4.0 Construction

All luminaires should be designed to withstand the rigours of transport to the site, installation and prolonged use. Generally, exterior luminaires need to be more substantial than those designed for interior use. Some luminaires are designed to resist the ingress of foreign objects, dust and moisture. Such luminaires have a transparent front cover and all points of access to the luminaire have a seal. Front covers are usually made of glass or plastic. Where there is a risk of physical impact, as in a sports hall, glass or acrylic front covers need to be covered with a wire screen. If a polycarbonate front cover is used, (minimum IK07) no such screen is necessary. As for the seals, these come in various forms from a simple felt seal to convoluted notched rubber seals. The effectiveness of these seals is quantified by the IP classification system and the IK classification of impact energy (see Chapter D / 7.4.2 / Tables 14 and 15).

5.0 Optical Control

Optical control of the light output from a light source is achieved by some combination of reflectors, refractors, diffusers, baffles or filters. Several types of reflectors are used in luminaires; specular, semi-specular and mattor diffuse. Specular reflectors are used when a precise light distribution is required. The shape of the reflector and its position relative to the light source determine the light distribution. The most common shapes for reflectors are circular, parabolic and elliptical.

5.1 Reflectors

A circular reflector with a point light source at its focus will produce a light distribution of the type shown in Figure 84, reflections from some parts of the reflector being almost parallel while those from parts of the reflector away from the axis are divergent. This type of circular reflector is used in cylindrical form for wall grazing using tubular incandescent and fluorescent light sources.

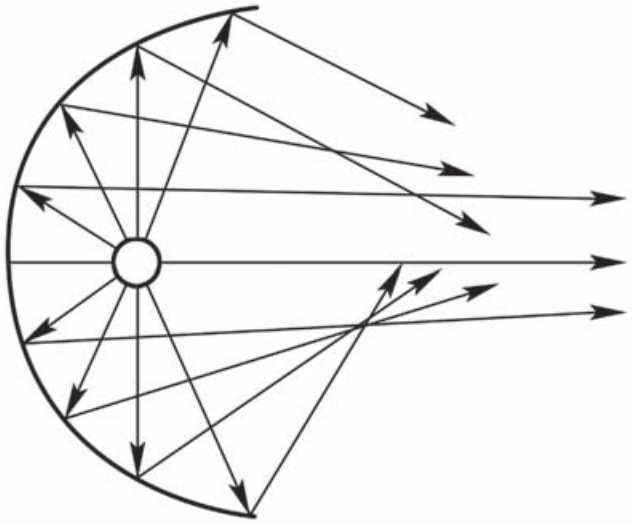

Figure 84
The light distribution from a circular reflector with a point light source at its focus.