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Users' Acceptance of Task-ambient Lighting Systems for Open-plan Offices in Thailand: an Experimental Study

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ABSTRACT

This paper reports on the experimental study that aims to investigate users' acceptance as well as suitable design parameters of task-ambient lighting systems for open-plan offices in Thailand. The study was carried out in a full-scale test room equipped with suspended direct-indirect luminaires, linear LED cove lights and portable task lights. Four lighting conditions, which consume between 5-7 W/m^2, were tested. Forty-eight subjects performed reading and writing on paper and computer screens under each condition; their subjective responses were analyzed using ANOVA and *t*-test. The results suggested that the lighting condition which provided the average of 300 lux on the workplane with additional vertical illuminance and task lights was the most acceptable, though the quality of task lights should be improved to reduce glare and reflections. This condition consumes 7 W/m^2 which is 50% of 14 W/m^2 required by the new Energy Conservation Promotion Acts and only a third of the current practice in Thailand.

Keywords: task-ambient lighting, energy efficiency, lighting quality