Occupant interaction with window blinds in a green-certified office building in Putrajaya, Malaysia

ABSTRACT

One of the key features of green office buildings is the proper utilization of daylight in order to ensure a good visual indoor environment which can potentially increase the occupant's productivity. However, poor daylight condition inside office buildings can occur due to improper positioning of window blinds by the occupants. Previous studies have shown that fully lowered window blinds and the use of the artificial lightings during daytime have caused many office buildings in Malaysia to have high rates of electricity consumption. Yet, the operation of window blinds is rarely considered during the calculation of building's daylight performance in the tropics. Therefore, this paper aims to investigate the frequency of window blind operations by office occupants and the driving factors behind their window blind operations. A GBI Gold-certified office building was selected for the study. The specific objectives of this paper are, 1) to find out the correlation between window blind operations with different orientations of the building, sky conditions, time and floor levels; and 2) to gauge the occupants' views on their window blind operations and also their satisfaction level with their visual working environment. This study used time-lapse photography to record the blinds positions and a questionnaire survey among the occupants. Results of the ANOVA and Pearson Correlation tests from the photographic analysis found a strong correlation between window blind occlusion values with the building orientations and floor levels, but not with time. The survey results revealed that most of the participants seldom adjusted their window blinds and, in most cases, excessive brightness or glare was the main issue. These results indicate that the occupants make a little effort in changing their blind positions, which may lead to a poor daylight condition. It is expected that the results of this study will serve as the initial steps in considering occupants' behaviour in window blinds usage during the calculation process of a building's daylight performance in order to ensure a better indoor visual environment.

Keyword: Window blind operation; Occupants’ behaviour; Indoor visual environment; Green office building