EVALUATION OF PARAMETERS OF RADIANT HEATING SYSTEMS

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Abstract
The majority of heating systems is accomplished by distribution system operating at high temperatures (90 -70°C). Main sources of heating used in Latvia are derived from non-renewable natural resources and wood-pulp or its derivatives. The use of more environment friendly technologies that allow minimization of energy consumption should play a significant role in Latvia's future civil engineering systems; nevertheless, the wider community is lacking trust and confidence in new technologies and understanding of the positive aspects of their use.
The installation of low-temperature heating systems is one of prospective ways to save energy and to reduce emissions. This kind of systems can be used for both: commercial and residential buildings. The low-temperature heating system can be installed in a wall or floor construction. This type can be preferable for building with high percentage of facade windowing, where usage of traditional heating system radiators is inconvenient from the indoor design point of view. In this case, blocks with heating systems installed into vertical or horizontal elements of the building envelope can be acceptable.
Thermal comfort is a benefit of low-temperature radiant heating systems. Additional sound insulation and high inertia factor that provides heating of the surfaces, even without initial phase of energy consumption, can be regarded as an advantage. Using theoretical base and program Microsoft Excel, the authors have made a calculation model to find dependences of several values for heating system with embedded heating elements into the building envelope. This study is aimed to demonstrate influence of the heat conductive device type and pipe spacing choice on the effective work of the system.
Key words: radiant heating systems.