

**Determination of installed thermal resistance into a roof and into a wall of  
ATI COMBI PRO LIN according to EN ISO 6946:2017**

(test name)

Test method: Determination of installed thermal resistance into a roof and into a wall according to EN ISO 6946:2017  
(number of normative document or test method, description of test procedure, test uncertainty)

Product name: ATI COMBI PRO LIN  
(identification of the specimen)

Customer: SAS ATI FRANCE, 146 Avenue du Bicentenaire – FR-01120 Dagneux, France  
(name and address of enterprise)

Manufacturer: SAS ATI FRANCE, 146 Avenue du Bicentenaire – FR-01120 Dagneux, France

**Calculation results:**

Roof slope angle, $\alpha$	Calculation method reference no.	Calculation result, $R$ , ( $\text{m}^2 \cdot \text{K} / \text{W}$ )
Flat roof ( $\alpha = 0^\circ$ )	EN ISO 6946:2017	6.17
Pitched roof ( $\alpha = 30^\circ$ )		6.18
Pitched roof ( $\alpha = 45^\circ$ )		6.19
Wall ( $\alpha = 90^\circ$ )		6.22

*R value for others pitched sloop (different  $\alpha$  value) can be determined by linear interpolation between two calculated R values*

**Calculation**

made by: Building Physics Laboratory, Institute of Architecture and Construction of Kaunas University of Technology  
(Name of the organization)

Products used in calculation: Ventilated air layer (external surface resistance  $R_{se}$ ).  
Multilayer reflective insulation product **ATI PRO LIN-3** (test report no. 138 SF/23 U). Emissivity of ATI PRO LIN-3 upper surface  $\varepsilon = 0.85^*$ ; lower surface  $\varepsilon = 0.15^*$ ;  
Multilayer reflective insulation product **ATI PRO PREMIUM** (test report no. 106 SF/23 U). Emissivity of ATI PRO PREMIUM upper surface  $\varepsilon = 0.10^*$ ; lower surface  $\varepsilon = 0.10^*$ ;  
\* Declared by the manufacturer

Additional information: Application, 2023-09-20

Annex: Annex 1. Calculation results

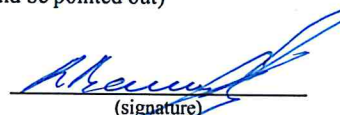
(the numbers of the annexes should be pointed out)

Head of Laboratory:

(approves the test results)

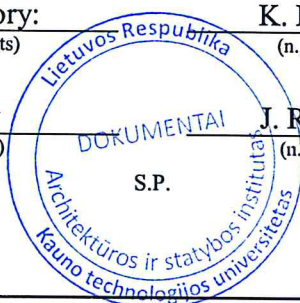
K. Banionis

(n., surname)

  
(signature)

Calculated by

(calculation made by)



J. Ramanauskas

(n., surname)

  
(signature)

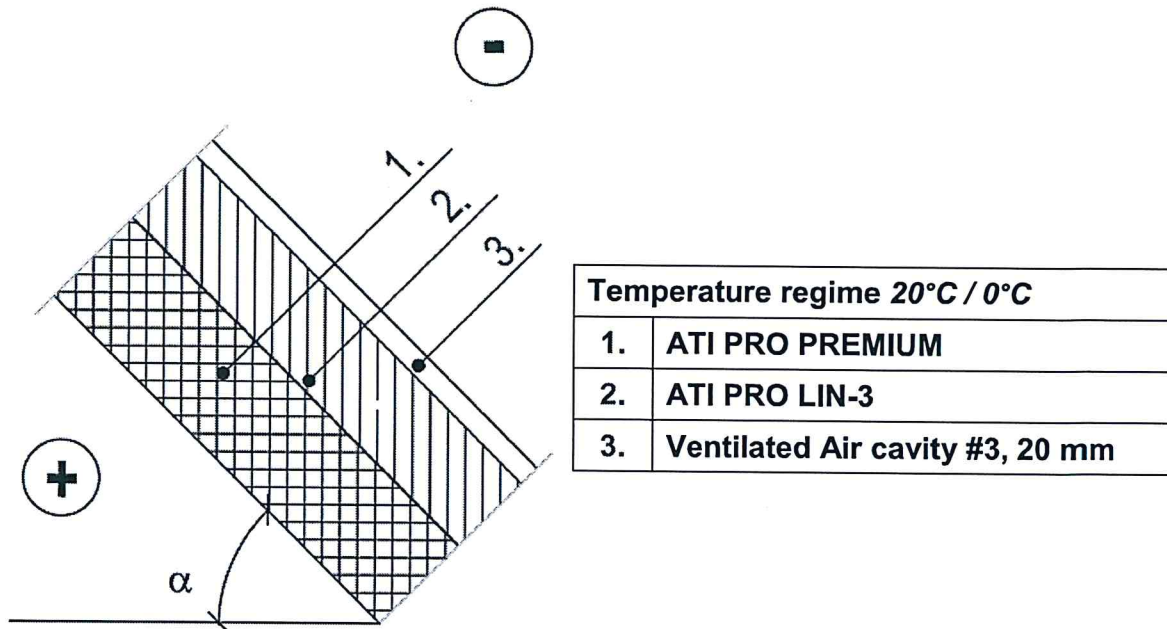
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**Annex 1: Calculation results**

**Table 1: Products R- values**

Product	Thermal resistance R, (m <sup>2</sup> ·K)/W
ATI PRO LIN-3 (test report n° 138 SF/23 U)	<b>R<sub>core90/90</sub> = 2.54</b>
ATI PRO PREMIUM (test report n°. 106 SF/23 U)	<b>R<sub>core90/90</sub> = 3.52</b>

*"R<sub>core90/90</sub>" is the declared R core value following EN 16012 + A1.  
"R<sub>core90/90</sub>" is calculated on 4 results of 4 samples came from 4 different fabrication dates following EN 16012 + A1 (and using the fractile 90/90 calculation rules  $S_{R-prod} = \sqrt{\frac{\sum(R_i - R_{average})^2}{n-1}}$ );*



**Figure 1. Roof construction design**

**Table 2: Roof construction calculation results for slope  $\alpha = 0^\circ$  (EN ISO 6946)**

ATI COMBI PRO LIN installed on roof			
Angle: $\alpha = 0^\circ$	Layer	R value	Unit
Ascendant Heat Flux (Winter period)	ATI PRO PREMIUM	3.52	m <sup>2</sup> ·K/W
	ATI PRO LIN-3	2.54	m <sup>2</sup> ·K/W
	Ventilated Air cavity # 3 (the thermal resistance of external surface $R_{se}$ )	0.1119	m <sup>2</sup> ·K/W
	<b>R<sub>Total</sub></b>	<b>6.17</b>	<b>m<sup>2</sup>·K/W</b>

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**Table 3: Roof construction calculation results for slope  $\alpha = 30^\circ$  (EN ISO 6946)**

ATI COMBI PRO LIN installed on roof			
Angle: $\alpha = 30^\circ$	Layer	R value	Unit
Ascendant Heat Flux (Winter period)	ATI PRO PREMIUM	3.52	m <sup>2</sup> ·K/W
	ATI PRO LIN-3	2.54	m <sup>2</sup> ·K/W
	Ventilated Air cavity # 3 (the thermal resistance of external surface $R_{se}$ )	0.1229	m <sup>2</sup> ·K/W
	<b>R<sub>Total</sub></b>	<b>6.18</b>	<b>m<sup>2</sup>·K/W</b>

**Table 2: Roof construction calculation results for slope  $\alpha = 45^\circ$  (EN ISO 6946)**

ATI COMBI PRO LIN installed on roof			
Angle: $\alpha = 45^\circ$	Layer	R value	Unit
Ascendant Heat Flux (Winter period)	ATI PRO PREMIUM	3.52	m <sup>2</sup> ·K/W
	ATI PRO LIN-3	2.54	m <sup>2</sup> ·K/W
	Ventilated Air cavity # 3 (the thermal resistance of external surface $R_{se}$ )	0.1293	m <sup>2</sup> ·K/W
	<b>R<sub>Total</sub></b>	<b>6.19</b>	<b>m<sup>2</sup>·K/W</b>

**Table 3: Wall construction calculation results for slope  $\alpha = 90^\circ$  (EN ISO 6946)**

ATI COMBI PRO LIN installed on wall			
Angle: $\alpha = 90^\circ$	Layer	R value	Unit
Ascendant Heat Flux (Winter period)	ATI PRO PREMIUM	3.52	m <sup>2</sup> ·K/W
	ATI PRO LIN-3	2.54	m <sup>2</sup> ·K/W
	Ventilated Air cavity # 3 (the thermal resistance of external surface $R_{se}$ )	0.1554	m <sup>2</sup> ·K/W
	<b>R<sub>Total</sub></b>	<b>6.22</b>	<b>m<sup>2</sup>·K/W</b>

**Requirements for calculation validity:**

- Calculations of R values are valid for a pitched roof ( $\alpha$  is generally from 0° to 90°).
- Calculations of R values are valid when ATI PRO is installed in agreement with the installation guidelines described into the manufacturer brochure.

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