

Lighting energy efficiency in office buildings: Sri Lanka

Priyantha D.C Wijayatunga^a, W.J.L.S Fernando^b, and S Ranasinghe^b

^a Department of Electrical Engineering, Centre for Energy Studies, University of Moratuwa, Moratuwa, Sri Lanka

^b Sri Lanka Energy Managers Association, 71/4 Gregory's Road, Colombo 7, Sri Lanka

Abstract

This paper describes a study conducted in the lighting sector of office buildings as a part of a broader research study aimed at developing building codes for Sri Lanka addressing lighting as well as thermal comfort in order to optimise the use of electricity within these buildings. The study covered different tasks performed in office buildings and the optimum lighting levels required to perform these tasks in the office environment in Sri Lanka. Also, it included assessing the visual performance of people involved in different activities under varying illumination levels in a controlled environment and a comparison of these optimum lighting levels with international standards. It can be seen that the required optimum lighting levels are generally lower in Sri Lanka in comparison to specified standard levels, and this scenario is likely to be similar in other developing countries too. These findings clearly emphasise the need to adopt lighting standards most appropriate to local conditions, in turn helping improve the energy efficiency within buildings.

Keywords: Artificial lighting; Energy efficiency; Efficacy; Optimum illumination