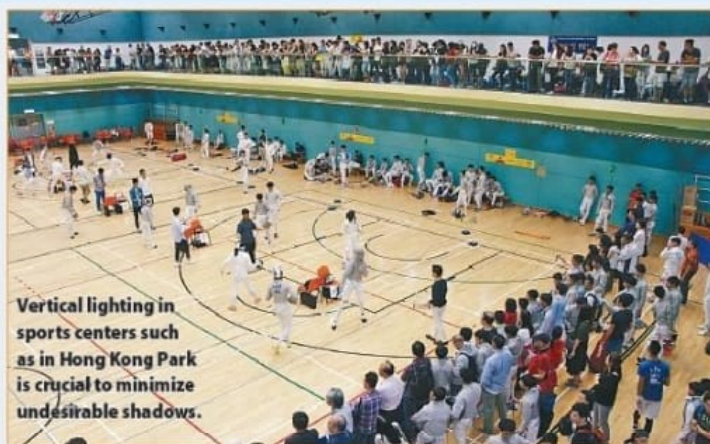


City Talk



Vertical lighting in sports centers such as in Hong Kong Park is crucial to minimize undesirable shadows.

TECH KEEPS SHADOWS AWAY FROM THE GAMES

Returning to my theme on facilities for competitive sports, let me describe the particulars of building services for stadiums and rooms.

We hear comments from athletes that they sometimes find it difficult to adjust to different sports stadiums when competing overseas. While this is expected, I believe organizers can refine their facilities to minimize such difficulties.

A common issue is lighting.

As some rooms are designed for multiple purposes, such as basketball, badminton, tennis, table-tennis and other games, it will be difficult to cater for all conditions.

The location of light sources will affect the degree of lumination and, worse still, cause shadows.

Ideally, lighting should be bright but cause no glare and show no shadows in front of players.

A large number of lights, spread over the ceiling evenly at the playing area, would be a better arrangement than fewer bright lights with large spacing.

Such lighting devices should give direct vertical luminance to the floor or tables, as oblique lighting will cause undesirable shadows.

Lighting for the spectator stands should be less bright to avoid glare.

Another important issue is commonly ventilation.

For games halls in tropical countries, air-conditioning is required to provide comfort with lower temperatures and humidity than outside.

The air outlets must also be designed so that it will not impact on the players and airborne sports equipment such as badminton or tennis balls.

Airflow should not affect athletes who have to adjust their batting strokes when they swap direction with their opponents.

Again, for multi-purpose halls, the flooring must be designed so that it can allow for various sports events to be held.

Hard flooring may be good enough for table-tennis, tennis and badminton, but for



Nuts and bolts

Edmund Leung

gymnastics, a softer wood surface is required. To provide the necessary support to minimize injury, the floor must have ability to cushion the shock that gymnasts feel when they hit the floor after a jump. This requires a soft structure beneath the foam carpet covering.

The monitoring system should allow CCTV coverage from a wide range of angles, with high resolution, to enable the scrutineers to quickly assess the actual movements of the balls.

Modern AI systems allow them and the spectators to clearly watch the replays to confirm the scores.

The time-keeping system should be capable of measuring speeds up to hundredths of a second as current competitive sports depend on split-seconds to distinguish winners.

For the safety of spectators, the stadium must be designed for the smooth and quick evacuation of a large number of persons at a time of emergency.

An adequate number of emergency escape exits must be provided so that spectators, who may not be familiar with the site, can leave safely and in an orderly manner.

Passages must be brightly lit and with minimal bends and restrictions. Where there are different floors, large landing spaces must be built to allow a cushion for people to leave as some may walk faster than others.

Where escalators are used, an adequate number of flights, large landing spaces between flights, and staircases adjacent should be provided to offer additional capacity in the event of machine failure or maintenance needs.

Competitive sports are good entertainment to the public, but without modern technology their enjoyment of the games will be hampered. New technologies are being developed continuously to match the fast-growing and wide range of sports that occur these days.

Veteran engineer Edmund Leung Kwong-ho casts an expert eye over Hong Kong's iconic infrastructure