

Shining a light on wellbeing

Part 2 of a two-part series

BY CLAIRE THOMPSON

The intricate impacts of light on the human circadian system are opening the doors to new approaches to lighting design. Part 1 of this series explored the research that looks at how lighting can assist in regulating human health; in Part 2, we look at how lighting designers can apply the findings.

Dr Mariana Figueiro, the head of the Light and Health Program at Rensselaer's Lighting Research Center in Troy, New York, is a leading expert in the intersection between lighting and health. According to Dr Figueiro, designers can maximise the health of building occupants by developing lighting plans that mimic daylight patterns:

"For office lighting, I recommend, at least during the first two or three hours in the morning, that office inhabitants should receive higher amounts of light from cooler light sources. And then towards the evening hours, the amount of light could be reduced," she says.

In residential spaces, the same pattern can be applied: bright light in the morning, which can be achieved by the strategic use of daylight or manufactured (electric) light sources, followed by a tapering off in the evening hours and a switch to warmer, dimmer light sources to encourage good circadian health.

Physical health is one side of the coin, but light can also play a significant role in regulating emotional wellbeing. According to David Lewis, a lighting consultant and the Broadcast Lighting

Director for the 2016 Olympic Games, developing an understanding of human psychology is an important component of effective lighting design practice.

Lewis's knowledge in this sphere informed the design of a major Sydney public transport project, the Epping to Chatswood Rail Link. A collaboration between Lewis and PointOfView, the project required a lighting plan for three Sydney stations - Chatswood, Epping and Macquarie Park - which Lewis says remain a study in human-centred lighting design.

"The real objective is not about numbers and lux and standards; the real objective, of course, is quite simple: it's about getting the commuters safely from the surface down to the train, or vice versa," Lewis says of the project.

The design direction was to create a mainly indirect lighting solution to illuminate the ceiling, according to Mark Elliott, Principal at PointOfView. From an aesthetic viewpoint, this approach enhances the architecture, drawing attention to the asymmetrically curved roof structure, but it also emphasises the height of the ceiling, reducing the sensation of being in an enclosed space and enabling the public to forget they are underground.

The upper level of the station was designed to mimic a daytime sky by recreating a sense of daylight in underground space during daytime hours, and transforming the stations into safe and cozy havens at night.



"That was the basic philosophy: to use colour temperature or the variance between colour temperatures to start the process of making you feel comfortable while you enter the concourse," Lewis says.

"In lighting terms, we used a high colour temperature light source [to simulate] the sky, so the whole of the cavernous roof was softly washed. There was a subconscious feeling that once you go into this place, it's not that threatening.

"By the time you got to the platform, because you might stand around for 10 or 15 minutes waiting for a train, we wanted to use a warmer

colour temperature, so that felt cosier and comfortable and relaxed."

This sort of health and human-centred lighting design holds enormous implications for clients looking to influence the way people behave in a certain space, whether it's a retail store, a health care environment. But even though research is showing us how to use lighting as a tool to promote good health practices, we're seeing surprisingly little on the implementation side; lighting remains largely a functional or aesthetic tool rather than something that is used to maximise the health of building occupants and visitors.

Stations on the Epping to Chatswood Rail Link are brightly lit at night, encouraging commuters to enter the space with a sense of safety and wellbeing. Photography by Brett Winstone, image courtesy of PointOfView.

Lewis says that the sheer number of stakeholders involved in these sorts of projects result in a variety of competing objectives coming into play, whether it's budget, client expectations or differing views on where the project emphasis should lie.

"The creative team doesn't always get to make the call, despite the fact that they are more often than not completely competent in creating a human-based solution," he says.

Figueiro also acknowledges the complexity of the issue, but says it's time for designers to start integrating health-friendly design into their lighting projects.

"Designers need to start thinking about, 'How do I bring daylight, how do I bring the natural light/dark patters into the built environment?' and the challenge is, how do you do that with all the energy codes and, you know, the operation costs and so on? That's really something we need to start thinking more about," she says. ■



Recreating a sense of daylight in the Epping to Chatswood Rail Link's underground spaces responds to the human psychological need to feel safe. Photography by Brett Winstone, image courtesy of PointOfView.



Warmer colour temperatures create a feeling of relaxation in passenger waiting areas. Photography by Brett Winstone, image courtesy of PointOfView.