

FINAL YEAR PROJECT
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SHAH ALAM

MALAYSIAN SKY SIMULATOR FOR ENERGY
STUDIES IN BUILDINGS

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Abstract

An artificial sky is a tool to produce sky luminance and surface illuminance. The luminance produced from the sky simulator can be used and together with physical scale models to estimate the level of indoor daylight. A half-dome sky simulator with 4 m diameter was designed and fabricated. For the light source, a total of 176 dimmable tungsten bulbs were used and fixed into aluminium strips around the dome with a constant distance.

Experiments have been carried out using both white and black floor surfaces. Both experiments are carried out in a white surface surrounding. A maximum luminance load of 17000 Candela, which is approximately one-tenth (1/10) of the maximum luminance of the real Malaysian sky, can be obtained. However, initial studies show that the coefficient correlation between the real sky and the sky simulator is 0.527.

Keywords: Day lighting, artificial sky, sky simulator, luminance, illuminance