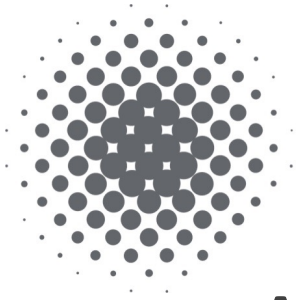

PROSPORTLED

A GUIDE TO PADEL LIGHTING

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Light is a commodity and can be purchased at the lowest possible cost, but lighting is a business asset that should be carefully considered as an investment with the right design and equipment.

The large majority of our impressions of the world come through our eyes, and light is necessary for vision.

“Lighting” is the application of light to spaces. Where the light is placed, at what relative intensities, and in what direction, this can have a major impact not only on vision and visual comfort, but perception.

Lighting, therefore, can impact on-court performance, satisfaction, visibility, safety, atmosphere and the local environment.

It also tells a story about the facility, whether the focus is on simply lighting a space or providing an optimal playing experience.

Sports Lighting Categories

Sports lighting typically falls into one of three categories based on its light emission

Asymmetrical (Indirect) Indirect lighting distributes all light towards its intended area

Symmetrical (Direct) Direct lighting can a short term very economical choice but poses risks of direct glare, light pollution, and pronounced shadows.

Diffused (Direct/Indirect) Indirect/Direct lighting provides very soft light distribution, which can promote visual comfort, and eliminate shadows. The luminaire is purely for indoor installations, it must offer extreme efficiency and advanced lens technology to counter balance the light loss via the diffusion method.

Lighting Distribution - Asymmetrical (Indirect)

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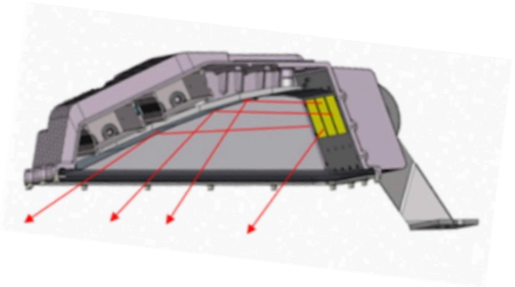
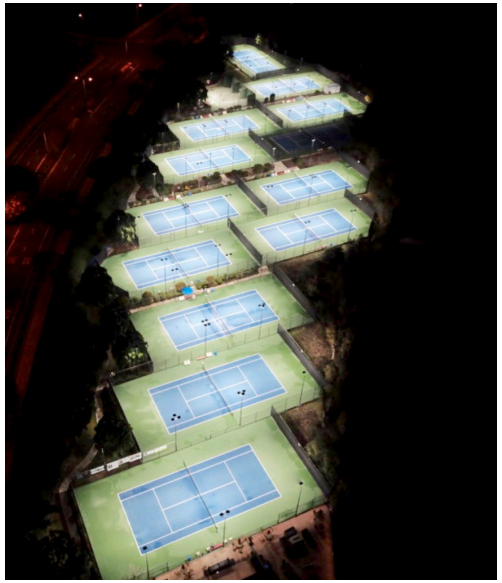
Indirect



Asymmetric (Indirect)

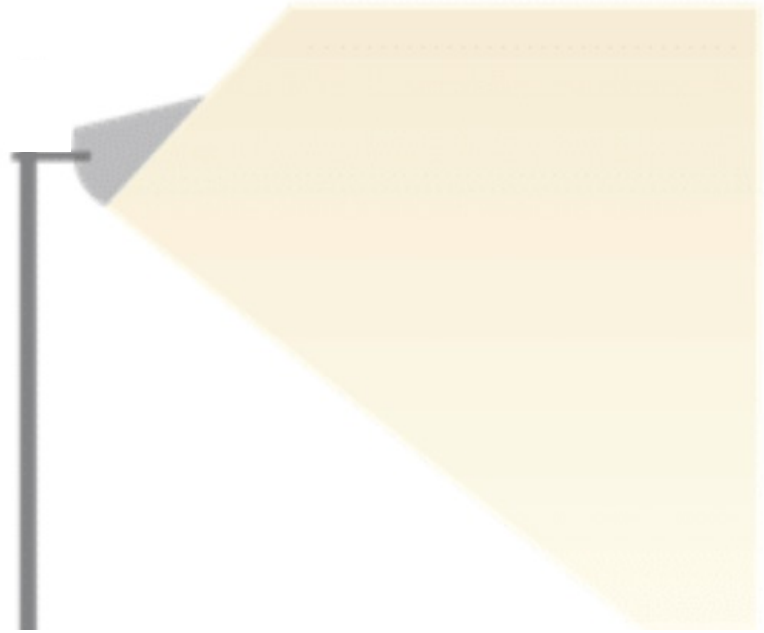


Only the designated area is illuminated for optimal efficiency

The Dark Sky and defined playing area offer contrast and dynamism to play

Minimal View of lights from a distance

Lighting Distribution - Symmetrical (Direct)



Direct
Optical Lens

Direct
Minimal diffusion Lens

Direct LED
Never use in Sports due to potential damage to eyesight

Symmetrical Light (Direct)

Light seen from far away

Light pollution to neighbouring courts and nearby residents

Strong Glare

Distracting light to neighboring courts

Lighting Distribution - Symmetrical (Direct/Indirect)

Indoor Direct/indirect
Extreme Diffusion

Lighting Distribution - Symmetrical (Direct/Indirect)

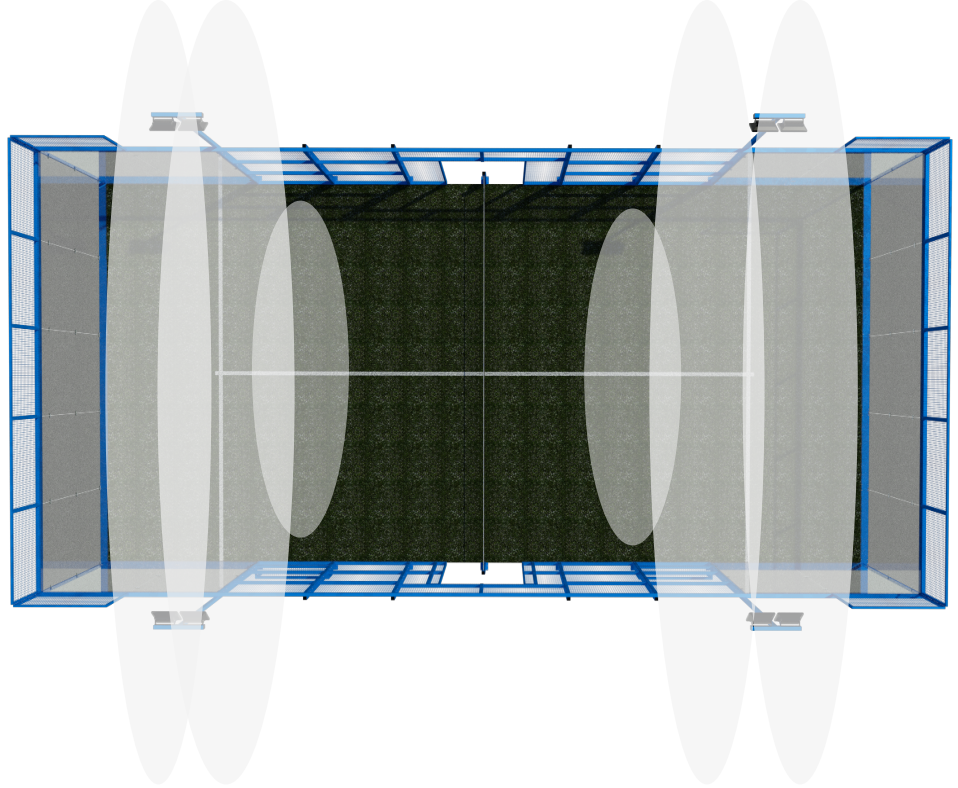
Soft light distribution, promotes visual comfort, and eliminate shadows.
Minimal impact to neighbouring courts

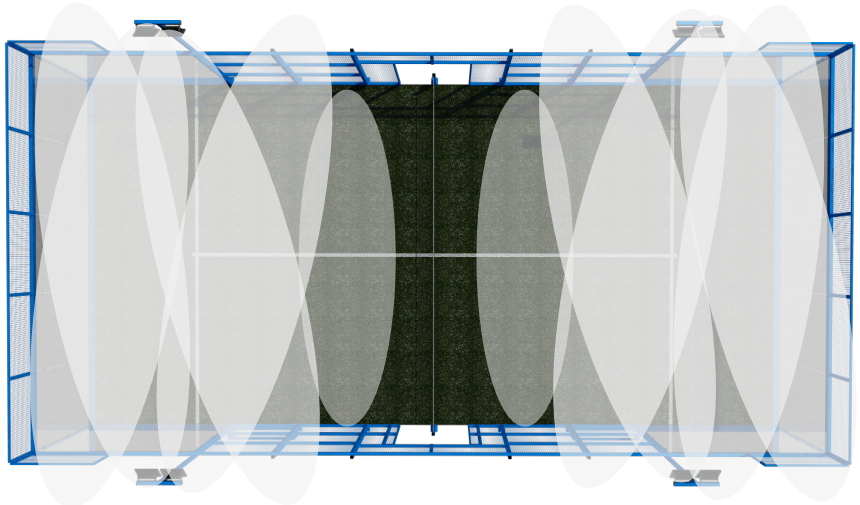
Lighting Uniformity

- Lighting uniformity affects our perception of court and our ability to navigate it.
- Uniform lighting allows us to perceive the environment continuously and without sudden breaks caused by lighting level drops. Without good uniformity timing of strokes are made more difficult and limit optimal striking of the ball.
- Courts must avoid low uniformity ratios: the frequent changes of contrasting high and low-lit segments cause enormous eye discomfort, leading to tiredness and eye strain.
- A uniformly illuminated court is especially important for coaches working extended hours on court.
- The vertical illuminance level and its uniformity on court surfaces can be expressed as a ratio of highest- to lowest-illuminated area in a court. The uniformity also depends on the types of luminaires used, their spatial position and their number. A luminaire with excessive glare will depreciate the court uniformity.
- As with other sports, racquet sports require a minimum uniformity index of at least 0.7
- In changing light the optimal uniformity can be achieved using control systems (Bluetooth,Wi-Fi, Dali)
- A quality dynamic lighting system will be able to provide desired uniformity under changing circumstances, e.g. during the daytime, when sunshine can be the primary light source. The role of the court light is then keeping the uniformity as constant as desired by those playing on the court.

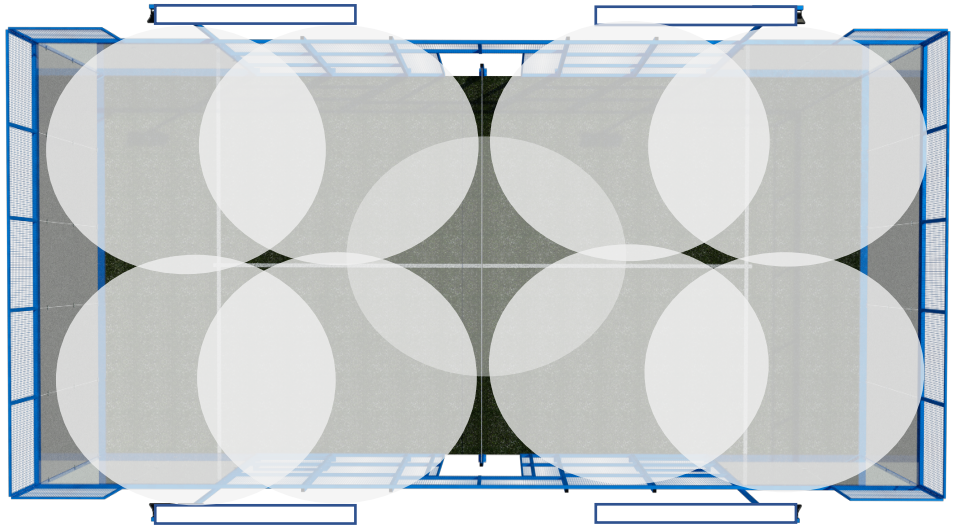
Light Uniformity - continued

A typical Padel light
Narrow beam installed at 60°
Equals Poor light uniformity as 50-60% of the court is underlit
Light extends beyond the court because of the 60° installation angle



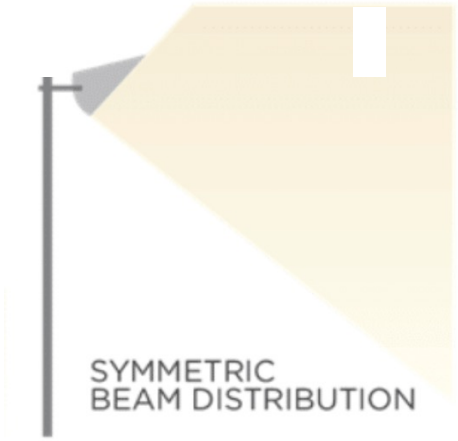


Asymmetric reflector technology with a 0° installation angle and wider beam angle covers 80% of the court with an even light



Installation at 60° with very wide beam angle covers 95% of the court with a uniform light and 0% wasted light

Advantages/Disadvantages

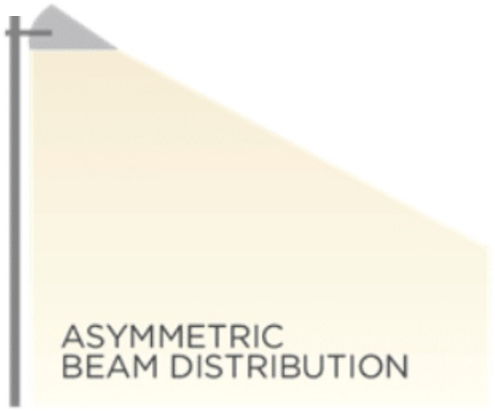


Symmetrical Light Usage
Indoor - without neighboring activities
Indoor - without spectators nearby
Indoor/Outdoor Storage areas
Security Lighting

Benefits
Low Cost
Lightweight

Symmetrical Direct/Indirect Usage
Indoor - with neighboring activities
Indoor - Visual comfort for spectators
Indoor - High Ceiling applications

Benefits
Visual Clarity
Lightweight
Class Leading Efficiency

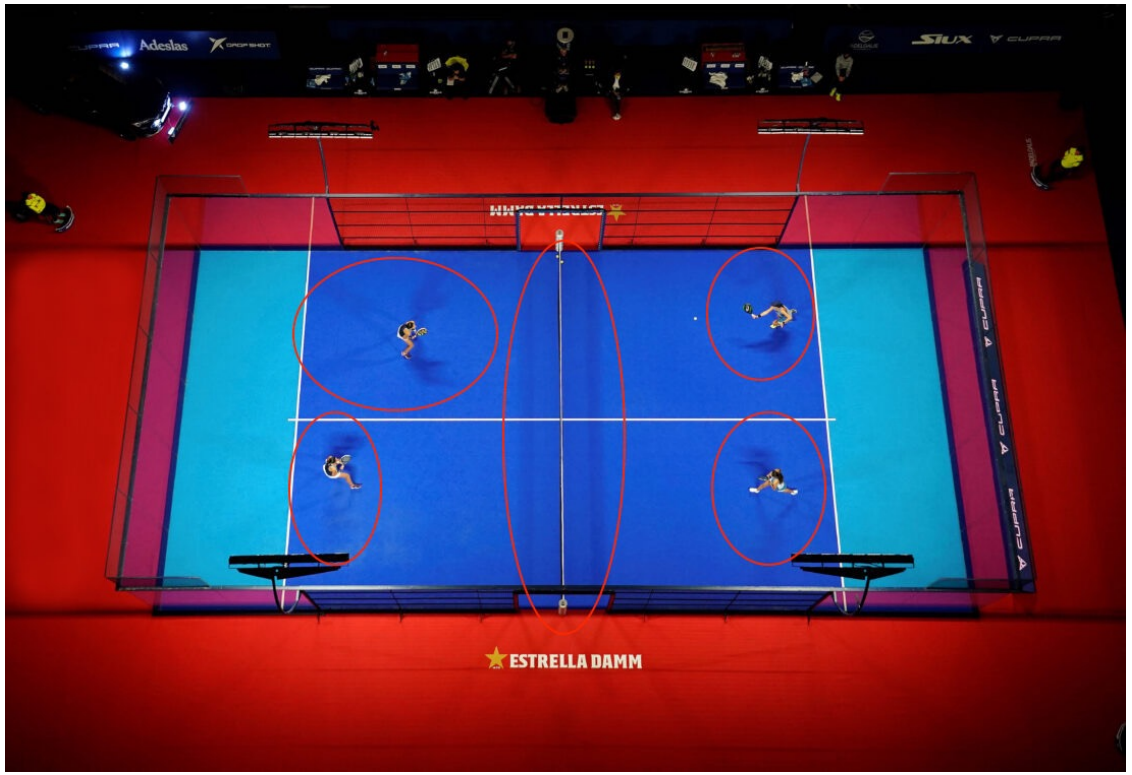


Asymmetrical Light Usage
Outdoor - Residential area
Outdoor - Small stadiums/Arenas
Parks
Airport Lighting

Benefits
Accurate Aiming
Extreme Energy Efficiency

Light Intensity

Correct Light Intensity
Direct/Indirect Linear light with extreme diffusion
Can be viewed directly without glare and minimal shadowing
Note: The net has no shadow



In-Correct Light Intensity
Over-lit direct lighting causes multiple shadows around the players and net.
As a by-product is significant glare to the players and onlooking fans

Light Intensity - Incorrect Balance

High Intensity
Heavy shadows around the players along with light glare

Low Intensity
Direct light source causes glare but does not offer enough output to reach the court surface and appears dark

Colour temperature **(Kelvin)** and Colour Rendering **(CRI)**

- The lower the Kelvin, the warmer the light. 5000K being daylight. A warmer light will cause more eyestrain with multiple hours on court
- A high CRI refers to how accurately an artificial light shows the colors of the objects (or people) by enhancing the red spectrum
- Using a numerical scale from 1 to 100, CRI evaluates the color rendition and color accuracy of objects (100 CRI being a perfect representation)
- Combining a CRI of 80 and 5000K will provide a good balance of colour representation and alertness within the court.
- As an example, TV broadcasting will use a CRI90+ to optimize colours
- **TIP!** Combining natural daylight and CRI80 from a light fixture will increase the CRI to 90+

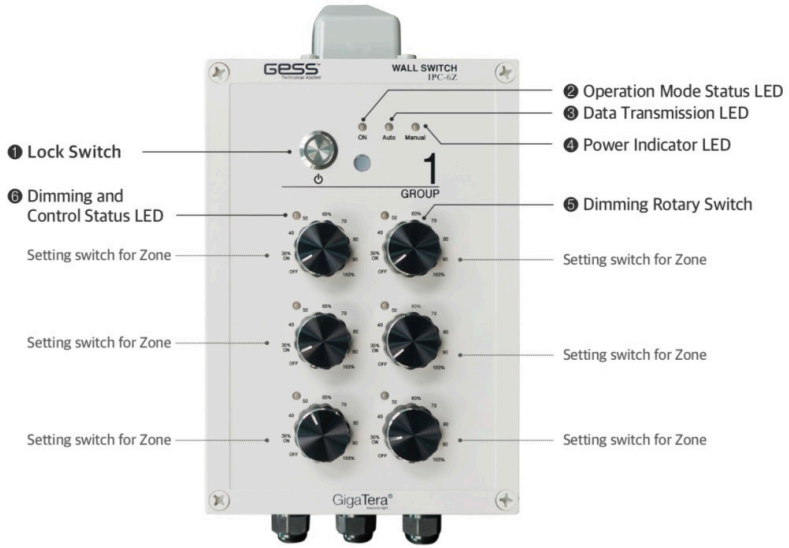
5000 Kelvin

3500 Kelvin

Lighting Controls for Efficiency

Lighting controls offer the flexibility to adapt to the current conditions and provide optimal efficiency

	Use	Percentage Required	Required Wattage per Court
Example: 200-watt Fixture	Court Cleaning/Maintenance	30%	60-watts
	Unreserved Court	20%	40-watts
	Local Play	75%	150-watts
	Tournament Play	100%	200-watts



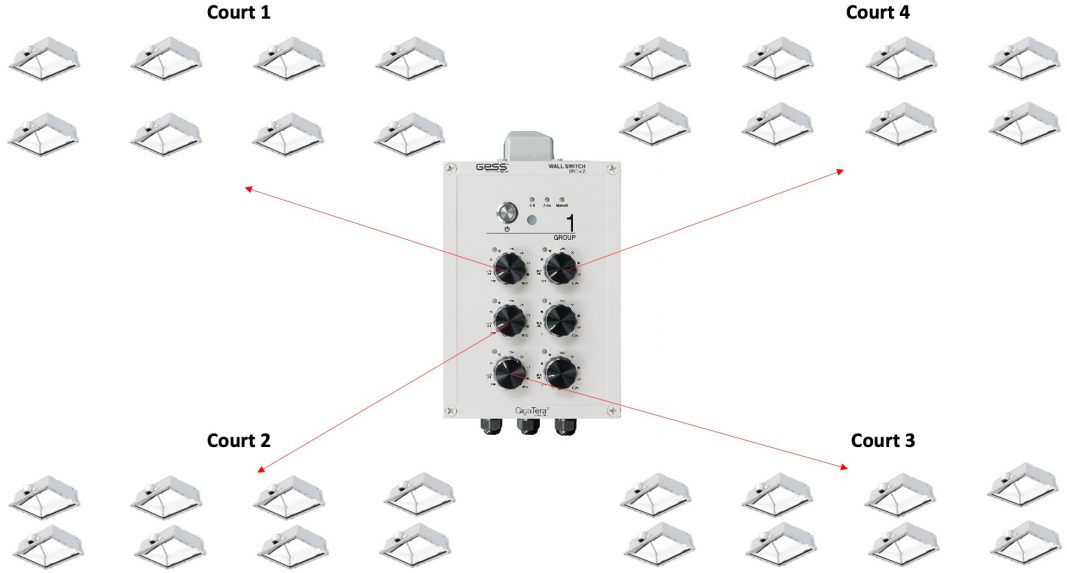
The IPC Wi-Fi Controller

- Simple plug-in to AC outlet (No hard wiring required)
- Individual light fixtures, groups of lights or courts can be dimmed to personal preference
- Control up to (200) fixtures with (1) controller
- IP66 No ingress of water or condensation
- 20KV Surge Protection against electrical storms

Examples of zone settings

(4) Light Fixtures per Court

(8) Light Fixtures per Court



Each rotating dial is available to control (33) light fixtures

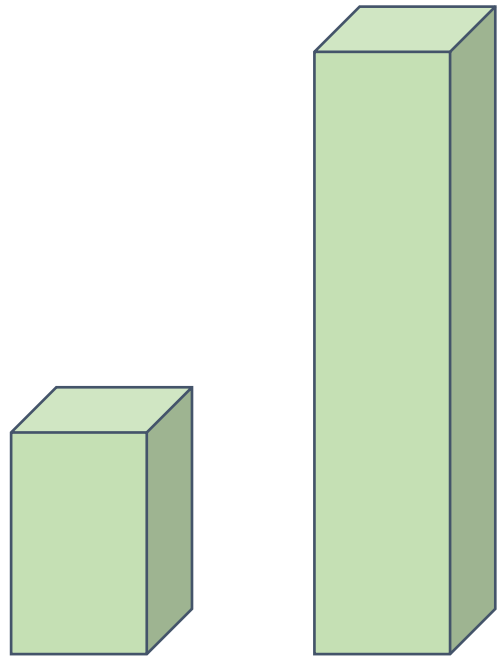
Product Efficiency

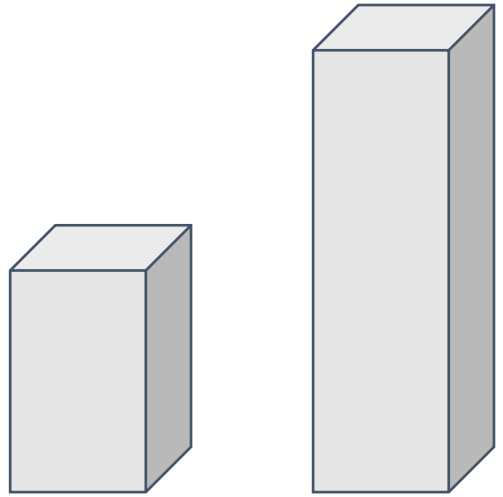
Lighting control is essential in optimizing product efficiency.

The ratio of light output to wattage (Lumens per Watt) is equally as important.

A court with (8) 200-watt fixtures producing (120) lumens per watt will provide 192,000 lumens to the court

A court with (8) 200-watt fixtures producing (150) lumens per watt will provide 240,000 lumens to the court





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Standard Direct Floodlight

Product Warranty

As a general rule, a product must offer a (5) year warranty. It is very difficult to make a comparison to a product with a (3) year warranty.

The likelihood of the (3) year warranty fixture failing before (5) years is very high.

There are additional costs of new lighting, uninstalling, installing, recycling, and court down-time.

Useful Life

Products that carry a short warranty time very often see a significant drop in light output.

As much as 30% output can be lost by the 3rd year

The change is extremely slow and very difficult to notice.

We recommend taking light measurements every (6) months.

Efficiency

When combining lighting control and high light output we offer complete flexibility and efficiency.

The more efficient the court light is, the more energy it saves.

It reduces the amount of energy you use, which means that your monthly electric bill will be less.