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CPC BELGELENDİRME MUAYENE VE DENEY
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European Technical Assessment

ETA-19/0266 of 15.06.2020

General Part

Technical Assessment Body Issuing the European Technical Assessment: Cpc Belgelendirme Muayene Ve Deney Hizmetleri Ltd. Şti.	
Trade name of the construction product	Tepepan Levha
Product family to which the construction product belongs	External Thermal Insulation Composite Systems with rendering on insulation plaster (Perlite plaster) for the use as external insulation to walls of buildings
Manufacturer	Tepe Betopan Yapı Malzemeleri Sanayi ve Ticaret A.Ş.
Manufacturing plant(s)	Bilkent Beytepe Köyü Yolu No: 5 Çankaya/ANKARA
This European Technical Assessment contains	9 pages including 1 Annex 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	ETAG 004, edition 2013, used as European Assessment Document (EAD)

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

1. Technical description of the product

1.1 General

The External Thermal Insulation Composite System (from now on, referred to as ETICS) TEPEPAN LEVHA is designed and installed in accordance with the manufacturer, design and installation instructions, deposited at the CPC Belgelendirme Muayene ve Deney Hizmetleri.

It is made up on site from these components. The manufacturer is ultimately responsible for the ETICS TEPEPAN LEVHA, which is a bonded system with supplementary mechanical fixings with Insulation Plaster Panel; the minimum number of fasteners per square metres are 6 for Insulation Plaster Panel.

This ETICS comprises the following components, which are factory produced by the manufacturer or a supplier.

1.2 Composition of the kit

Components of "Tepepan Levha"			
Component	Task of the component	Coverage(kg/m^2)	Thickness (mm)
Tepepan group boars	End Plate	11,80-17,70	8-12
Water based acrylic primer	Preparation paint (one coat)	0,11	0-1
Water based acrylic paint	Top coat paint (two coats)	0,22	0-1
L anchor	Carrier anchoring element	2,85	2-3
Aluminum box profile	Carrier, Corner, etc. Ending Profile	0,52	2
Aluminum T profile	Carrier profile	0,856	2
Aluminum L profile	Carrier profile	0,531	2
TPR Fitting+ Stabilizer/ Moving Fastener	Hidden Screwing Elements That Control the Dimensional Motion of Sheets Under Control	0,048	0-1
Stainless Drywall Screw	Fixing Tepepan Boards to Aluminum Profiles	1,75	3,5
AKB Screw(sealed and scaly)	L Anchor and T Profile & L Profile Fixing to Each Other	0,033	4,25
Plastic dowel	Carrier L Anchor Fixing to Concrete on External Wall	0,07	10
Steel dowel	Fixing the carrier L anchor to the materials on the outer wall	0,12	10
Insulation dowel	Fixing the Insulation Material to the Plastered Wall	0,03	10
Mineral Wool-Rockwool	Providing Insulation	4-6,4	50-80
Moisture barrier	Protecting Insulation Material	0,085	0,175
Moisture barrier tape	Closing joints of the moisture barrier	0,025	0,3
Acrylic Paste (for Screw Heads)	Hiding Drywall Screw Head	0,06	0-1

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

This ETICS is intended to be used as external thermal insulation for building walls. The walls are made of masonry (bricks, blocks…), or concrete (cast on site or as prefabricated panels) with a reaction to fire classification A1 to A2-s2,d0 according to EN 13501-1 or A1 according to the EC decision 96/603/EC as amended. The ETICS is designed to give the wall to which is applied satisfactory thermal insulation.

This ETICS is made of non-load bearing construction elements. It does not contribute directly to the stability of the wall on which is installed, but it can contribute its durability by providing enhanced protection from the effect of weathering.

This ETICS can be used on new or existing (retrofit) vertical walls. It can also be used on horizontal or inclined surfaces which are not exposed to precipitation. The ETICS is not intended to ensure the airtightness of the building structure.

Design and installation of ETICS should take into account principles laid down in chapter 7 of ETAG 004 and shall be done in accordance with national instructions. This ETA covers application of bonded ETICS where the concrete for testing of bond strength is representative for masonry or concrete. For bonded applications onto other substrates (e.g. organic paints or ceramic tiles), testing on the job site is necessary. The provisions made in this ETA are based on an assumed working life of 25 years as minimum, provided that the conditions laid down for the installation, appropriate use, maintenance and repair are met. 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 product in relation to the expected economically reasonable working life of the works.

Installation: The ETICS is installed on site. It is the responsibility of the manufacturer to guarantee that the information about design and installation of this ETICS is effectively communicated to the concerned people. This information can be given using reproductions of the respective parts of this ETA. Besides, all the data concerning the execution shall be clearly indicated on the packaging and/or the enclosed instruction sheets using one or several illustrations.

The wall on which the ETICS is applied shall be sufficiently stable and airtight. Its stiffness shall be large enough to ensure that ETICS is not subjected to deformations, which could lead to damage. The requirements given in ETAG 004, chapter 7 have to be considered.

Design: In any case, the user shall comply with the national regulations and particularly concerning fires and wind load resistance. Only the components described in clause 1 with characteristics according to clause 3 of this ETA can be used for this ETICS.

The works including the details (connection, joint,.) shall be designed in order to avoid water penetration behind the system. The minimal surface area for the bonded ETICS, and the method of bonding shall comply with the characteristics of the ETICS as well as the national regulations. In any case, the minimal surface shall be at least 40 % for insulation plaster.

Execution: The recognition and preparation of the substrate as well as the generalities about the execution of the ETICS shall be carried out in compliance with:

- Chapter 7 of the ETAG. 004, with imperative removal of any existing paint finish or renders which may difficult the bond resistance of the system.
- Corresponding national regulations.

The particularities in execution linked to the method of bonding/ mechanically fixings and the application of the rendering system shall be handled in accordance with manufacturer prescriptions. In particular it is suitable to comply with the quantities of rendering applied, the thickness regularity and the drying periods between layers.

Use, maintenance and repair of the work: It is accepted that the finishing coats shall normally be maintained in order to fully preserve the system's performance. Maintenance will include at least:

- The repairing of localised damaged areas due to accidents
- The application of various products or paints, possibly after washing or "ad hoc" preparation.

Necessary repairs should be done rapidly. It is important to be able to carry out maintenance as far as possible using readily available products and equipment, without spoiling appearance.

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

The identification tests and the assessment for the intended use of this ETICS according to the Essential Requirements were carried out in compliance with the ETA Guidance n. 004: External Thermal Insulation Composite Systems with Rendering- edition February 2013 (called ETAG 004, in this ETA).

3.1 ETICS Characteristics

3.1.1. Mechanical resistance and stability (BWR 1): No relevant.

3.1.2. Safety in case of fire ((BWR 2): (EN 13501-1). Fire reaction (EN 13501-1).

ETICS System		
Test according to	**Parameters**	**Tepepan Levha Mean Value**
EN 13501-1:2007+A1:2009	Reaction to fire	A2

3.1.3. Hygiene, health and environment (BWR 3)

3.1.3.1. Water absorption

Base coat (on insulation plaster)	**After 1 h**	**After 24 h**
	< 1kg/m^2	<0.5 kg/m^2

Rendering systems: (on insulation plaster) base coat + finishing coats	**After 1 h**	**After 24 h**
	< 1kg/m^2	<0.5 kg/m^2

3.1.3.2. Hygrothermal behaviour: It has been assessed on a rig. During heat rain and heat – cold cycles, none of the following defects occurs during testing: Blistering or peeling of any finishing; Failure or cracking associated with joints between insulation product boards or profiles fitted with system; Detachment of render and cracking allowing water penetration to the insulation layer.
This system is therefore assessed as resistant to hygrothermal cycles.

3.1.3.3. Freeze / thaw behaviour: The water absorption of the base coat and of rendering system is less than 0.5 kg/m2 after 24 hours and so the system can be assessed as freeze/thaw resistant without any further testing.

3.1.3.4. Impact resistance: The resistance to hard body impacts (3 and 10 Joules) tests carried out on samples of systems compositions lead to the following categories:

Insulation + Base coat + internal mesh + following finishing coats	**3 Joules**	**10 Joules**
	Category I	Category I

3.1.3.5. Dangerous substances: This system complies with the provisions of Guidance Paper H(1). A declaration of conformity in this respect was made by the manufacturer. In addition to the specific clauses relating to dangerous substances contained in this ETA, there may be other requirements applicable to the ETICS falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Regulations 305/11, these requirements need also to be complied with, when and where apply.

3.1.3.6. Water vapour permeability

Rendering systems: (on insulation plaster) base coat + finishing coats	**Equivalent air thickness**
	≤ 1 m

3.1.4. Safety in use (BWR 4)

3.1.4.1. Bond strength: Base coat onto insulation board. The tests were performed on samples of insulation plaster boards faced with base coat. In all cases, breakage location was 100% on insulation on insulation plaster boards.

Base coat onto insulation board (MPa)		
Initial state	**Immersion 48 h and 2 h drying (23 °C/50 % RH)**	**Immersion 48 h and 7 d drying (23 °C/50 % RH)**
≥ 0,08 MPa	≥ 0,03 MPa	≥ 0,08 MPa

3.1.4.2. Bond strength: Adhesive onto insulation board. The tests were performed on samples of EPS and XPS insulation boards faced with base coat. In all cases, breakage location was 100% on insulation on insulation plaster boards.

Adhesive onto insulation board (MPa)		
Initial state	**Immersion 48 h and 2 h drying (23 °C/50 % RH)**	**Immersion 48 h and 7 d drying (23 °C/50 % RH)**
≥ 0,08 MPa	≥ 0,03 MPa	≥ 0,08 MPa

3.1.4.3. Bond strength: Adhesive onto concrete.

Adhesive onto concrete (MPa)		
Initial state	**Immersion 48 h and 2 h drying (23 °C/50 % RH)**	**Immersion 48 h and 7 d drying (23 °C/50 % RH)**
≥ 0,08 MPa	≥ 0,08 MPa	≥ 0,08 MPa

3.1.4.4. Bond strength: Bond Aging Analysis After Aging

Product	Adhesive onto concrete (MPa)
TEPEPAN LEVHA	≥ 0,25

3.1.4.5. Wind load resistance

The following values only apply for the combination (anchor plate characteristics) / (insulation product characteristics) mentioned in this table. All anchors which will be used are shown in the control plan and the declaration of performance.

Test Sample	Conditioning Condition	Sample No	Breaking Load	Evaluation
8 mm Tepepan	Control	1	771,2	
		2	774,8	Minimum
		3	752,3	**752,3 N**
		4	761,7	Average
		5	758,9	**763,8±8,2 N**
		Mean Value	**763,8**	
		Standard deviation	**± 8,2**	

Test Sample	Conditioning Condition	Sample No	Breaking Load	Evaluation
8 mm Tepepan	Soaked in water for 24 hours	1	703,6	
		2	710,2	Minimum
		3	713,3	**703,6 N**
		4	708,4	Average
		5	705,7	**708,8±3,4 N**
		Mean Value	**708,2**	
		Standard deviation	**± 3,4**	

Test Sample	Conditioning Condition	Sample No	Breaking Load	Evaluation
10 mm Tepepan	Control	1 2 3 4 5 Mean Value Standard deviation	841,2 828,8 832,7 837,9 836,4 **835,4** **± 4,3**	Minimum **828,8 N** Average **835,4±4,3 N**

Test Sample	Conditioning Condition	Sample No	Breaking Load	Evaluation
10 mm Tepepan	Soaked in water for 24 hours	1 2 3 4 5 Mean Value Standard deviation	812 783 804 792 797 **797,6** **± 9,9**	Minimum **783 N** Average **797,6±9,9 N**

Test Sample	Conditioning Condition	Sample No	Breaking Load	Evaluation
12 mm Tepepan	Control	1 2 3 4 5 Mean Value Standard deviation	868,2 855,3 871,1 870,3 857,8 **864,5** **± 6,6**	Minimum **855,3 N** Average **864,5±6,6 N**

Test Sample	Conditioning Condition	Sample No	Breaking Load	Evaluation
12 mm Tepepan	Soaked in water for 24 hours	1 2 3 4 5 Mean Value Standard deviation	839,2 841,4 826,4 829,7 830,3 **833,4** **± 5,8**	Minimum **826,4N** Average **833,4±5,8 N**

3.1.4.6. Displacement test of the fasteners: No Performance Assessed, since the bonded area exceeds 20 %

3.1.5. Protection against noise (BWR 5): No Performance Assessed.

3.1.6. Energy economy and heat retention (BWR 6): Thermal resistance. The additional thermal resistance RETICS provided by the ETICS to the substrate wall is calculated in accordance with EN ISO 6946

from the nominal value of the insulation product´s thermal resistance RD given accompanied to the CE marking and from the thermal resistance of the rendering system R_{render} which is about 0,02 m²K/W.

$$R_{ETICS} = R_D + R_{render}$$

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:

$$U_c = U + \Delta U \ (W/m^2K),$$

Uc: Corrected thermal transmittance (W/(m².K)) of the entire wall,, including thermal bridges.
U: thermal transmittance of the entire wall, including ETICS, without thermal bridges) (W/(m².K):

$$U = 1/R_i + R_{render} + R_{substrate} + R_{se} + R_{si}$$

Ri: thermal resistance of the insulation product // Rrender: thermal resistance of the render (about 0,02 (m².K)/W).//Rsubstrate: thermal resistance of the substrate of the building (concrete, brick…)((m².K)/W) // Rse: external superficial thermal resistance ((m².K)/W). // Rsi: internal superficial thermal resistance ((m².K)/W).

3.1.7. Aspect of durability and serviceability (BWR 7):

3.1.7.1. Bond strength of the system after ageing: In all cases, breakage location was 100% on insulation on insulation plaster boards.

Product	Adhesive onto concrete (MPa)
TEPEPAN LEVHA	≥ 0,25

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

System of attestation of conformity: According to the decision 97/556/EC of the European Commission (2) amended by 2001/596/EC (3) the system of assessment and verification of constancy of performance (see Annex V to Regulation (EU) nº 305/2011) given in the following table applies.

Product	Intended uses	Level or Classes	System
TEPEPAN LEVHA	External Thermal Insulation Composite System with rendering for use on building walls	Any	2+

This system of attestation of conformity +2 is defined as follows;
Tasks for the manufacturer: Initial type-testing of the product, Factory production control and Testing of samples taken at the factory in accordance with a prescribed test plan.
Tasks for the notified body: Certification of factory production control on the basis of:

- Initial inspection of factory and of factory production control.
- Continuous surveillance (annual), assessment and assessment of factory production control.

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

The ETA is issued for this kit on the basis of agreed data/information, deposited at CPC, which identifies the product that has been assessed and judged. It is the manufacturer's responsibility to make sure that all those who use the kit are appropriately informed of specific conditions according to sections 1, 2, 4 and 5 including the annexes of this ETA. Changes to the ETICS or the components or their production process, should be notified to the CPC before the changes are introduced. CPC will decide whether or not such changes affect the ETA and if so whether further assessment or alterations to the ETA shall be necessary.

Tasks of the manufacturer

Factory production control: The manufacturer shall exercise permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a

systematic manner in the form of written policies and procedures, including records of results performed. This production control system shall ensure that the product is in conformity with this ETA.
The manufacturer may only use components stated in the technical documentation of this ETA including Control Plan. The incoming raw materials are subjected to verifications by the manufacturer before acceptance.
For the components of the ETICS which the manufacturer does not manufacture by himself, he shall make sure that factory production control carried out by the other manufacturers gives the guarantee of the components compliance with the ETA.
The factory production control shall be in accordance with the Control Plan(4) which is part of the Technical Documentation of this ETA. The Control Plan has been agreed between the manufacturer and the CPC and is laid down in the context of the factory production control system operated by the manufacturer and deposited at the CPC. The results of factory production control shall be recorded and evaluated in accordance with the provisions of the Control Plan.
Initial type-testing of the produc: Initial type-testing carried out by the CPC is that set out in chapter 5 of the guideline for External Thermal Insulation Composite System with rendering for use on building walls (ETAG 004). The CPC assessed the results of these tests in accordance with chapter 6 of this Guide, as part of the ETA issuing procedure.
The verifications underlying this ETA have been furnished on samples from the current production; these will replace the initial type-testing carried. After changing the production process or starting the production in another manufacturing plant the initial type-test shall be repeated.
Other tasks of manufacturer: The manufacturer shall, on the basis of a contract, involve a body which is notified for the tasks referred to in section 4 in the field of ETICS in order to undertake the actions laid down in this clause. For this purpose, the control plan shall be handed over by the manufacturer to the notified bodies involved.
For initial type - testing of the ETICS and the components the results of the tests performed as part of the assessment for the ETA shall be used unless there are changes in the production line or plant. In such cases the necessary initial type- testing has to be agreed with the CPC.
The manufacturer shall make a declaration of conformity, stating that the ETICS is in conformity with the provisions of this ETA.
Tasks of notified bodies.
The notified body shall perform:
Initial inspection of factory and of factory production control: The Notified Body shall ascertain that, in accordance with the Control Plan, the factory (in particular the employees and the equipment) and the factory production control are suitable to ensure continuous and orderly manufacturing of the components according to the specifications mentioned in clause 2 of this ETA.
Continuous surveillance, assessment and assessment of factory production control, in accordance with the provisions laid down in the control plan, at least one per year.
The notified body shall retain the essential points of its actions referred to above and state the results obtained and conclusions drawn in a written report. The notified certification body involved by the manufacturer shall issue an EC Certificate of factory production control stating the conformity of the provisions of this ETA.
In cases where the provisions of the ETA and its control plan are no longer fulfilled the notified certification body shall withdraw the certificate of conformity and inform to CPC without delay.

Issued in Ankara on 15.06.2020
By
UĞUR GEDİK
General Manager

Annex
Product Drawings