



HCL – Human Centric Lighting

Human Centric Lighting (HCL) promises improved well-being, better concentration and support for the human circadian rhythm. Yet without a clear definition, HCL often remains a marketing term rather than a proven quality feature.

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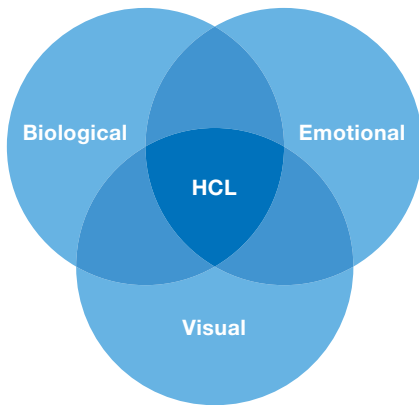
VDE

Credibility Gap

Harmonized standards for designing, measuring, and validating biological lighting effects are still missing. Manufacturers develop innovative tunable-white solutions without clear performance targets, while specifiers and public tenders lack reliable criteria.

Proven Performance

It makes biological lighting effects visible and verifiable – from spectral composition and light quality to control behavior and overall system performance, based on scientific principles and clear criteria. What matters is not the idea, but the result. The certification confirms that luminaires and lighting systems truly put people at the center – measurable, tested, and transparent.



On closer inspection, the HCL concept goes far beyond adjusting lighting intensity and color temperature by taking a holistic view of lighting effects. In addition to visual and biological aspects, the usage context is considered, whether the environment is performance-oriented or relaxing, how requirements change throughout the day, and whether different areas serve different tasks. Additional goals, such as promoting creativity or calmness, can further shape the lighting concept.

Why it Matters

With VDE HCL Certification, lighting manufacturers gain clarity, confidence, and market differentiation. Scientifically based criteria make Human Centric Lighting measurable and transparent, replacing vague claims with validated performance.

Clear development targets support R&D teams, independent validation reduces risk for quality management, and a recognized quality mark strengthens trust and market positioning.

Key advantages for manufacturers

- Verified biological and photometric performance, based on CIE S 026 and DIN standards
- Stronger differentiation in tenders and project specifications
- Simplified compliance with safety and future EU regulatory demands
- Credible marketing backed by an independent institute
- Increased trust from planners, architects, and buyers
- Support for higher product margins through proven value



The Concept

HCL serves to fulfill a holistic and targeted approach that places people at the center of the planning and operation of a lighting system. Fundamentally, light always has an effect on people—consciously or unconsciously. The effect can be planned or unplanned. It is therefore necessary to plan according to "good" criteria that are tailored to specific needs.

Visual approach

Good visibility is essential for efficient work. Standards and legal regulations define minimum lighting requirements to ensure visual tasks can be performed in workplaces. Standards such as DIN EN 12464-1 "Lighting of workplaces" provide planners with minimum values for lighting design, while operators ensure compliance in accordance with the Workplace Ordinance and ASR A 3.4. DGUV publications offer additional guidance on lighting operation. The goal of both planning and operation should always be optimal visual conditions, taking individual needs – such as the increased light requirements of older people – into appropriate consideration.

Biological approach

Biological effects must be considered and planned with great care. They affect the circadian rhythm and can have a stabilizing effect, supporting the need for performance during the day and good sleep at night. In the short term, they can increase alertness and wakefulness.

Recommendations and information on planning biological or melanopic effects can be found in the publications DIN SPEC 5031-100 and DIN SPEC 67600, as well as in the new DGUV information on the non-visual effects of light in the context of occupational safety.

Adverse biological effects caused by incorrect lighting at the wrong time can be avoided with a good HCL concept.



Emotional approach

Architectural, aesthetic, and perceptual-psychological criteria, as well as user expectations, play an important role in supporting well-being in social environments. These aspects are based on interdisciplinary guidelines and good practice, but are difficult to quantify and not covered by standards or regulations.

When spaces are designed with appealing light and formal elements that meet expectations, acceptance, satisfaction, and well-being increase. The following criteria are intended to support designers and planners in creating a pleasant indoor atmosphere.

Please visit us online for more information



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