including key coat according to clause 1.2.1) + finishing coats indicated hereafter:	GUTEX Silikonputz K/R/MP	≤ 1 m (test result obtained with particle size 2,0 mm: 0,3 m)
	GUTEX Faschenputz	≤ 1 m (test result obtained with particle size 2,0 mm: 0,1 m)
	GUTEX Combi-Silikonharzputz K/R/MP	≤ 1 m (test result obtained with particle size 2,0 mm: 0,2 m)
	GUTEX CombiputzK/R/MP	≤ 1 m (test result obtained with particle size 2,0 mm: 0,1 m)
	GUTEX Silikatputz K/R/MP	≤ 1 m (test result obtained with particle size 2,0 mm: 0,1 m)

3.6 Dangerous substances

According to the manufacturer's declaration "GUTEX Thermowall 1" does not contain dangerous substances detailed in Council Directive 67/548/EEC and Regulation (EC) no 1272/2008 as well as EOTA TR 034 (General ER 3 Checklist for ETAGs/CUAPs/ETAs- Content and/or release of dangerous substances in products/kits), edition March 2012.

A written declaration in this respect was submitted by the ETA-holder.

In addition to the specific clauses relating to dangerous substances contained in this European Technical Assessment, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Regulation, these requirements need also to be complied with, when and where they apply.

3.7 Bond strength between all base coat and insulation product

Conditionings		
Initial state	After the hygrothermal cycles (on the rig)	After the freeze/thaw cycles (on samples)
$\leq 0,08 \text{ MPa}$	$\leq 0,08 \text{ MPa}$ but failure into insulation product	Test not required because freeze/thaw cycles not necessary

3.8 Fixing strength (displacement test)

U_e (displacement corresponding to the elasticity limit) = 2,5 mm

3.9 Wind load resistance

3.9.1 Safety in use of mechanically fixed ETICS using GUTEX Holzschraube

Anchors for which following failure loads apply	Trade name	Sto-Schraubdübel H60
	Plate diameter (mm)	≥ 60
Characteristics of insulation product panels for which the following failure loads apply	Thickness (mm)	≥ 40
	Tensile strength perpendicular to the face (kPa)	≥ 30

3.9.2 Safety in use of mechanically fixed ETICS using clips

Anchors for which following failure loads apply	Trade name	Breitückenklammern
	Plate diameter (mm)	≥ 27
Characteristics of insulation product panels for which the following failure loads apply	Thickness (mm)	≥ 40
	Tensile strength perpendicular to the face (kPa)	≥ 30

3.9.3 Calculation of the wind load resistance of the ETICS R_d

$$R_d = \frac{Q_1 \times C_s \times C_a}{m} = \frac{2,0 \text{ kPa}}{m}$$

$$R_d \geq S_d$$

Where:

- R_d design resistance
- S_d wind load suction
- Q_1 test result (0,609 kN/dowel ... tested at density 110 kg/m³)
- C_s statical correction factor
- C_a geometric factor
- m national safety factor of resistance for normal materials (partial safety factor to be chosen in function of the type of failure which occurred and the ageing of material properties concerned).

The above given loads apply for all anchors if they meet the following criteria:

- plate diameter of anchor ≥ 60 mm
- plate stiffness of anchor $\geq 0,5$ kN/mm
- load resistance of anchor plate $\geq 1,0$ kN

3.10 Thermal resistance

The thermal transmittance of the substrate wall covered by the ETICS is calculated in accordance with the standard EN ISO 6946:

$$U = U_c + \chi_{p,n}$$

Where: $\chi_{p,n}$ has only to be taken into account if it is greater than $0,04$ W/(m²·K)

U: global thermal transmittance of the covered wall (W/ (m²·K))

n: number of anchors (through insulation product) per m²

χ_p : local influence of thermal bridge caused by an anchor. The values listed below can be taken into account if not specified in the anchor's ETA:

= $0,002$ W/K for anchors with a stainless steel screw covered by plastic anchors and for anchors with an air gap at the head of the screw ($\chi_{p,n}$ negligible for $n < 20$)

= $0,004$ W/K for anchors with a galvanized steel screw with the head covered by a plastic material ($\chi_{p,n}$ negligible for $n < 10$)

= negligible for anchors with plastic nails (reinforced or not with glass fibres ...)

U_c : thermal transmittance of the current part of the covered wall (excluding thermal bridges) (W/ (m²·K)) determined as follows:

$$U_c = \frac{1}{R_i + R_{render} + R_{substrate} + R_{se} + R_{si}}$$

Where: R_i : thermal resistance of the insulation product (according to declaration in reference to EN 13163) in (m²·K)/W

R_{render} : thermal resistance of the render (about 0.02 in (m²·K)/W)

$R_{substrate}$: thermal resistance of the substrate of the building in (m²·K)/W

R_{se} : external superficial thermal resistance in (m²·K)/W

R_{si} : internal superficial thermal resistance in (m²·K)/W

The value of thermal resistance of each insulation product shall be given in the Declaration of performance along with the possible range of thicknesses. In addition, the point thermal conductivity of anchors shall be given when anchors are used in the ETICS.

3.11 Airborne sound insulation

Single improvement values determined by testing, ETICS configuration and substrate characteristics for which the values are valid:

Insulation product	Rendering system	ETICS fixing	Substrate description	ETICS performance
Insulation type: WF Range of thickness: 60 to 300 mm maximum dynamic stiffness: NPD air flow resistance: NPD	minimum mass of the rendering system: depending on ETICS-thickness	mechanical fixing type: anchors and clips acc. to clause 1.2 maximum number per m ² : depending on calculation	type: heavy wall - mass per unit: depending on wall construction	$\Delta R_w = \text{NPD}$ $\Delta R_w + C = \text{NPD}$ $\Delta R_w + C_{tr} = \text{NPD}$

3.13 Bond strength after ageing

		after hygrothermal cycles	After freeze/thaw cycles
Rendering systems: base coat (including key coat according to clause 1.2.1) + finishing coats indicated hereafter:	GUTEX Silikonputz K/R/MP	$\leq 0,08 \text{ MPa}$ but failure into insulation product	Test not required because freeze/thaw cycles not necessary
	GUTEX Combi-Silikonharzputz K/R/MP		
	GUTEX Faschenputz		
	GUTEX CombiputzK/R/MP		
	GUTEX Silikatputz K/R/MP		$\leq 0,08 \text{ MPa}$ but failure into insulation product

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

According to the European Commission decision 97/556/EC amended by the the European Commission decision 2001/596/EC, the AVCP systems (further described in Annex V to Regulation (EU) No 305/2011) 1 and 2+ apply.

Product(s)	Intended use(s)	Level(s) or class(es) (Reaction to fire)	System(s)
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 Classes A1 according to Commission Decision 96/603/EC)

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

In order to help the Notified Body to make an evaluation of conformity, the Technical Assessment Body issuing the ETA shall supply the information detailed below. This information together with the requirements given in EC Guidance Paper B will generally form the basis on which the factory production control (FPC) is assessed by the Notified Body.

This information shall initially be prepared or collected by the Technical Assessment Body and shall be agreed with the manufacturer. The following gives guidance on the type of information required:

1) The ETA

Where confidentiality of information is required, this ETA makes reference to the manufacturer's technical documentation which contains such information.

2) Basic manufacturing process

The basic manufacturing process is described in sufficient detail to support the proposed FPC methods.

The different components of ETICS are generally manufactured using conventional techniques. Any critical process or treatment of the components which affects performance are highlighted in the manufacturer's documentation.

3) Product and materials specifications

The manufacturer's documentation includes:

- detailed drawings (possibly including manufacturing tolerances),
- incoming (raw) materials specifications and declarations,
- references to European and/or international standards,
- technical data sheets.

4) Control Plan (as a part of FPC)

The manufacturer and the Österreichisches Institut für Bautechnik have agreed a Control Plan which is deposited with the Österreichisches Institut für Bautechnik in documentation which accompanies the ETA. The Control Plan specifies the type and frequency of checks/tests conducted during production and on the final product. This includes the checks conducted during manufacture on properties that cannot be inspected at a later stage and for checks on the final product.

Products not manufactured by the ETICS manufacturer shall also be tested according to the Control Plan. It must be demonstrated to the Notified Body that the FPC system contains elements securing that the ETICS manufacturer takes products conforming to the Control Plan from his supplier(s).

Where materials/components are not manufactured and tested by the supplier in accordance with agreed methods, then where appropriate they shall be subject to suitable checks/tests by the ETICS manufacturer before acceptance.

In cases where the provisions of the European Technical Assessment and its Control Plan are no longer fulfilled, the Notified Body shall withdraw the certificate and inform the Österreichisches Institut für Bautechnik without delay.

Issued in Vienna, on 16.02.2018

Rainer Mikulits
Managing Director

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