Environmental Engineering and Management Journal xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
http://www.eemj.icpm.tuiasi.ro/; http://www.eemj.eu

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PROMOTING AN ENERGY SAVING TECHNOLOGY IN TURKEY: THE CASE OF GREEN ROOF SYSTEMS

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Abstract

A green roof is a roof of a building that is partially or completely covered with vegetation and a soil (growing media) as its outermost surface, planted over a waterproofing membrane. There are several reasons for implementing green roof systems on top of buildings such as mitigation of urban heat island effect and rainwater, carbon sequestration, aesthetic appeal, creating a habitat, increasing agricultural space, and so on. The objective of this paper is to develop and test a theoretical model grounded in the Technology Acceptance Model (TAM) to investigate key factors that affect behavioral intention to implement a green roof system. Together with the basic structure of TAM, we take into account additional constructs such as self-efficacy, perceived behavioral control and government support. The hypotheses were tested using questionnaires on green roof systems collected from 204 citizens across Turkey. The Structural Equation Modeling (SEM) methodology was implemented by using SmartPLS 3.2.7 software to evaluate the obtained data and test the proposed hypotheses. The results indicated that behavioral intention to implement was affected significantly by attitude, subjective norm, and perceived behavioral. Moreover, self-efficacy and government support have significant effects on perceived behavioral control; and perceived usefulness has significant effect over attitude. The implications of the results are reviewed, and the recommendations are provided for the further studies. This study provides new practical insights for authorities seeking to implement green roof systems.

Keywords: energy, government support, green roof systems, structural equation modeling, technology acceptance model

Received: July, 2020; Revised final: November, 2020; Accepted: February, 2021

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