



BUILDING RESEARCH INSTITUTE - CERTIFICATION COMPANY Ltd.
 Authorized Body 227 Notified Body 1516 Certification Body for QMS, EMS, EnMS, OHSAS and ISMS
 Certification Body for Products, Qualification, EPD and Quality Buildings Testing Laboratory Expert Institute

ISSUES

CERTIFICATE

No. **OV-15-0298**

Producer: **THERMO INDUSTRY, a.s.** ID: 287 81 481
 Na Spravedlnosti 1533
 530 02 Pardubice

Product: **AERO-THERM®**

Intended use: Adjustment of external and internal building construction surfaces

This is to certify the effect of particular material property and low spectral emissivity, namely the higher spectral reflectance of screed AERO-THERM® forming the internal surface of building constructions for energy consumption for heating in relation with the value of design heat loss by heat transmission of internal space of experimental object determined according ČSN EN 12831 Heating systems in buildings – Method for calculation of the design heat load, for heating with source with prevailing conventional element, with maintenance of thermal comfort in heated space.

Design parameters of heated space according ČSN EN 12831 determined for average values of measured parameters of external and internal for the monitored and evaluated period.

Design heat transmission load of heated space **155 W**
 and corresponding design energy for evaluated period **18,6 kWh**

Heat load of conventional source of heat measured for monitored, evaluated period:

- reference object with internal screed without particular material property 20,0 kWh
 and corresponding design heat transmission load **167 W**
- identical object with internal screed AERO-THERM® 12,3 kWh
 and corresponding design heat transmission load **103 W**

This is to certify, that for below mentioned parameters of external and internal space, the reduction of design heat transmission load through the external constructions according ČSN EN 12831 can be possible for the achievement of parameters of thermal comfort in internal space by conventional heat source up to 26 %.

Average parameters of external and internal space for the monitored and evaluated period:
 external air temperature $\bar{\theta}_{e,ext} = 15,7^{\circ}\text{C}$, where $\bar{\theta}_{e,ext} = 7^{\circ}\text{C}$, $\bar{\theta}_{e,ext} = 28,2^{\circ}\text{C}$
 internal air temperature of heated space of reference object $\bar{\theta}_{i,ref} = 21,7^{\circ}\text{C}$, object with AERO-THERM® $\bar{\theta}_{i,obj} = 21,4^{\circ}\text{C}$
 operative temperature 1100 mm above the floor of reference object $\bar{\theta}_{o,ref} = 22,1^{\circ}\text{C}$, object with AERO-THERM® $\bar{\theta}_{o,obj} = 21,5^{\circ}\text{C}$

This certificate has been issued in frame of research project of producer THERMO INDUSTRY, a.s. The effect of thermoactive screed AERO-THERM® on thermal protection of buildings: Results of measurement of thermal behavior of experimental object with internal surface adjustment by thermoactive screed AERO-THERM® and reference object, are shown in research report no. Z-15-004 from 26 August 2015 issued by Výzkumný ústav pozemních staveb - Certifikační společnost, s.r.o.


The integral part of this certificate is the annex showing the geometrical and thermal and technical parameters of constructions and objects.

Prague, 26 August 2015


Ing. Lubomír Keim, CSc.
 director of company

Výzkumný ústav pozemních staveb
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Annex to certificate no. OV - 15 - 0298

Producer: **THERMO INDUSTRY, a.s.** ID: 287 81 481
 Na Spravedlnosti 1533, 530 02 Pardubice

Product: **AERO-THERM®**

Intended use: Adjustment of external and internal building construction surfaces

Annex mentions the geometrical and thermal and technical parameters of objects, where has been performed the monitoring of effect of thermoactive screed AERO-THERM® to thermal protection of buildings in way of measurement of internal space parameters, internal surface temperatures and energy consumption for heating with continuous monitoring of external space. The other data for interpretation of proven benefits for the thermal protection of buildings, are mentioned as well. The duration of monitored period was set at 7 days and duration of evaluated period was set at 5 days.

Parameters of objects:

Reference object and second object with internal surface adjustment of walls and ceiling by thermoactive screed AERO-THERM®, detached objects, constructionally identical, located in unprotected position, adjusted for nearly zero infiltration through peripheral covering of object. Heat source was mobile electric sectional radiator located under the window.

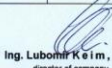
inner width	3,0 m	inner length	4,0 m
clear height	2,6 m		
window fix (south)	1,8 m ²	doors (north)	2,1 m ²
floor area	12 m ²	volume of heated space	31,2 m ³

Thermal technical parameters of covering constructions in evaluated period:

Construction	Heat transfer coefficient U [W/(m ² ·K)]	Heat loss v [J]	Phase shift of thermal vibrations v [h]
Peripheral wall	0,29	1163	22,4
Ceiling	0,18	61	2,9
Floor	0,41	15	0,3
Window	0,9	-	-
Doors	1,4	-	-

Operative temperature of heated spaces in height from floor in evaluated period:

Reference object, with screed without particular properties	Object with screed AERO-THERM®
operative temperature 0,15 m 21,6 °C	operative temperature 0,15 m 21,3 °C
1,1 m 22,1 °C	1,1 m 21,5 °C
1,7 m 22,2 °C	1,7 m 21,7 °C


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