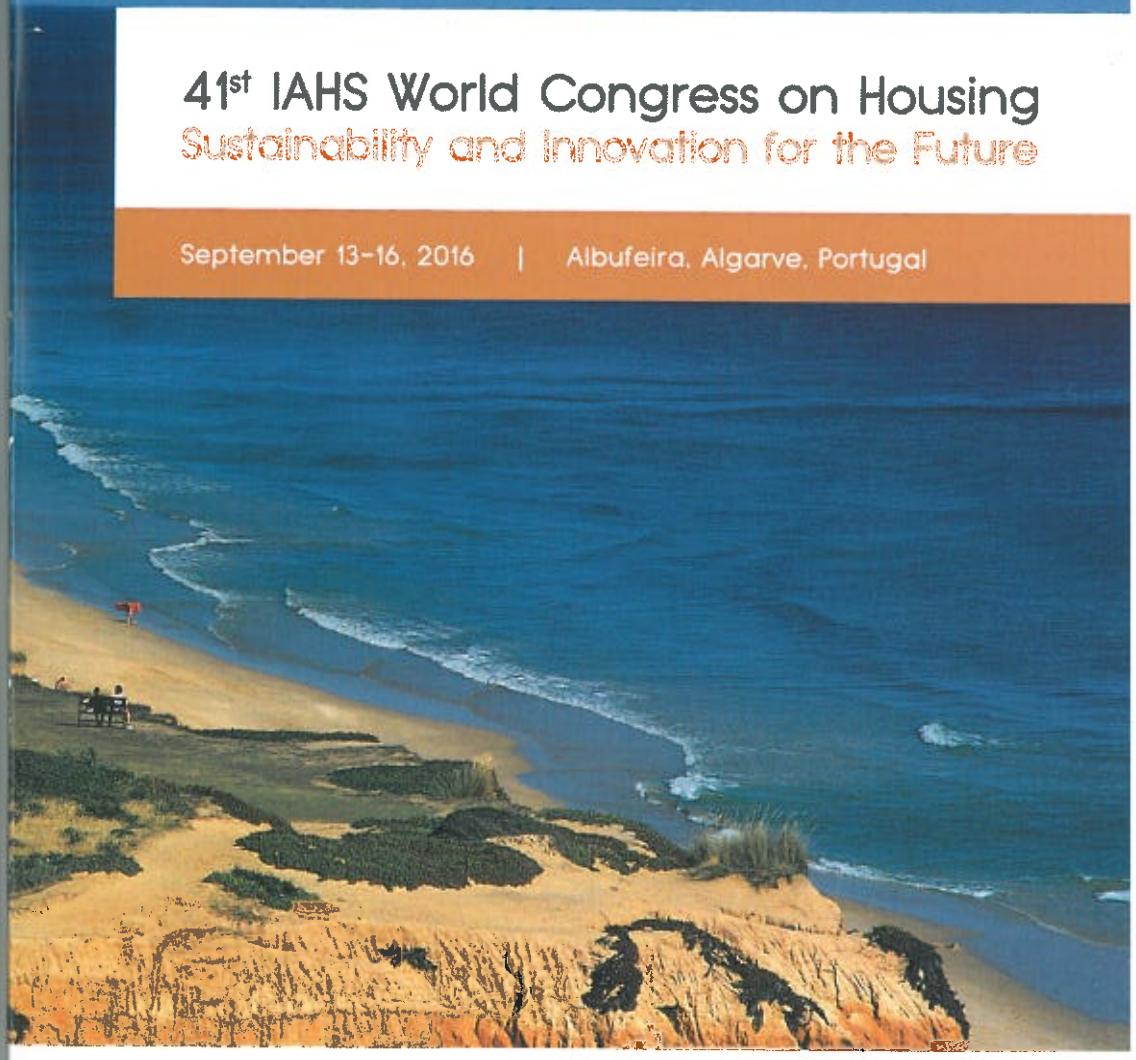
41st IAHS World Congress on Housing

Sustainability and Innovation for the Future

September 13-16, 2016 | Albufeira, Algarve, Portugal



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41st IAHS World Congress on Housing
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Book of Abstracts

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Oktay Ural
Vitor Abrantes

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GREEN ROOFS AS A TOOL TO PROMOTE WATER EFFICIENCY IN BUILDINGS

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Keywords: Green roofs; water runoff; water harvesting systems; substrate

Abstract *In the recent decades, growth of urban population and replacement of vegetated areas led to an increase of impervious surfaces with the subsequent inherent problems of stormwater runoff management. On the other hand, urban water consumption and management must be more efficient due to water stress and scarcity in many parts of the globe. Green roofs, a multilayer engineered construction that uses vegetation on roof tops, may contribute to sustainable buildings construction as they influence thermal performance through energy conservation, and help peak flow attenuation for public drainage systems in stormwater events. Also, green roofs can be coupled with rainwater harvesting systems, with the advantage of its later reuse for non-potable practices. This combination should be carefully designed taking into account local climate conditions being important in Mediterranean region, where there is a risk of high water stress. The present study describes experimental pilot extensive green roof constructions, through the use of different substrates planted with aromatic species, and their effect on volumes of water runoff that could be stored for later use. The work was carried out on Universidade Católica Portuguesa-Porto in collaboration with ANQIP (a Portuguese technical and scientific non-profit Association working on water efficiency in buildings). The development of this study intends to improve growing substrates for green roofs design coupled with building rainwater harvesting systems, and to disseminate the need to have water efficient buildings.*