

AMPLIFICATION OF COMFORT AND THE AIR QUALITY WITH GREEN ROOF IN CITIES

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Since the last few decades the world population has been increasing in a faster rate. With the increasing population, the needs of the people have also increased. Because of that more people have lean towards to move to the cities in search of facilities. The demand for dwellings in the cities has increased. To accommodate this demand, more buildings have been constructed, changing the previous arrangement of the cities. The cities have turned into a compacted space with less vegetation and greenery. Yet again the pervious lands in the urban space have changed to impervious surfaces making the urban climate to be changed peculiarly in terms of temperature and air quality. The more the urban space has become industrialized, the more the air has been contaminated. There are other environmental issues together with the changes for the cities. Due to the increment of artificial surfaces the temperatures of the cities have been increased than the country side allowing the heat island effect to take place making the energy demands of the cities to be high. For these climatic problems the researchers have identified green roofs as a sustainable solution.

This research mainly focuses on augmentation of air quality and on reduction of heat island effect, with the replacement of existing flat slabs in the Colombo city in Sri Lanka, with green roofs. A well compacted city area was chosen in the Colombo district. The measurements were taken in terms of temperature and CO₂ in the chosen city area and in countryside. Different special places were chosen for the measurements. The obtained measurements are observed for the identification of the best remedy. With that the expected increment of air quality and expected reduction of the temperatures are modeled with the replacement of existing flat slabs in the area with green roofs. A comparison was done on the actual measurements found in the present situation, with the results obtained from the modeled situation. From the results it's evident that the green roofs can play a major role in enhancing air quality and reducing heat island effect making people to live in cities comfortably and healthily.