Evidence of Performance

Calculation of Thermal Transmittance

Test Report
No. 19-004609-PR01
(PB-H07-06-en-01)

Client

VASILIKI GAVRIILIDOU
MAZARAKI 1
64200 CHRISOUPOLI
Greece

Product Panels

Designation: -/-

Performance-relevant product details: Thickness in mm 90 / 75; Construction in mm 3/22/22/22/19/2, 3/20/20/30/2; Face layer; Material Aluminium (Si-Aloying); Inlay; Material XPS "XPS 200 novablok PANEL P"; Thermal conductivity in W/(m K) 0.033

Special features:

Results

Calculation of thermal transmittance according to EN ISO 6946:2017-07

U_p = 0.36 W/(m²K) to 0.44 W/(m²K)

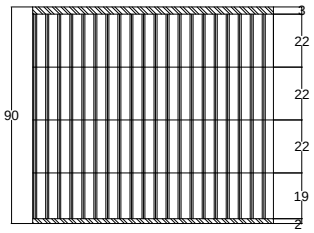
Basis *)

EN ISO 6946:2017-07

*) Correspond/s to the national standard/s (e.g. DIN EN)

Representation

Test specimen -01



Further drawings see annex.

Instructions for use

The results obtained can be used as evidence in accordance with the above basis.

Validity

The data and results given relate solely to the tested and described specimen. This test does not allow any statement to be made on further characteristics of the present structure regarding performance and quality.

Notes on publication

The ift-Guidance Sheet "Conditions and Guidance for the Use of ift Test Documents" applies. The cover sheet can be used as abstract.

Contents

The report contains a total of 5 page/s and annex (1 page).

ift Rosenheim
21.11.2019

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1 Object

1.1 Description of test specimen

Panel

Manufacturer	VASILIKI GAVRIILIDOU, GR - CHRISOUPOLI
System designation	-/-
Thickness in mm	90 / 75
Construction in mm	3/22/22/22/19/2 3/20/20/30/2

Face layer

Material	Aluminium (Si-Aloying)

Inlay

Material	XPS “XPS 200 novablok PANEL P”
Thickness in mm	85 / 70
Thermal conductivity in W/(m K)	0.033

The description is based on specifications provided by the client and on inspection of the test specimen at the **ift.** (Item designations/ numbers as well as material specifications were provided by the client, unless designated as „***ift**-tested*“.)

Test specimen are described in the annex "Product/Sample description".

1.2 Sampling

The following data for sampling have been presented to **ift**:

Sampler: VASILIKI GAVRIILIDOU, 64200 CHRISOUPOLI (Greece)
Date: 21.11.2019
Documentation: ift Rosenheim did not receive a sampling report.
ift-test specimen-No.:19-004609-PK01

2 Procedure

2.1 Basic documents *) of the processes

EN ISO 6946:2017-07
Building components and building elements - Thermal resistance and thermal transmittance - Calculation method

*) correspond/s to the national standard/s, e.g. DIN EN

2.2 Short description of process

Calculation of the thermal transmittance U_p
The thermal transmittance of a panel with several homogeneous layers, lying in a row, is calculated from the inverse of the sum of the thermal resistance of the individual layers and the internal and external surface resistance.

3 Detailed results

Calculation of the thermal transmittance

Project No.	19-004609-PR01	**Process No.**	19-004609
Basis	EN ISO 6946:2017-07 Building components and building elements - Thermal resistance and thermal transmittance - Calculation method		
Test equipment used	Sim/020841 - ift calculation program		
Test specimen	Panels		
Test specimen No.	19-004609-PK01		
Date of test	21.11.2019		
Testing personnel in charge	Till Stübben		
Testing personnel	Till Stübben		

Information on test setup / test specimen

Test method/s There have been no deviations from the test method/s set out by the standards/basis.

Determination of thermal transmittance of a panel U_p

The heat transfer coefficient is derived from the general formula:

$$U_p = \frac{1}{R_T} = \frac{1}{R_{si} + \frac{d_1}{\lambda_1} + \frac{d_2}{\lambda_2} + \ldots + R_{se}}$$

	Definition	Einheit
U_p	thermal transmittance coefficient	W/(m²K)
R_{si}	internal heat transfer resistance	(m²K)/W
d	layer thickness	m
λ	specific thermal conductivity of the layer	W/(mK)
R_{se}	external heat transfer resistance	(m²K)/W

Layer	d_i	λ_i	R_i	Material	Source [1]
internal			0,13	Thermal heat flow direction - horizontal	
1	0,003	160		Aluminium (Si-Aloying)	-/-
2	0,022	0,033		XPS "XPS 200 novablok PANEL P"	client [2]
3	0,022	0,033		XPS "XPS 200 novablok PANEL P"	client [2]
4	0,022	0,033		XPS "XPS 200 novablok PANEL P"	client [2]
5	0,019	0,033		XPS "XPS 200 novablok PANEL P"	client [2]
6	0,002	160		Aluminium (Si-Aloying)	-/-
external			0,04	Thermal heat flow direction - horizontal	

Unless stated otherwise, data originate form standards EN ISO 10456 and EN ISO 10077-2.
[1] The emissivity of low emitting layers must be taken to ensure through a factory production control.
[2] Confirmation of thermal conductivity by declaration of performance (deposited at ift) - according standards without addition

Total thickness: d = 0,090 m
Heat transfer resistance: R_T = 2,746 (m² K)/W

Test result

Calculated thermal transmittance: **Sp-No.01** **U_p= 0,36 W/(m² K)**

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Layer	d_i	λ_i	R_i	Material	Source [1]
internal			0,13	Thermal heat flow direction - horizontal	
1	0,003	160		Aluminium (Si-Aloying)	-/-
2	0,020	0,033		XPS "XPS 200 novablok PANEL P"	client [2]
3	0,020	0,033		XPS "XPS 200 novablok PANEL P"	client [2]
4	0,030	0,033		XPS "XPS 200 novablok PANEL P"	client [2]
5	0,002	160		Aluminium (Si-Aloying)	-/-
external			0,04	Thermal heat flow direction - horizontal	

Unless stated otherwise, data originate form standards EN ISO 10456 and EN ISO 10077-2.
[1] The emissivity of low emitting layers must be taken to ensure through a factory production control.
[2] Confirmation of thermal conductivity by declaration of performance (deposited at ift) - according standards without addition

Total thickness: d = 0,075 m
Heat transfer resistance: R_T = 2,291 (m² K)/W

Test result

Calculated thermal transmittance: **Sp-No.02** U_p= **0,44 W/(m² K)**

Remark:
According to EN ISO 6946 the Up-value has to be declared with 2 decimales.

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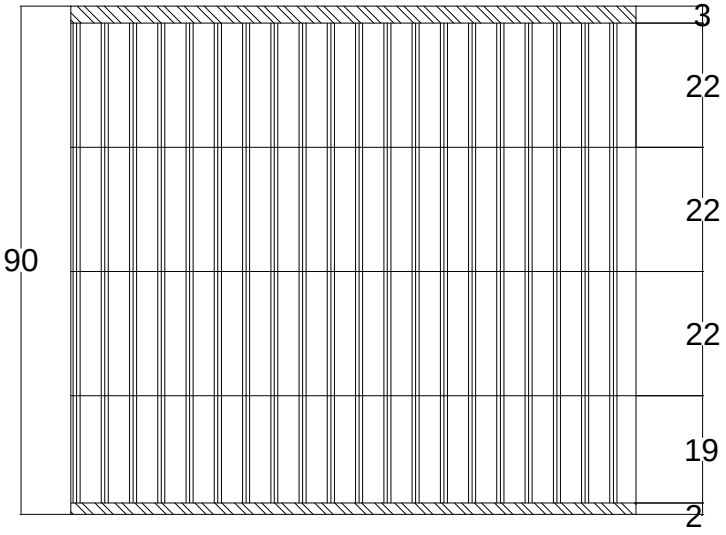

Fig. 1: Cross section test specimen -01

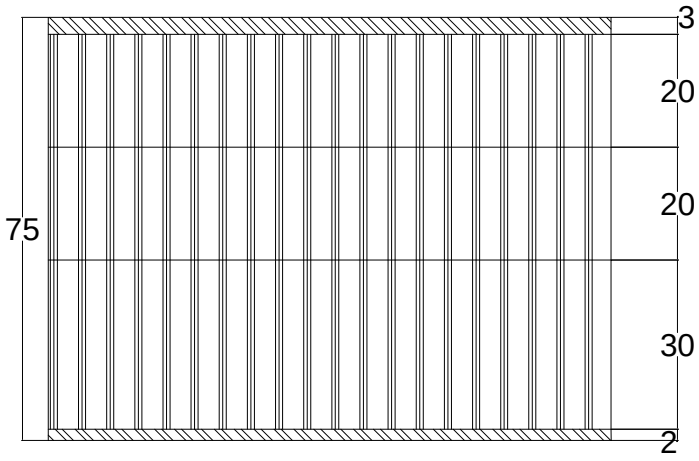

Fig. 2: Cross section test specimen -02