



# Clearvision Overview

## Introduction

Lighting has a crucial role to play in the modern world. As one of the largest sectors producing CO<sup>2</sup> emissions – three times that of aviation – lighting must be at the forefront of efforts to combat climate change.

Clearvision was created from the view that sustainability and ergonomics lie at the heart of a new approach to lighting workplaces. Ten years on, this is still very much our vision.

## Productivity and ergonomics

We challenge many of the assumptions that underlie lighting products and practice from an era of cheap energy. We are committed to the principles of good lighting application. These include practical design and quality products as a given. They also include knowledge of vision science, human biology and psychology in relation to workplaces.

It is vital to recognise that better lighting can be achieved at lower levels and using less energy, but only if we are prepared to invest in improved equipment and design.

## Research into lighting and health

Excellent research by academics as well as leading lighting companies has furthered understanding of our relationship with light. In particular, the role played by short wavelengths in controlling the human ‘circadian’ rhythm is key. This has provided the science to support much observational research over why academic and work performance improves under higher colour temperatures (5000K+) similar to daylight. See pages 6 & 7 for more on this subject.

## Low energy systems

We are moving towards a world that recognises that absolute energy consumption must be controlled. This will soon manifest itself in restrictions on watts/m<sup>2</sup> and kWh/m<sup>2</sup>/year as the prime measures for control. These have the important advantages of being transparent and understandable to people outside of the lighting world. Success will come from combining effective products with skilled design and lighting control – and almost certainly from a supplier that will provide technical support both before and after the sale (see pages 8 & 9 for more explanation).

## Controls and daylight

The advantages of automatic lighting control are now widely recognised, as are many of the problems. Designing appropriate forms of control, topology, protocols and system integration is complex where advanced features and functions are needed. In these cases, the lighting suppliers need to understand the systems almost as well as the control manufacturer. (see pages 14 - 17 for more on this subject)

It is smarter to apply less technology when only simple functions (daylight linking/presence detection) are required. Controls will only save energy if well commissioned and operated. We must learn from the many instances where the investment is wasted after installation.

## Daylighting

Daylight is the quality reference for workplace lighting. However, too much of the real thing is wasted. Daylight needs to be harnessed and integrated with the artificial lighting. Generically, artificial daylight, and Virtual Daylight® in particular, are well suited to integrating with natural daylight. For more on daylighting technologies please refer to pages 12 & 13.

## Investment in quality

For lighting products to be sustainable they must use energy saving technology, have good material longevity, be well designed and recyclable at the end of their life. It is inevitable that these products will not be the cheapest on the market and therefore the decision must be made to consider whole of life costs ahead of initial cost.

## Design

Lighting design will improve as the tools improve and access to those tools increases. Dialux is one of the best photometric design tools available and it is made available free to users. Clearvision provides free plug-in software (download at [www.virtualdaylight.com](http://www.virtualdaylight.com)) containing our light fitting information for any designer wishing to work with our products. We also provide training, design support and consultancy on projects.

Luminaire data is also available in Eulumdat format and is easily imported into most lighting calculation/design software, such as Relux.