# Analysis of Temperature Reduction Effect for Block Road Pavements

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## Abstract

Dueto industrialization, the concentration of population and the city-centered development has caused deterioration of the overall environmental quality of the city. Especially, urban heat island effect caused by climate change is the main cause of urban environmental pollution. The urban heat island effect is caused by the increase of the urban pavement surface and the release of heat due to energy consumption. To solve this problem, lots of researches have being carried out in the field of road pavement. In this study, we analyzed the temperature reduction effect of block pavement which be known to be able to lower the temperature of pavement. Generally the permeable pavements such as block pavement have a rough surface and more void content, which can increase their effective surface area exposed to air and create air turbulence over the pavement. This will increase the convection between pavement and air, and thus help to reduce the pavement temperature. Besides this increased convection, the evaporative cooling of permeable pavements also could reduce pavement temperature through phase change of water when moisture exists on and/or within pavements. For the analysis of temperature reduction effect for block pavement we measured the temperature of pavement surface using the infrared camera in-situ. As a result of the analysis, it was found that the block pavement can reduce the maximum pavement surface temperature by 6 degrees than the asphalt pavement.

**Key Words : Block pavement; Temperature reduction; Urban heat effect**

## References

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