

**Determination of installed thermal resistance into a roof and into a wall of  
MIX PR 80 according to EN ISO 6946:2017**

(test name)

Test method: Determination of installed thermal resistance into a roof and into a wall of ATI MIX Fibre de bois 100 / ATI MIX GPE according to EN ISO 6946:2017

(number of normative document or test method, description of test procedure, test uncertainty)

Product name: ATI MIX Fibre de bois 100 / ATI MIX GPE

(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, $R$ , (m <sup>2</sup> ·K)/W
Pitched roof ( $\alpha = 45^\circ$ )	EN ISO 6946:2017	<b>6.04</b>
Wall ( $\alpha = 90^\circ$ )		<b>6.27</b>

*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 **TECH PRO** (test report no. 244 SF/22 U).  
Emissivity of TECH PRO upper surface  $\varepsilon = 0.25^*$ ; lower surface  $\varepsilon = 0.60^*$ ;  
Unventilated air layer 20 mm;  
Wood fiber 100 mm. Thermal resistance  **$R = 2.60$  m<sup>2</sup>·K/W \***;  
TECH VAP + (reflective vapour barrier). Emissivity of TECH VAP+  $\varepsilon = 0.05^*$ ;  
Unventilated air layer 20 mm.  
\* Declared by the manufacturer

Additional information: Application, 2022-10-17

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)

Calculated by

(calculation made by)

J. Ramanauskas

(n., surname)

(signature)

(signature)

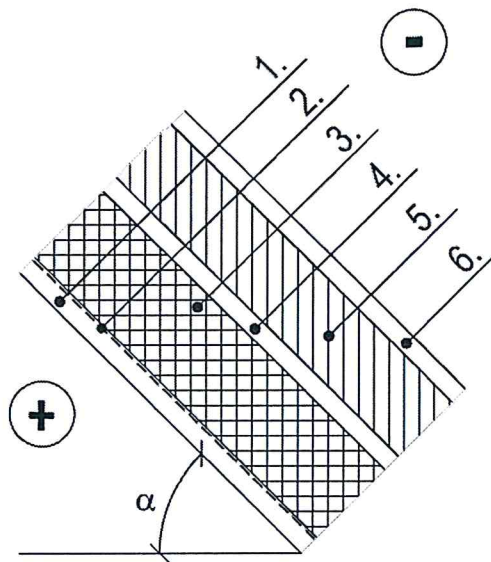
Validity – the named data and results refer exclusively to the tested and described specimens.

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**Annex 1: Calculation results**

**Table 1: Products R- values**

Product	Thermal resistance R, (m <sup>2</sup> ·K)/W
TECH PRO (test report n° 244 SF/22 U)	<b>R<sub>core90/90</sub> = 2.50</b>
<p>"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 <math>S_{R-prod} = \sqrt{\frac{\sum(R_i - R_{average})^2}{n-1}}</math>).</p>	



Temperature regime 20°C / 0°C	
1.	Unventilated Air cavity #1, 20 mm
2.	Tech Vap + (reflective vapor barrier)
3.	Wood fiber, 100 mm
4.	Unventilated Air cavity #2, 20 mm
5.	TECH PRO, 80 mm
6.	Ventilated Air cavity #3, 20 mm

**Figure 1. Roof construction design**

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

ATI MIX Fibre de bois 100 installed on roof			
Angle: $\alpha = 45^\circ$	Layer	R value	Unit
Ascendant Heat Flux (Winter period)	Unventilated Air cavity # 1	0.5316	m <sup>2</sup> ·K/W
	Wood fiber	2.60	m <sup>2</sup> ·K/W
	Unventilated Air cavity # 2	0.2232	m <sup>2</sup> ·K/W
	TECH PRO	2.50	m <sup>2</sup> ·K/W
	Ventilated Air cavity # 3 (the thermal resistance of external surface R <sub>se</sub> )	0.1864	m <sup>2</sup> ·K/W
	<b>R<sub>Total</sub></b>	<b>6.04</b>	<b>m<sup>2</sup>·K/W</b>

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

ATI MIX Fibre de bois 100 installed on wall			
Angle: $\alpha = 90^\circ$	Layer	R value	Unit
Ascendant Heat Flux (Winter period)	Unventilated Air cavity # 1	0.6531	m <sup>2</sup> ·K/W
	<b>Wood fiber</b>	2.60	m <sup>2</sup> ·K/W
	Unventilated Air cavity # 2	0.2421	m <sup>2</sup> ·K/W
	<b>TECH PRO</b>	2.50	m <sup>2</sup> ·K/W
	Ventilated Air cavity # 3 (the thermal resistance of external surface $R_{se}$ )	0.2729	m <sup>2</sup> ·K/W
	<b>R<sub>Total</sub></b>	<b>6.27</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 30° to 90°).
- Calculations of R values are valid when TECH PRO is installed in agreement with the installation guidelines described into the manufacturer brochure.

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