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The Influence of Different Green Roof Vegetation on Indoor Temperature in Semi-Arid Climate Cyprus

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Abstract : Cities are facing a growing environmental issue as a result of the combined effect of urbanization and climate change. Climate change is the most conspicuousimpact on environmental issues. Nowadays, energy conservation is a very important subject for planners. It is known that green roofs can provide environmental benefits, which include building insulation and mitigating urban heat island effect within the cities. Some of the studies shown that green roofs regulate roof temperature and they have an effect on indoor temperatures of buildings. This research looks at the experimental investigation of different type green roof vegetation with control of no vegetation and their effect on indoor temperatures. The research has been carried out at Near East University Campus with the duration of four months in Nicosia, Cyprus. The experiment was consisting of four green roof types; three of them covered with vegetation, and one of them was not vegetated for control of the experiment. Each hut had 2.7 m2 roof areas, and the soil depth was 8 cm. Mediterranean climate drought resistant ground covers and shrubs were planted on the roof of the three huts. Three different vegetation type was used: 1-Low growing ground cover succulents 2-Mixture of low growing succulents and low shrubs 3-Mixture of low growing succulents, low shrubs, and high growing foliage plantsElitech RC-5 temperature data loggers were used in order to measure indoor temperatures of the huts. Research results were shown that the hut with a highly vegetated roof had the lowest temperatures during hot summer period in Cyprus.

Keywords : green roofs, indoor temperature, vegetation, mediterranean, cyprus
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