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<b>Thesis Title</b>	<i>Theoretical and experimental evaluation of bioclimatic space</i>
<b>Supervisor</b>	M. Santamouris, Professor
<b>Summary</b>	<p>This paper discusses the bioclimatic regeneration of the municipality of Peristeri, utilizing theoretical and experimental approaches. Specifically, the Chorafa region is analyzed with emphasis given to Pefkon and Ioannina Street, squares and sidewalks. In the present work, the change from plain cement plates to cool materials and cool asphalt with the addition of deciduous trees, permanent shedding and shallow geothermal heat pumps is considered. The method is based on in situ data measurements of temperature, humidity and wind speed in several heights. Experimental results showed a temperature contrast of up to 4.7°C between the asphalts i.e. conventional and cool material; and up to 3.8°C for the cement plates. In addition the experimental results are verified numerically using the finite element approach showing that in general cool materials can reduce the air temperature by between 0,1°C to 0,5°C in the winter. Furthermore, the simulation results provide evidence that the implementation of bioclimatic materials such as cool cobblestones and geothermal heat pumps are efficient, reliable and robust ways to significantly improve the microclimate conditions of the region.</p>
<b>Key words</b>	Bioclimatic, Envi-met, Cool materials, Urban, Urban heat island
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