Architectural Lighting Design and Health: A Human-Centered Approach to Indoor and Outdoor Lighting Design to Synchronize with Our Circadian Rhythms Using LED Technology

Background: The human eye sensitivity to light varies based on age, alertness, physical and mental conditions of a person. The light intensity, quantity, distribution, direction, color, time, duration, history, etc. play a significant role in the visual, circadian, endocrine, and neuroendocrine functions. The interaction of these various factors can lead to health issues and discomfort. For example, the light indoors can cause sleep disturbances and affect circadian rhythms. Therefore, it is crucial to design lighting systems that are not only functional but also consider the health impact of light.

Objective: The objective of the poster is to select the accurate lighting sources, control system & mounting arrangements, pick the modulator, and present the user or any combination of these. These solutions are based on the approach to promote human health and wellbeing as well as the quality of life for built environments.

Methods Used: The optical radiation affects the human health and the quality of life. This complicated issue will be solved by new methods using source, modulator and receiver level approaches or any combination of these for any indoor and outdoor applications.

- The Spatial Power Distribution of the light source affects the resultant spatial pattern over an object.
- Design: A laser beam is focused at the visual surface, while the incoherent light is scattered at the surface in the area which affects the appearance of the scene.

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