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Indoor Environmental Quality for UKM Architecture Studio: An Analysis on Lighting Performance

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Abstract

Lighting can be efficiently used to maximize occupant comfort, and to conserve energy. This paper focuses on lighting in UKM architecture studio space in order to achieve better IEQ. Good design for building requires sufficient daylight for tasks performed within a space. This is achieved by providing enough means to let in diffused light from the sky, but keep out direct light from the sun to prevent heat gain and glare. Lighting is important to the student because high quality lighting improves student moods, behavior, concentration, and therefore their learning. The artificial light is used most of the time in UKM architecture studio to optimize student vision and comfort. The methodology of the lighting analysis is first by using the equipment named LM-8100, and second by a questionnaire in gauging the lighting comfort level from students' perspective. Lighting measurement is taken for 11-hours in 2 days for UKM year 3 architecture studio. The finding shows that the lighting setting is not within the range of Malaysian Code of Practice on Indoor Air Quality, but the students perceived it as normal and this does not hinder them to stay longer inside their studio. This situation will affect the student ability to perceive visual stimuli in short term and health in terms of students' vision in the long run.

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Keywords: Indoor Environmental Quality; lighting; survey; architecture; studio environment

1. Introduction

Lighting plays a very important part in our life. Lighting is one of the parameters that influence indoor environment quality. Before the 1940s, daylight was the primary light source in buildings; with artificial lights supplementing the natural light. In a short span of 20 years, electric lighting had transformed the workplace by meeting most or all of the occupants' lighting requirements (Edwards and Torcellini, 2002). According to Dr. Ott (Ott Biolight Systems, Inc. 1997), the body uses light as a nutrient for metabolic processes similar to water or food. On a cloudy day or under poor lighting conditions, the inability to perceive the colours from light can affect our mood and energy level. Liberman (1994) also mentioned that light plays a role in maintaining health. Obviously,

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