

# A quick guide to delivering effective circadian lighting

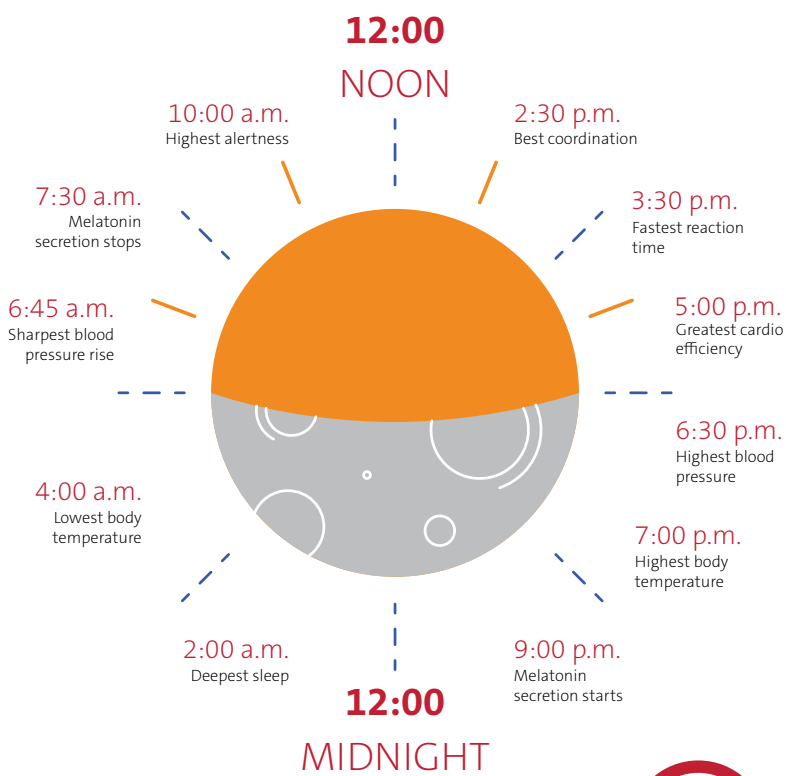
## Circadian entrainment and its impact on health

Over the years, many studies have been done to measure the negative health impacts of poor sleep and extended time indoors away from the sun. The lighting industry has embraced a future where health and lighting are inextricably tied together, but how do we evolve the practice of designing indoor lighting to deliver better sleep?

Indoor lighting designed for visual illuminance sufficient for tasks does not address the volumes of light needed to keep our circadian system synchronized or entrained. When we don't get enough bright light during the day and less light at night, our circadian rhythm tends to wander a little bit each day, and our sleep patterns suffer.

Based on the body of research, the delivery of a minimum of two hours of circadian-effective light (measured as a circadian stimulus (CS) of equal or greater than 0.30), should be provided during the day and in the morning to be most effective. A CS of less than 0.1 at night is recommended.

During the day and night, our bodies flow through a series of predictable time-of-day sequences that help regulate our health. At noon, humans are between their highest alertness and best coordination. At midnight, we are between melatonin secretion starting and our deepest sleep.

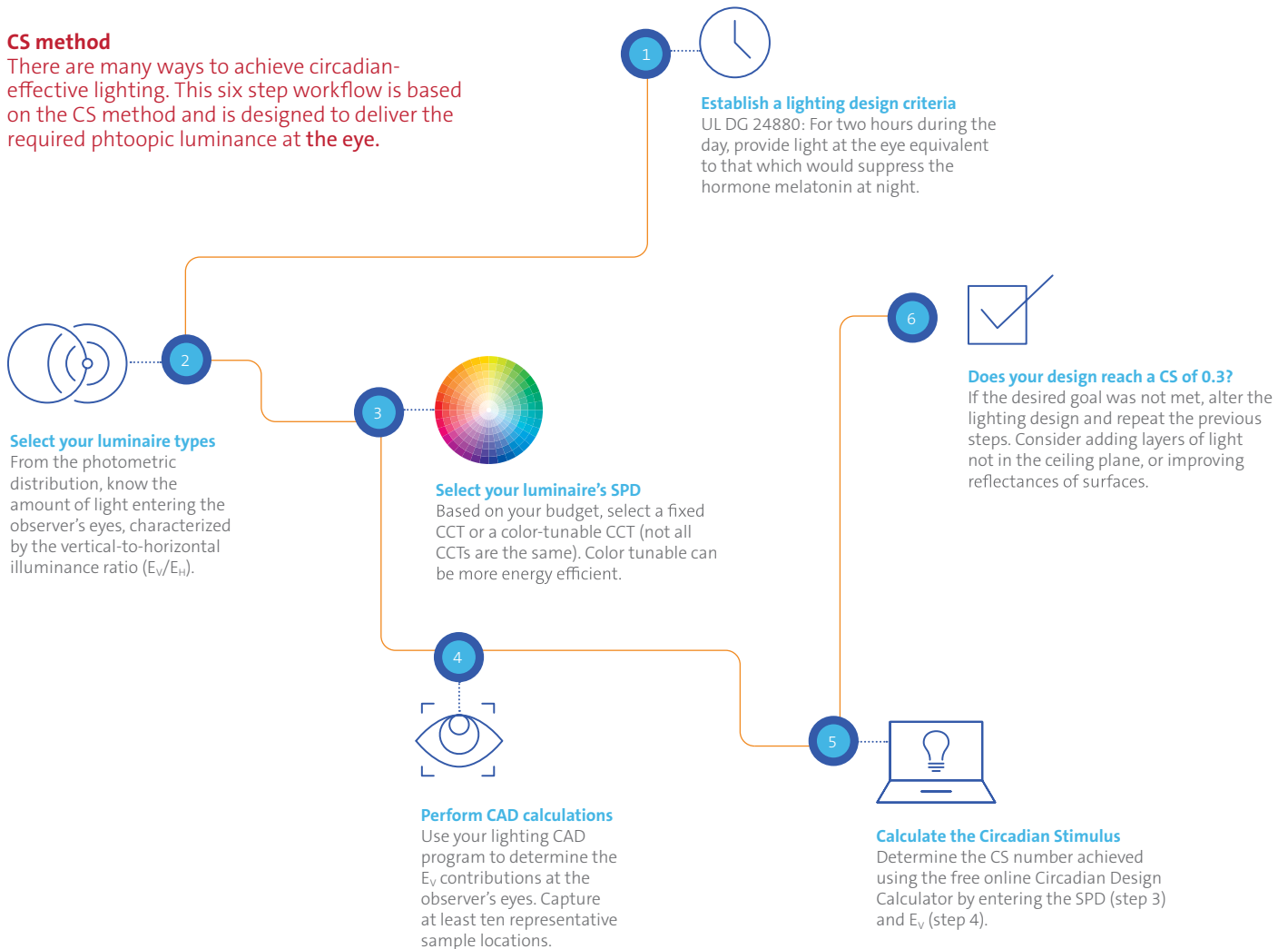


# Six steps using the circadian stimulus (CS) method

UL recently published the optional **Design Guideline 24480 Promoting Circadian Entrainment with Light for Day-Active People**. This document offers the details of 65 peer-reviewed research publications spanning eight decades. While the document offers the details behind UL DG 24480, these six simple steps for designing a space for improved circadian entrainment and delivering the benefits to building occupants are key.

## CS method

There are many ways to achieve circadian-effective lighting. This six step workflow is based on the CS method and is designed to deliver the required photopic luminance at the eye.



Visit our human centric web page for more information, or contact us at [lightinginfo@ul.com](mailto:lightinginfo@ul.com) to start the conversation about your project.



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