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Table of Contents

Abstract

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Urban Heat Island Mitigation Strategies: Experimental and Numerical Analysis of a University Campus in Rome (Italy)

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Abstract

The urban heat island (UHI) phenomenon is strictly related to climate changes and urban development. During summer, in urban areas, the lack of green zones and water sources causes local overheating, with discomfort and negative effects on buildings' energy performance. Starting from this, an experimental and numerical investigating of the climatic conditions in a university area in Rome was achieved, also assessing the occurrence of the UHI phenomenon. The analyzed area was recently renewed, with solutions in contrast to each other: on one side, an old building was re-designed aiming at high performance; on the other hand, the neighboring areas were also refurbished leading to large paved surfaces, characterized by high temperatures during summer. A calibrated

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