

Integrated Energy-Use Model to Identify Energy-Use Profile of Hotel Guests

Hevar Palani¹ and Aslihan Karatas²

¹MS, Lawrence Technological University, Department of Civil and Architectural Engineering, 21000 West 10 Mile Road, Southfield, MI 48075; e-mail: hpalani@ltu.edu

²Ph.D., Lawrence Technological University, Department of Civil and Architectural Engineering, 21000 West 10 Mile Road, Southfield, MI 48075; e-mail: akaratas@ltu.edu

ABSTRACT

Hotel guests' energy-related behavior is one of the main factors that affects energy consumption in hotel buildings. However, there are few studies that provide practical and efficient energy-use reduction strategies based on guests' energy-related behavior in hotel buildings. To address this research gap, this study aims to develop an integrated energy-use model in four steps: (1) incorporating four energy-related behavior models (i.e., Motivation-Opportunity-Ability, Norm Activation Model, Theory of Planned Behavior, and Pro-environmental Behavior); (2) developing a set of hypotheses and their relevant measures to examine the relationship among the energy-related behavior models and hotel guests' energy-use behavior; (3) conducting an energy-use survey to analyze the effect of each determined measure on hotel guests' energy-use behavior; and (4) analyzing the energy behavior data to identify energy-use profiles (i.e., prone --, indifferent --, or resistant to change) of hotel guests. The findings can provide decision-makers in hospitality management with a better understanding of their guests' energy-related behavior; and accordingly develop effective strategies to reduce energy consumption in hotel buildings.