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LIGHTING FOR TENNIS

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Summary

This report presents a summary of experience in the lighting of tennis courts.

Recommendations are given for daylight and artificial light in indoor tennis courts. The report provides a guidance for the selection of lamps, luminaires and lighting systems. The same themes - daylight excepted - are dealt with for outdoor tennis courts.

Résumé

Ce rapport résume l'expérience acquise dans l'éclairage des courts de tennis.

Il propose des recommandations pour l'éclairage naturel et artificiel des courts de tennis couverts. Le rapport donne des indications pour le choix des lampes, des luminaires et des dispositifs d'éclairage. Il traite également des courts de tennis de plein air, sauf en ce qui concerne la lumière naturelle.

Zusammenfassung

Dieser Bericht bietet eine Zusammenfassung der Erfahrungen bei der Beleuchtung von Tennisplätzen.

Es werden Empfehlungen gegeben für das Tages- und Kunstlicht für Tennisplätze im Innenraum. Der Bericht gibt Hinweise für die Auswahl von Lampen, Leuchten und Beleuchtungssystemen. Dieselben Themen - Tageslicht ausgenommen - werden für die Tennisplätze im Freien behandelt.

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1. Introduction

These recommendations relate to the lighting of indoor and outdoor tennis courts, that is, all buildings or areas specifically designed for the sport of tennis.

Whilst the dimensions and marking of tennis courts are standardised, the design of lighting both natural and artificial will depend on the individual site conditions. For this reason, indoor and outdoor courts are dealt with separately.

This dimensions of tennis courts are shown in Figs. 1 and 2. The height of the net is 0.91 to 1.06 m. The diameter of the tennis ball is 6.3 cm to 6.6 cm. The ball can be white, off-white or coloured and has a matt finish. Grass, shales, asphalt or an concrete are the most common surfaces used for outdoor courts, whilst indoor courts can use painted wood, plastic, rubber or synthetic fibre carpets. Inflatable structures can use all the above surfaces except grass. It is not possible to draw up a comprehensive list of court surfaces as this is the subject of constant experiment within tennis clubs.

The general requirements for lighting of sports events for colour television are given in CIE Publication No. 28 "The Lighting of sports events for colour TV broadcasting", 1975. It should be noted that unlike most of the sports areas described in that publication, the television cameras for tennis are positioned at the ends of the court. As floodlights behind the cameras would cause unacceptable glare to players, the television

lighting must be positioned at the sides of the court. With this system it is still possible to obtain good quality television pictures.

2. Indoor Tennis Courts

2.1 Reflectance of walls, ceiling and floor

Tennis makes high demands on visual perception. The small ball attains high speed, often over a short distance, so that there is only a very limited time to judge the flight of the ball correctly. In addition, the players move rapidly in various directions. The players and the ball are mainly seen against the floor and rear walls and high balls are also seen against the ceiling.

There must therefore be a strong contrast in luminance between the players and the ball and their backgrounds. Great differences in luminance over the floor and wall areas hamper perception and must therefore be avoided. In view of this, glossy materials are unsuitable as finishes for these surfaces. Equally, the marking lines on the floor should not be glossy. It is advisable to keep the ceiling and walls plain. Strong contrasting patterns of lines or areas, formed by the structure or internal finishes of the building, should be avoided. A limited number of elements providing an indication of scale can, however, assist in orientation and make distance easier to estimate. Walls or curtains used to stop out of play balls may be considered in this respect.

In order to achieve generally acceptable luminance ratios the reflectance of the walls should be between 0.2 and 0.6. It is preferable to keep to the lower