ETH zürich

Contribution ID: **19** Type: **Oral presentation**

Delphi study for the development of an integrative lighting labeling system

Saturday 11 March 2023 13:45 (20 minutes)

This research seeks for indicators and methods of characterization, evaluation, certification and/or accreditation of integrative litgting for indoor workplaces. We carried out an online three-stage Delphi study to select descriptors and indicators of integrative lighting: (I) consensus of descriptors, (II) consensus of indicators, (III) weighting of descriptors and indicators. This paper presents the results of stages I and II, In stage I, we defined five dimensions of integrative lighting (i.e. Visual Performance, Visual Comfort, Sight, Control, Vitality) based on the Ergonomic Lighting Indicator (ELI) method. Based on a literature review, we proposed a set of descriptors, and then we invited lighting experts rated them in a five-point scale from "not important at all" to "very important". There was consensus when a descriptor was rated as "important" or "very important" by at least 75% of experts. Consented descriptors continued to stage II, where we classified them as (i) VISUAL/PHOTOMETRIC descriptors (i.e illuminance levels: luminance contrasts; occurrence and magnitude of physiological and discomfort glare; occupants' perception and opinions, daylighting, circadian lighting, complementary parameters of lighting, and lighting control and flexibility) or (ii) TEMPORAL/HUMAN FACTORS descriptors (i.e. age, preferences, task, and environment). In stage II, consensus required 50% of expert agreement.

Thirty-two experts participated in Stage I. For Visual Performance, four out of six descriptors exceeded the threshold. In Vista, two did not reach the threshold. All of the experts indicated the importance of flicker in Visual Comfort. For Vitality, the most important descriptor was stabilization of the circadian cycle. Finally in Control, only basic aspects of lighting control exceeded the threshold. Twenty-Three experts participated in Stage II. Regarding VISUAL/PHOTOMETRIC descriptors, there was a strong agreement in measuring at the specific plane of the visual task with a calibrated equipment to determine illuminance levels. In relation to user perceptions and opinions, there was consensus on using validated subjective instruments (i.e. questionnaires) and on the use of luminance meters for assessing both physiological and discomfort glare. In relation to TEMPORAL/HUMAN FACTORS, experts recommended measuring at specific time/s based on criteria under a dynamic lighting paradigm (i.e. repeated measurements). There was no consensus in recommending whether to perform lighting assessments at the current, the usual, or the worst lighting conditions. Finally, most experts recommended considering both the age and preferences of the occupants when assessing daylighting and illuminance levels, and only age when assessing disability glare. For the next stage, we plan to hold meetings with the experts who have participated in this work in order to learn their opinion regarding the analysis of the results presented in this paper.

Keyword 1

Indicators

Keyword 2

Integrative Lighting

Keyword 3

Environmental Assessment Method

Keyword 4

Keyword 5

Contact by email

I agree to get contacted by the conference organizers by email.

Author: Ms RUIZ, Verónica (CONICET)

Co-authors: Ms PATTINI, Andrea (CONICET); Mr RODRIGUEZ, Roberto (CONICET)

Presenter: Mr RODRIGUEZ, Roberto (CONICET)

Session Classification: Inside daylight

Track Classification: Inside Daylight