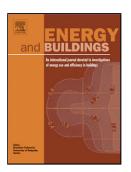
Accepted Manuscript

Title: Predicting Visual Comfort in Side-lit Open-Plan Core Zones: Results of a Field Study Pairing High Dynamic Range Images with Subjective Responses



Author: Kyle Konis

PII:	S0378-7788(14)00255-2
DOI:	http://dx.doi.org/doi:10.1016/j.enbuild.2014.03.035
Reference:	ENB 4928
To appear in:	ENB
Received date:	2-9-2013
Revised date:	29-1-2014
Accepted date:	17-3-2014

Please cite this article as: K. Konis, Predicting Visual Comfort in Sidelit Open-Plan Core Zones: Results of a Field Study Pairing High Dynamic Range Images with Subjective Responses, *Energy and Buildings* (2014), http://dx.doi.org/10.1016/j.enbuild.2014.03.035

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Predicting Visual Comfort in Side-lit Open-Plan Core Zones : Results of a Field Study Pairing High Dynamic Range Images with Subjective Responses

Author

Kyle Konis, Ph.D Assistant Professor Department of Architecture University of Southern California Watt Hall 204 Los Angeles, CA 90089-0291 +1 206 303 9786 kskonis@gmail.com

Abstract

Transmitting sufficient daylight to core zones while maintaining a visually comfortable work environment is critical for the effective use of daylight to reduce lighting energy and enhance indoor environmental quality. Although a range of indicators exists to predict visual comfort from windows, data comparing indicators with occupant subjective data collected from the core zones of daylit buildings are limited. This paper presents results from a study conducted in the core zones of a side-lit office building located in San Francisco, California. Subjective measurements of visual comfort were collected using a repeated-measures study design involving (N=14) participants over two weeks under clear sky conditions. Desktop polling devices were used to pair subjective data with concurrent luminance measurements acquired from High Dynamic Range (HDR) imaging cameras, resulting in a total of 523 observations. Single-variable logistic regression models generated from paired physical and subjective data were used to examine and rank 15 indicators of visual discomfort. Discomfort indicators based on luminance contrast ratios and absolute measures were found to be more effective than glare metrics or the more basic measures of vertical or horizontal illuminance. Results are compared and discussed in context with existing guidance for measuring and assessing discomfort glare.

KEYWORDS: Glare, High Dynamic Range Imaging, Post Occupancy Evaluation, Daylighting, High-performance Buildings Download English Version:

https://daneshyari.com/en/article/6733485

Download Persian Version:

https://daneshyari.com/article/6733485

Daneshyari.com