1.1.6.3 Lighting engineering and lighting design

The growing demand for quality lighting design was accompanied by the demand for quality lighting equipment. Differentiated lighting required specialised luminaires designed to cope with specific lighting tasks. You need completely different luminaires to achieve uniform washlight over a wall area, for example, than you do for accentuating one individual object, or different ones again for the permanent lighting in a theatre foyer than for the variable lighting required in a multi-purpose hall or exhibition space.

The development of technical possibilities and lighting application led to a productive correlation: industry had to meet the designers' demands for new luminaires, and further developments in the field of lamp technology and luminaire design were promoted to suit particular applications required by the lighting designers.

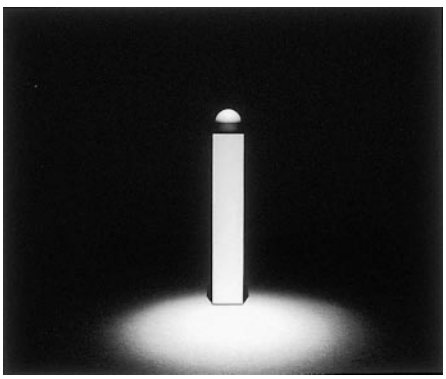
New lighting developments served to allow spatial differentiation and more flexible lighting. Exposed incandescent and fluorescent lamps were replaced by a variety of specialised reflector luminaires, providing the first opportunity to direct light purposefully into certain areas or onto objects – from the uniform lighting of extensive surfaces using wall or ceiling washers to the accentuation of a precisely defined area by means of reflector spotlights. The development of track lighting opened up further scope for lighting design, because it allowed enormous flexibility. Lighting installations could be adapted to meet the respective requirements of the space.

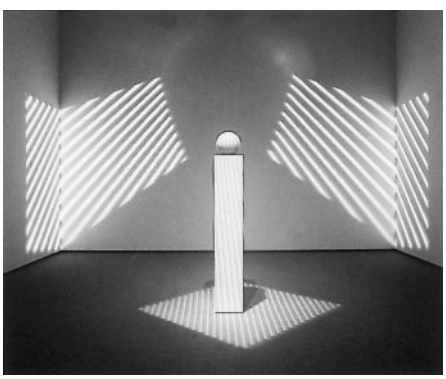
Products that allowed spatial differentiation were followed by new developments that offered time-related differentiation: lighting control systems. With the use of compact control systems it has become possible to plan lighting installations that not only offer one fixed application, but are able to define a range of light scenes. Each scene can be adjusted to suit the requirements of a particular situation. This might be the different lighting conditions required for a podium discussion or for a slide show, but it might also be a matter of adapting to changes within a specific environment: the changing intensity of daylight or the time of day. Lighting control systems are therefore a logical consequence of spatial differentiation, allowing a lighting installation to be utilised to the full – a seamless transition between individual scenes, which is simply not feasible via manual switching.

There is currently considerable research and development being undertaken in the field of compact light sources: among the incandescents the halogen lamp, whose sparkling, concentrated light provides new concepts for display lighting. Similar qualities are achieved in the field of discharge lamps with metal halide sources. Concentrated light can be applied effectively over larger distances. The third new development is the compact fluorescent lamp, which combines the advantages of the linear fluorescent with smaller volume, thereby achieving improved optical control, ideally suited to energy-efficient fluorescent downlights, for example.

All this means that lighting designers have a further range of tools at their disposal for the creation of differentiated lighting to meet the requirements of the specific situation and the perceptual needs of the people using the space. It can be expected in future that progress in the field of lighting design will depend on the continuing further development of light sources and luminaires, but above all on the consistent application of this 'hardware' in the interest of qualitative lighting design. Exotic solutions – using equipment such as laser lighting or lighting using huge reflector systems – will remain isolated cases and will not become part of general lighting practice.

Focal glow.





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