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Thermal Comfort of Pedestrian Spaces and the Influence of Pavement Materials on Warming Up During Summer

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Highlights

Users can not feel small differences in surface temperatures, i.e. less than 3°C.

Small differences in surface temperatures don't affect user's thermal comfort.

Surface temperatures of hottest and coolest material differ in range from 8- 22°C.

Different paving materials significantly influence the thermal comfort of pedestrians.

In hot climate users sense the temperature difference between 2-3°C in outdoor space.

Abstract

Public space is very valuable for a variety of community activities. Open public space comfort is one of the main indicators that provide its enjoyability, attractiveness and liveability. Having in mind that the climate conditions and the implemented urban design are influential in providing pedestrian thermal comfort, this study will focus on physical attributes of used pavement materials and their impact when they are exposed to high summer temperatures as well as on thermal comfort of the users of open public spaces. The methods that were used in the analysis include the method of direct surveying of inhabitants, the method of observation and the method of measuring the characteristics of different materials used for pavement in the pedestrian zone. The measuring of the current surface temperature of different paving materials used for pedestrian zone was performed during the summer season (July, August, and September) of 2015 in the central city zone of the city of Niš, with the goal of determining the maximum heating up of horizontal surfaces, i.e. pavements. The survey was done in July 2015 in the main square in Niš. The

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