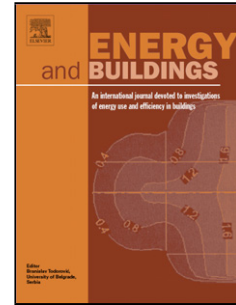


## Accepted Manuscript

Title: Microclimatic effects of green and cool roofs in London and their impacts on energy use for a typical office building

Author: Gurdane Virk Antonia Jansz Anna Mavrogianni  
Anastasia Mylona Jenny Stocker Michael Davies



PII: S0378-7788(14)00970-0  
DOI: <http://dx.doi.org/doi:10.1016/j.enbuild.2014.11.039>  
Reference: ENB 5508

To appear in: *ENB*

Received date: 18-8-2014  
Revised date: 11-11-2014  
Accepted date: 13-11-2014

Please cite this article as: G. Virk, A. Jansz, A. Mavrogianni, A. Mylona, J. Stocker, M. Davies, Microclimatic effects of green and cool roofs in London and their impacts on energy use for a typical office building, *Energy and Buildings* (2014), <http://dx.doi.org/10.1016/j.enbuild.2014.11.039>

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**Highlights**

- Microclimatic modelling showed how green and cool can reduce near surface air temperatures.
- Green and cool roofs cooling capacity is shown to be highly dependent on variations in diurnal meteorological conditions.
- Retrofitting green roofs result in annual energy savings for a typical office in London.
- Green roofs savings are reduced when the roofs are not irrigated in the summer.
- Cool roofs result in an annual energy penalty in the current climate.
- In a 2050 climate scenario, both green and cool roofs result in annual savings.

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