Thermotechnical Investigations on Production Livestock Buildings in a Stationary Mode of Working Envelope Systems in Order to Determine the Instant Values of a Heat Transfer Coefficient (U) with Infrared Thermography (IRT)

Katerina Koleva,
UACEG, Sofia, Bulgaria

Plamen Chobanov
UACEG, Sofia, Bulgaria

Abstract:

In recent decades, attention has been directed on the implementation of the Paris Agreement [1] about the climate change, following the 21st session of the Conference of the Parties to the United Nations Framework Convention on the Climate Change [SOR 21]. According to the tasks of other European Union Directives [1,2,3,4,5,6,7], a sustainable, competitive, secure and decarbonized energy systems have to be developed by 2050.

Almost 50% of the final energy consumption in the Union is used for heating and cooling, and 80% of the latter is used in buildings. The last ones, especially built in the last century, don't correspond to thermal-technical regulatory framework, actual now. In the last decades, both normative requirements have changed, as well as the thermal-technical characteristics of the buildings due to the aging of working systems. [8,9]

Our interest and principal contribution is the determination the actual instantaneous values of the heat transfer coefficient [U] and a comparison with the analytically calculated values. The livestock buildings for raising pigs have a controlled microclimate, so a stationary mode of operation of a system could be accepted. The environment is characterized with high temperature and humidity, an evaporation of aggressive gases due to the production processes.