

Highly Glazed Office Spaces: Simulated Visual Comfort vs Real User Experiences

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Abstract : Daylighting plays a pivotal role in promoting productivity and user satisfaction in office spaces. There is an ongoing trend in designing office buildings with a high proportion of glazing which relatively increases the risk of high visual discomfort. Providing a more realistic lighting analysis can be of high value at the early stages of building design when necessary changes can be made at a very low cost. This holistic approach can be achieved by incorporating subjective evaluation and user behaviour in computer simulation and provide a comprehensive lighting analysis. In this research, a detailed computer simulation model has been made using Radiance and Daysim. Afterwards, this model was validated by measurements and user feedback. The case study building is the school of science at Griffith University, Gold Coast, Queensland, which features highly glazed office spaces. In this paper, the visual comfort predicted by the model is compared with a preliminary survey of the building users to evaluate how user behaviour such as desk position, orientation selection, and user movement caused by daylight changes and other visual variations can inform perceptions of visual comfort. This work supports preliminary design analysis of visual comfort incorporating the effects of gaze shift patterns and views with the goal of designing effective layout for office spaces.

Keywords : lighting simulation, office buildings, user behaviour, validation, visual comfort

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