

Proactive Maintenance

Shedding some light on the maintenance of your camp's sports facility lighting.

by Mary Helen Sprecher

The funny thing about camp 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. "For court sports (tennis, basketball, volleyball, etc.) the proper lighting system can be designed to be eco-friendly through energy-efficiency. Since lighting is a major contributor to a court facility's overall energy usage, it is important to focus on fixture efficiency. Using the most efficient light fixtures can translate into fewer fixtures, which translates into less power consumption, which means less adverse impact on the environment as a whole. Presently, the most efficient court lighting equipment uses pulse start metal halide lamps in a vertical burning position in combination with technologically advanced reflector systems. This type of

product produces a higher overall light output, which allows the option of using lower-wattage lamps. Many new court lighting systems are utilizing 750-watt or 875-watt pulse start metal halide fixtures in lieu of the 1000-watt metal halide fixtures typically used in the past, while obtaining the same or higher levels of illumination."

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.

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, says 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

Most of the governing bodies give light recommendations in a unit of light intensity referred to as a footcandle. 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.

"More and more facilities are being used for multiple sports, and for both practice and competition," notes Ed Norton of Holcombe Norton Partners in Birmingham, Alabama. "Circuiting the lighting system for varying degrees of illumination depending on how the facility is being used can save on energy costs. For example, in soccer, where 75 footcandles or higher may be preferable for competition, 50 footcandles or lower can be adequate for daily practice. The uniformity of the system must be maintained for all light levels, but there is no sense using fixtures you don't need."

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. Many of today's lighting systems are being designed to comply.

"Sports lighting involves projecting light over long distances," says Mike Limpach. "In prior generation systems, this resulted in about 25% of the total light generated by the luminaires landing on the playing surface. The rest went into the sky or on adjacent property as wasted spill light and light pollution. To compensate for the wasted light, additional luminaires were necessary to achieve the desired light levels for play. Today, thanks to advances in the reflector system efficiencies and aiming design, as much as 70% of the light generated can be directed onto the playing surface. As a result fewer fixtures are needed to purchase, install, and operate. "

"Systems can also be eco-friendly by addressing the overall environmental impact on the surrounding area," notes Frasure. "Full cutoff lighting, as defined by the Illuminating Engineering Society of North America (IESNA) is a lighting fixture that projects all of its light in a downward direction. Full cutoff lighting fixtures emit no upward component of light while providing precise, controlled illumination to the playing area. Full cutoff lighting systems utilize a recessed lamp in a fixture housing that is parallel with the playing surface. This design increases playing area illumination, reduces glare and light spillage in surrounding areas and eliminates upward light and sky glow. A full cutoff sports lighting system will typically meet or exceed community legislation or local zoning restrictions."

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 camp's 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.