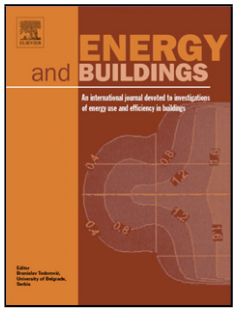

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PII: S0378-7788(16)30698-3
DOI: http://dx.doi.org/doi:10.1016/j.enbuild.2016.08.018
Reference: ENB 6917

To appear in: *ENB*

Received date: 26-9-2014
Revised date: 18-7-2016
Accepted date: 4-8-2016

Please cite this article as: Giorgia Peri, Gianfranco Rizzo, Gianluca Scaccianoce, Maria La Gennusa, Philip Jones, VEGETATION AND SOIL – RELATED PARAMETERS FOR COMPUTING SOLAR RADIATION EXCHANGES WITHIN GREEN ROOFS: ARE THE AVAILABLE VALUES ADEQUATE FOR AN EASY MODELING OF THEIR THERMAL BEHAVIOR?, Energy and Buildings http://dx.doi.org/10.1016/j.enbuild.2016.08.018

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Research Highlights

- Net shortwave radiation of the canopy is key part of the green roof energy balance
- Simulating their energy behavior need shortwave radiation input parameters
- Available values of these parameters are considered and their *status* is evaluated
- Estimation of errors occurring when using generic vegetation data is performed
- Some new experimental values of such parameters are provided.

ABSTRACT

Several studies analyze the thermal performance of vegetated roofs, presenting either mathematical models or experimental quantifications of heat transfer process through them, also showing the effect of vegetation and soil parameters on the thermal and energy performance of this type of roofing system. However, presently the level of availability of these parameters,-has not been enough considered. This work intends to investigate this underestimated issue of the green roofs' thermal modelling, through the consideration of the availability of parameters pertinent to the shortwave radiation exchange, which are adopted by models based on leaf area index (LAI) and on the fractional vegetation coverage (σ_f). From the analysis of these models, the importance of a