

PUMICE BLOCK STRUCTURES

Agrinio, Aitolokarnania Prefecture, GREECE

2016-2017

Measuring Thermal Properties of two Identical Structures during summer and winter time (28 days each)

Control Room : Pumice Block Walls & PU panel roof

Coated Room : ThermaCote Ceramic Coating @ total thickness of ~ 1mm Inside & Outside on Roof and walls

PROJECT DESCRIPTION / NEEDS

The purpose of this project was to identify the thermal properties of applied ThermaCote Ceramic Coating in real conditions and measure the energy savings. The two structures were built identically and with the same orientation. At one of them ThermaCote was applied inside and outside at a total thickness of approx. 1 mm. AC split units were used to maintain the interior temperature constant.

The data were collected and processed by C.R.E.S. according the standard EN ISO 9869.

The ambient temperatures that were recorded during winter were from -6 to 20 °C and during summer from 18 to 40°C. The total energy consumption was also recorded.

APPLICATION / UTILIZATION

During the summer time, the roof of the control house reached **62,3°C**, while the coated roof reached **49,2 °C**. In absolute values, a temperature difference of more than 10 °C was recorded. The thermal resistance of the structure was increased by 0,75 m²K/W and the heat losses were decreased by 63% with the application of ThemraCote.

ThermaCote Ceramic Coating appeared to benefit the structure not only on summer but also on winter time. During winter time the energy consumption was decreased by 26% and the wall thermal resistance increased by 0,77 m²K/W. Heat flux comparison between the control structure and the one with ThermaCote, showed as that ThermaCote decreased the heat losses from the walls by 41%. The temperature difference of the outside of the walls during winter was 12.5° C (Non-Coated – Coated), which depicts the higher heat losses of the non coated structure.

Main products / systems used:

ThermaCote Ceramic Coating – Weather Barrier Coating at 1mm total thickness

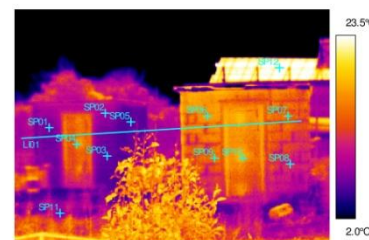
CUSTOMER BENEFITS

By applying ThermaCote Ceramic Coating on the envelope of the structure (walls and roof), we managed to have a decrease of energy consumption while the thermal resistance was increased by 0.76m²K/W (average) with a total thickness of appr. 1 mm.

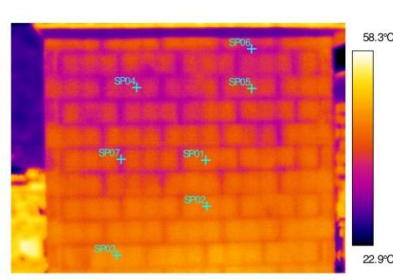
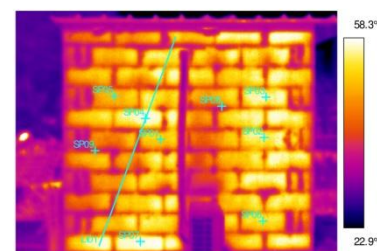
The potential customer will notice the benefits from the first day of application.

The conclusion of this project is that ThermaCote, as a reflective coating improves thermal behavior of the structure on summer with the application outside but also on winter with the application inside, which reflects the thermal energy back and stops it from escaping outside of the structure.

Winter Time



Summer Time



Roof Temperature Comparison

