

14.3.9 Clinical areas and operating departments

Clinical areas and operating departments are locations where surgical, clinical or medical procedures are carried out. The main function of lighting in such areas is to provide sufficient light for the critical examination of patients, for carrying out operating procedures and for the use of life support apparatus. It is essential that the general lighting should have a CIE general colour rendering index of 90 or more and should provide an even distribution of illuminance throughout the department.

Ceilings and walls should have a semi-gloss or eggshell finish. The walls should not produce reflected images of the luminaires, especially where they might occur at the eye-height of operating theatre staff. The ceiling reflectance should be 0.7 to 0.9 which can be achieved by the use of off-white or a pale shade, other than blue or green. This will assist in controlling the luminance contrast between the ceiling and the general lighting luminaires. The walls should have a tinted finish, rather than white, with a reflectance of 0.5 to 0.8. The floor should have a light-tone finish with a reflectance of at least 0.3 to maintain an adequate inter-reflected light component, especially within the actual operating theatre.

All luminaires used within a theatre complex should have ingress protection of at least IP 54. In addition all luminaires must be constructed to allow for easy cleaning.

14.3.10 Operating theatres

European standard BS EN 60601-2-41: 2000 provides detailed information on the requirements of 'luminaires for diagnosis', 'minor (treatment) surgical luminaires' and 'major and system surgical luminaires.'

The illuminance in the surgical field will be determined by the type of surgical procedure, the depth of the body cavity to be illuminated and the angle of illumination. Consequently different surgical procedures will require operating luminaires of varying luminous intensities and illuminated field sizes. In a large operating theatre suite each theatre may be equipped with an operating luminaire specifically suited to the type of surgery to be undertaken in each theatre. In smaller suites where various types of surgical procedures will be undertaken in the same theatre, it will be necessary to select an operating luminaire that will provide the best all-round solution (Figure 14.8).



Figure 14.8
Operating theatre luminaires