



JLEDS APPLICATION GUIDE

We are proud suppliers of a range of High Quality LED fixtures for various types of sporting venues.

Do you have a sporting venue which needs modernising or simply updating over to energy saving and highly efficient LED fixtures ? If so, it's very likely if you are considering moving from former Sodium or Metal Halide Lamp types the changeover could also benefit you financially too.

We have assembled here various guides with the prime aim to instil confidence with our product range. We trust once viewed you will know if your venue can be lit by us in the future.

Such venues include, LED fixtures for :-

- Athletics fields
- Badminton and Squash courts
- Basketball courts
- Football pitches
- Golf courses and out buildings
- Hockey pitches
- Ice hockey rinks
- Rugby pitches
- Speedway stadiums
- Sports halls
- Swimming pools
- Tennis courts

If you believe we have the right products to light your venue we invite you to contact us.

In addition to supplying full specifications we also provide IES files and a Lighting Design Service.



Athletics Application Guide



Lighting an athletics track

When lighting an athletic track the objective is to ensure good visibility for athletes, competition judges and team officials to see clearly all that is going on in the competition or training area, so that they can produce their best possible performances, and/or make accurate decisions.

Spectators should be able to follow the performances of the athletes and other action in an agreeable environment. It follows that they must be able to see not only the field area but also its immediate surroundings. The lighting should also enable spectators to safely enter and leave the sports facility.

Where athletics facilities are to be used for non-televised activities, it is only necessary to provide a horizontal illuminance suitable for the required level of activity.

Source: IAAF lighting requirements

Non-televised athletics lighting recommendations

EN12193 Requirements

	Class		
	I	II	III
Horizontal Illuminance (Lux)	500	200	100
Uniformity (Min/Ave)	0.7	0.5	0.5
Glare Rating	50	55	55

Recommendations for televised events

Major events

	Horizontal illuminance	Uniformity Min/Ave	Uniformity Min/Max	Vertical Illuminance	Uniformity Min/Ave	Uniformity Min/Max	Colour Rendering	Glare Rating
HDTV	1500-3000	0.8	0.7	2200	0.7	0.6	>90	<50
Slow-motion Camera	1500-3000	0.8	0.6	1800	0.7	0.5	>80	<50
Fixed Camera	1500-3000	0.8	0.6	1400	0.7	0.5	>80	<50
Mobile Camera	1500-3000	0.8	0.6	1200	0.5	0.3	>80	<50

Average horizontal and vertical illuminance ratios: It is recommended that the ratio for horizontal illuminance (Field of Play) is between 0.75 and 1.5 of the vertical illuminance for cameras. Where there is HDTV all horizontal values for other cameras are as for HDTV

National events

	Horizontal illuminance	Uniformity Min/Ave	Uniformity Min/Max	Vertical Illuminance	Uniformity Min/Ave	Uniformity Min/Max	Colour Rendering	Glare Rating
Camera	1000-2000	0.7	0.5	1000	0.6	0.4	>80	<50

Measurements should be taken 1.5 m above the track surface.

JLEDS offers Athletics LED lighting that emits bright, uniform illumination. Our high-quality LED luminaires are lighting Tracks and Sports grounds around the world.

Recommended Products



Modular MFL
50-600W



FL-A
60-600W



FL-J
800-1500W

For more information or project and lighting design support, please contact our team sales@jleds.co.uk

Basketball Application Guide



Lighting an outdoor basketball/multi-sports court

Playing courts designed for multi-sports should ensure that their proposed lighting considers the needs of all the various sports to be played. Care must be taken to ensure that the lighting design produces uniformity of the required illumination and that glare and light pollution are minimized.

If the playing court is to be employed at evening and night times; it may be advisable to foresee a floodlighting system with lighting towers possibly with light directed towards the free throws midline; this will avoid glare problems to players from the sidelines. Appropriate care should be taken to distribute lighting as uniformly as possible on the playing court; lighting capacity should actually be adjustable according to requirements and when applicable the different competitions being hosted.

Source: Society of Light and Lighting UK.

Outdoor playing court lighting recommendations

EN12193 Requirements

	Class		
	I	II	III
Horizontal Illuminance (Lux)	500	200	75
Uniformity (Min/Ave)	0.7	0.6	0.5
Glare Rating	50	50	55

JLEDS offers Basketball LED lighting that emits bright, uniform illumination. Our high-quality LED luminaires are lighting many basketball and multisport outdoor courts around the world.

Recommended Products



Modular MFL
50-600W



FL-A
60-600W



FL-J
800-1500W



UFO S2 High Bay
100W-150W-200W



LOW BAY LED FIXTURE
100W-150W-200W

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Football Application Guide



Lighting a football field

Because recreational football is usually played in the evening after work, effective lighting maximizes the opportunity for people to take part in the game.

Although the lighting level will obviously be lower than for broadcasted matches, the lighting quality should remain high in terms of uniformity, visual comfort and limitation of obtrusive light, especially in residential areas where leisure sports facilities are often located.

These types of facilities will usually be stand-alone, in residential areas, with little or no spectator capacity. The lighting for non-televised events should be planned so that the horizontal surface of the pitch can be illuminated uniformly regardless of the pole arrangement chosen.

The poles must be positioned outside the normal direction of view for players with regard to their alignment with both goal lines and touch lines.

Source: Society of Light and Lighting UK

Non-televised football lighting recommendations

EN12193 Requirements

	Class		
	I	II	III
Horizontal Illuminance (Lux)	500	200	75
Uniformity (Min/Ave)	0.7	0.7	0.5
Glare Rating	50	50	55

Recommendations for televised events

Major events

	Horizontal illuminance	Uniformity Min/Ave	Uniformity Min/Max	Vertical Illuminance	Uniformity Min/Ave	Uniformity Min/Max	Colour Rendering	Glare Rating
HDTV	1500-3000	0.8	0.7	2200	0.7	0.6	>90	<50
Slow-motion Camera	1500-3000	0.8	0.6	1800	0.7	0.5	>80	<50
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Average horizontal and vertical illuminance ratios: It is recommended that the ratio for horizontal illuminance (Field of Play) is between 0.75 and 1.5 of the vertical illuminance for cameras. Where there is HDTV all horizontal values for other cameras are as for HDTV

National events

	Horizontal illuminance	Uniformity Min/Ave	Uniformity Min/Max	Vertical Illuminance	Uniformity Min/Ave	Uniformity Min/Max	Colour Rendering	Glare Rating
Camera	1000-2000	0.7	0.5	1000	0.6	0.4	>80	<50

Measurements should be taken 1.5 m above the playing surface.

JLEDs offers Football LED lighting that emits bright, uniform illumination, so matches can be played at any time of the day or night with great visibility. Our high-quality LED luminaires are used on multiple football fields and sports grounds around the world

Recommended Products



FL-A
60-600W



FL-J
800-1500W



FL-H
400-1500W

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Golf Application Guide



Lighting a golf course

The distance markers must be clearly visible and the player must be able to follow the flight of the ball. While the tee areas will require separate illumination, there should be general illumination of the full length of the golf range surface.

End-range lighting systems have primarily been utilized to illuminate golf ranges. This type of system employs high-powered floodlights behind tee locations with high angles of elevation to achieve adequate vertical illuminance at each target area.

Mounting heights will have little significant influence upon the resultant illumination of the distance markers, and, as the glare to golfers will not be an influencing factor, low mounting heights may be used. Glare to the surrounding neighborhood is probable from viewing directions towards the tees in the direction of play. Natural screening or careful siting of the golf range will provide the best practical solution to alleviate any direct glare.

Source: Society of Light and Lighting UK



Source: Adobe Stock

Golf range lighting recommendations

EN12193 Requirements

	Class
	III
Horizontal Illuminance (Lux)	100
Uniformity (Min/Ave)	0.8
Glare Rating	50

JLEDs offers Golf LED lighting that emits bright, uniform illumination, so golf can be played even at night with great visibility. Our high-quality LED luminaires are used in Golf courses and Golf ranges around the world.

Recommended Products



FL-H 400-1500W



BR1-75W



BR1-150W



BR1-230W



BR1-450W



BR1-600W



FL-A 250W



FL-J 800-1200

Hockey Application Guide



Lighting a hockey field

There is an increasing desire to use an outdoor hockey facility over a long period of time each day. This will often entail the use of artificial lighting. At one level, this maximizes the value of an investment in a synthetic turf pitch because of the longer periods of use for evening training or local matches. At another level, it enables international competition matches to be held in the evening when spectators are more able to attend and, in some climates, when it is cooler.

Good quality illumination is essential for sports like hockey where players are expected to act quickly on a small but fast-moving ball. This demands a uniform light distribution and a color temperature that matches that of daylight.

For non-televised matches, the illuminance horizontally on the pitch is considered as the plane of reference for the pitch. This approach in practice will then provide sufficient illuminance for players to see each other and for the ball to be seen clearly. For Class I, II, III events it is important for the light levels to be uniform across the entire pitch as well as a 1.5 m perimeter surrounding the field of play.

Source: FIH lighting requirements

Non-televised hockey lighting recommendations

EN12193 Requirements

	Class		
	I	II	III
Horizontal Illuminance (Lux)	750	500	300
Uniformity (Min/Ave)	0.7	0.7	0.7
Glare Rating	50	50	55

Recommendations for televised events

Major events

	Horizontal illuminance	Uniformity Min/Ave	Uniformity Min/Max	Vertical Illuminance	Uniformity Min/Ave	Uniformity Min/Max	Colour Rendering	Glare Rating
HDTV	1500-3000	0.8	0.7	2200	0.7	0.6	>90	<50
Slow-motion Camera	1500-3000	0.8	0.6	1800	0.7	0.5	>80	<50
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National events

	Horizontal illuminance	Uniformity Min/Ave	Uniformity Min/Max	Vertical Illuminance	Uniformity Min/Ave	Uniformity Min/Max	Colour Rendering	Glare Rating
Camera	1000-2000	0.7	0.5	1000	0.6	0.4	>80	<50

Measurements should be taken 1.5 m above the playing surface.

JLEDS offers Hockey LED lighting that emits bright, uniform illumination, so matches can be played at any time of the day or night with great visibility. Our high-quality LED luminaires are used on various hockey pitches and sports grounds around the world.

Recommended Products



FL-A
60-600W



FL-J
800-1500W



FL-H
400-1500W

For more information or project and lighting design support, please contact our team sales@jleds.co.uk

Ice Hockey Application Guide



Lighting an ice hockey rink

The visibility of moving objects is dependent upon the angular size, speed and luminance of its background and the luminance of the surroundings. A high standard of lighting is required as the small, black and fast-moving puck has to be made to contrast against the ice rink so that the spectators and players can see it. This is especially true where there is a large distance between the ice and the spectators, such as in arenas or halls.

As ice acts as a good diffuse reflector there should be no strong patterns of light that could distract from the game. Good lighting uniformity is important for seeing the puck.

Source: Society of Light and Lighting UK

Non-televised ice hockey lighting recommendations

	Class		
	I	II	III
Horizontal Illuminance (Lux)	500	200	75
Uniformity (Min/Ave)	0.7	0.7	0.5
Ra	60	60	20

Recommendations for televised events

Major events

	Horizontal illuminance	Uniformity Min/Ave	Uniformity Min/Max	Vertical Illuminance	Uniformity Min/Ave	Uniformity Min/Max	Colour Rendering	Glare Rating
HDTV	1500-3000	0.8	0.7	2200	0.7	0.6	>90	<50
Slow-motion Camera	1500-3000	0.8	0.6	1800	0.7	0.5	>80	<50
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National events

	Horizontal illuminance	Uniformity Min/Ave	Uniformity Min/Max	Vertical Illuminance	Uniformity Min/Ave	Uniformity Min/Max	Colour Rendering	Glare Rating
Camera	1000-2000	0.7	0.5	1000	0.6	0.4	>80	<50

Measurements should be taken 1.5 m above the track surface.

JLEDS offers Ice Hockey LED lighting that emits bright, uniform illumination. Our high-quality LED luminaires are lighting Ice Hockey rinks around the world.

Recommended Products



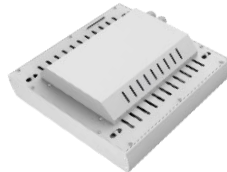
Modular (MFL)
50-800W



FL-A
60-600W



UFO S2 High Bay
100W-150W-200W



LOW BAY LED FIXTURE
100W-150W-200W

For more information or project and lighting design support, please contact our team sales@luxtronik-tech.com

Rugby Application Guide



Lighting a rugby field

The lighting should provide uniform illumination over the full pitch, appropriate to the proposed class of competition. It should also ensure that the full flight of the ball is visible while providing good viewing conditions for players, officials and spectators.

For competitions, the lighting requirements will probably be dictated by the viewing requirements of spectators, which in turn are related to the viewing conditions and spectator capacity of the sports ground. Various lighting systems may be suitable for rugby grounds and stadia. In the provision of any lighting system, thought should be given to reduce visual obstruction of the event for spectators wherever possible.

Care should be taken to ensure that shadows are not cast onto the pitch from floodlights located behind grandstand rooflines. It is permissible to place poles in line with or close to the scoring (try) line as poles located close to this line can reduce shadowing from the high goal posts.

Source: Society of Light and Lighting UK

Non-televised rugby lighting recommendations

EN12193 Requirements

	Class		
	I	II	III
Horizontal Illuminance (Lux)	500	200	75
Uniformity (Min/Ave)	0.7	0.6	0.5
Glare Rating	50	50	55

Recommendations for televised events

Major events

	Horizontal illuminance	Uniformity Min/Ave	Uniformity Min/Max	Vertical Illuminance	Uniformity Min/Ave	Uniformity Min/Max	Colour Rendering	Glare Rating
HDTV	1500-3000	0.8	0.7	2200	0.7	0.6	>90	<50
Slow-motion Camera	1500-3000	0.8	0.6	1800	0.7	0.5	>80	<50
Fixed Camera	1500-3000	0.8	0.6	1400	0.7	0.5	>80	<50
Mobile Camera	1500-3000	0.8	0.6	1200	0.5	0.3	>80	<50

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National events

	Horizontal illuminance	Uniformity Min/Ave	Uniformity Min/Max	Vertical Illuminance	Uniformity Min/Ave	Uniformity Min/Max	Colour Rendering	Glare Rating
Camera	1000-2000	0.7	0.5	1000	0.6	0.4	>80	<50

Measurements should be taken 1.5 m above the playing surface.

JLEDS offers Rugby LED lighting that emits bright, uniform illumination, so matches can be played any time of the day or night with great visibility. Our high-quality LED luminaires are used in Rugby fields, stadiums and sports grounds around the world.

Recommended Products



FL-A
60-600W



FL-J
800-1500W

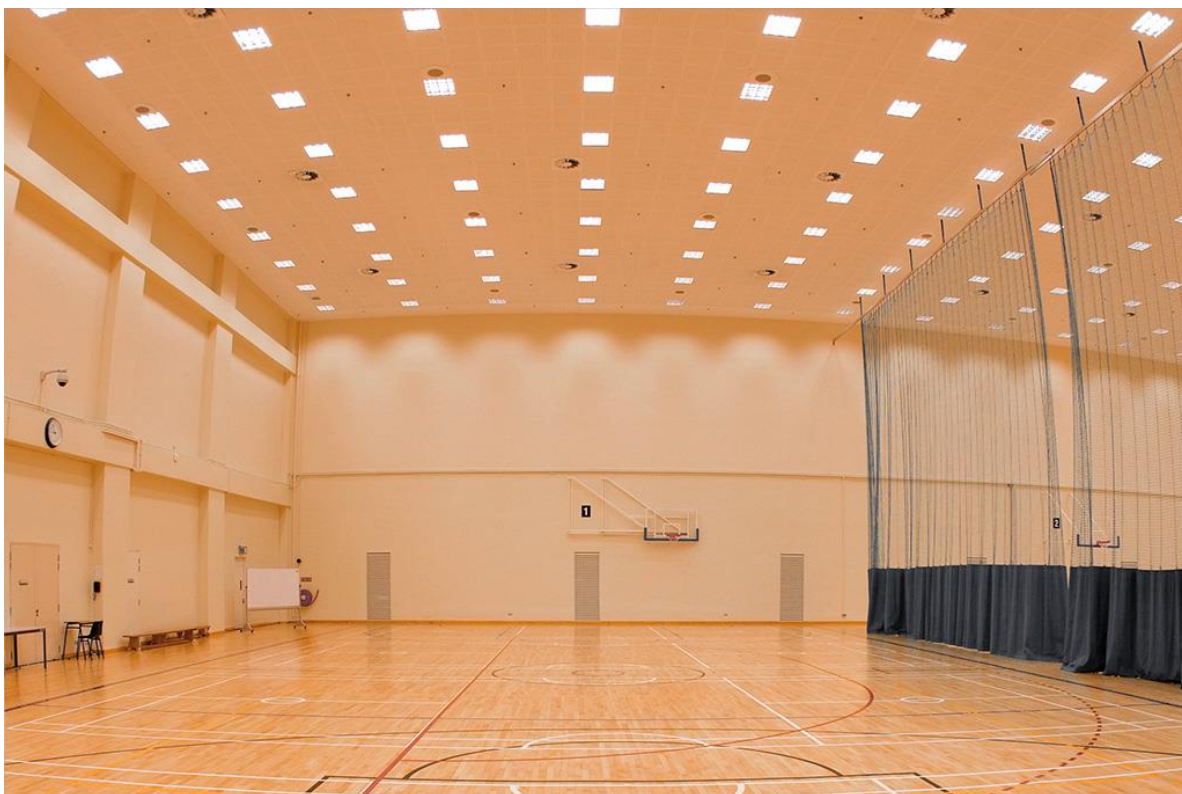


FL-H
400-1500W

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Sports Hall Application Guide



Lighting a multipurpose sports hall

Sports venues designed for multi-sports should ensure that their proposed lighting considers the needs of all the various sports to be played. Care must be taken to ensure that the lighting design produces uniformity of the required illumination, is adequately lit and that glare is minimized. The lighting should be positioned, so they do not hinder the players' and officials' vision.

The specific visual requirements will depend on the activity. Most sports halls have to cater for a range of activities, and it may be necessary occasionally to accommodate different activities simultaneously in order to maximize use. It is normally necessary to design a general lighting scheme to cater for a wide range of activities and, if necessary, incorporate switching arrangements for different activities, levels of play or simultaneous multi-use.

It is generally recommended that the lighting design be based on the requirements of the activity with the highest priority, while ensuring that, as far as practicable, all other potential activities are catered for.

Source: Society of Light and Lighting UK

Multi purpose sports hall lighting recommendations

EN12193 Requirements

	Class		
	I	II	III
Horizontal Illuminance (Lux)	750	500	200
Uniformity (Min/Ave)	0.7	0.7	0.5
Ra	60	60	20

JLEDS offers Sports hall LED lighting that emits bright, uniform illumination. Our high-quality LED luminaires are used in sports centers around the world.

Recommended Products



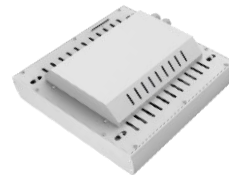
MFL
50-800W



MHB
50-400W



UFO S2 High Bay
100W-150W-200W

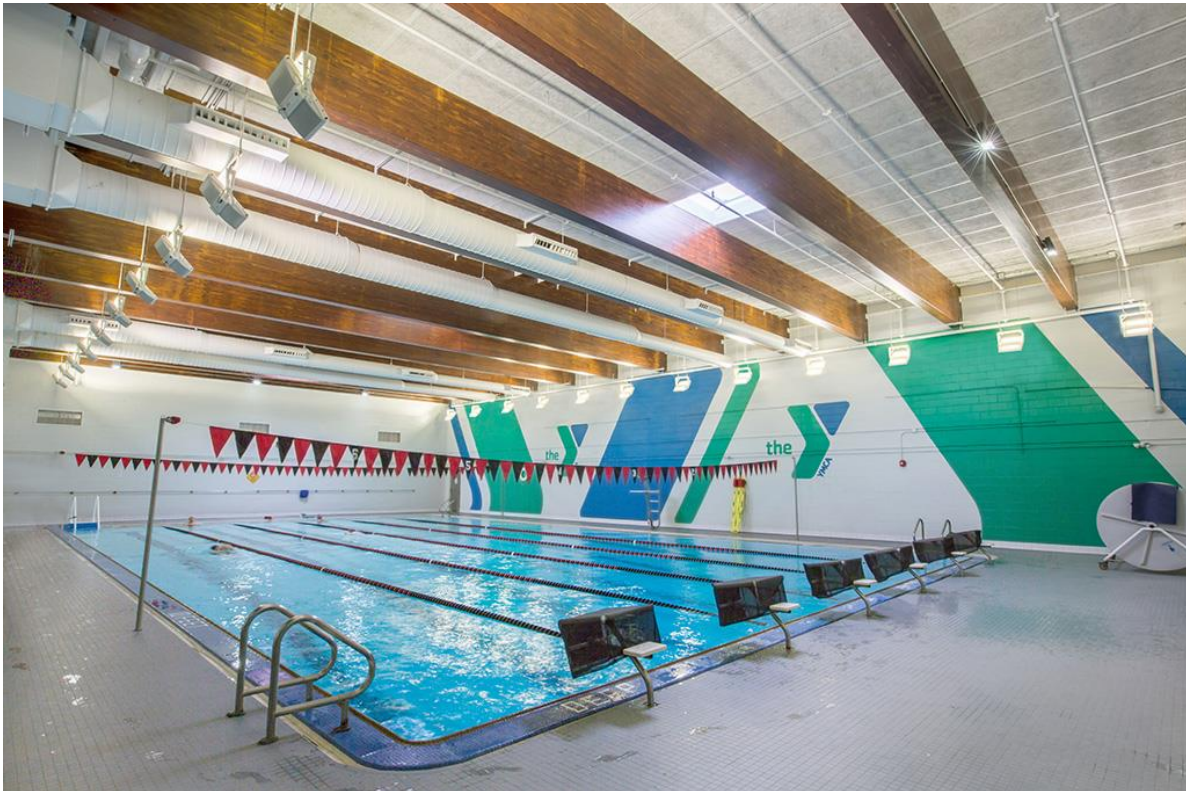


LOW BAY LED FIXTURE
100W-150W-200W

For more information or project and lighting design support, please contact our team sales@jleds.co.uk



Swimming Application Guide



Lighting a swimming pool

The main requirement is to ensure the safety of users by providing adequate illumination and control of reflection on the water surface. The control of surface reflection is particularly important to allow staff to deal with any swimmers in difficulty in the pool. With the complex nature of pool design and restrictions on positioning floodlights, it is important that lighting is considered at the earliest stages of the pool design.

This is particularly important to allow staff to be able to detect swimmers in difficulty. This may be hampered by the reflection of a floodlight obscuring the view of a swimmer in the water.

The reflected image of a floodlight in water increases with the angle of incidence. Once this angle exceeds 70° such reflections could mask the swimmer from view by divers and pool attendants. Care must therefore be taken in the positioning of floodlights relative to the main viewing direction of safety attendants

Non-televised swimming pool lighting recommendations

EN12193 Requirements

	Class		
	I	II	III
Horizontal Illuminance (Lux)	500	300	200
Uniformity (Min/Ave)	0.7	0.7	0.5
Ra	60	60	20

Recommendations for televised events

Major events

	Horizontal illuminance	Uniformity Min/Ave	Uniformity Min/Max	Vertical Illuminance	Uniformity Min/Ave	Uniformity Min/Max	Colour Rendering	Glare Rating
HDTV	1500-3000	0.8	0.7	2200	0.7	0.6	>90	<50
Slow-motion Camera	1500-3000	0.8	0.6	1800	0.7	0.5	>80	<50
Fixed Camera	1500-3000	0.8	0.6	1400	0.7	0.5	>80	<50
Mobile Camera	1500-3000	0.8	0.6	1200	0.5	0.3	>80	<50

Average horizontal and vertical illuminance ratios: It is recommended that the ratio for horizontal illuminance (Field of Play) is between 0.75 and 1.5 of the vertical illuminance for cameras. Where there is HDTV all horizontal values for other cameras are as for HDTV

National events

	Horizontal illuminance	Uniformity Min/Ave	Uniformity Min/Max	Vertical Illuminance	Uniformity Min/Ave	Uniformity Min/Max	Colour Rendering	Glare Rating
Camera	1000-2000	0.7	0.5	1000	0.6	0.4	>80	<50

For swimming, calculations should be made at water level.

JLEDS offers Swimming pool LED lighting that emits bright, uniform illumination. Our high-quality LED luminaires are used in indoor Swimming pools and natatoriums around the world.

Recommended Products



Modular (MFL)
50-800W



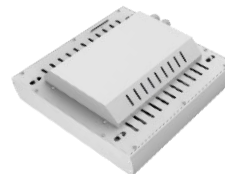
FL-A
60-600W



FL-J
800-1500W



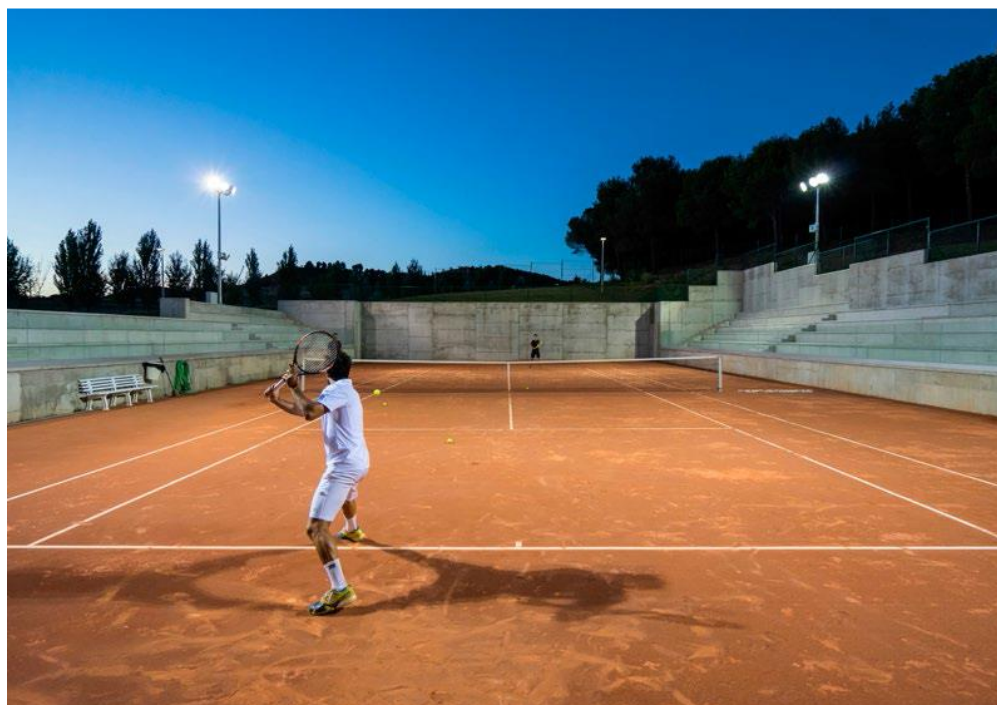
UFO S2 High Bay
100W-150W-200W



LOW BAY LED FIXTURE
100W-150W-200W

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Tennis Application Guide



Lighting an outdoor tennis court

When lighting a tennis court, the objective is to ensure good visibility enabling both players and spectators to follow the progress of a game. The ball, regardless of its location and speed, should always be clearly visible.

Creating good visibility requires sufficient contrast to be created between objects and their backgrounds, good illumination levels and even distribution of light across the playing surface (uniformity) and by minimizing glare.

Source: ITF lighting requirements

Non-televised outdoor tennis lighting recommendations

EN12193 Requirements

	Class		
	I	II	III
Horizontal Illuminance (Lux)	500	300	200
Uniformity (Min/Ave)	0.7	0.7	0.6
Glare Rating	50	50	55

Note: Values refer to 'Total Playing Area' as defined by ITF



Lighting an indoor tennis court

We recommend use of floodlights that are mounted parallel to the sidelines and outside the Principal Playing Area (PPA). No floodlights should be positioned in the part of the ceiling which is directly above the area limited by the rectangle of the marked area extended to the full depth of the run back behind the base lines. The interior surfaces of indoor courts can help to make the ball more visible against them. However, the right choice of color and reflectance can also assist with perceived quality of the lighting installation. Background colors of blue or green are preferable and should be as uniform as possible.

Source: ITF lighting requirements

Non-televised indoor tennis lighting recommendations

EN12193 Requirements

	Class		
	I	II	III
Horizontal Illuminance (Lux)	750	500	300
Uniformity (Min/Ave)	0.7	0.7	0.5
Ra	60	60	20

Note: Values refer to 'Total Playing Area' as defined by ITF.

Recommendations for televised events

Major events

	Horizontal illuminance	Uniformity Min/Ave	Uniformity Min/Max	Vertical Illuminance	Uniformity Min/Ave	Uniformity Min/Max	Colour Rendering	Glare Rating
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National events

	Horizontal illuminance	Uniformity Min/Ave	Uniformity Min/Max	Vertical Illuminance	Uniformity Min/Ave	Uniformity Min/Max	Colour Rendering	Glare Rating
Camera	1000-2000	0.7	0.5	1000	0.6	0.4	>80	<50

Measurements should be taken 1.5 m above the playing surface.

JLEDS offers Tennis LED lighting that emits bright, uniform illumination, so games can be played at any time of the day or night with great visibility. Our high-quality LED luminaires are used in Tennis centers, stadiums and recreational parks around the world.

Recommended products



FL-A
60-600W



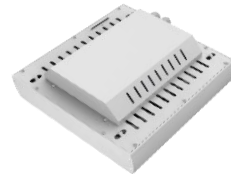
CLS-H
30-60W



FL-MFL
50-800W



UFO S2 High Bay
100W-150W-200W



LOW BAY LED FIXTURE
100W-150W-200W

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