



PHILIPS

PerfectPlay

Recreational sports

Enjoy the
flexibility,
**love your
sport**

with our PerfectPlay
recreational sports
lighting approach

The right lighting for your sports facility

The world is constantly evolving, and so is the way we communicate and interact with each other. The sports industry is no exception. More than ever, people are finding it harder to make time to play the sport they love, and even harder to interact and keep in touch with team members. As a result, individual sports, such as running, are gaining popularity while teams and the unity they provide are fading.

Social media has impacted how we interact with each other in the world of sports. Through social platforms such as Twitter, Facebook or apps we can communicate with our teams, share scores, and much more. New technologies like fitness trackers allow us to share our activities and compare results, even with professional athletes.

Whether you play a sport to stay fit, set a personal record, or for socialization, the way we participate in sports is ever changing.

The impact on sports clubs

Understanding how the industry is changing is key for sports clubs to remain afloat financially and socially.

Surprisingly, lighting can play a major role in allowing sports clubs to provide a welcoming and inspiring environment for people to practice whenever they'd like.

Of course, proper illumination when playing sports is a basic necessity. However, the quality of the lighting is crucial not only for the athletes, but for the sports facility owners. At Philips, we can support you with best-in-class lighting to improve athlete results, while using minimum energy, minimize the impact on the environment and increasing potential revenue streams.

While our lighting systems provide the players and trainers with the flexibility to play whenever they want, they also provide facility operators insight on the status of all lighting in their facility.



Contents

4 **Our PerfectPlay approach**

6 **PerfectPlay system**

10 **Lighting requirements**

12 **Outdoor sports lighting**
Football | Hockey | Tennis | Rugby | Athletics |
Golf course | Playing court | Baseball / Softball

48 **Indoor sports lighting**
Tennis | Swimming | Multipurpose sports hall |
Ice hockey

78 **Why choose Philips?**

Our PerfectPlay approach

Philips Lighting has the expertise in sports lighting to support you through every step of your journey.

Sports lighting systems from Philips reduce energy consumption and minimize light pollution and overspill. The result? Happier club members, surrounded residents, and facility owners - who enjoy the low energy bills.

Whether illumination is needed for an indoor or outdoor facility, each project is unique due to the variety of stakeholders involved in the process.

Philips has a reliable reputation in working with local authorities and private property owners to assess issues with glare and overspill. We can provide lighting designs to display maximum lux in any areas of concern within the property.

Complete LED lighting portfolio

Aside from the illumination of the field, our lighting systems can also offer solutions for other areas of your sports facility such as the clubhouse, locker rooms, restrooms, parking area, walkways and stands.



Outdoor



Indoor

PerfectPlay system

Philips Lighting offers a fully dedicated end-to-end approach that is optimized for recreational sports. Starting from a very easy interface for lighting control, PerfectPlay system has a unique set of features to ensure a perfect combination of fulfilling sports lighting norms, players' safety, comfort, operational efficiency and significant energy reduction.



The PerfectPlay packages are compatible with Philips LED floodlights, suitable for any type of sports. Moreover, both floodlights and system packages are retrofit, so there is no need for new cabling infrastructure or cabinet's installation, saving on installation costs.

Within our PerfectPlay system offering we address all the lighting needs relevant for the different users in indoor and outdoor sports. The system has three different packages: PerfectPlay Panel, PerfectPlay Tablet, and PerfectPlay Remote.

PerfectPlay Panel

With PerfectPlay Panel, the LED field lighting is controlled via a button panel that can be installed in your clubhouse, control room or close to the locker rooms.

The panel has 6 buttons and depending on the type of sport, fields can be illuminated through a variety of pre-programmed light settings.

The PerfectPlay Panel results in simple and easy usage of your lighting installation. While securing the required lighting standards for matches and training, you will increase comfort and significantly reduce your energy consumption.



For example:

- 1 Match
- 2 Training
- 3 ½ field training left
- 4 ½ field training right
- 5 Comfort
- 6 Off



PerfectPlay Tablet

For sports facilities with multiple fields and additional requirements on functionalities we offer the PerfectPlay Tablet. This large size tablet features a software interface and can be either mounted to the wall or used as mobile. All fields can be controlled from the tablet, including those that still have conventional lighting.

PerfectPlay Tablet offers the user a unique level of flexibility and fulfills the particular way the sports lighting operations are carried out. Each field has a designated location in the software and, like the PerfectPlay Panel, offers pre-programmed lighting levels and scenarios.

The design of the software interface can be branded to the sports club corporate identity, including logo and club colors, that makes the interface unique and recognized between the sports club members.





PerfectPlay Remote

The PerfectPlay Remote system is dedicated to a city's public lighting manager, lighting operators, facilities managers, and service companies to remotely manage the lighting without being present at the field.

Today, the lighting operator has little to no insight with regards to how the lighting installations are used and in turn, are using more energy than needed. With PerfectPlay Remote, operators can see which fields are occupied, and when the last training ends.

With PerfectPlay Remote, the operator can remotely manage the lighting through a software application. Because of the monitoring dashboard functionality, the operator has full transparency on when, where, and how much lighting has been used.

In addition, PerfectPlay Remote monitors data of the lighting system, such as energy consumption, system failures, abnormal operation conditions, and switch off moments. This data is compiled and displayed in the dashboard, and the user can create tailor-made reports based on the facility's needs. This enables better budgeting and optimizes operational efficiency.



Lighting requirements

The main goal when installing a lighting system on a field, is to meet specific standards. Usually, the lighting requirements are linked to the sport. In practice, the light level for a training field is lower than a match field. Specific lighting is also needed based on the type of game, speed of action, and viewing distance.

The lighting classes specified for most sports are laid down in NEN-EN standards. Depending on the class, the level may vary from 75 to 500 lux on the field. Demands are also made on the uniformity of illumination, the maximum working glare value and the light source's ability to render color. In addition to the functional need for light to perform a sport, sports facilities are also social meeting places where revenue is generated, making lighting an important component to creating a pleasant environment.

Each field and each sport requires different lighting needs, and no two installations are the same. With this brochure, the objective is to give an overview of standard lighting schemes for most popular recreational sports and which lighting system is the best for your need.

This brochure serves as a basis to assist with decision making when beginning a sports lighting project.

It is important to note that lighting design and installation requires specialist engineering knowledge and must be carried out by competent experienced professionals following the guidelines required by government or any other relevant public authorities.

It is also important to note that this brochure is not intended to provide lighting recommendations and solutions in case of television coverage for which specialist knowledge is required.



Class I

Top-level competition

National and international matches, which generally involve large spectator capacities with potentially long viewing distances. Top-level training may also be included in this class.



Class II

Mid-level competition

Regional or local club matches, which generally involve medium-size spectator capacities with medium viewing distances. High-level training may also be included in this class.



Class III

Low-level competition

Local or small matches, which do not usually involve spectators. General training and recreation also come into this class.

Level of competition

	Class		
	I	II	III
International/ National	●		
Regional	●	●	
Local	●	●	●
Training		●	●
Recreational			●



Outdoor sports lighting

Philips offers the latest high-efficiency LED sports lighting floodlights, providing a complete lighting solution communicating via the PerfectPlay control system, for the smallest through to the most complex outdoor sports facilities.



Football



Hockey



Tennis



Rugby



Athletics



Golf course



Playing court



Baseball /
Softball



OptiVision LED gen2

A new era in smart area and recreational sports lighting

- Innovative floodlight with dedicated optics that ensure maximum optical efficiency and enable accurate light distribution with a minimum of spill light
- Advanced Philips system controls and sensors enable additional energy savings (up to 65%) in area lighting applications
- Minimized maintenance costs thanks to long-lasting LEDs and the floodlights thermal management system



ClearFlood Large

The best solution for 1:1 retrofit

- Fast payback and low Total Cost of Ownership with energy savings and minimum maintenance costs
- Multiple control options ensure increased efficiency with intelligent lighting
- Combination of lenses and flux options ensure high level of project flexibility.



ClearFlood

Real LED solution for sports lighting

- Designed for 1:1 retrofit, with high energy savings and a fast return on investment
- Easy to select the required lumen performance
- Five different optics ensure versatility in application
- Ideal for small-scale recreational sports facilities



OptiVision

Conventional floodlight

- Conventional asymmetrical floodlight
- Available with narrow, medium and wide optics for flexibility in use; sharp beam cut-off for excellent control of spill light and limitation of glare and upward light leakage
- Can be used with metal-halide lamps for good color rendering or high pressure sodium lamps for economical operation



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

EN12193 Requirements

		Class		
		I	II	III
Horizontal illuminance	E_m lx	500	200	75
	E_{min}/E_m	0.7	0.6	0.5
GR		50	50	55
Ra		60	60	20

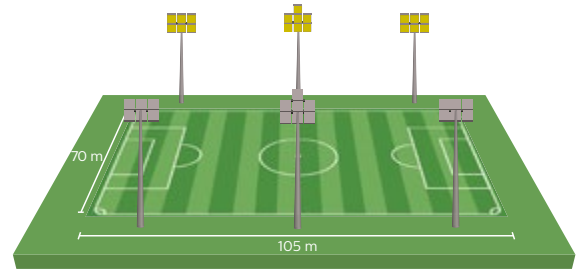
Football Class I

EN12193: Eh ave > 500 lux

OptiVision LED gen2

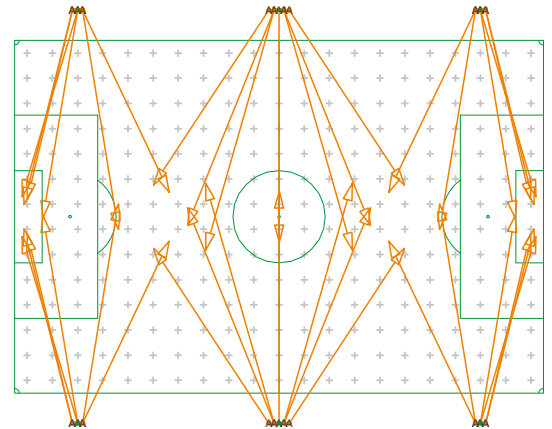


Football



Specifications OptiVision LED gen2

Poles	6 x 18 m
Floodlight	38 x OptiVision LED gen2 1471 W
Floodlight Type	BVP525 OUT T25 50K 1xLED1940/757 A-NB/30
System Power	55.9 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	47.9
ULR	2%
MF	0.9

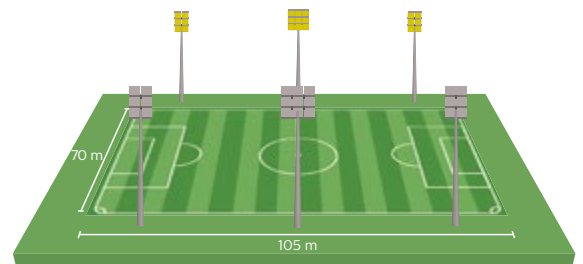


Floodlight aiming

Football Class I

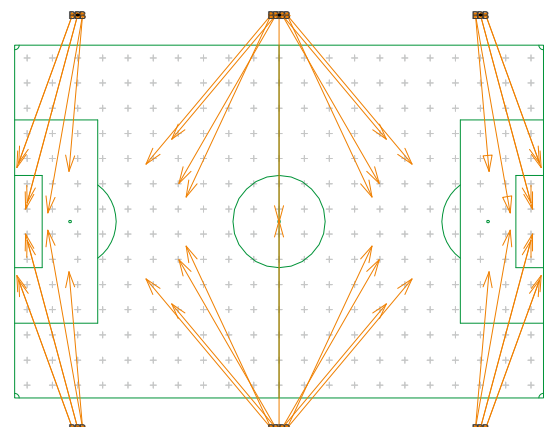
EN12 193: Eh ave > 500 lux

OptiVision



Specifications OptiVision

Poles	6 x 18 m
Floodlight	42 x OptiVision 2100 W
Floodlight Type	MVP507 MB/60 1xMHN-LA2000W/400V/842
System Power	89.2 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	47.7
ULR	0%
MF	0.8

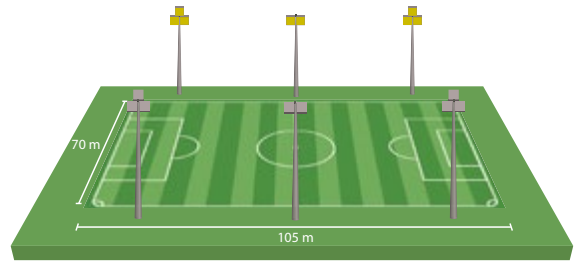


Floodlight aiming

Football Class II

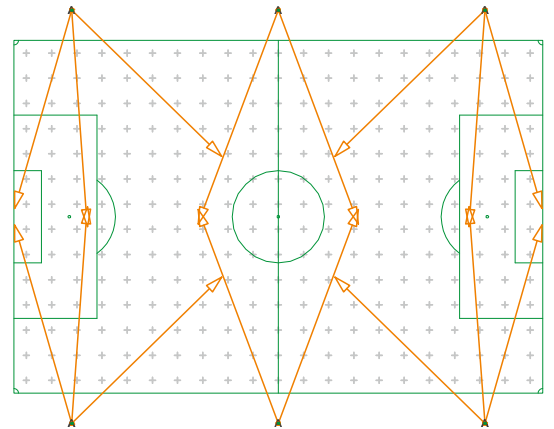
EN12193: Eh ave > 200 lux

OptiVision LED gen2



Specifications OptiVision LED gen2

Poles	6 x 18 m
Floodlight	16 x OptiVision LED gen2 1471 W
Floodlight Type	BVP525 OUT T25 50K 1xLED1940/757 A-NB/30
System Power	23.54 kW
Eh ave	> 200 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	45.8
ULR	2%
MF	0.9

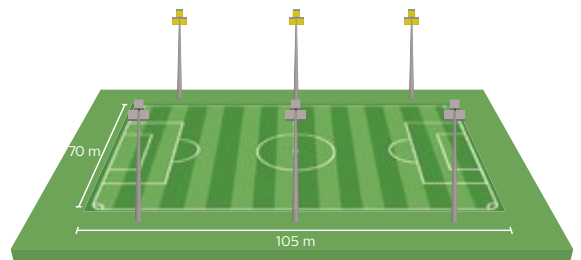


Floodlight aiming

Football Class II

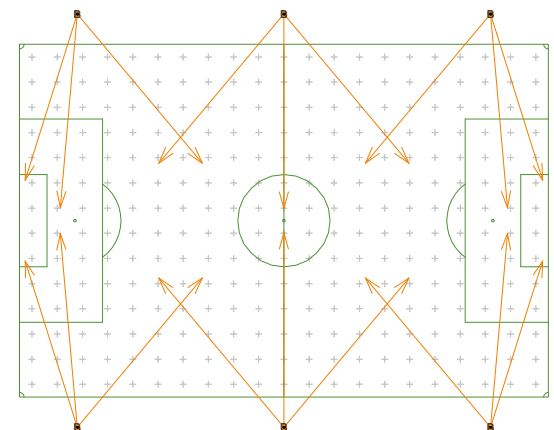
EN12193: Eh ave > 200 lux

OptiVision



Specifications OptiVision

Poles	6 x 18 m
Floodlight	18 x OptiVision 2100 W
Floodlight Type	MVP507 MB/60 1xMHN-LA2000W/400V/842
System Power	38.2 kW
Eh ave	> 200 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	44.4
ULR	0%
MF	0.8



Floodlight aiming

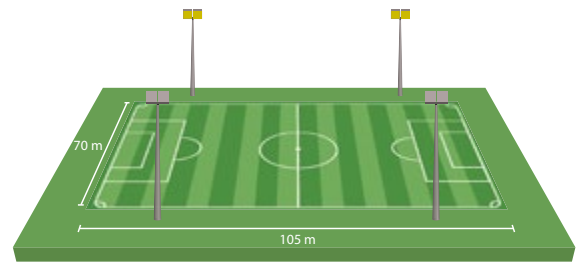
Football Class III

EN12193: Eh ave > 75 lux

OptiVision LED gen2

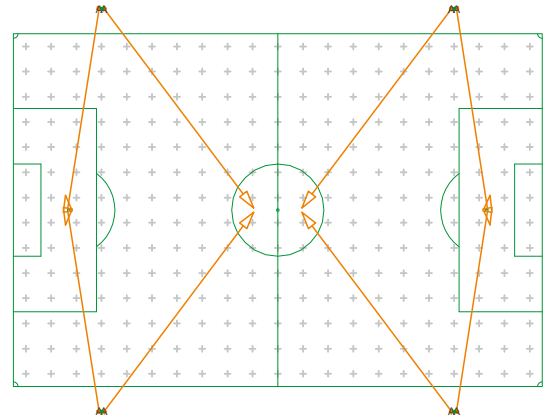


Football



Specifications OptiVision LED gen2

Poles	4 x 18 m
Floodlight	8 x OptiVision LED gen2 981 W
Floodlight Type	BVP515 OUT T25 50K 1xLED1290/757 A-NB/30
System Power	7.85 kW
Eh ave	> 75 lux
Emin/Eave	> 0.5
Ra	> 70
GR Max	48.8
ULR	2%
MF	0.9

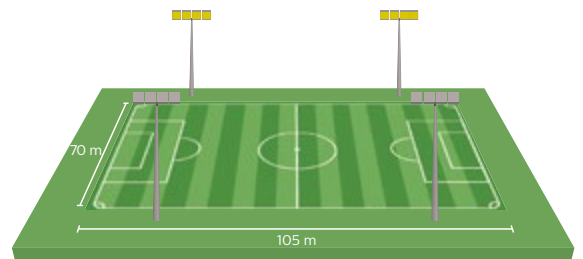


Floodlight aiming

Football Class III

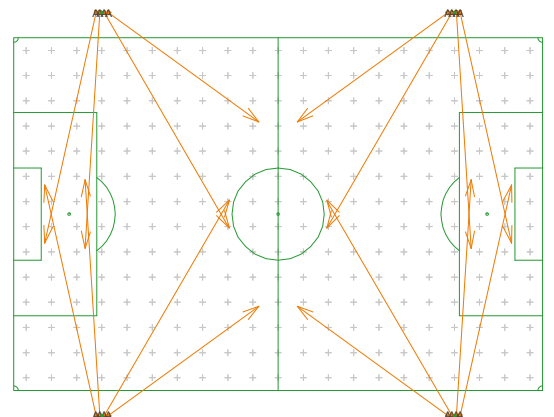
EN12193: Eh ave > 75 lux

ClearFlood Large



Specifications ClearFlood Large

Poles	4 x 18 m
Floodlight	16 x ClearFlood Large 549 W
Floodlight Type	BVP65 1xECO65k/757 A/28-MB
System Power	8.78 kW
Eh ave	> 75 lux
Emin/Eave	> 0.5
Ra	> 70
GR Max	44
ULR	2%
MF	0.9



Floodlight aiming

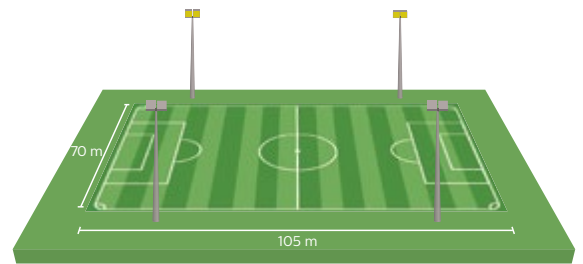
Football Class III

EN12193: Eh ave > 75 lux

OptiVision

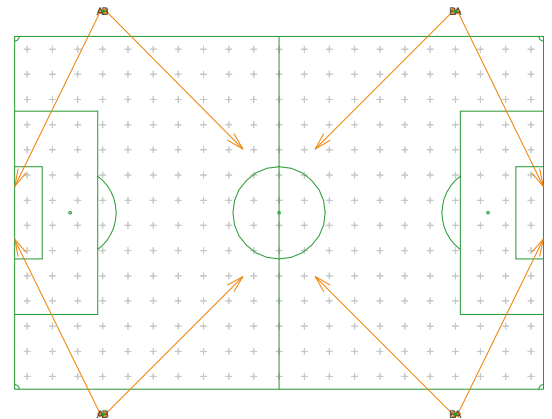


Football



Specifications OptiVision

Poles	4 x 18 m
Floodlight	8 x OptiVision 2100 W
Floodlight Type	4 x MVP507 NB/60 1xMHN-LA2000W/400V/842 4 x MVP507 MB/60 1xMHN-LA2000W/400V/842
System Power	16.8 kW
Eh ave	> 75 lux
Emin/Eave	> 0.5
Ra	> 70
GR Max	45.7
ULR	0%
MF	0.8



Floodlight aiming





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

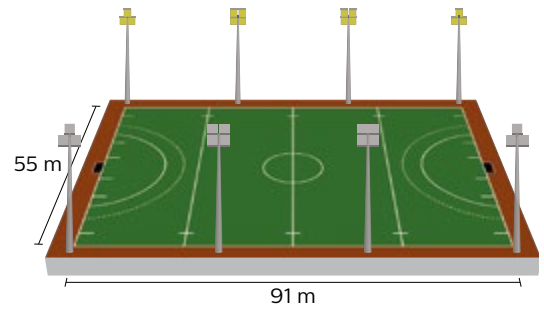
EN12193 Requirements

		Class		
		I	II	III
Horizontal illuminance	E_m lx	500	250	200
	E_{min}/E_m	0.7	0.7	0.7
GR		50	50	55
Ra		60	60	20

Hockey Class I

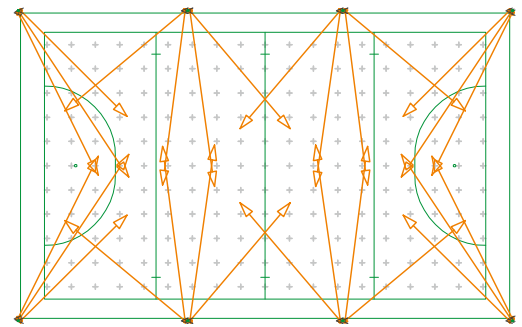
EN12193: Eh ave > 500 lux

OptiVision LED gen2



Specifications OptiVision LED gen2

Poles	8 x 18 m
Floodlight	28 x OptiVision LED gen2 1471 W
Floodlight Type	BVP525 OUT T25 50K 1xLED1940/757 A-NB/30
System Power	41.19 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	39.7
ULR	1%
MF	0.9

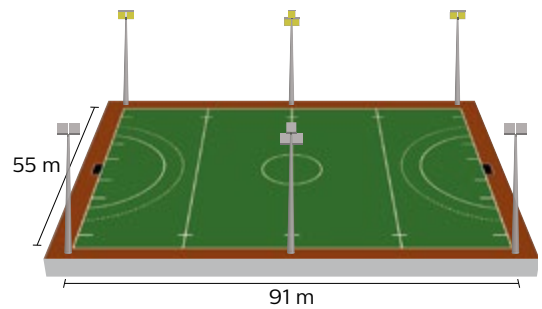


Floodlight aiming

Hockey Class II

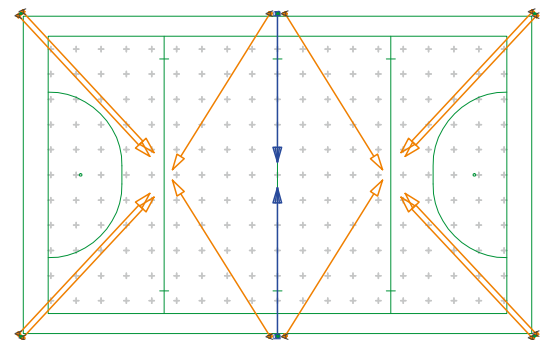
EN12193: Eh ave > 250 lux

OptiVision LED gen2



Specifications OptiVision LED gen2

Poles	6 x 17 m
Floodlight	14 x OptiVision LED gen2 1471 W
Floodlight Type	12 x BVP525 OUT T25 50K 1xLED1940/757 A-NB/30 2 x BVP525 OUT T25 50K 1xLED1940/757 A-WB/30
System Power	20.59 kW
Eh ave	> 250 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	46.1
ULR	1%
MF	0.9



Floodlight aiming

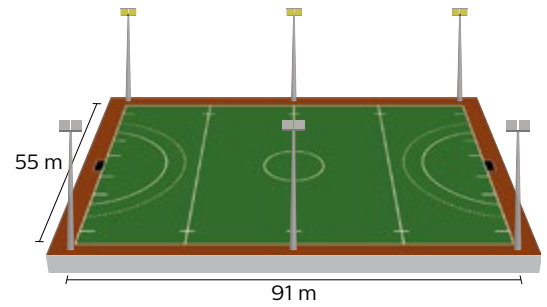
— A-NB/30
— A-MB/30

Hockey Class III

EN12193: Eh ave > 200 lux
OptiVision LED gen2

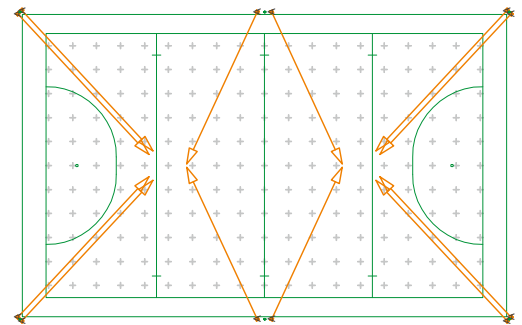


Hockey



Specifications **OptiVision LED gen2**

Poles	6 x 17 m
Floodlight	12 x OptiVision LED gen2 1471 W
Floodlight Type	BVP525 OUT T25 50K 1xLED1940/757 A-NB/30
System Power	17,65 kW
Eh ave	> 200 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	47.6
ULR	1%
MF	0.9



Floodlight aiming





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

EN12193 Requirements

		Class		
		I	II	III
Horizontal illuminance	\bar{E}_m lx	500	300	200
	E_{min}/\bar{E}_m	0.7	0.7	0.6
GR		50	50	55
Ra		60	60	20

Tennis Single court Class I

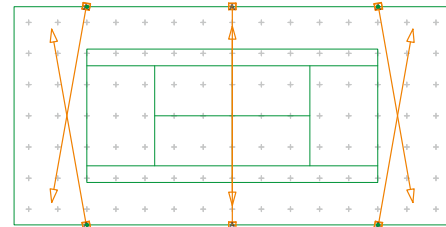
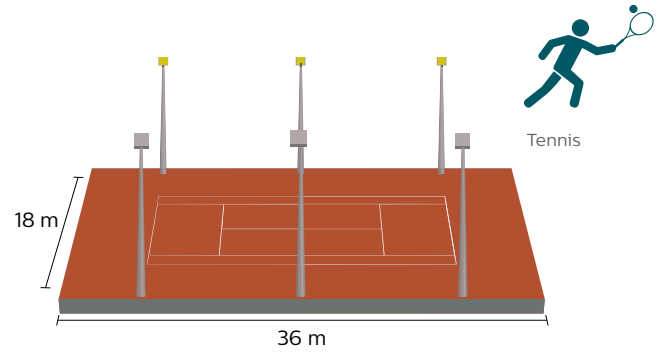
EN12193: Eh ave > 500 lux

OptiVision LED gen2



Specifications OptiVision LED gen2

Poles	6 x 8 m
Floodlight	6 x OptiVision LED gen2 876 W
Floodlight Type	BVP515 OUT T35 50K 1xLED1190/757 A-MB/30
System Power	5.26 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	39.8
ULR	2%
MF	0.9



Floodlight aiming

Tennis Single court Class I

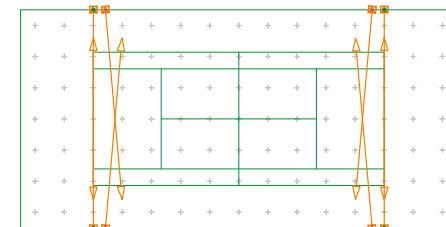
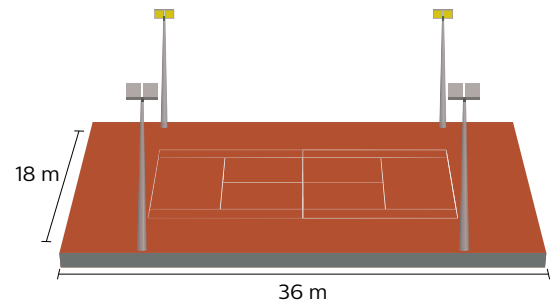
EN12193: Eh ave > 500 lux

OptiVision LED gen2



Specifications OptiVision LED gen2

Poles	4 x 8 m
Floodlight	8 x OptiVision LED gen2 643 W
Floodlight Type	BVP515 OUT T45 100K 1xLED950/757 A-WB/30
System Power	5.14 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	42.3
ULR	1%
MF	0.9



Floodlight aiming

Tennis Single court Class I

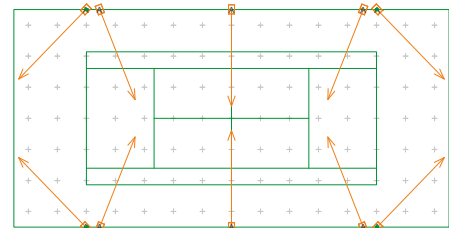
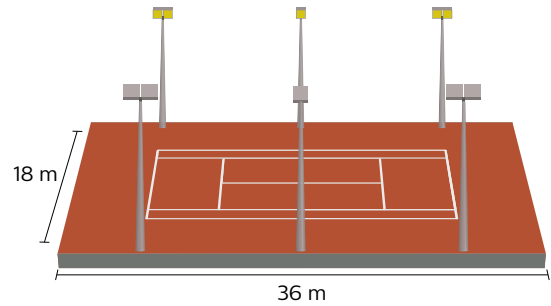
EN12193: Eh ave > 500 lux

ClearFlood Large



Specifications ClearFlood Large

Poles	6 x 8 m
Floodlight	10 x ClearFlood Large 488 W
Floodlight Type	BVP651 1xECO60k/757 A/28-MB
System Power	4.88 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	34
ULR	0%
MF	0.9



Floodlight aiming

Tennis Single court Class II

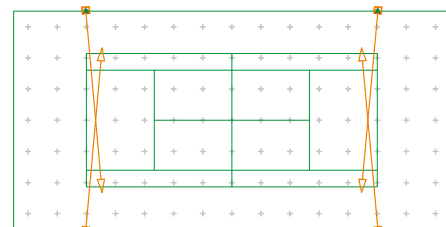
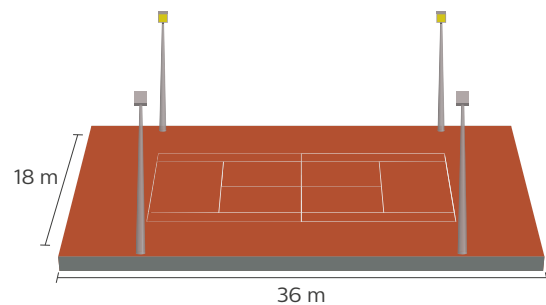
EN12193: Eh ave > 300 lux

OptiVision LED gen2



Specifications OptiVision LED gen2

Poles	4 x 8 m
Floodlight	4 x OptiVision LED gen2 773 W
Floodlight Type	BVP515 OUT T45 50K 1xLED1090/757 A-WB/30
System Power	3.09 kW
Eh ave	> 300 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	41.3
ULR	1%
MF	0.9



Floodlight aiming

Tennis Single court Class II

EN12193: Eh ave > 300 lux

ClearFlood Large

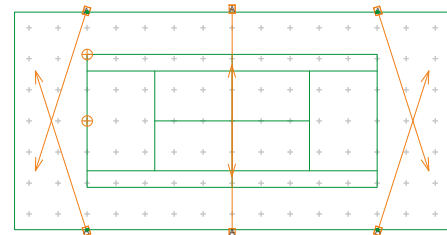
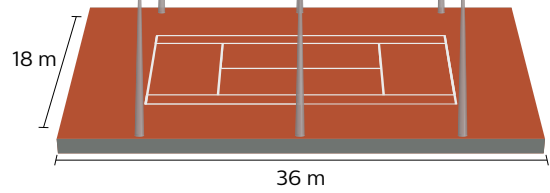


Specifications ClearFlood Large

Poles	6 x 8 m
Floodlight	6 x ClearFlood Large 488 W
Floodlight Type	BVP651 1xECO60k/757 A/28-MB
System Power	2.93 kW
Eh ave	> 300 lux
Emin/Eave	> 0.6
Ra	> 70
GR Max	37.9
ULR	1%
MF	0.9



Tennis



Floodlight aiming

Tennis Single court Class II

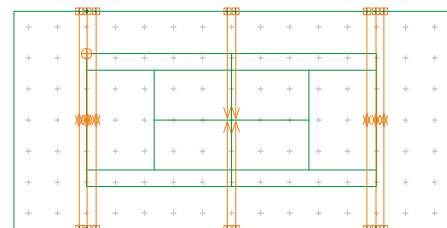
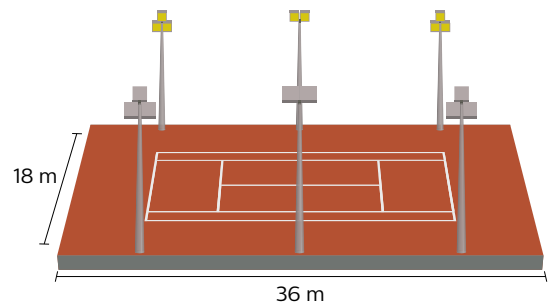
EN12193: Eh ave > 300 lux

ClearFlood



Specifications ClearFlood

Poles	6 x 8 m
Floodlight	16 x ClearFlood 184 W
Floodlight Type	BVP650 G2 24K 1xECO/740 OFA52
System Power	2.9 kW
Eh ave	> 300 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	35.7
ULR	0%
MF	0.9



Floodlight aiming

Tennis Single court Class III

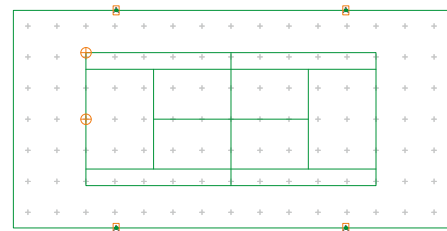
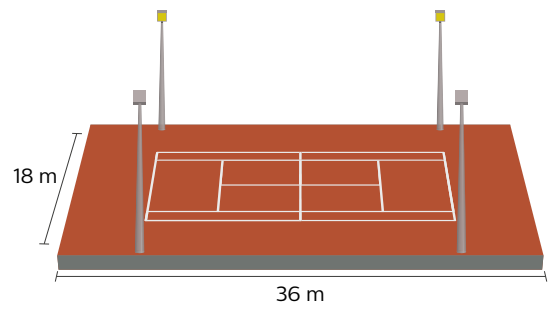
EN12193: Eh ave > 200 lux

ClearFlood Large



Specifications ClearFlood Large

Poles	4 x 8 m
Floodlight	4 x ClearFlood Large 549 W
Floodlight Type	BVP651 1xECO65k/757 DK
System Power	2.2 kW
Eh ave	> 200 lux
Emin/Eave	> 0.6
Ra	> 70
GR Max	38.4
ULR	0%
MF	0.9



Floodlight aiming

Tennis Single court Class III

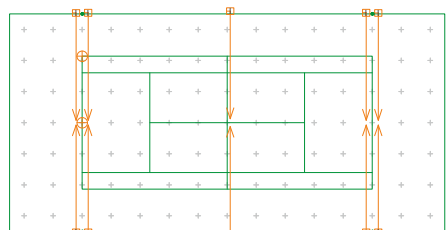
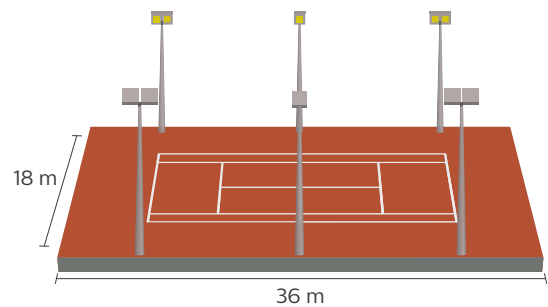
EN12193: Eh ave > 200 lux

ClearFlood



Specifications ClearFlood

Poles	6 x 8 m
Floodlight	10 x ClearFlood 223 W
Floodlight Type	BVP650 G2 28K 1xECO/740 OFA52
System Power	2.2 kW
Eh ave	> 200 lux
Emin/Eave	> 0.6
Ra	> 70
GR Max	36.3
ULR	0%
MF	0.9



Floodlight aiming

Tennis Single court Class III

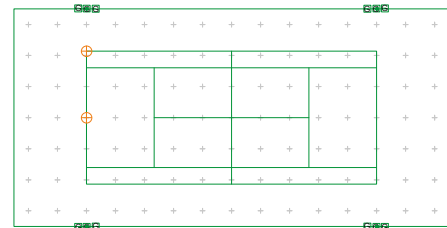
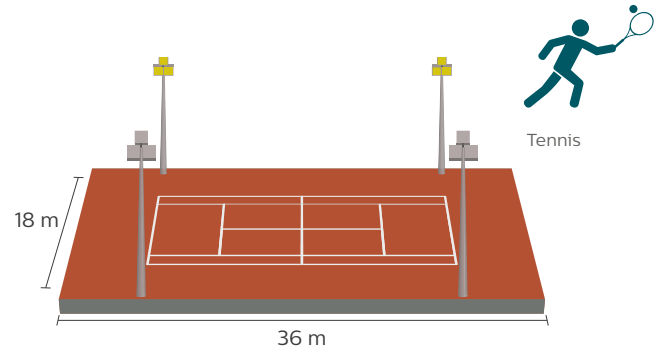
EN12193: Eh ave > 200 lux

ClearFlood



Specifications ClearFlood

Poles	4 x 8 m
Floodlight	12 x ClearFlood 244 W
Floodlight Type	BVP650 G2 30K 1xEKO/740 OFR6
System Power	2.9 kW
Eh ave	> 200 lux
Emin/Eave	> 0.6
Ra	> 70
GR Max	39.7
ULR	0%
MF	0.9



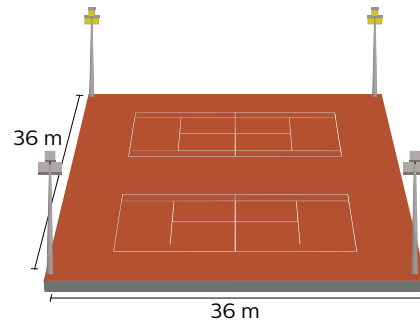
Floodlight aiming



Tennis Twin courts Class I

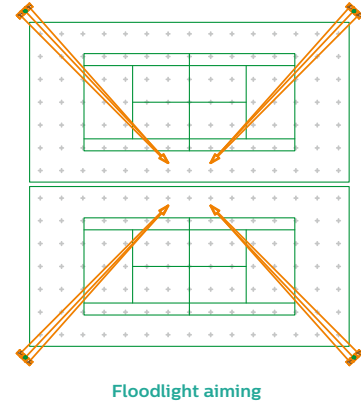
EN12193: Eh ave > 500 lux

OptiVision LED gen2



Specifications OptiVision LED gen2

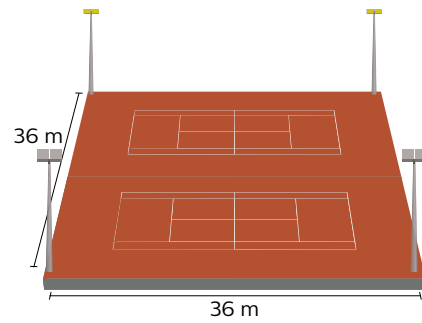
Poles	4 x 10 m
Floodlight	12 x OptiVision LED gen2 824 W
Floodlight Type	BVP515 OUT T40 50K 1xLED1140/757 A-NB/30
System Power	9.89 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	47.2
ULR	2%
MF	0.9



Tennis Twin courts Class II

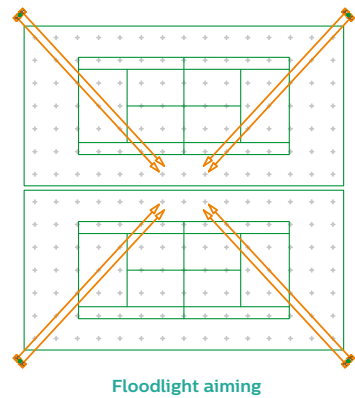
EN12193: Eh ave > 300 lux

OptiVision LED gen2



Specifications OptiVision LED gen2

Poles	4 x 10 m
Floodlight	8 x OptiVision LED gen2 773 W
Floodlight Type	BVP515 OUT T45 50K 1xLED1090/757 A-NB/30
System Power	6.18 kW
Eh ave	> 300 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	46.7
ULR	2%
MF	0.9





Tennis

Tennis Twin courts Class III

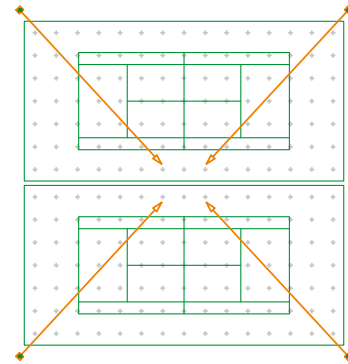
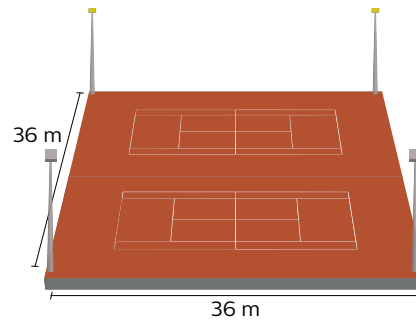
EN12193: Eh ave > 200 lux

OptiVision LED gen2



Specifications OptiVision LED gen2

Poles	4 x 10 m
Floodlight	4 x OptiVision LED gen2 964 W
Floodlight Type	BVP525 OUT T45 100K 1xLED1420/757 A-NB/30
System Power	3.86 kW
Eh ave	> 200 lux
Emin/Eave	> 0.6
Ra	> 70
GR Max	46.4
ULR	2%
MF	0.9



Floodlight aiming

Tennis Twin courts Class III

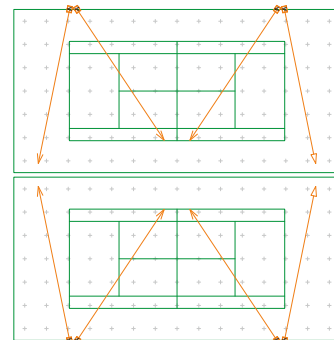
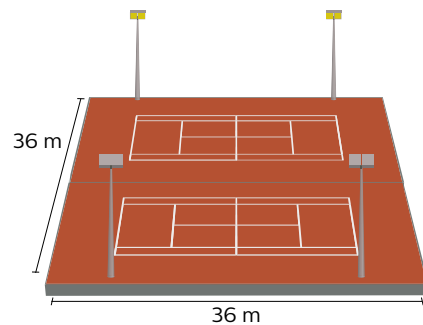
EN12193: Eh ave > 200 lux

ClearFlood Large



Specifications ClearFlood Large

Poles	4 x 10 m
Floodlight	8 x ClearFlood Large 488 W
Floodlight Type	BVP651 1xECO60k/757 A28-MB
System Power	3.9 kW
Eh ave	> 200 lux
Emin/Eave	> 0.6
Ra	> 70
GR Max	37.7
ULR	1%
MF	0.9



Floodlight aiming

Tennis Triple courts Class I

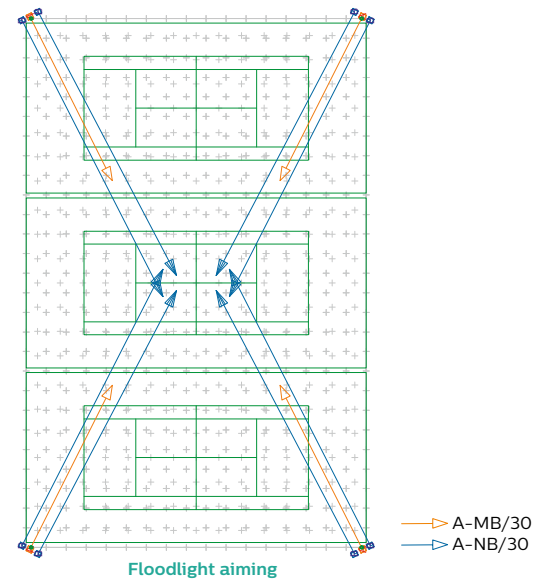
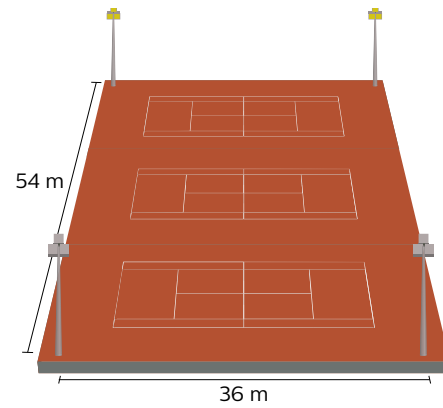
EN12193: Eh ave > 500 lux

OptiVision LED gen2



Specifications OptiVision LED gen2

Poles	4 x 16 m
Floodlight	12 x OptiVision LED gen2 1471 W
Floodlight Type	8 x BVP525 OUT T25 50K 1xLED1940/757 A-NB/30 4 x BVP525 OUT T25 50K 1xLED1940/757 A-MB/30
System Power	17.65 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	40.6
ULR	1%
MF	0.9



Tennis Triple courts Class II

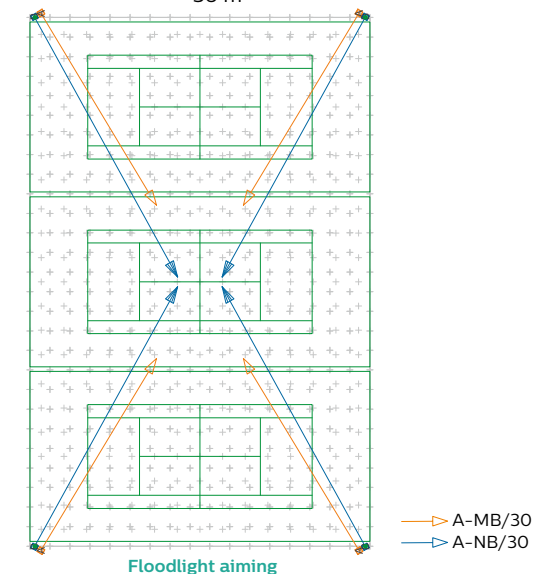
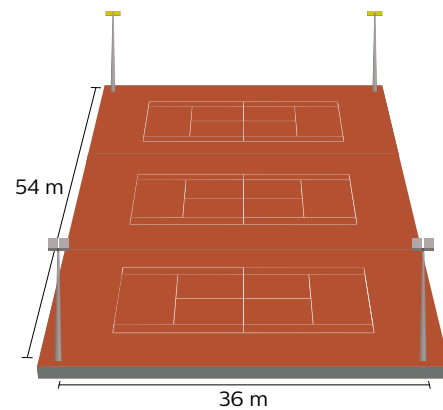
EN12193: Eh ave > 300 lux

OptiVision LED gen2



Specifications OptiVision LED gen2

Poles	4 x 16 m
Floodlight	8 x OptiVision LED gen2 1314 W
Floodlight Type	4 x BVP525 OUT T35 50K 1xLED1790/757 A-NB/30 4 x BVP525 OUT T35 50K 1xLED1790/757 A-MB/30
System Power	10.51 kW
Eh ave	> 300 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	40.3
ULR	1%
MF	0.9



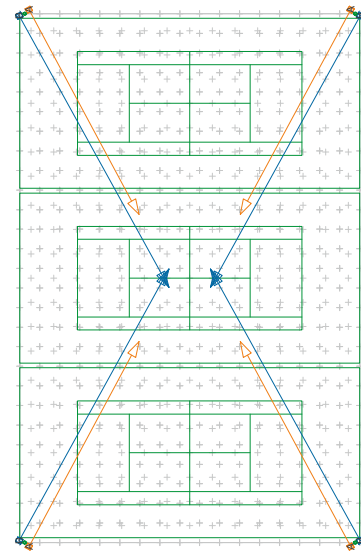
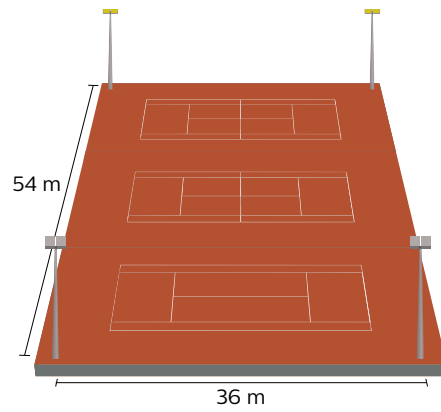
Tennis Triple courts Class III

EN12193: Eh ave > 200 lux

OptiVision LED gen2



Tennis



▶ A-MB/30
▶ A-NB/30

Floodlight aiming

Specifications OptiVision LED gen2

Poles	4 x 16 m
Floodlight	8 x OptiVision LED gen2 876 W
Floodlight Type	4 x BVP515 OUT T35 50K 1xLED1190/757 A-NB/30 4 x BVP515 OUT T35 50K 1xLED1190/757 A-MB/30
System Power	7.01 kW
Eh ave	> 200 lux
Emin/Eave	> 0.6
Ra	> 70
GR Max	40
ULR	1%
MF	0.9



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

EN12193 Requirements

		Class		
		I	II	III
Horizontal illuminance	E_m lx	500	200	75
	E_{min}/E_m	0.7	0.6	0.5
GR		50	50	55
Ra		60	60	20



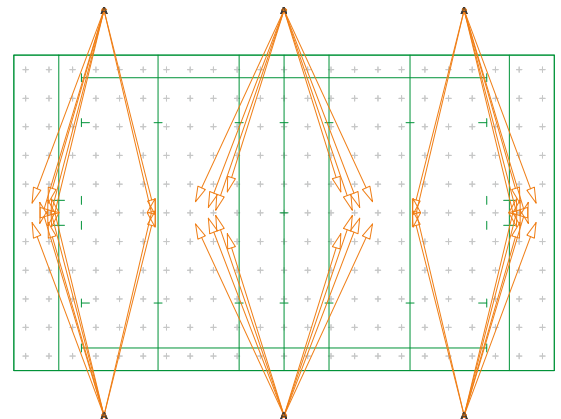
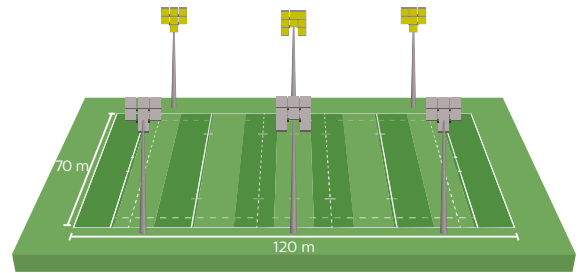
Rugby Class I

EN12193: Eh ave > 500 lux

OptiVision LED gen2



Rugby



Floodlight aiming

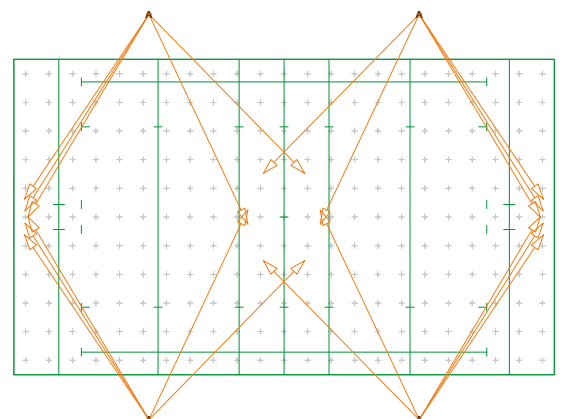
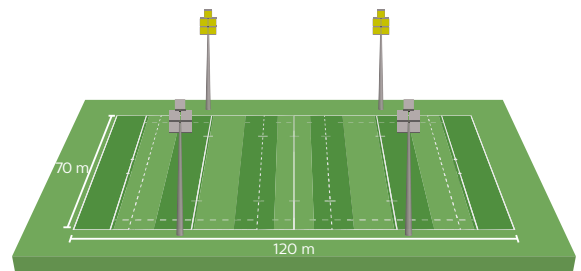
Specifications OptiVision LED gen2

Poles	6 x 18 m
Floodlight	44 x OptiVision LED gen2 1471 W
Floodlight Type	BVP525 OUT T25 50K 1xLED1940/757 A-NB/30
System Power	64.72 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	50
ULR	2%
MF	0.9

Rugby Class II

EN12193: Eh ave > 200 lux

OptiVision LED gen2



Floodlight aiming

Specifications OptiVision LED gen2

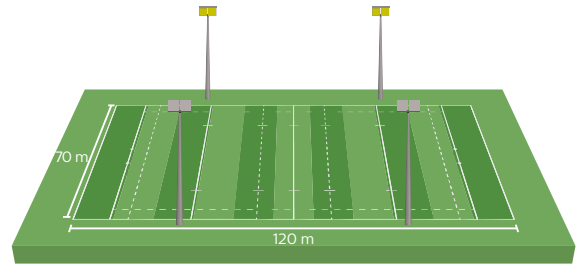
Poles	4 x 18 m
Floodlight	20 x OptiVision LED gen2 1471 W
Floodlight Type	BVP525 OUT T25 50K 1xLED1940/757 A-NB/30
System Power	29.42 kW
Eh ave	> 200 lux
Emin/Eave	> 0.6
Ra	> 70
GR Max	50.1
ULR	2%
MF	0.9

Rugby Class III

EN12193: Eh ave > 75 lux
OptiVision LED gen2

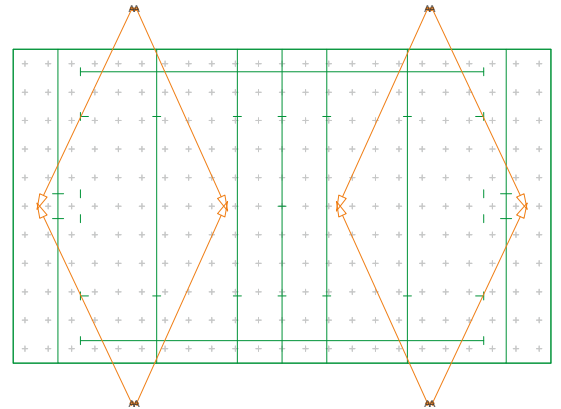


Rugby



Specifications **OptiVision LED gen2**

Poles	4 x 18 m
Floodlight	8 x OptiVision LED gen2 1160 W
Floodlight Type	BVP525 OUT T45 50K 1xLED1630/757 A-NB/30
System Power	9.28 kW
Eh ave	> 75 lux
Emin/Eave	> 0.5
Ra	> 70
GR Max	49.6
ULR	2%
MF	0.9



Floodlight aiming





Lighting an athletics field

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

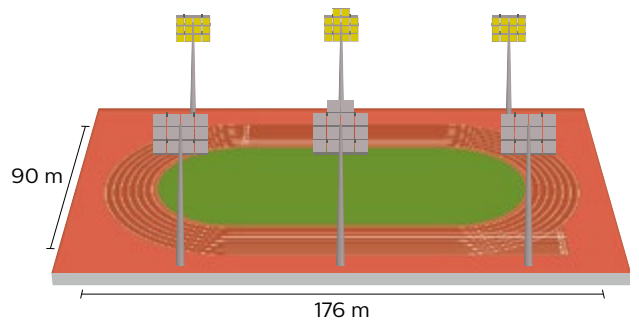
EN12193 Requirements

		Class		
		I	II	III
Horizontal illuminance	E_m lx	500	200	100
	E_{min}/E_m	0.7	0.5	0.5
GR		50	55	55
Ra		60	60	20

Athletics Class I

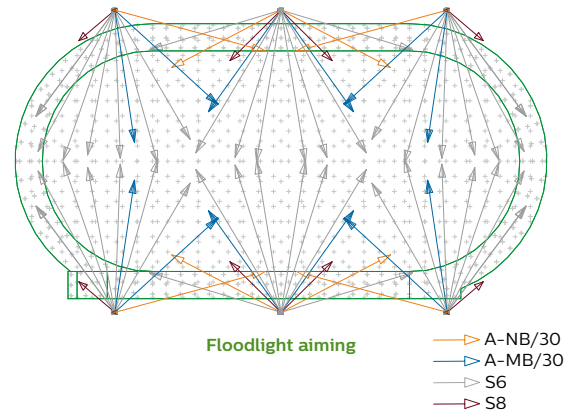
EN12193: Eh ave > 500 lux

OptiVision LED gen2



Specifications OptiVision LED gen2

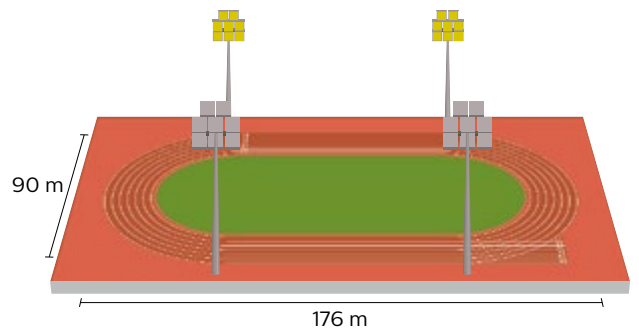
Poles	6 x 20 m
Floodlight	76 x OptiVision LED gen2 1471 W
Floodlight Type	8 x BVP525 OUT T25 50K 1xLED1940/757 A-NB/30
	12 x BVP525 OUT T25 50K 1xLED1940/757 A-MB/30
	48 x BVP525 OUT T25 50K 1xLED1940/757 S6
	8 x BVP525 OUT T25 50K 1xLED1940/757 S8
System Power	111.8 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	50.2
ULR	2%
MF	0.9



Athletics Class II

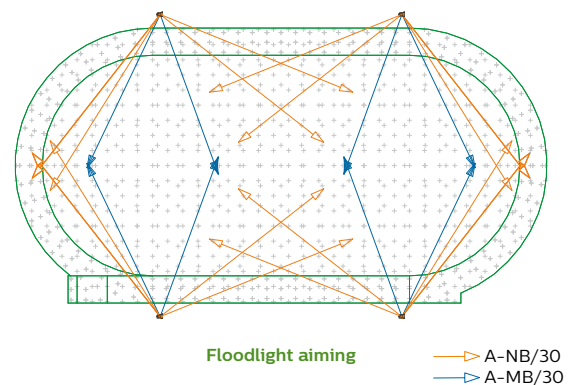
EN12193: Eh ave > 200 lux

OptiVision LED gen2



Specifications OptiVision LED gen2

Poles	4 x 25 m
Floodlight	32 x OptiVision LED gen2 1471 W
Floodlight Type	24 x BVP525 OUT T25 50K 1xLED1940/757 A-NB/30
	8 x BVP525 OUT T25 50K 1xLED1940/757 A-MB/30
System Power	47.07 kW
Eh ave	> 200 lux
Emin/Eave	> 0.5
Ra	> 70
GR Max	47.1
ULR	2%
MF	0.9



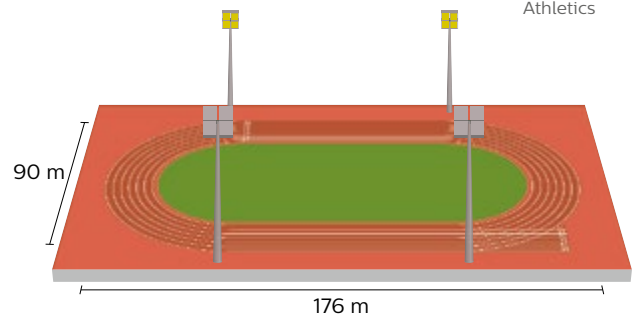
Athletics Class III

EN12193: Eh ave > 100 lux

OptiVision LED gen2

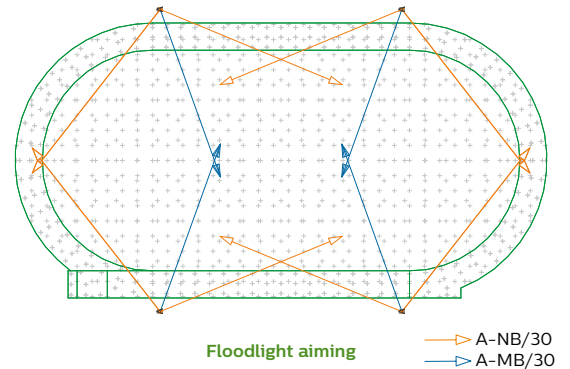


Athletics



Specifications OptiVision LED gen2

Poles	4 x 25 m
Floodlight	16 x OptiVision LED gen2 1471 W
Floodlight Type	12 x BVP525 OUT T25 50K 1xLED1940/757 A-NB/30 4 x BVP525 OUT T25 50K 1xLED1940/757 A-MB/30
System Power	23.54 kW
Eh ave	> 100 lux
Emin/Eave	> 0.5
Ra	> 70
GR Max	45.7
ULR	2%
MF	0.9



Floodlight aiming

—> A-NB/30
—> A-MB/30





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

EN12193 Requirements

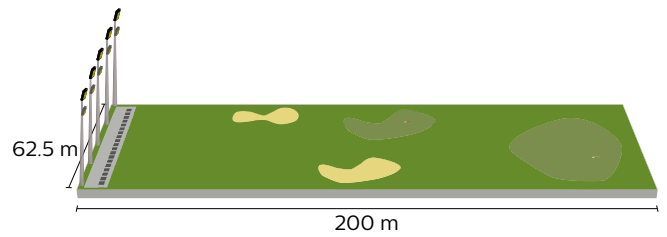
		Class
		III
Horizontal illuminance	\bar{E}_m lx	100
	E_{min}/\bar{E}_m	0.8
Vertical illuminance on distance marker	\bar{E}_m lx	50
Ra		20

Golf driving range

EN12193: Eh ave > 100 lux
OptiVision LED gen2 / ClearFlood

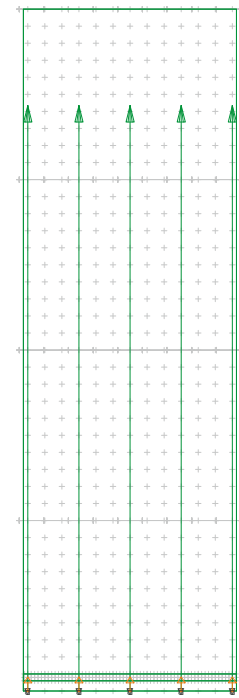


Golf course



Specifications OptiVision LED gen2 / ClearFlood

Poles	5 x 11 m
Floodlight	5 x OptiVision LED gen2 1160 W 5 x ClearFlood 184 W
Floodlight Type	5 x BVP525 OUT T45 50K 1xLED1560/740 S6 5 x BVP650 G2 24K 1xEKO/740 S
System Power	6.72 kW
Eh ave Tee area	> 100 lux
Emin/Eave Tee area	> 0.8
Ev vertical plans area	> 50 lux
Ra	> 70
ULR	1%
MF	0.9



Floodlight aiming

— BVP650
 — BVP525



Lighting a playing 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

EN12193 Requirements

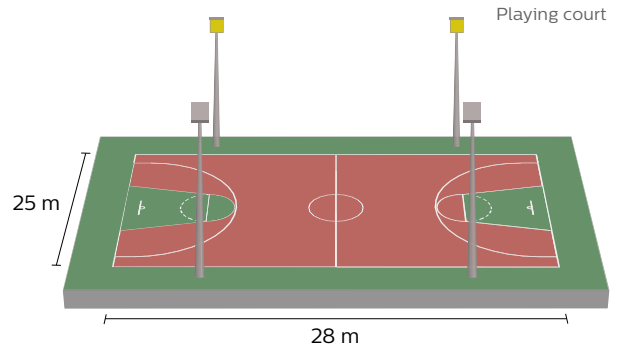
		Class		
		I	II	III
Horizontal illuminance	$\bar{E}_m \text{ lx}$	500	200	75
	E_{min}/\bar{E}_m	0.7	0.6	0.5
GR		50	50	55
Ra		60	60	20



Playing court Class I

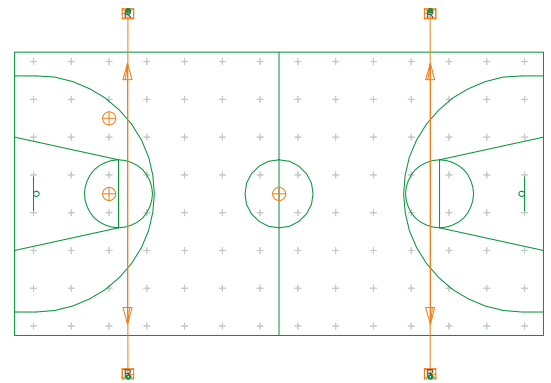
EN12193: Eh ave > 500 lux

OptiVision LED gen2



Specifications OptiVision LED gen2

Poles	4 x 8 m
Floodlight	4 x OptiVision LED gen2 964 W
Floodlight Type	BVP525 OUT T45 100K 1xLED1420/757 A-WB/30
System Power	3.86 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	40.8
ULR	1%
MF	0.9

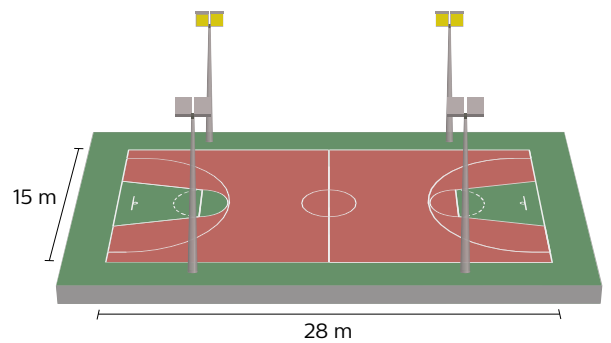


Floodlight aiming

Playing court Class I

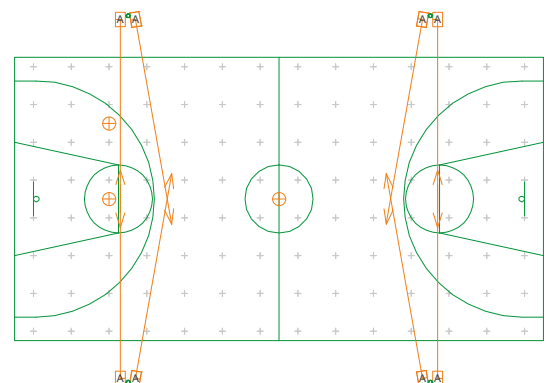
EN12193: Eh ave > 500 lux

ClearFlood Large



Specifications ClearFlood Large

Poles	4 x 8 m
Floodlight	8 x ClearFlood Large 549 W
Floodlight Type	BVP651 1xECO65k/757 OFA52
System Power	4.39 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	37.8
ULR	0%
MF	0.9



Floodlight aiming

Playing court Class II

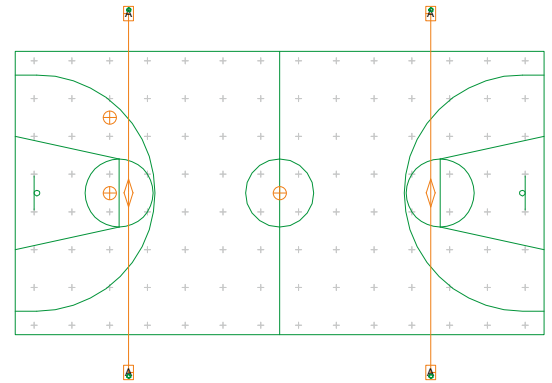
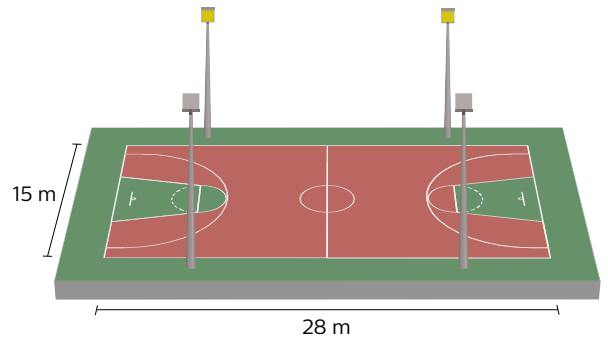
EN12193: Eh ave > 200 lux

ClearFlood Large



Specifications ClearFlood Large

Poles	4 x 8 m
Floodlight	4 x ClearFlood Large 433 W
Floodlight Type	BVP651 1xECO55k/757 OFA52
System Power	1.73 kW
Eh ave	> 200 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	37.8
ULR	0%
MF	0.9



Floodlight aiming

Playing court Class II

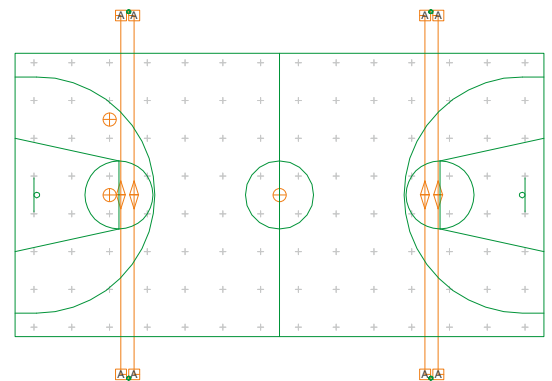
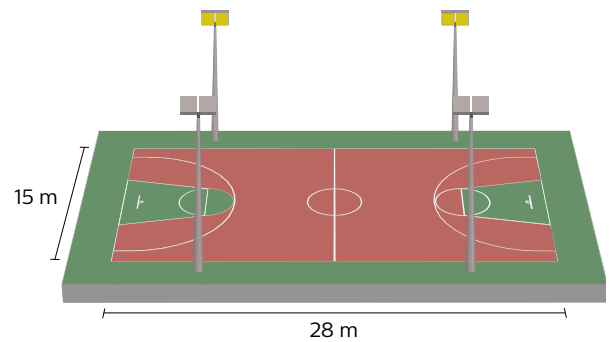
EN12193: Eh ave > 200 lux

ClearFlood



Specifications ClearFlood

Poles	4 x 8 m
Floodlight	8 x ClearFlood 244 W
Floodlight Type	BVP650 G2 30K 1xECO/740 OFA52
System Power	1.95 kW
Eh ave	> 200 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	37.3
ULR	0%
MF	0.9

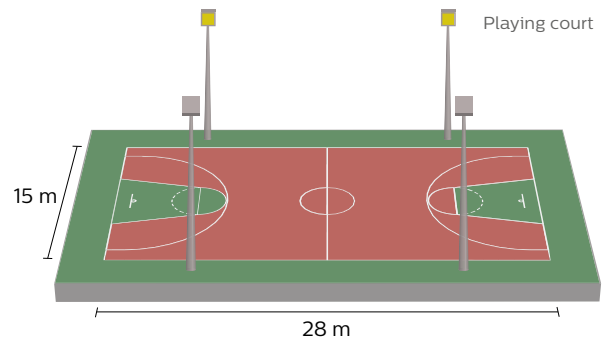


Floodlight aiming

Playing court Class III

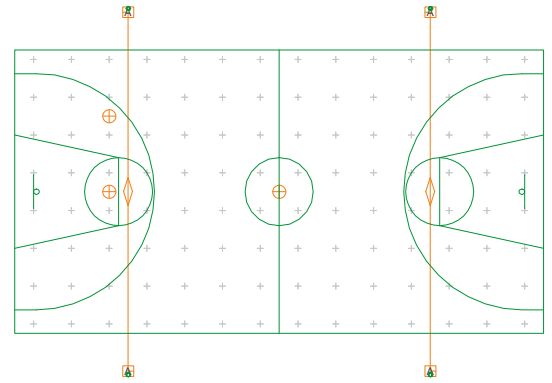
EN12193: Eh ave > 75 lux

ClearFlood



Specifications ClearFlood

Poles	4 x 8 m
Floodlight	4 x ClearFlood 178 W
Floodlight Type	BVP650 G2 22K 1xEco/740 OFA52
System Power	0.71 kW
Eh ave	> 75 lux
Emin/Eave	> 0.5
Ra	> 70
GR Max	36.3
ULR	0%
MF	0.9



Floodlight aiming





Lighting a baseball / softball field

A fast sport like baseball or softball requires high levels of illumination to enable the action and flight of the ball to be followed. Most of the fast action takes place in the regulation-sized infield, which will require a significantly greater illuminance and overall uniformity than the larger outfield (the area of which may vary). Floodlighting must minimize shadowing and achieve good modelling of players, while providing control of glare to players, officials and spectators.

Due to the regulation infield layout of pitcher, hitter and three base-plate fielders, baseball is probably unique in having nine fixed lines of sight within which pole locations should be avoided if glare from floodlighting is to be adequately controlled. Poles are not permitted within a 90° zone directly behind the home plate to ensure good viewing conditions for outfielders. These pole placement regulations generally dictate the use of either six-

or eight-pole floodlighting systems, with floodlights aimed to illuminate three distinct zones (infield diamond, far infield/near outfield and deep outfield). The provision of at least bi-directional lighting into each zone is necessary if adequate modelling of players is to be achieved.

Source: Society of Light and Lighting UK

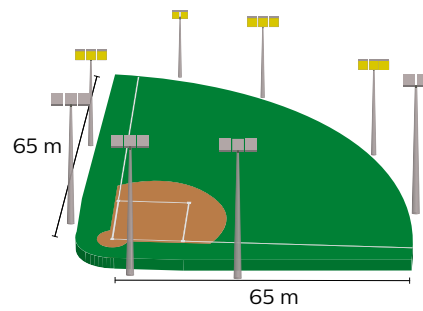
EN12193 Requirements

		Class		
		I	II	III
Horizontal illuminance infield	\bar{E}_m lx	750	500	200
	E_{min}/\bar{E}_m	0.7	0.7	0.5
Horizontal illuminance outfield	\bar{E}_m lx	500	300	100
	E_{min}/\bar{E}_m	0.5	0.5	0.3
GR		50	50	55
Ra		60	60	20

Baseball / Softball Class I

EN12193: Eh ave Infield > 750 lux

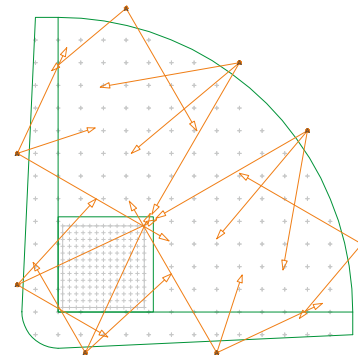
OptiVision LED gen2



Baseball / Softball

Specifications OptiVision LED gen2

Poles	8 x 18 m
Floodlight	22 x OptiVision LED gen2 1471 W
Floodlight Type	BVP525 OUT T25 50K 1xLED1940/757 A-NB/30
System Power	32.36 kW
Eh ave Infield	> 750 lux
Emin/Eave Infield	> 0.7
Eh ave Outfield	> 500 lux
Emin/Eave Outfield	> 0.5
Ra	> 70
GR Max	43.1
ULR	1%
MF	0.9

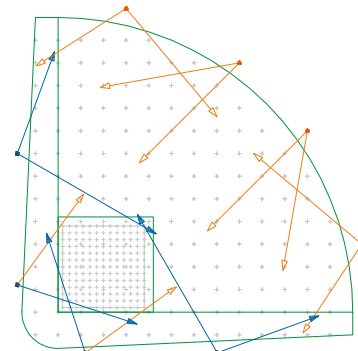
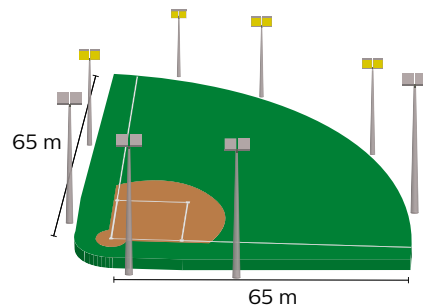


Floodlight aiming

Baseball / Softball Class II

EN12193: Eh ave Infield > 500 lux

OptiVision LED gen2



— A-MB/30
— A-NB/30

Specifications OptiVision LED gen2

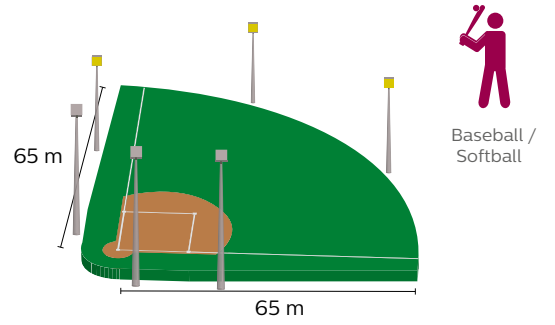
Poles	8 x 18 m
Floodlight	18 x OptiVision LED gen2 1471 W
Floodlight Type	8 x BVP525 OUT T25 50K 1xLED1940/757 A-NB/30 10 x BVP525 OUT T25 50K 1xLED1940/757 A-MB/30
System Power	23.54 kW
Eh ave Infield	> 500 lux
Emin/Eave Infield	> 0.7
Eh ave Outfield	> 300 lux
Emin/Eave Outfield	> 0.5
Ra	> 70
GR Max	38.4
ULR	1%
MF	0.9

Floodlight aiming

Baseball / Softball Class III

EN12193: Eh ave Infield > 200 lux

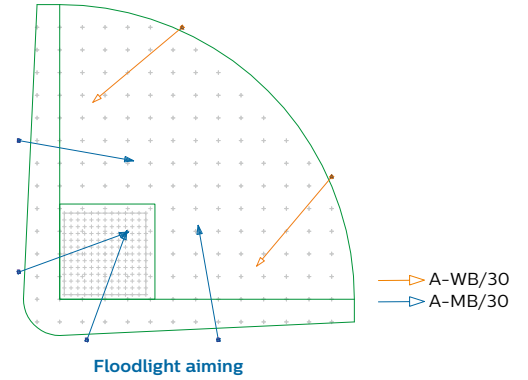
OptiVision LED gen2



Baseball / Softball

Specifications OptiVision LED gen2

Poles	6 x 18 m
Floodlight	6 x OptiVision LED gen2 1160 W
Floodlight Type	4 x BVP525 OUT T45 50K 1xLED1630/757 A-MB/30 2 x BVP525 OUT T45 50K 1xLED1630/757 A-WB/30
System Power	6.96 kW
Eh ave Infield	> 200 lux
Emin/Eave Infield	> 0.5
Eh ave Outfield	> 100 lux
Emin/Eave Outfield	> 0.3
Ra	> 70
GR Max	40.1
ULR	1%
MF	0.9



Floodlight aiming







Indoor sports **lighting**

Philips offers the latest high-efficiency LED sports lighting floodlights, providing a complete lighting solution communicating via the PerfectPlay control system, for the smallest through to the most complex indoor sports facilities.



Tennis



Swimming



Multipurpose sports hall



Ice hockey



OptiVision LED gen2

A new era in smart area and recreational sports lighting

- Innovative floodlight with dedicated optics that ensure maximum optical efficiency and enable accurate light distribution with a minimum of spill light
- Advanced Philips system controls and sensors enable additional energy savings (up to 65%) in area lighting applications
- Minimized maintenance costs thanks to long-lasting LEDs and the floodlights thermal management system



ClearFlood Large

The best solution for 1:1 retrofit

- Fast payback and low Total Cost of Ownership with energy savings and minimum maintenance costs
- Multiple control options ensure increased efficiency with intelligent lighting
- Combination of lenses and flux options ensure high level of project flexibility.



ClearFlood

Real LED solution for sport lighting

- Designed for 1:1 retrofit, with high energy savings and a fast return on investment
- Easy to select the required lumen performance
- Five different optics ensure versatility in application
- Ideal for small-scale recreational sports facilities



GentleSpace gen2

New standard in high-bay lighting, combining functionality with design

- Extremely long lifetime of 70,000 hrs
- Maximize savings on energy and maintenance costs
- Suitable for a broad range of applications, even in extreme conditions
- Compliant with all relevant norms
- Available with dedicated indoor sports optic A



Lighting a tennis indoor field

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).

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

EN12193 Requirements

		Class		
		I	II	III
Horizontal illuminance	\bar{E}_m lx	750	500	300
	E_{min}/\bar{E}_m	0.7	0.7	0.5
Ra		60	60	20

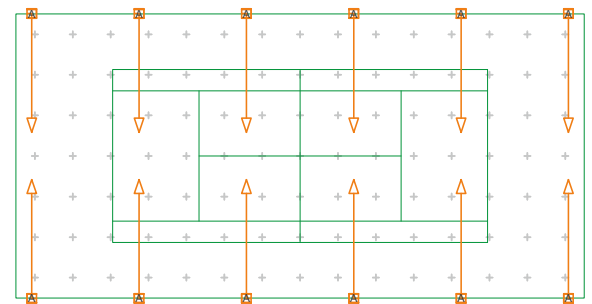
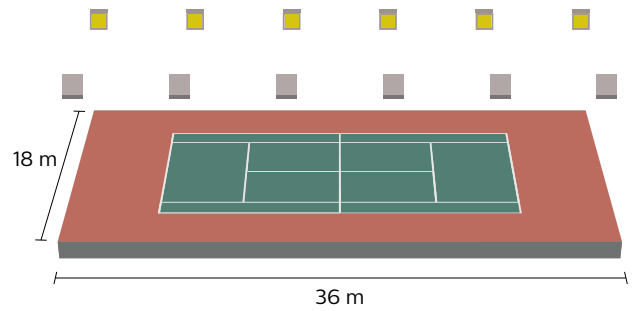
Tennis Class I

EN12193: Eh ave > 750 lux

OptiVision LED gen2



Tennis



Floodlight aiming

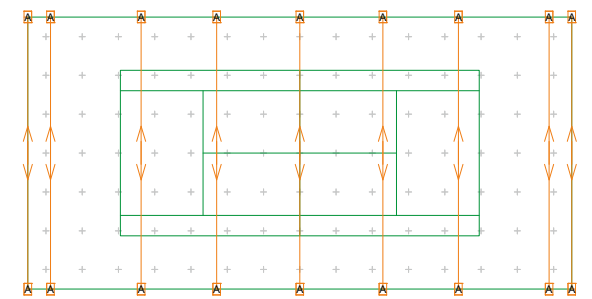
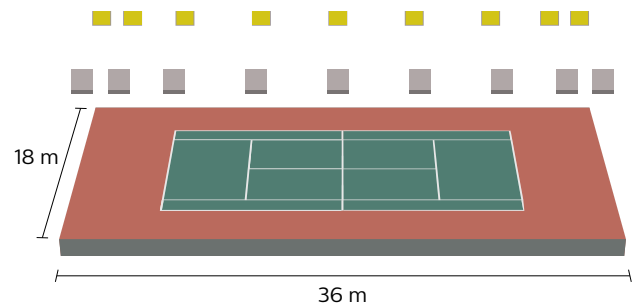
Specifications OptiVision LED gen2

Installation	2 lines at 7 m
Floodlight	12 x OptiVision LED gen2 563 W
Floodlight Type	BVP515 IN T45 100K 1xLED860/757 A-MB/30
System Power	6.76 kW
Eh ave	> 750 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	34.6
MF	0.9

Tennis Class I

EN12193: Eh ave > 750 lux

ClearFlood Large



Floodlight aiming

Specifications ClearFlood Large

Installation	2 lines at 7 m
Floodlight	18 x ClearFlood Large 549 W
Floodlight Type	BVP651 1xEco65k/757 OFA52
System Power	9.88 kW
Eh ave	> 750 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	36
MF	0.8

Tennis Class I

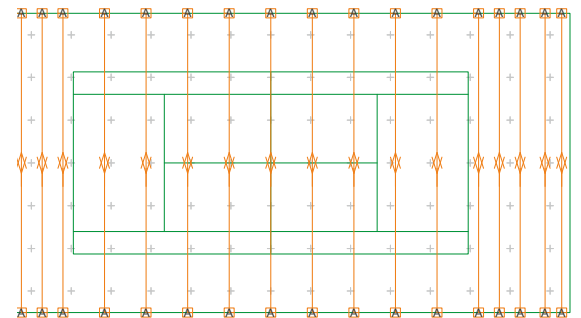
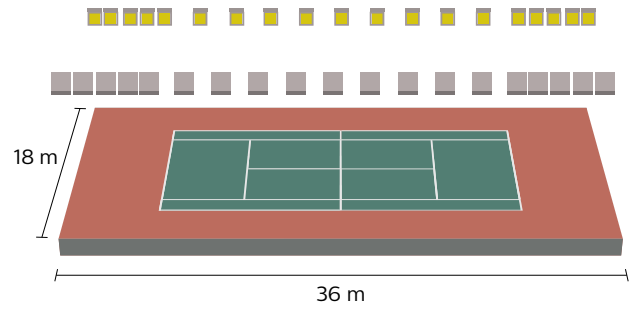
EN12193: Eh ave > 750 lux

ClearFlood



Specifications ClearFlood

Installation	2 lines at 7 m
Floodlight	38 x ClearFlood 244 W
Floodlight Type	BVP650 G2 30K 1xECO/740 OFA52
System Power	9.3 kW
Eh ave	> 750 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	35.1
MF	0.8



Floodlight aiming

Tennis Class I

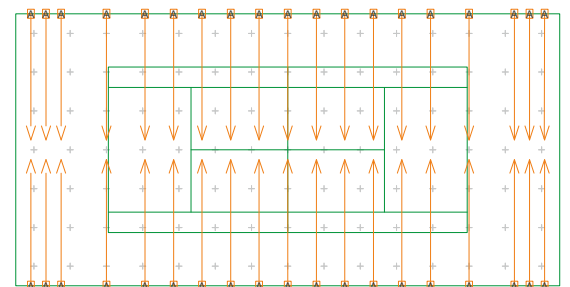
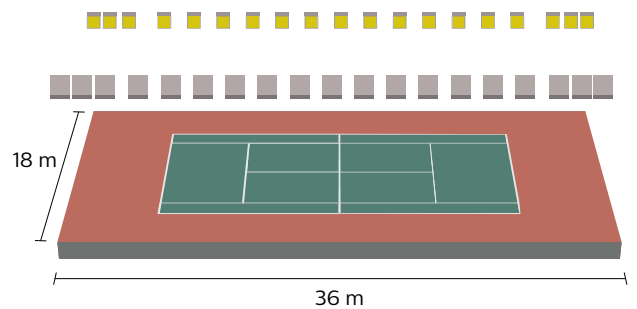
EN12193: Eh ave > 750 lux

GentleSpace gen2 (sports optic A)



Specifications GentleSpace gen2 (sports optic A)

Installation	2 lines at 7 m
Floodlight	38 x GentleSpace gen2 200 W
Floodlight Type	BY471P 1xLED250S/840 A50 GC
System Power	7.6 kW
Eh ave	> 750 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	35
MF	0.8



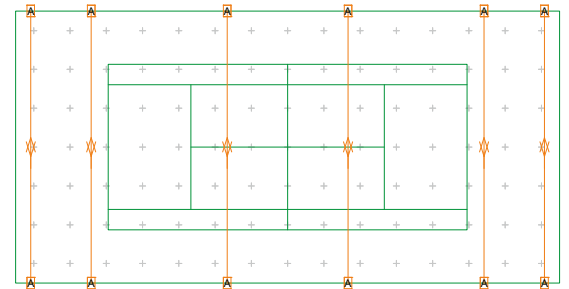
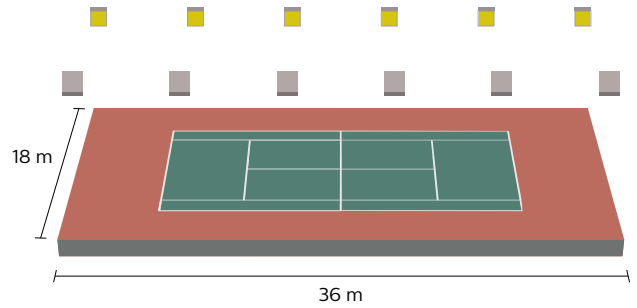
Floodlight aiming

Tennis Class II

EN12193: Eh ave > 500 lux
ClearFlood Large



Tennis



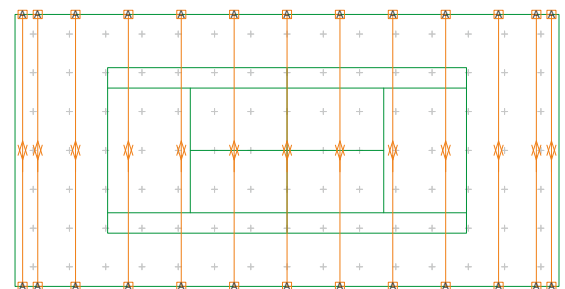
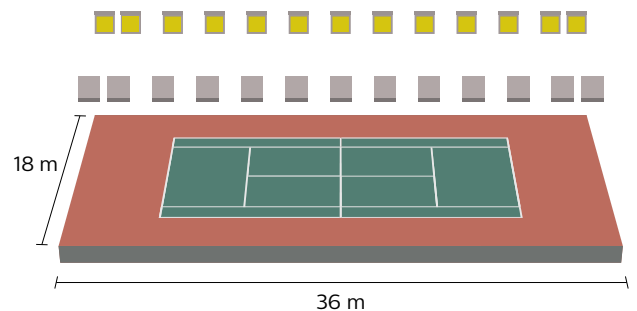
Floodlight aiming

Specifications ClearFlood Large

Installation	2 lines at 7 m
Floodlight	12 x ClearFlood Large 549 W
Floodlight Type	BVP651 1xECO65k/757 OFA52
System Power	6.59 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	36
MF	0.8

Tennis Class II

EN12193: Eh ave > 500 lux
ClearFlood



Floodlight aiming

Specifications ClearFlood

Installation	2 lines at 7 m
Floodlight	26 x ClearFlood 244 W
Floodlight Type	BVP650 G2 30K 1xECO/740 OFA52
System Power	6.3 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	34.3
MF	0.8

Tennis Class II

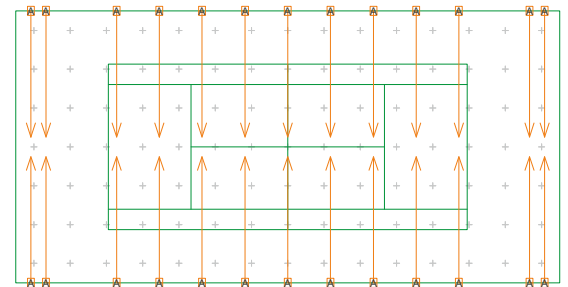
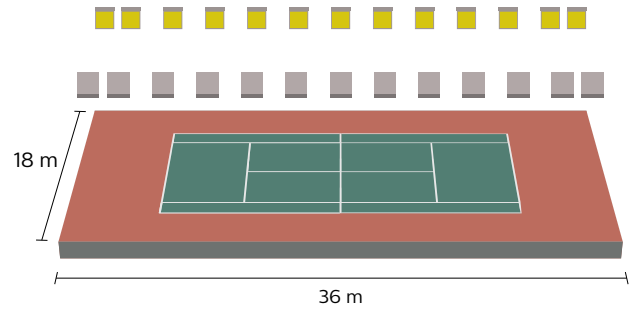
EN12193: Eh ave > 500 lux

GentleSpace gen2 (sports optic A)



Specifications GentleSpace gen2 (sport optic A)

Installation	2 lines at 7 m
Floodlight	26 x GentleSpace gen2 200 W
Floodlight Type	BY471P 1xLED250S/840 A50 GC
System Power	5.2 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	34.5
MF	0.8



Floodlight aiming

Tennis Class III

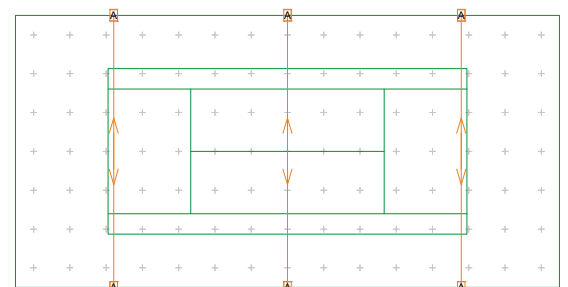
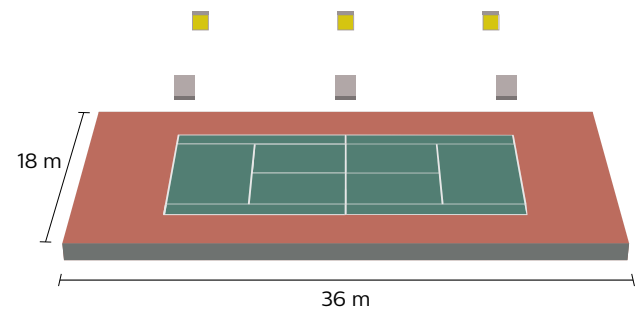
EN12193: Eh ave > 300 lux

ClearFlood Large



Specifications ClearFlood Large

Installation	2 lines at 7 m
Floodlight	6 x ClearFlood Large 549 W
Floodlight Type	BVP651 1xECO65k/757 OFA52
System Power	3.29 kW
Eh ave	> 300 lux
Emin/Eave	> 0.5
Ra	> 70
GR Max	39.1
MF	0.8



Floodlight aiming

Tennis Class III

EN12193: Eh ave > 300 lux

ClearFlood

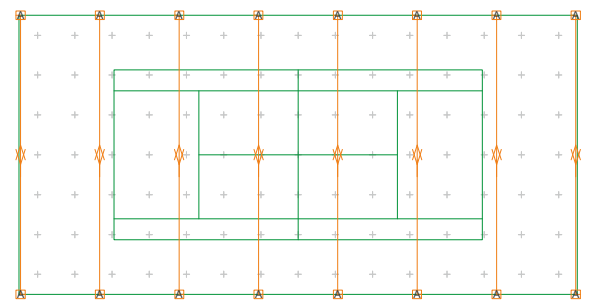
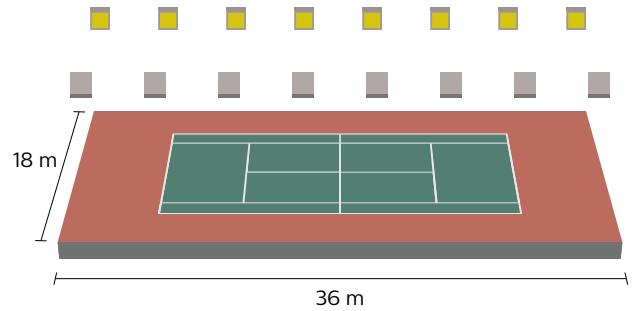


Specifications ClearFlood

Installation	2 lines at 7 m
Floodlight	16 x ClearFlood 223 W
Floodlight Type	BVP650 G2 28K 1xECO/740 OFA52
System Power	3.6 kW
Eh ave	> 300 lux
Emin/Eave	> 0.5
Ra	> 70
GR Max	32.6
MF	0.8



Tennis



Floodlight aiming

Tennis Class III

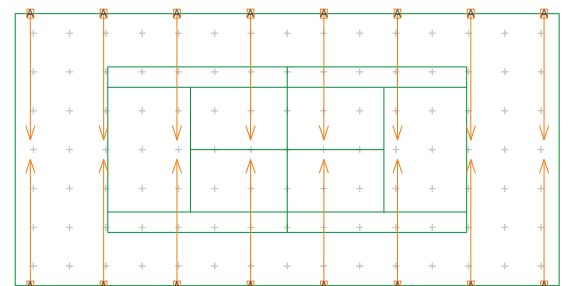
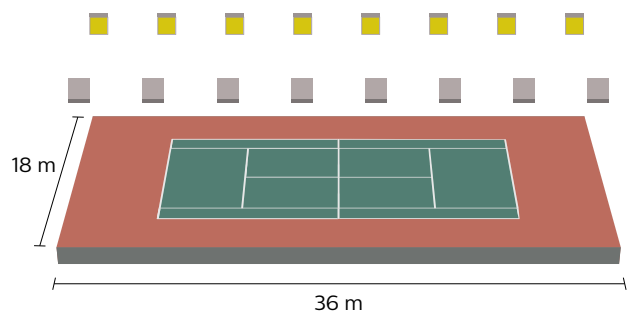
EN12193: Eh ave > 300 lux

GentleSpace gen2 (sports optic A)



Specifications GentleSpace gen2 (sports optic A)

Installation	2 lines at 7 m
Floodlight	16 x GentleSpace gen2 200 W
Floodlight Type	BY471P 1xLED250S/840 A50 GC
System Power	3.2 kW
Eh ave	> 300 lux
Emin/Eave	> 0.5
Ra	> 70
GR Max	33.4
MF	0.8



Floodlight aiming



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

Source: Society of Light and Lighting UK

EN12193 Requirements

		Class		
		I	II	III
Horizontal illuminance	\bar{E}_m lx	500	300	200
	E_{min}/\bar{E}_m	0.7	0.7	0.5
Ra		60	60	20

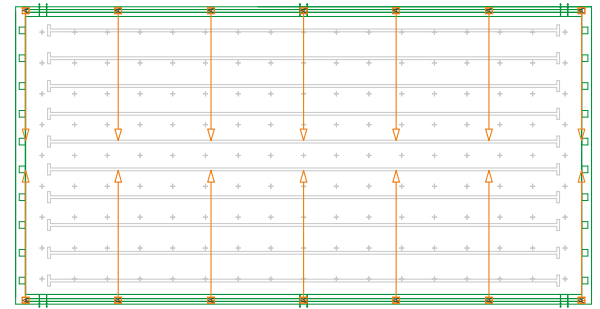
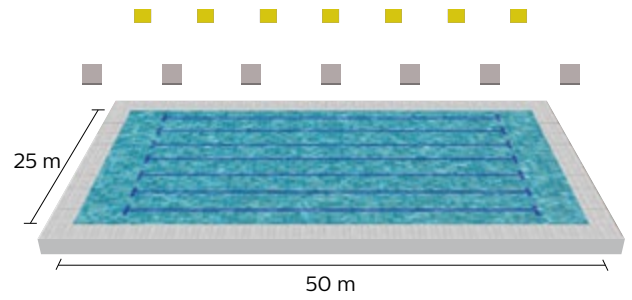
Swimming pool Class I

EN12193: Eh ave > 500 lux

OptiVision LED gen2



Swimming



Specifications OptiVision LED gen2

Installation	2 lines at 7 m
Floodlight	14 x OptiVision LED gen2 563 W
Floodlight Type	BVP515 IN T45 100K 1xLED860/757 A-MB/30
System Power	7.88 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	38.9
MF	0.9

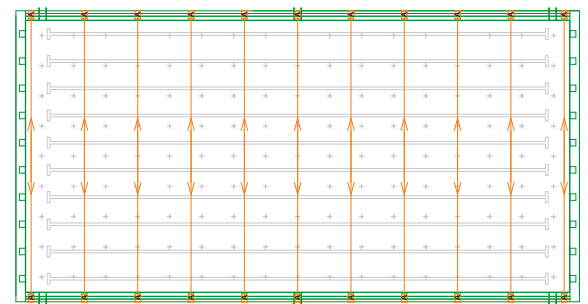
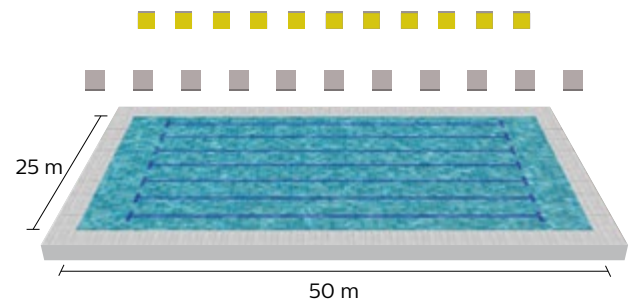
Swimming pool Class I

EN12193: Eh ave > 500 lux

ClearFlood Large



Swimming



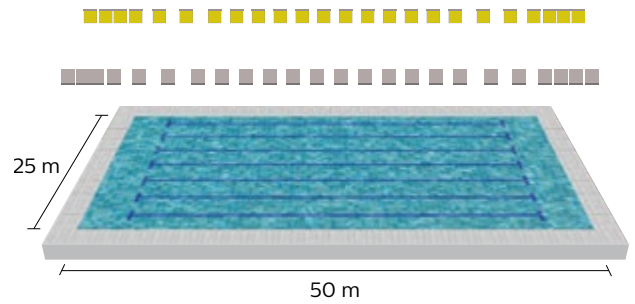
Specifications ClearFlood Large

Installation	2 lines at 7 m
Floodlight	22 x ClearFlood Large 488 W
Floodlight Type	BVP651 1xECO60k/757 OFA52
System Power	10.74 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	38.8
MF	0.8

Swimming pool Class I

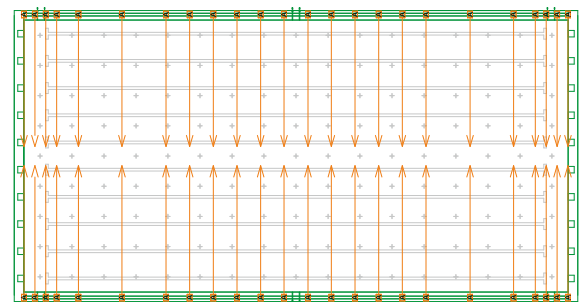
EN12193: Eh ave > 500 lux

GentleSpace gen2 (sports optic A)



Specifications GentleSpace gen2 (sports optic A)

Installation	2 lines at 7 m
Floodlight	48 x GentleSpace gen2 200 W
Floodlight Type	BY471P 1xLED250S/840 A50 GC
System Power	9.6 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 80
GR Max	39.3
MF	0.8

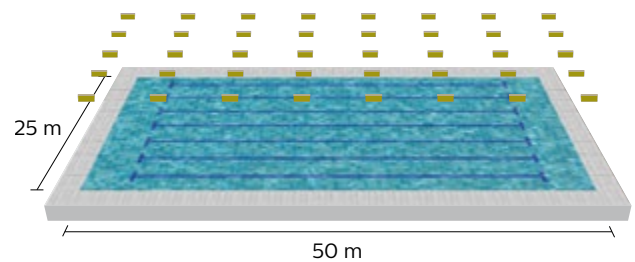


Floodlight aiming

Swimming pool Class I

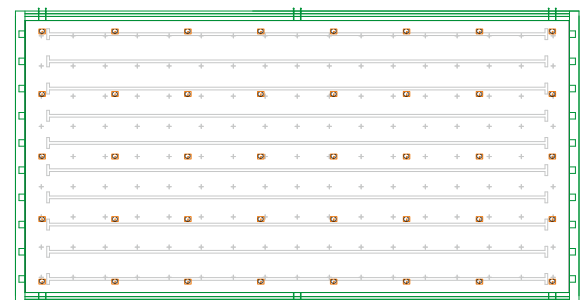
EN12193: Eh ave > 500 lux

GentleSpace gen2



Specifications GentleSpace gen2

Installation	Matrix 8 x 5 at 6 m
Floodlight	40 x GentleSpace gen2 200 W
Floodlight Type	BY471P 1xLED250S/840 MB GC
System Power	8 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 80
GR Max	16.7
MF	0.8



Floodlight aiming

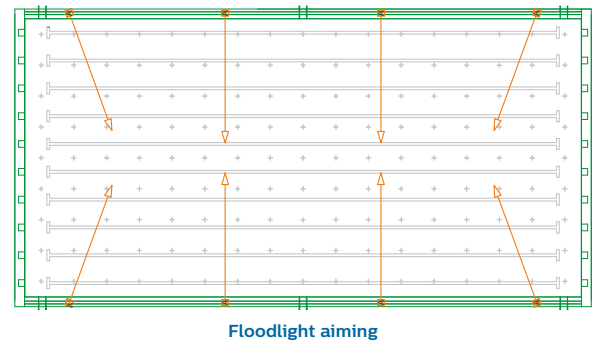
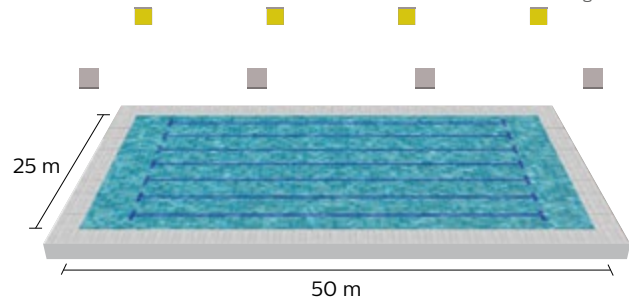
Swimming pool Class II

EN12193: Eh ave > 300 lux

OptiVision LED gen2



Swimming



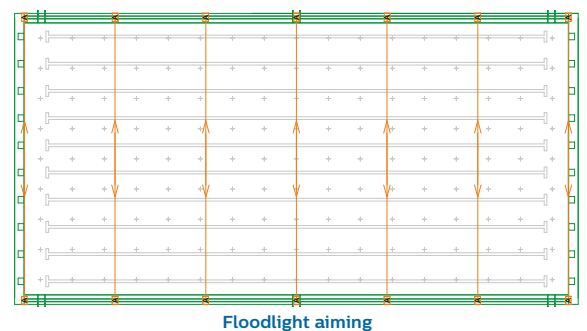
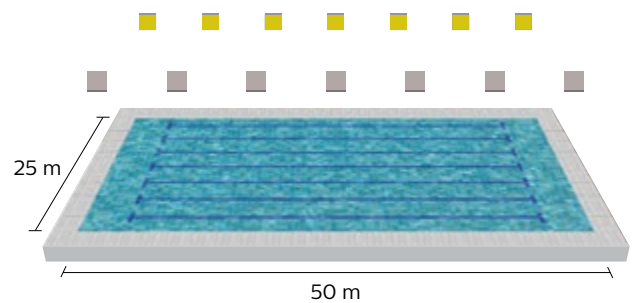
Specifications OptiVision LED gen2

Installation	2 lines at 7 m
Floodlight	8 x OptiVision LED gen2 563 W
Floodlight Type	BVP515 IN T45 100K 1xLED860/757 A-WB/30
System Power	4.5 kW
Eh ave	> 300 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	40.7
MF	0.9

Swimming pool Class II

EN12193: Eh ave > 300 lux

ClearFlood Large

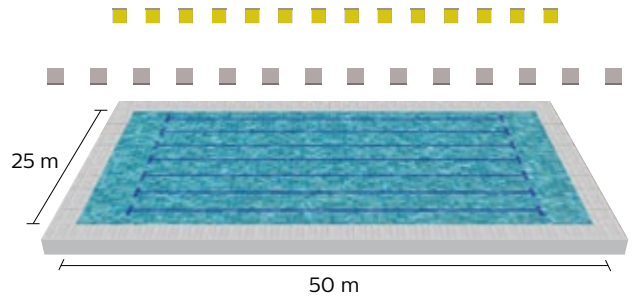


Specifications ClearFlood Large

Installation	2 lines at 7 m
Floodlight	14 x ClearFlood Large 488 W
Floodlight Type	BVP651 1xECO60k/757 OFA52
System Power	6.83 kW
Eh ave	> 300 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	38
MF	0.8

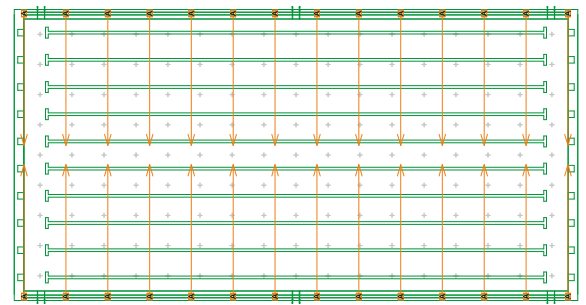
Swimming pool Class II

EN12193: Eh ave > 300 lux
GentleSpace gen2 (sports optic A)



Specifications GentleSpace gen2 (sports optic A)

Installation	2 lines at 7 m
Floodlight	28 x GentleSpace gen2 200 W
Floodlight Type	BY471P 1xLED250S/840 A50 GC
System Power	5.6 kW
Eh ave	> 300 lux
Emin/Eave	> 0.7
Ra	> 80
GR Max	38.2
MF	0.8



Floodlight aiming



Swimming pool Class II

EN12193: Eh ave > 300 lux

GentleSpace gen2

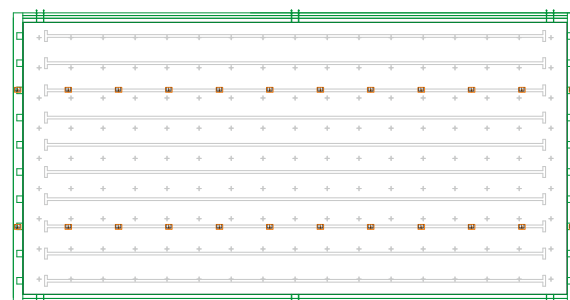
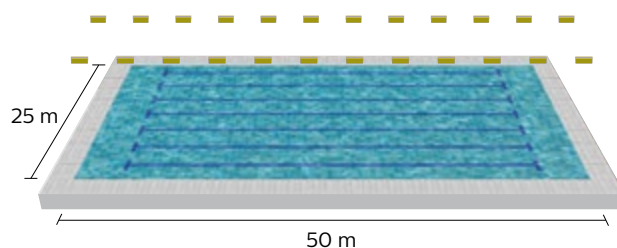


Swimming



Specifications GentleSpace gen2

Installation	2 lines at 7 m
Floodlight	24 x GentleSpace gen2 200 W
Floodlight Type	BY471P 1xLED250S/840 WB GC
System Power	4.8 kW
Eh ave	> 300 lux
Emin/Eave	> 0.7
Ra	> 80
GR Max	21.2
MF	0.8



Floodlight aiming

Swimming pool Class III

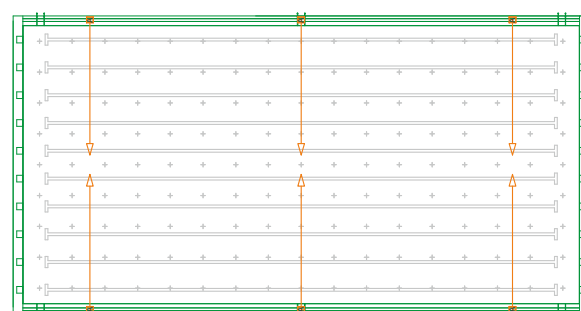
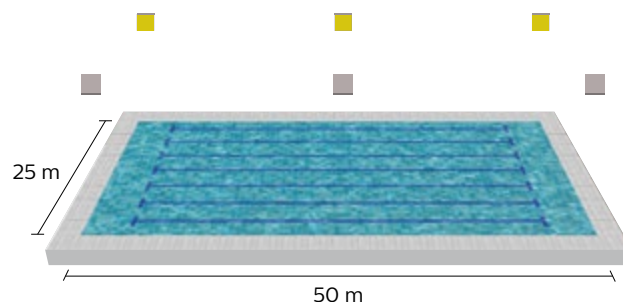
EN12193: Eh ave > 200 lux

OptiVision LED gen2



Specifications OptiVision LED gen2

Installation	2 lines at 7 m
Floodlight	6 x OptiVision LED gen2 563 W
Floodlight Type	BVP515 IN T45 100K 1xLED860/757 A-WB/30
System Power	3.38 kW
Eh ave	> 200 lux
Emin/Eave	> 0.5
Ra	> 70
GR Max	43.2
MF	0.9



Floodlight aiming

Swimming pool Class III

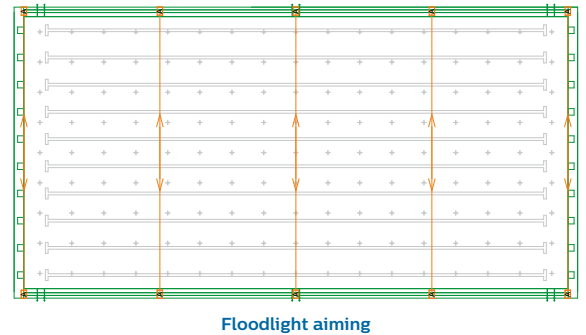
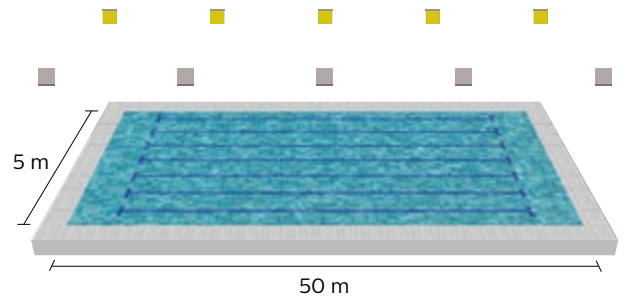
EN12193: Eh ave > 200 lux

ClearFlood Large



Specifications ClearFlood Large

Installation	2 lines at 7 m
Floodlight	10 x ClearFlood Large 488 W
Floodlight Type	BVP651 1xECO60k/757 OFA52
System Power	4.88 kW
Eh ave	> 200 lux
Emin/Eave	> 0.5
Ra	> 70
GR Max	39.5
MF	0.8



Swimming pool Class III

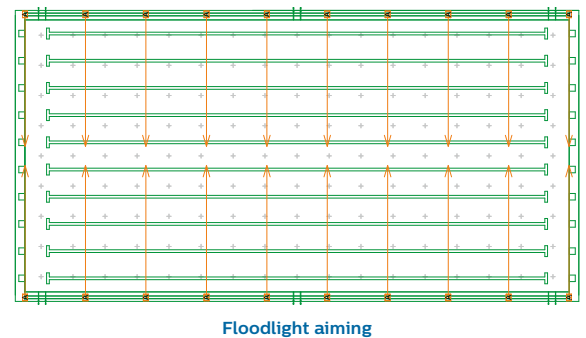
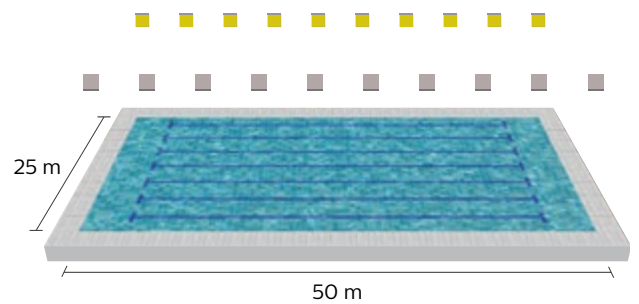
EN12193: Eh ave > 200 lux

GentleSpace gen2 (sports optic A)



Specifications GentleSpace gen2 (sports optic A)

Installation	2 lines at 7 m
Floodlight	20 x GentleSpace gen2 200 W
Floodlight Type	BY471P 1xLED250S/840 A50 GC
System Power	4 kW
Eh ave	> 200 lux
Emin/Eave	> 0.5
Ra	> 80
GR Max	37.7
MF	0.8



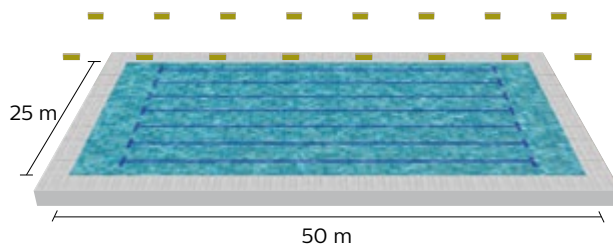
Swimming pool Class III

EN12193: Eh ave > 200 lux

GentleSpace gen2

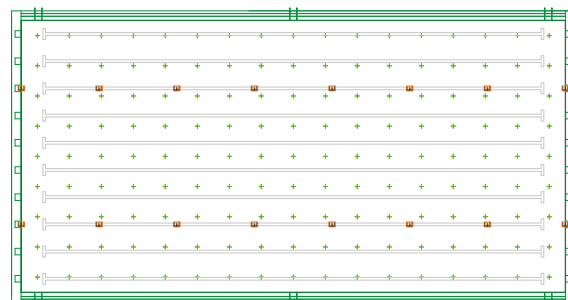


Swimming



Specifications GentleSpace gen2

Installation	2 lines at 7 m
Floodlight	16 x GentleSpace gen2 200 W
Floodlight Type	BY471P 1xLED250S/840 WB GC
System Power	3.2 kW
Eh ave	> 200 lux
Emin/Eave	> 0.5
Ra	> 80
GR Max	21.8
MF	0.8



Floodlight aiming



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

EN12193 Requirements

		Class		
		I	II	III
Horizontal illuminance	\bar{E}_m lx	750	500	200
	E_{min}/\bar{E}_m	0.7	0.7	0.5
Ra		60	60	20



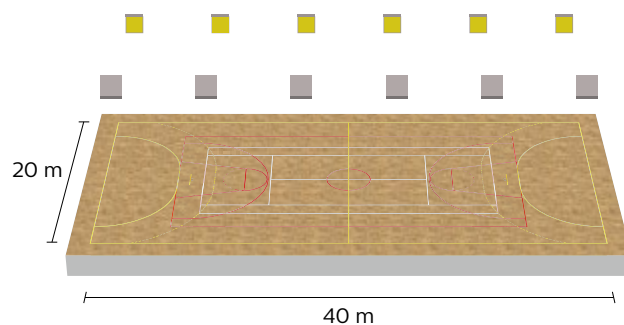


Multipurpose sports hall

Multipurpose hall Class I

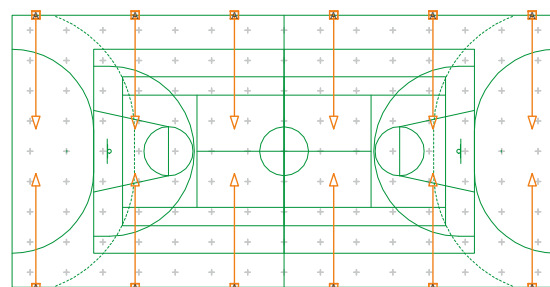
EN12193: Eh ave > 750 lux

OptiVision LED gen2



Specifications OptiVision LED gen2

Installation	2 lines at 7 m
Floodlight	12 x OptiVision LED gen2 643 W
Floodlight Type	BVP515 IN T35 100K 1xLED950/757 A-MB/30
System Power	7.72 kW
Eh ave	> 750 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	36.1
MF	0.9

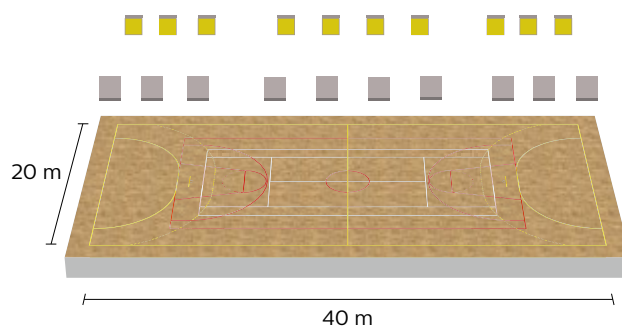


Floodlight aiming

Multipurpose hall Class I

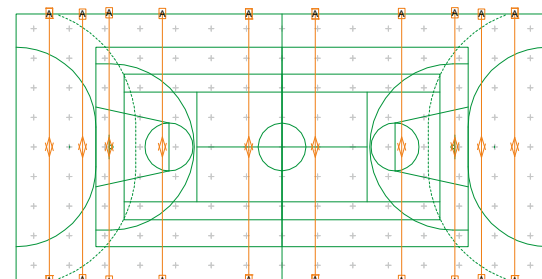
EN12193: Eh ave > 750 lux

ClearFlood Large



Specifications ClearFlood Large

Installation	2 lines at 7 m
Floodlight	20 x ClearFlood Large 549 W
Floodlight Type	BVP651 1xECO65k/757 OFA52
System Power	10.98 kW
Eh ave	> 750 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	38.2
MF	0.8

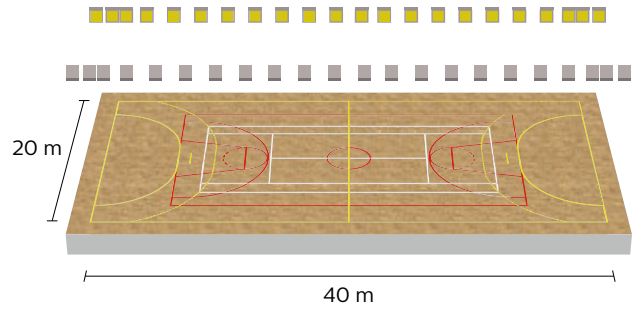


Floodlight aiming

Multipurpose hall Class I

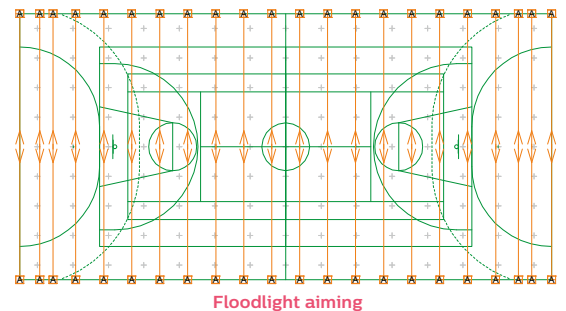
EN12193: Eh ave > 750 lux

ClearFlood



Specifications ClearFlood

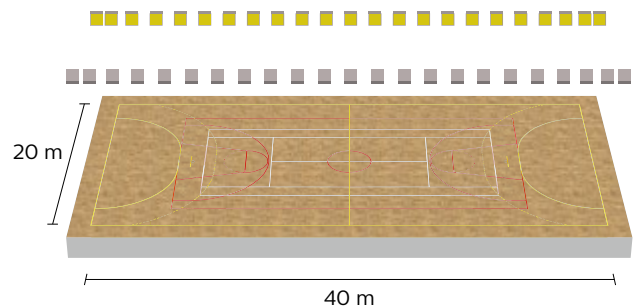
Installation	2 lines at 7 m
Floodlight	44 x ClearFlood 244 W
Floodlight Type	BVP650 G2 30K 1xECO/740 OFA52
System Power	10.7 kW
Eh ave	> 750 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	35.6
MF	0.8



Multipurpose hall Class I

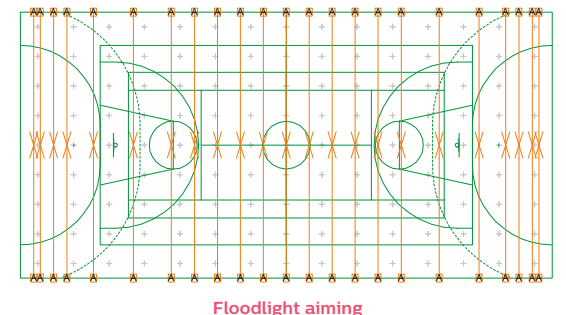
EN12193: Eh ave > 750 lux

GentleSpace gen2 (sports optic A)



Specifications GentleSpace gen2 (sports optic A)

Installation	2 lines at 7 m
Floodlight	46 x GentleSpace gen2 200 W
Floodlight Type	BY471P 1xLED250S/840 A50 GC
System Power	9.2 kW
Eh ave	> 750 lux
Emin/Eave	> 0.7
Ra	> 80
GR Max	37.7
MF	0.8



Multipurpose hall Class I

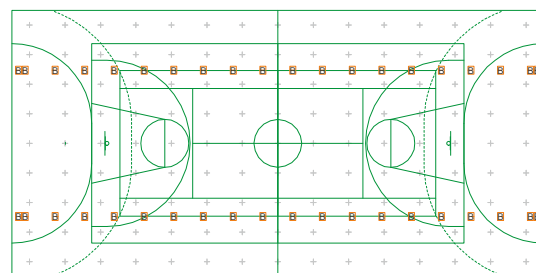
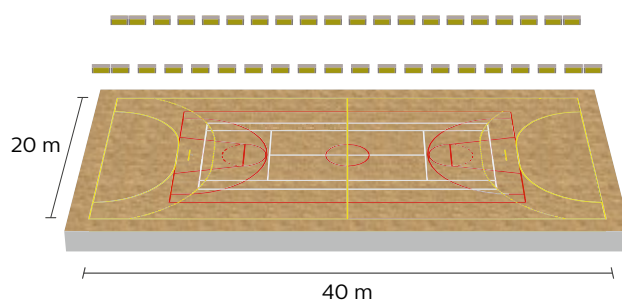
EN12193: Eh ave > 750 lux

GentleSpace gen2



Specifications GentleSpace gen2

Installation	2 lines at 7 m
Floodlight	40 x GentleSpace gen2 200 W
Floodlight Type	BY471P 1xLED250S/840 WB GC
System Power	9.4 kW
Eh ave	> 750 lux
Emin/Eave	> 0.7
Ra	> 80
GR Max	37.7
MF	0.8



Floodlight aiming

Multipurpose hall Class II

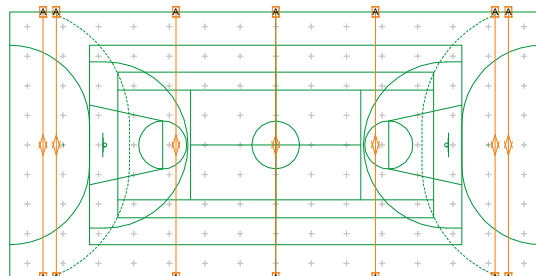
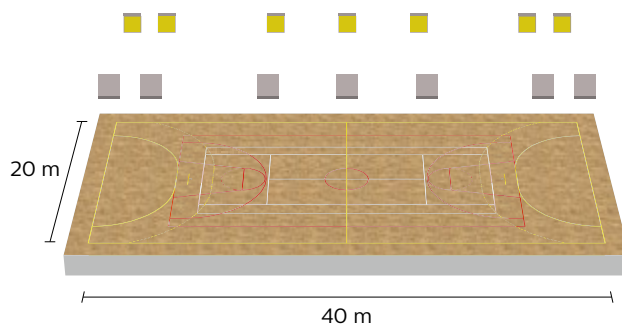
EN12193: Eh ave > 500 lux

ClearFlood Large



Specifications ClearFlood Large

Installation	2 lines at 7 m
Floodlight	14 x ClearFlood Large 549 W
Floodlight Type	BVP651 1xECO65k/757 OFA52
System Power	7.69 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	39
MF	0.8



Floodlight aiming

Multipurpose hall Class II

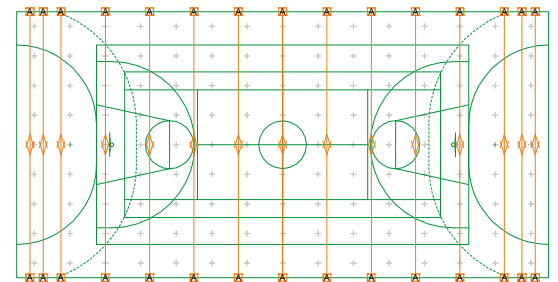
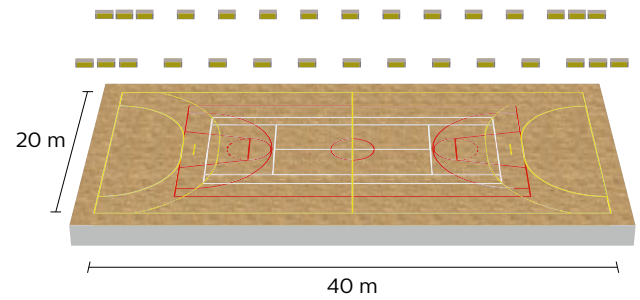
EN12193: Eh ave > 500 lux

ClearFlood



Specifications ClearFlood

Installation	2 lines at 7 m
Floodlight	30 x ClearFlood 244 W
Floodlight Type	BVP650 G2 30K 1xECO/740 OFA52
System Power	7.3 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	34.7
MF	0.8



Floodlight aiming

Multipurpose hall Class II

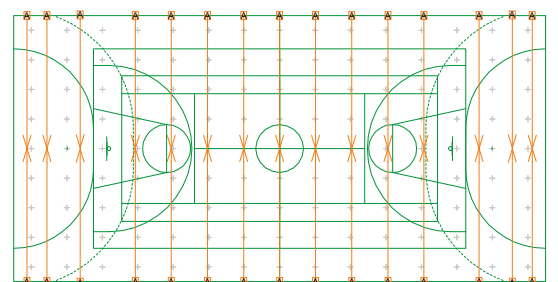
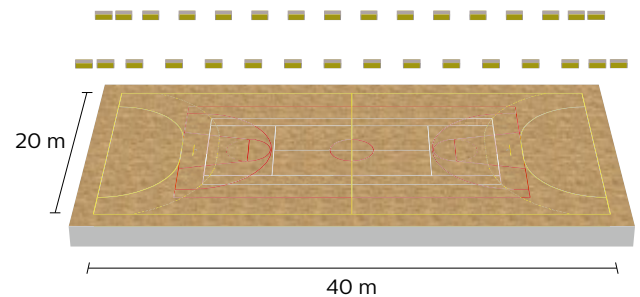
EN12193: Eh ave > 500 lux

GentleSpace gen2 (sports optic A)



Specifications GentleSpace gen2 (sports optic A)

Installation	2 lines at 7 m
Floodlight	30 x GentleSpace gen2 200 W
Floodlight Type	BY471P 1xLED250S/840 A50 GC
System Power	6 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 80
GR Max	37
MF	0.8



Floodlight aiming

Multipurpose hall Class II

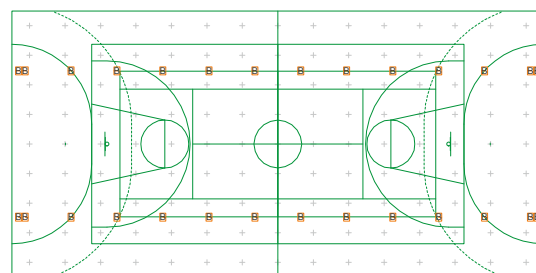
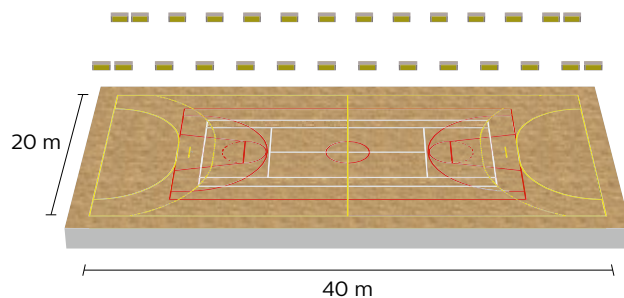
EN12193: Eh ave > 500 lux

GentleSpace gen2



Specifications GentleSpace gen2

Installation	2 lines at 7 m
Floodlight	28 x GentleSpace gen2 200 W
Floodlight Type	BY471P 1xLED250S/840 WB GC
System Power	6.6 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 80
GR Max	21
MF	0.8



Floodlight aiming

Multipurpose hall Class III

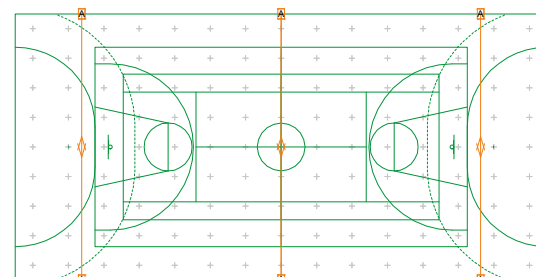
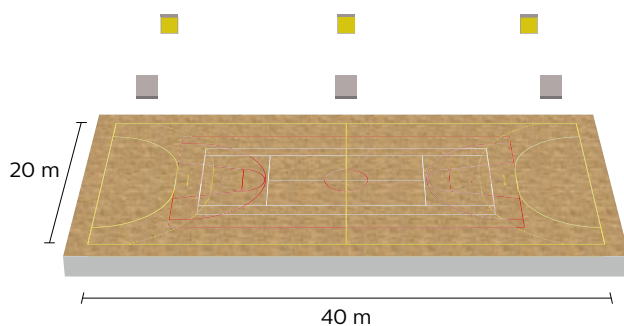
EN12193: Eh ave > 200 lux

ClearFlood Large



Specifications ClearFlood Large

Installation	2 lines at 7 m
Floodlight	6 x ClearFlood Large 488 W
Floodlight Type	BVP651 1xECO60k/757 OFA52
System Power	2.93 kW
Eh ave	> 200 lux
Emin/Eave	> 0.5
Ra	> 70
GR Max	40.3
MF	0.8



Floodlight aiming

Multipurpose hall Class III

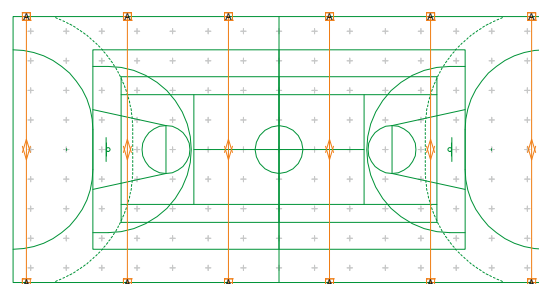
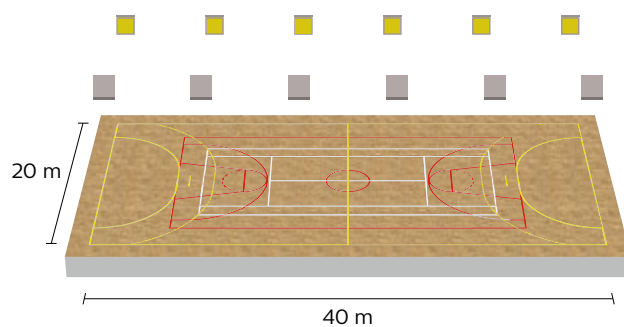
EN12193: Eh ave > 200 lux

ClearFlood



Specifications ClearFlood

Installation	2 lines at 7 m high
Floodlight	12 x ClearFlood 244 W
Floodlight Type	BVP650 G2 30K 1xECO/740 OFA52
System Power	2.9 kW
Eh ave	> 200 lux
Emin/Eave	> 0.5
Ra	> 70
GR Max	33.2
MF	0.8



Floodlight aiming

Multipurpose hall Class III

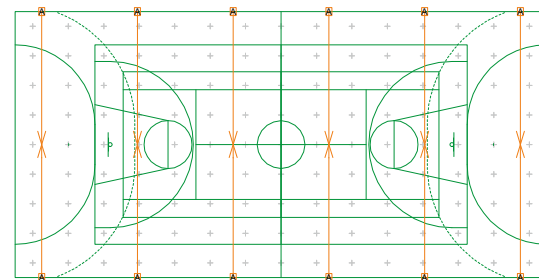
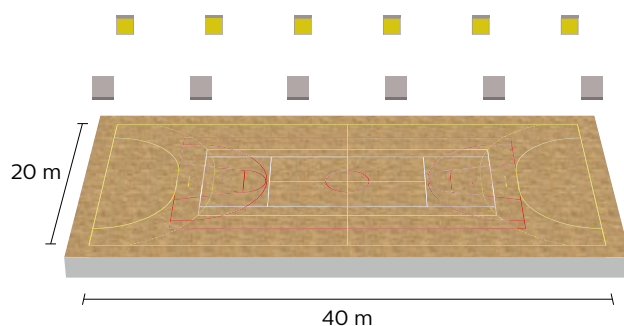
EN12193: Eh ave > 200 lux

GentleSpace gen2 (sports optic A)



Specifications GentleSpace gen2 (sports optic A)

Installation	2 lines at 7 m high
Floodlight	12 x GentleSpace gen2 200 W
Floodlight Type	BY471P 1xLED250S/840 A50 GC
System Power	2.4 kW
Eh ave	> 200 lux
Emin/Eave	> 0.5
Ra	> 80
GR Max	36
MF	0.8



Floodlight aiming



Multipurpose hall Class III

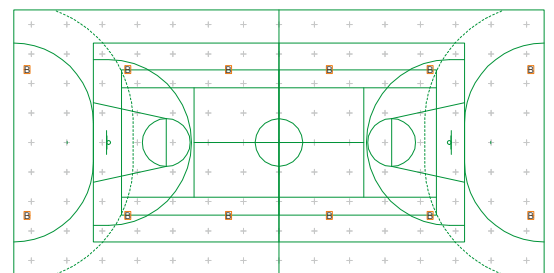
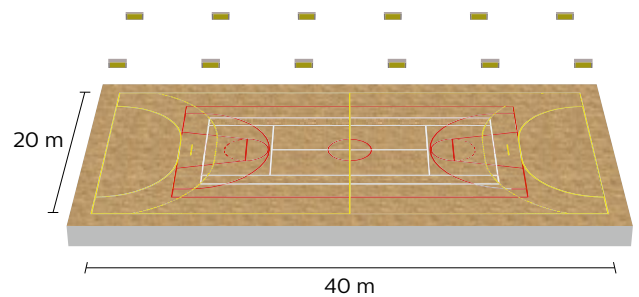
EN12193: $E_h \text{ ave} > 200 \text{ lux}$

GentleSpace gen2



Specifications GentleSpace gen2

Installation	2 lines at 7 m high
Floodlight	12 x GentleSpace gen2 200 W
Floodlight Type	BY471P 1xLED250S/840 WB GC
System Power	2.8 kW
$E_h \text{ ave}$	$> 200 \text{ lux}$
$E_{\text{min}}/E_{\text{ave}}$	> 0.5
Ra	> 80
GR Max	23.2
MF	0.8



Floodlight aiming



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

EN12193 Requirements

		Class		
		I	II	III
Horizontal illuminance	\bar{E}_m lx	750	500	300
	E_{min}/\bar{E}_m	0.7	0.7	0.7
Ra		60	60	20

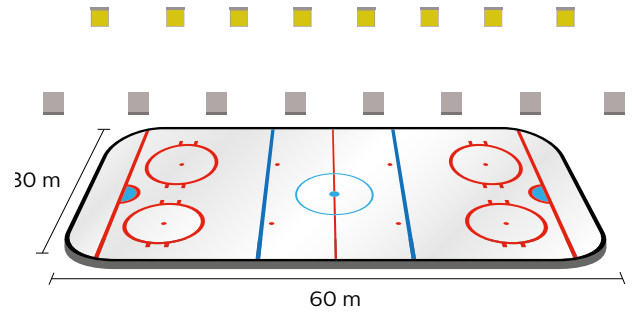
Ice hockey Class I

EN12193: Eh ave > 750 lux

OptiVision LED gen2

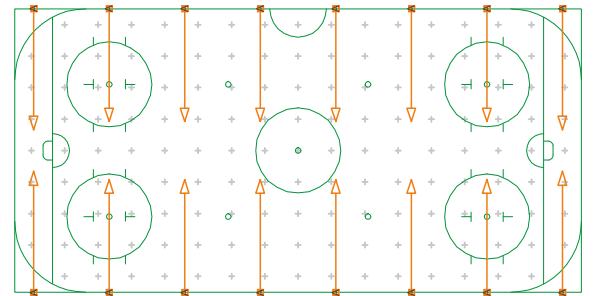


Ice hockey



Specifications OptiVision LED gen2

Installation	2 lines at 10 m
Floodlight	16 x OptiVision LED gen2 1160 W
Floodlight Type	BVP525 IN T35 50K 1xLED1940/757 A-MB/30
System Power	18.56 kW
Eh ave	> 750 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	35.6
MF	0.9

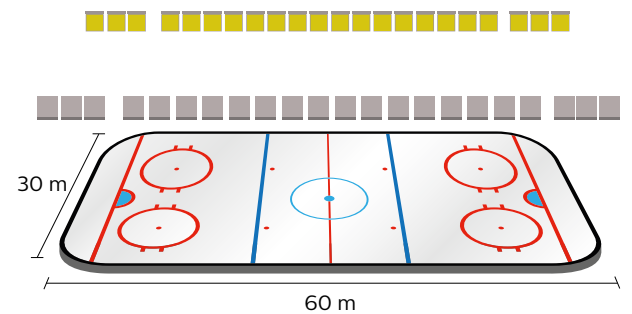


Floodlight aiming

Ice hockey Class I

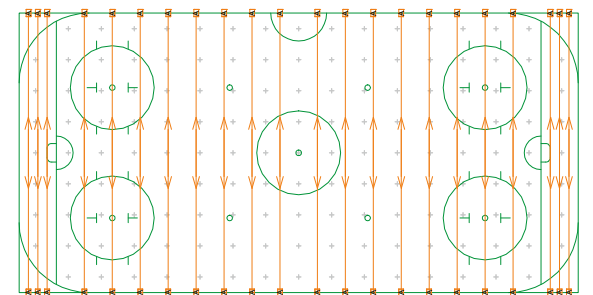
EN12193: Eh ave > 750 lux

ClearFlood Large



Specifications ClearFlood Large

Installation	2 lines at 10 m
Floodlight	44 x ClearFlood Large 549 W
Floodlight Type	BVP651 1xEco65k/757 OFA52
System Power	24.16 kW
Eh ave	> 750 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	36.4
MF	0.8



Floodlight aiming

Ice hockey Class II

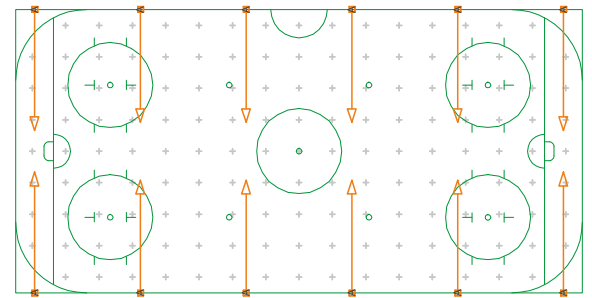
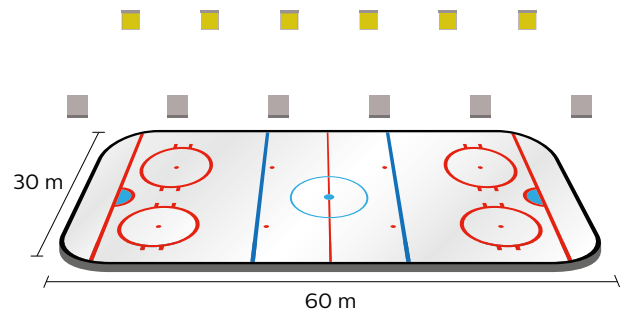
EN12193: Eh ave > 500 lux

OptiVision LED gen2



Specifications OptiVision LED gen2

Installation	2 lines at 10 m
Floodlight	12 x OptiVision LED gen2 1160 W
Floodlight Type	BVP525 IN T35 50K 1xLED1940/757 A-MB/30
System Power	13.92 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	35.6
MF	0.9



Floodlight aiming

Ice hockey Class II

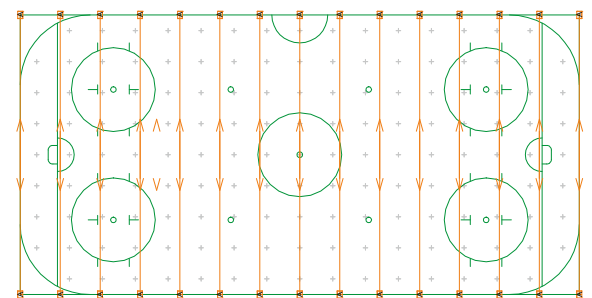
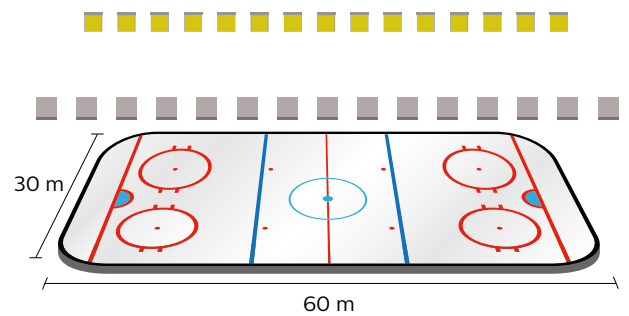
EN12193: Eh ave > 500 lux

ClearFlood Large



Specifications ClearFlood Large

Installation	2 lines at 10 m
Floodlight	30 x ClearFlood Large 549 W
Floodlight Type	BVP651 1xECO65k/757 OFA52
System Power	16.47 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	35.9
MF	0.8



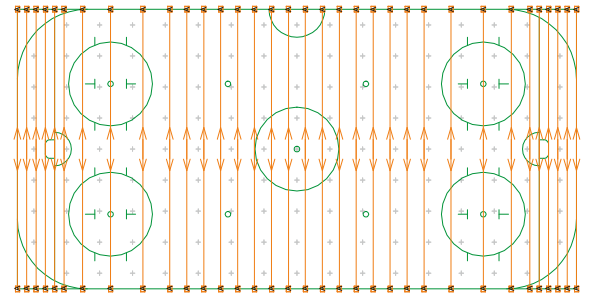
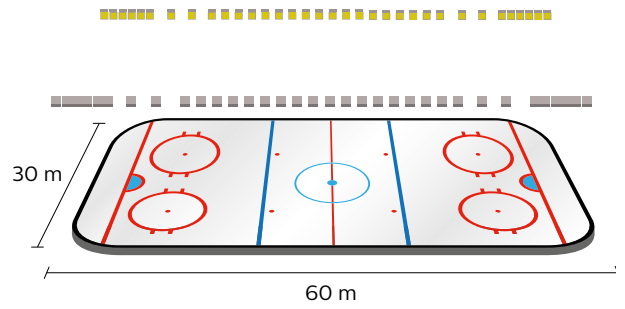
Floodlight aiming

Ice hockey Class II

EN12193: Eh ave > 500 lux
GentleSpace gen2 (sports optic A)



Ice hockey



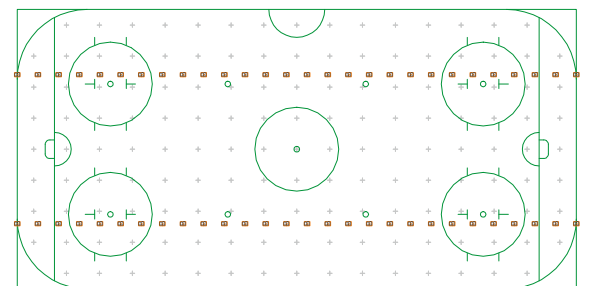
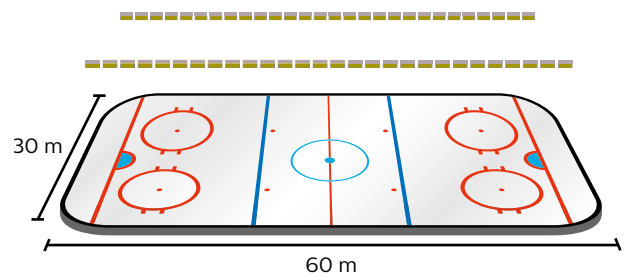
Floodlight aiming

Specifications GentleSpace gen2 (sports optic A)

Installation	2 lines at 10 m
Floodlight	68 x GentleSpace gen2 200 W
Floodlight Type	BY471P 1xLED250S/840 A50 GC
System Power	13.6 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 80
GR Max	37.8
MF	0.8

Ice hockey Class II

EN12193: Eh ave > 500 lux
GentleSpace gen2



Floodlight aiming

Specifications GentleSpace gen2

Installation	2 lines at 10 m
Floodlight	56 x GentleSpace gen2 200 W
Floodlight Type	BY471P 1xLED250S/840 WB GC
System Power	13.1 kW
Eh ave	> 500 lux
Emin/Eave	> 0.7
Ra	> 80
GR Max	20.2
MF	0.8

Ice hockey Class III

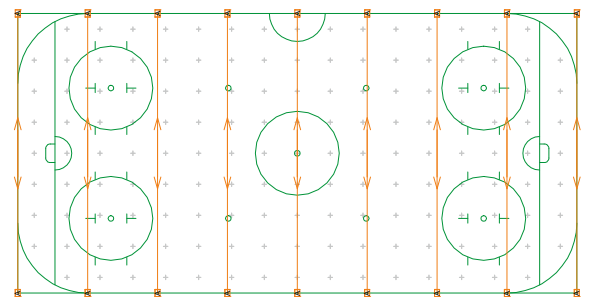
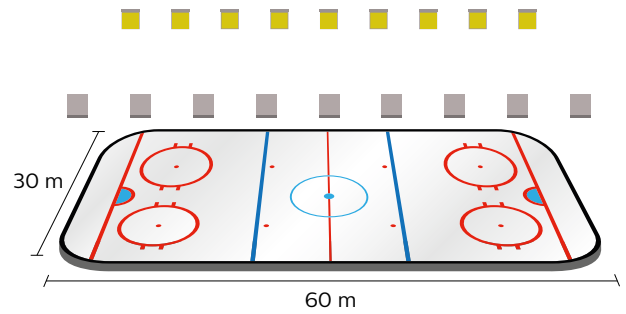
EN12193: Eh ave > 300 lux

ClearFlood Large



Specifications ClearFlood Large

Installation	2 lines at 10 m
Floodlight	18 x ClearFlood Large 549 W
Floodlight Type	BVP651 1xECO65k/757 OFA52
System Power	9.88 kW
Eh ave	> 300 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	35.2
MF	0.8



Floodlight aiming

Ice hockey Class III

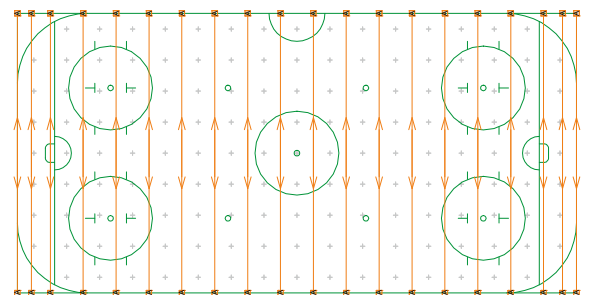
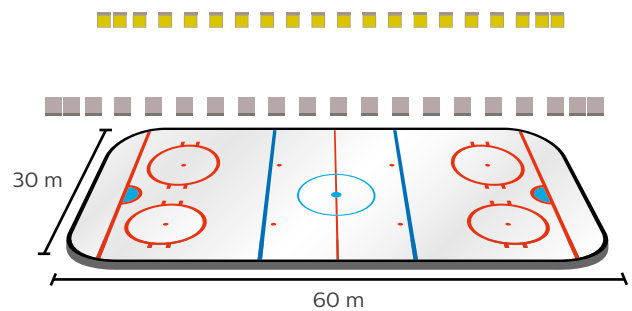
EN12193: Eh ave > 300 lux

ClearFlood



Specifications ClearFlood

Installation	2 lines at 10 m
Floodlight	40 x ClearFlood 244 W
Floodlight Type	BVP650 G2 30K 1xECO/740 OFA52
System Power	9.8 kW
Eh ave	> 300 lux
Emin/Eave	> 0.7
Ra	> 70
GR Max	34.8
MF	0.8



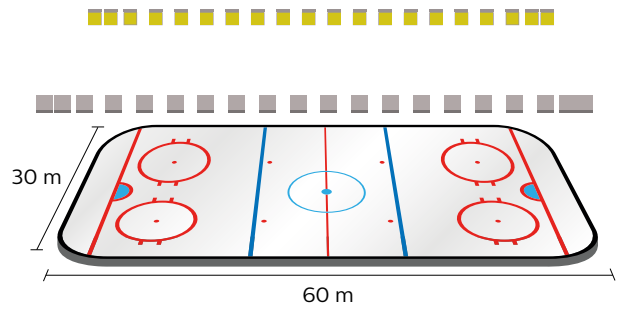
Floodlight aiming

Ice hockey Class III

EN12193: Eh ave > 300 lux
GentleSpace gen2 (sports optic A)

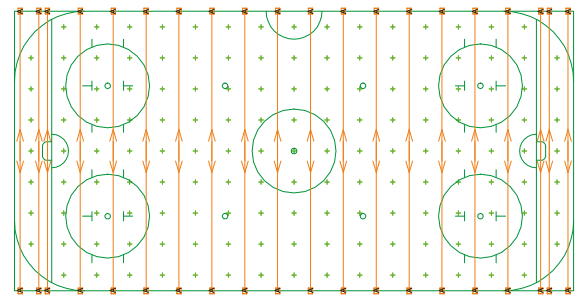


Ice hockey



Specifications GentleSpace gen2 (sports optic A)

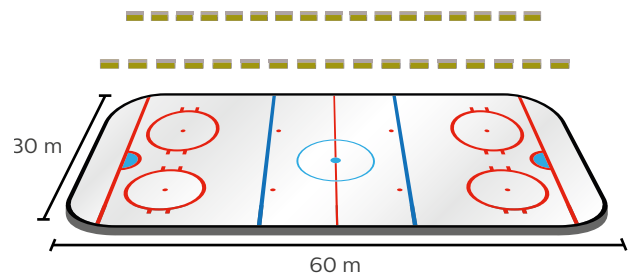
Installation	2 lines at 10 m
Floodlight	40 x GentleSpace gen2 200 W
Floodlight Type	BY471P 1xLED250S/840 A50 GC
System Power	8 kW
Eh ave	> 300 lux
Emin/Eave	> 0.7
Ra	> 80
GR Max	37
MF	0.8



Floodlight aiming

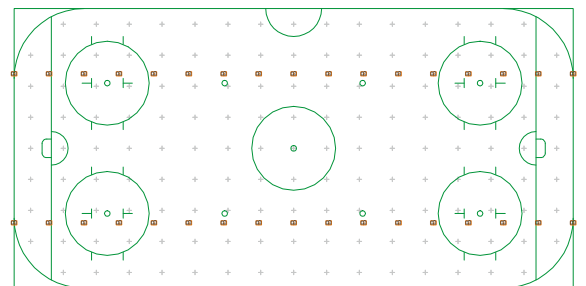
Ice hockey Class III

EN12193: Eh ave > 300 lux
GentleSpace gen2



Specifications GentleSpace gen2

Installation	2 lines at 10 m
Floodlight	34 x GentleSpace gen2 200 W
Floodlight Type	BY471P 1xLED250S/840 WB GC
System Power	8 kW
Eh ave	> 300 lux
Emin/Eave	> 0.7
Ra	> 80
GR Max	20.2
MF	0.8



Floodlight aiming

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