

Chapter 22: On the horizon

22.1 Changes and challenges

Lighting practice does not exist in a vacuum. Rather, lighting practice occurs within a business and social environment and that environment is always changing. The resulting changes and challenges can be gradual or sudden; technical, economic or political, but all are likely to result in adjustments in lighting practice. This chapter is concerned with the sort of changes and challenges that are already on the horizon and that are likely to impact lighting practice in the foreseeable future.

22.2 The changes and challenges facing lighting practice

22.2.1 Costs

Costs have always been an important consideration for lighting applications, the balance between first and operating costs changing as the price of electricity has changed. The price of electricity varies with the source of fuel. In the UK, recent increases in demand for oil and gas and reductions in supply have resulted in dramatic increases in the price of electricity. Whatever the cause, any increase in the cost of electricity implies a shift in emphasis to operating costs and enthusiasm for technologies that minimise electricity consumption and maximise energy efficiency, together with a closer examination of the basis of many lighting recommendations.

22.2.2 Technologies

Light emitting diodes (LEDs)

Lighting is unique amongst technologies in that the first electric light source invented, the incandescent lamp, is still the most widely used. This is in spite of the ingenuity of the lighting industry, which has produced a dazzling array of new light sources with much greater luminous efficacies, longer lives and a wide range of colour properties. However, the reign of the incandescent lamp is under threat from influential forces and new technology. The influential forces are those who see the elimination of the cheap but inefficient incandescent lamp as desirable for environmental, political or commercial reasons. The new technology is the LED. LEDs have already displaced the incandescent lamp from many signs and signals, are starting to appear in near field lighting installations such as reading lamps, and are poised to make the breakthrough into general illumination. When they do they will not only show improvements on existing criteria, such as luminous efficacy and lamp life, but also offer new possibilities, such as luminaires which allow changes in light level, light distribution and light spectrum to be made quickly and easily.

Lighting controls

Lighting control systems are becoming more sophisticated. This is now possible for a number of reasons. First, enormous amounts of computer power are now available in very small packages. Second, developments in wireless communication have enhanced flexibility and removed the need for expensive rewiring. Third, there are a number of widely recognised communication protocols that enable equipment from different manufacturers to work together. As a result of these changes the integration of daylight and electric lighting is much easier, individual control of electric lighting is a real possibility, and the dimming of road lighting at night as traffic flows diminish is being seriously considered (Walker, 2007).

22.2.3 New knowledge

There are a number of areas in which research is revealing an understanding that has important implications for lighting practice.