

Chapter 13: Lighting for museums and art galleries

13.1 Functions of lighting in museums and art galleries

Museums and art galleries come in many different forms, ranging from historic buildings to purpose-built facilities. Likewise, the objects they contain come in many different forms. Some are freestanding, some are wall mounted, some are contained in showcases and some are there to be experienced. Despite this diversity, the lighting of all types of museums and art galleries has five functions:

- to display the objects to advantage
- to minimise the damage done to the objects by exposure to light
- to show off the architecture of the facility
- to help maintain the security of the facility
- to provide assistance for egress in an emergency situation.

Guidance on all these topics is given elsewhere (Loe et al, 1982; Phillips, 1997; Cuttle, 2007).

13.2 Factors to be considered

13.2.1 Daylight or electric light

One of the first decisions the designer of lighting in a museum or art gallery has to take is what balance should be struck between daylight and electric light. For some exhibits, such as light art, daylight has to be excluded. For others, such as sculpture, daylight is preferred but the widespread use of daylight can be in conflict with conservation if the exhibits are sensitive to light. One compromise that is often used is to provide daylight and a view out through alcoves off the main display areas. When it is decided to use daylight as the primary light source, it is important that the designer should preserve the most attractive features of daylight, namely its changes in amount and colour. There is little point in controlling daylight so closely that it cannot be distinguished from electric lighting. Electric lighting will always be required for use after dark but can be adjusted during daytime when sufficient daylight is available (see Section 7.2).

13.2.2 Conservation of exhibits

Exposure to light can cause damage to objects by radiant heating and by photochemical action. Radiant heating causes surface layers to expand and moisture in the object to be driven out. This results in cracking and lifting together with a loss of colour. Photochemical action is a chemical change produced by the absorption of photons. Symptoms of photochemical damage are pigment colour changes and loss of mechanical strength.

The obvious first step to minimise such damage to exhibits is to shield them from both ultra-violet and infrared radiation. This radiation does not contribute to vision but does cause damage. The strongest source of ultra-violet radiation per lumen of light is daylight, even after passage through glass. The strongest sources of infrared radiation per lumen of light are the incandescent light sources. All sources of light should be filtered to minimise ultra-violet and infrared radiation unless required for display purposes.