World Academy of Science, Engineering and Technology
International Journal of Energy and Power Engineering
Vol:11, No:08, 2017

Effects of LED Lighting on Visual Comfort with Respect to the Reading Task

Authors : Ayşe Nihan Avcı, İpek Memikoğlu

Abstract : Lighting systems in interior architecture need to be designed according to the function of the space, the type of task within the space, user comfort and needs. Desired and comfortable lighting levels increase task efficiency. When natural lighting is inadequate in a space, artificial lighting is additionally used to support the level of light. With the technological developments, the characteristics of light are being researched comprehensively and several business segments have focused on its qualitative and quantitative characteristics. These studies have increased awareness and usage of artificial lighting systems and researchers have investigated the effects of lighting on physical and psychological aspects of human in various ways. The aim of this study is to research the effects of illuminance levels of LED lighting on user visual comfort. Eighty participants from the Department of Interior Architecture of Çankaya University participated in three lighting scenarios consisting of 200 lux, 500 lux and 800 lux that are created with LED lighting. Each lighting scenario is evaluated according to six visual comfort criteria in which a reading task is performed. The results of the study indicated that LED lighting with three different illuminance levels affect visual comfort in different ways. The results are limited to the participants and questions that are attended and used in this study.

Keywords : illuminance levels, LED lighting, reading task, visual comfort criteria
Conference Title : ICLST 2017 : International Conference on Lighting Science and Technology
Conference Location : Lisbon, Portugal
Conference Dates : August 17-18, 2017