Slam-Dunk Illumination: Knowing Your Facility’s Unique Design Considerations Will Help You Score with Your Lighting Project

LED high bay lighting fixtures are increasingly lighting basketball courts, ice hockey rinks and multipurpose arenas across the country. Competitive pricing, lighting efficacy, rebates and more are prompting facility managers and building operators to adopt LED lighting solutions for their arenas, practice gyms and field houses, some of which operate more than 12 hours a day. Before a lighting project can begin, however, special considerations must be kept in mind when developing the layout and design. Read on to learn what these include and ways to be sure LED lighting will be a top performer for you.

Facility Use

According to a 2014 report from Navigant Consulting, Inc., gymnasiums and indoor sporting facilities encompassed 5.8 billion square feet globally in 2013, of which 5.2 billion square feet required high bay lighting. As this type of space grows and its uses vary, it’s important to first identify the activities and lighting demands for each particular space.

A high school or community gymnasium typically requires less from lighting than a collegiate sports arena that serves as a multipurpose space, hosting televised sporting events, rock concerts, commencement ceremonies and other programs. For such a facility, its lighting requires the consideration of numerous viewing angles of players, performers and spectators, while addressing television broadcast criteria. To help achieve the ultimate experience for all participants, GE Lighting has a lighting solution for such spaces.

“It’s important to note what the primary intent is for the space, particularly if any of the events will be televised—be it a regional broadcast, the first round of the Final Four or a NCAA national championship game,” said Laura Carpenter, PE, lighting designer with GE Lighting.

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The NCAA’s target minimum averages for vertical and horizontal foot-candles should be noted, particularly for each sport and type of event that could be held there. With a goal to provide quality broadcasts, ensure player safety, and reduce energy and maintenance needs, considerations for a lighting system include the size of facility, level of televised broadcast, validation of light levels and cost consciousness, according to the NCAA.

At the Dee Events Center on the campus of Weber State University in Utah, its LED high bay lighting produces more than 200 foot-candles, or the amount of light that falls on a given surface—double that of NCAA requirements for basketball courts. The original lighting produced dim spots, and foot-candles ranged from 60–150, depending on location, said Jacob Cain, WSU energy & sustainability manager.

After GE’s Albeo™ LED high bay lighting was installed, camera operators also noted improved high-definition broadcast capability resulting from the bright, white light. “By using the type of light we did and the high foot-candles, when you put an HD camera on one of these guys, you’re watching every bead of sweat fall off his face as he’s getting ready to shoot that free throw,” Cain said.

To further enhance such pivotal moments, some LED light fixtures can reduce glare. The Albeo ABH2 fixture, available in 120- and 30-degree diffuse lenses, can soften the light output while providing optical control to achieve desired foot-candle levels.

Controllability

Having the ability to wirelessly control the light fixtures can allow instant dimming in particular zones or other modifications to the lighting system as needed with a touch of a button. Combine controllability with LED lighting as a replacement for traditional HID fixtures, and no longer will patience be required for warm-up or restrike times, often with buzzing and flickering.

“LED lighting can help achieve lighting effects for such things as pregame introductions, as they instantly illuminate,” said Carpenter. “For special events, the entertainment often provides its own lighting, but having LED light fixtures in place offers more flexibility, including dimming capacity that can be used as work lights during rehearsals.”

Additionally, it is ideal to do an LED fixture comparison and ask the manufacturer to identify the first likely component of the fixture that may require repair. Oftentimes, it’s not the entire fixture, but an internal component like the driver; therefore, replacing the driver will allow the fixture to continue producing light for many additional years, Carpenter said. GE’s LED high bay light fixtures come with a standard five-year system warranty, which includes the driver.

Lighting Requirements

When a light goes out at a sports arena, it requires more than just a man with a ladder to make the fix. Special equipment, trained personnel and strategically scheduled maintenance work may all be necessary before a repair or replacement can be completed. As energy-efficient, long-lasting fixtures are ideal in such difficult-to-reach, high-ceiling spaces, it is important to know the standard life of any high bay fixture you may be considering for your project.

At WSU, the life of the installed Albeo ABHX-Series LED high bay fixtures is rated for 100,000 hours at L70, or at least 70 percent of the initial light output. The high intensity discharge (HID) lamps they replaced had a rated life that was only a fraction of that time.
Regardless of a fixture’s features, the primary goal for the facility most often drives the overall design. Universities, faced with limited funding and operating budgets, are increasingly motivated by energy and cost savings when planning a lighting upgrade. By reducing the energy load with fixtures that use fewer lumens per watt while emitting less heat, saving air conditioning costs as well as decreasing maintenance needs and taking advantage of available rebate programs, LED lighting is becoming the ultimate solution for arenas and other sports facilities.

“If an energy-efficient, reliable LED light fixture can be mounted into an arena ceiling space, and the facility or maintenance manager does not have to worry too much about it—plus they have control of their light levels and can do it from a laptop or lighting control panel, it’s very beneficial to them because it’s one less thing they have to add to their to-do list during the day,” Carpenter said. “Especially in a retrofit application, energy usage is why so many universities prefer to switch to LED.”

A professional lighting audit by GE is a great step toward achieving the best design for your lighting project. To learn more, or to request a free, customized needs analysis, contact a lighting specialist or visit www.gelighting.com.

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