

# Light: fantastic

**Rodger Henderson, operations manager at Waldmann Lighting UK, explains how proper lighting can both save energy and boost efficiency**

**T**he answer to saving energy while boosting efficiency lies in matching intelligent lighting *Concepts* with the appropriate lighting *Components*. Waldmann Lighting calls this the Twin-C approach.

The conventional approach to workplace lighting has been to tailor the amount of light provided to the size of the area to be illuminated, rather than the actual tasks being carried out in that space. The result is often a lighting system that gives a high and uniform level of general illumination, but does not give enough light where it is needed – at the point of work.

Energy bills are larger and yet productivity, quality and safety performance requirements are not met. Typical areas where the Twin-C approach can be applied include assembly plants, production lines, quality control and inspection stations, packaging and order picking areas, painting workstations, aisles where materials and products are transported and machining cells.

Lighting has a direct impact on productivity. The correct lighting solution can increase a company's productivity by up to 40 per cent. The eye requires proper lighting to process information, and the more complex the visual task, then the more light it needs. So, performance is enhanced as light increases.

Light has a direct effect on the level of the sleep hormone melatonin. Fatigue decreases as light levels increase, and this too has a positive effect on quality levels. Proper lighting



*Rodger Henderson – a 60-year-old needs around double the light of a 20-year-old to see clearly, he says*

is especially important during night shifts.

If operators can see properly they not only work more effectively, they are also less likely to make mistakes. Proper lighting can cut defect rates by 50 per cent – higher productivity and higher margins.

The factors that determine productivity also play a crucial role in workplace safety: 66 per cent of workplace accidents occur in areas where there is poor lighting (less than 500 lux), and the most severe injuries

occur at the lowest light levels. As the light level increases, mistakes and lapses in attention decrease and so does the accident rate.

Proper lighting also avoids mistakes and accidents due to poor colour recognition and eliminates the danger of stroboscopic effects that make moving machinery appear to be stationary.

The effects of good lighting can be most pronounced when the Twin-C approach is used to provide solutions that employees can adjust to suit their own preferences and eyesight.

As people get older, their pupils become less flexible, making it harder for them to dilate. This means that they need more light to be able to see properly than their younger colleagues. A 60-year-old needs around double the light of a 20-year-old to see clearly.

Workers also need to be able to adjust lighting to avoid glare, and the sensitivity to glare also increases with age, so older employees need more accurate control over lighting to avoid problems such as headaches and eyestrain.

And by ensuring light is only provided exactly where it is needed, there is no need to waste energy by providing high levels of illumination throughout the work space. But, perhaps surprisingly, cutting the overall amount of lighting does not leave employees with less light. On the contrary, they have better individual lighting providing better and more appropriate illumination of the task they are working on. □