Downlights

Downlights are a form of direct luminaire characterised by a small light emitting aperture. Downlights are usually recessed into the ceiling so they direct all of their light output downward. They are widely used in shops, hotels and other places where a lighting installation with a discreet appearance is desired. Many different light sources can be used in downlights, the most common being incandescent, tungsten halogen, compact fluorescent and metal halide. Through the use of reflectors, louvres, lenses and refractors many different beam spreads and beam sizes are possible (see Section 4.3.2). Some downlights allow for adjustable aiming which is useful when the intention is accent lighting. A number of downlights are fitted with decorative elements directly beneath the downlight aperture to give an impression of brightness to the luminaire. The most common problems with lighting installations using an array of downlights to create uniform illumination are poor illuminance uniformity caused by overspacing and dark ceilings. Care is necessary to avoid a fire hazard when recessing downlights into an insulated ceiling. Figure 4.13 shows a selection of downlights.

Figure 4.13 Examples of downlights

Spotlights

Spotlights are narrow beam luminaires with beam spreads in the range 5 to 30 degrees. They are usually mounted on either a base plate or lighting track. When track mounted, spotlights can be obtained for operation at mains voltage, low voltage or extra low voltage, the latter requiring the installation of a step-down transformer. Spotlights are widely used in shops, hotels and museums for accent lighting. Spotlights are available that use incandescent, tungsten halogen, metal halide and extra high pressure sodium light sources of small physical size. Some incandescent and tungsten halogen light sources can be used as spotlights themselves because they have reflectors giving the desired beam spread built in. Other light sources have to use reflectors to attain optical control. Filters mounted in front of the spotlight can be used to change the light colour. Irises and baffles mounted in front of the spotlight can be used to modify the beam shape. Care is necessary when using spotlights to avoid glare to passers by. Figure 4.14 shows a selection of spotlights.

Figure 4.14 Examples of spotlights