

Light Up the Night

Energy-efficient ideas for extending the playing day in your sports facilities.

by Mary Helen Sprecher

The funny thing about sports facilities -- tennis and basketball courts, ball fields, soccer pitches and more -- is that we don't often think of them as energy-hogging devices. And generally, they're not, unless you're talking about a professional-level stadium for baseball, football, etc., which would have electronic scoreboards, P.A. systems, concessions, wi-fi and more. In fact, the energy expended in a local or recreational-level facility is mainly that of the athletes.

Unless the facilities are lit for night play, that is. While lighting can increase the playing day and allow a facility to accommodate more games (resulting in a better economic benefit for the owner), it can also create higher bills and quite a few concerns about eco-sensitivity. At the same time, it increases the security of the facility (helping protect it against vandalism) and more importantly, increases the safety of the user in avoiding unnecessary risk and injury.

A lot of products claim to help users save money, go green and stay safe. The trouble is that buying into all of the suggestions at once can lead to costs that multiply exponentially without restraint. So how to achieve balance?

According to Alex Levitsky of Global Sports & Tennis Design Group, LLC in Fair Haven, New Jersey, it's often a matter of capitalizing on an all-important (yet sometimes under-utilized) natural resource: common sense.

It's easy to be overwhelmed with the options on the market and easier still to go into sticker shock when envisioning doing everything at once, particularly when retrofitting a facility. But there's good news, according to Levitsky; "well-designed facilities by responsible professionals are likely to be eco-friendly by default." They might cost more initially, but they'll pay dividends in lower energy bills, good will and in saving the earth's resources.

Doing the Math

Getting the correct information on a sports facility's electric needs means looking hard at what you're currently using. It may be that you're consuming more than you need. The statistics, after all, speak for themselves.

"Lighting accounts for 20 to 25 percent of the annual electricity usage in the United States," notes Bruce Frasure of LSI Courtsider Sports Lighting in Cincinnati, OH. "Incorporating more efficient lighting technologies in sports facilities can dramatically reduce energy consumption while delivering the same or better quality lighting."

Have an 'energy audit' of your facility, which can be performed by a professional. What is often revealed is the fact that relatively easy changes can be made, which still help greatly in making the facility greener.

" Short term, energy efficient tennis court lighting, for example, can be accomplished with higher performance fixtures with lower wattage lamps," says Frasure. "Examples would be using 875-watt or 750-watt metal halide lamps instead of 1000-watt. Longer term, developing technology such as solid state light sources will provide longer life and dramatically improved luminous efficiencies over conventional light sources."

Changes to products on the market have resulted in new energy-saving options. Tracy Lynch of Lee Tennis Products notes that his company has been seeing interest in its lighting system which also provides higher lighting levels with lower wattage lamps, "meaning better light to play tennis under while using less electricity."

Lighting Options

In facilities that are open at night, lights can be set to operate on a timer, or they can be operated by a push-button system that an employee can manipulate. It is also advisable to have motion-activated lighting in and around the facility. Not only do such lights provide for safer entry and exit, but are a good way to tell whether an unauthorized person is at the facility. The fact that such lights turn themselves off when they are not needed will save on energy costs as well and avoid needlessly lighting the facility all night.

Technology can be the planner's friend, according to Mike Limpach of Musco Sports Lighting, LLC, based in Oskaloosa, Iowa. "Advanced controls that adjust for the setting of the sun on a daily basis as well are now being used to manage lighting systems," he notes. "These are very energy-efficient."

In addition, notes Sam Fisher of Fisher Tracks, Inc. in Boone, Iowa, lighting systems can be tailored to suit the needs of the specific user.

"One of the biggest questions or inquiries I am finding today is more safety and public related. Many are asking for a lower set of light or lights that can provide enough illumination for the casual walker or jogger. This also becomes a safety issue. Some are actually asking if the lighting can be operated in a manner similar to systems one is used to finding on tennis courts in which the athlete who is using the facility can actually turn the lights on and off for himself or herself. Some of these lighting systems will actually stay on for just so long until engaged again and/or they turn off at a certain time."

Rules and Regulations

The governing bodies for various sports have their own requirements concerning lighting needs. In general, the higher the level of play, the more light is required. If a facility is to host competitive play, ascertain which governing body is responsible (examples would be the NCAA, the National Federation of State High School Associations, Little League Baseball, etc.) and obtain a copy of any rules and/or regulations pertaining to lighting. Remember that rules can change from year to year, so make sure you have current information.

A common concern in areas where sports facilities are located near houses is a phenomenon known as 'light trespass;' in other words, the spill of bright light into houses and yards which can disturb residents.

If lighting is being planned or retrofitted anywhere near residences, meetings should be held to involve the local community at the outset, in order to avoid complaints down the line. An engineer who specializes in illumination can help guide this process and make recommendations. Another avenue to investigate is the International Dark Sky Association, which makes recommendations for neighborhood-friendly lighting.

Maintenance

Something else to remember about lighting and its efficiency: It's not just all about on vs. off, or working vs. burned-out. A lamp in a lighting system, when new, produces a certain amount (known as a level) of illumination. (It is at its brightest when new, in other words). Over time, however, the amount of light produced by the lamp decreases. This phenomena is known as the Light Loss Factor, or LLF. Most manufacturers count on 20% to 40% depreciation. Climatic conditions, dust and dirt, voltage variations, luminaire design and amount and quality of maintenance will affect the amount of depreciation.

Rather than waiting to see if your facility's lighting system is functioning well, consider doing the testing yourself periodically. Light levels are measured using a tool known as a light meter. Light meters are available fairly inexpensively at industrial supply stores (one example would be Grainger).

In using the light meter, ascertain that (a) you are holding it the correct distance from the surface of the field, court or other facility, (b) that you are taking readings in all the essential places in the facility where athletes will play, and (c) that you are adhering to the standards set for the specific type of competition your facility will be hosting. If you encounter variances from the standards, give your lighting contractor a call to get recommendations.

In Conclusion...

Keeping an open mind, being willing to investigate the options, and knowing the rules governing your facility are all essential ingredients in selecting the right lighting. Get plugged in with the right information and you can green-light your facility's eco-friendliness for years to come.