

19.4.3 Indoor arenas

Indoor arenas are usually built to cater for a variety of events, some sporting and some not. Permanent spectator seating is arranged around the event floor with temporary seating being placed on the floor as required. Given the variety of uses, the temptation is to design the lighting to meet all possibilities but experience suggests that the best approach is to provide permanent lighting for the main sports event and for setting up, using temporary lighting for any specific event that calls for something different (Figure 19.7).

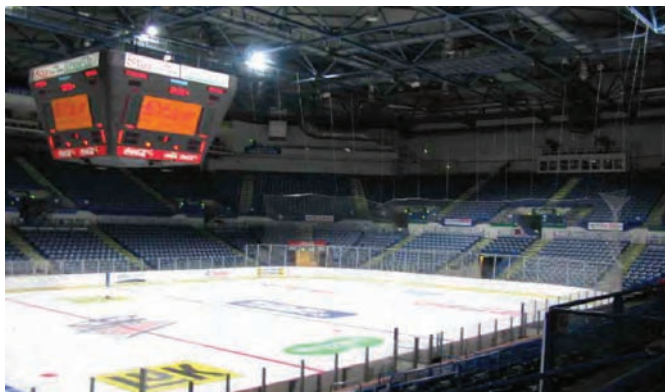


Figure 19.7

Lighting of an indoor arena

The usual approach for lighting the sports area of indoor arenas is to use floodlights similar to those used for outdoor stadia. The design is built up from overlapping beams until the whole area is covered. Higher illuminances are created by adding more layers. Some flexibility is needed to cover different sports that use different parts of the sport area. This can be achieved by switching different layers of light.

Given the different uses to which an arena may be put, there will be a need for frequent changes of the floor. This requires a separate lighting installation for setting up, a lighting installation that provides 100 lx on the floor. If the set-up lighting is also used as house lighting, a light source with a CIE general colour rendering index of 80 should be used. If the set-up lighting is not used as house lighting, a separate lighting installation will be needed over the permanent seating providing a similar illuminance to the set-up lighting. This lighting may need to be dimmed during the events.

19.4.4 Swimming pools

Swimming pools vary widely in design but they all have a problem with high luminance reflections from the water surface. This is important because such reflections tend to mask what is happening beneath the water. The reflectance of water increases rapidly as the angle of incidence exceeds 70 degrees. In principle, it should be easy to eliminate high luminance reflections by ensuring that the angle of incidence is below 70 degrees. However, movement of the water means that the angle of incidence can vary dramatically.

For indoor pools, a good approach is to use indirect lighting designed to ensure that there are no high luminances to be reflected, apart from any views of the sky and sun through windows or skylights (Figure 19.8). There are two factors that influence the location of indirect luminaires. The first is the need to maintain the luminaires. Luminaires should not be located over the pool unless they are accessible from catwalks or from behind the ceiling. The second is the need to avoid glare to spectators and pool attendants, both of whom may be sitting some height above the water. Luminaires in indoor pools should be constructed to withstand high temperatures, humidity and corrosion. A minimum IP number of IP54 is recommended.