



A long, brightly lit indoor hallway with a perforated metal wall and a corrugated metal ceiling. The hallway is empty, with a yellow line on the floor and a fire extinguisher on the wall. The lighting is bright and even, highlighting the textures of the metal and the clean lines of the architecture.

SHINE A LITTLE LIGHT

ON ATHLETIC PERFORMANCE

BY MIKE CROWDER

Recruiting top athletes is serious business for universities, and having high-quality facilities is one of the best ways a school can gain an edge in the recruitment process. Facilities that are bright and welcoming—filled with diffuse, natural daylight—help make a good first impression, so people want to stay.



CLEMSON INDOOR FOOTBALL PRACTICE FACILITY.
PHOTO BY GMC + SHERMAN CONSTRUCTION

Scientific studies have proven the benefits of daylighting again and again. The most cited example is a study by the Heschong Mahone Group, which shows that students in classrooms with the most daylighting progressed 20% faster on math tests and 26% faster on reading tests over a year period than those with the least daylighting. This performance boost is tied to daylighting's ability to improve mood and overall wellness—and its impact isn't just for academics.

When done right, daylighting can also provide benefits beyond satisfied students—and student-athletes. Improved energy efficiency in the facilities, for example, can help make an entire athletics program more successful. From indoor practice areas to gyms and fitness centers to pools and natatoriums, this article covers some aspects of the daylighting playbook for administrators to consider more closely.

Quality of Light

The best-quality daylight is diffuse and full spectrum. Full-spectrum daylight most closely

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mimics natural sunlight while ideally still filtering out harmful UV rays. It's the dynamic, natural wavelengths of light that help maintain circadian rhythms, ensuring alertness during the day (blue light) and relaxing us for better sleep at night (red and orange light). Athletes need their bodies to perform well and heal quickly; daylighting can help with these needs.

Artificial light typically creates white light by only using a couple colors of the spectrum, so not only does it do a terrible job mimicking natural wavelengths, but it also cannot match the natural fluctuations human bodies require by time of day or season. Some LED lights, while more energy efficient, provide even fewer wavelengths than incandescent bulbs. Even some daylighting materials filter out important light wavelengths, so it's important to ensure that daylighting strategies include full-spectrum light.

At the same time, daylight should be diffuse. Those who have driven while looking directly toward the sun know exactly how hard it can be to perform in direct sunlight. Glare is

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METEA VALLEY HIGH SCHOOL NATATORIUM
PHOTO BY JAMES STEINKAMP



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uncomfortable and dangerous, especially in a pool setting where glare on the surface of the water can prevent a lifeguard from seeing bodies underneath. In competition settings, an event can even be cancelled if there's glare. Diffusing daylight eliminates glare and ensures the light entering a space is balanced.

Diffuse, full-spectrum light also helps with color rendition and visual acuity so people can see colors vibrantly and absorb the details of a space. For athletes, this clarity might mean differentiating the lines on a court or field. For coaches, this clarity can provide the ideal environment for videography so practices can be reviewed clearly.

Energy Efficiency

Athletic programs can be huge money-makers for universities, but they can also be money pits. As more emphasis is placed on ensuring that all buildings are meeting net-zero and sustainability goals, athletic facilities can provide a huge challenge. Daylighting creates energy-efficient

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spaces in both obvious and not-so-obvious ways.

By taking advantage of natural light, facilities can reduce reliance on artificial lights. When the University of Idaho replaced the wooden end wall of its indoor football stadium, the Kibbie Dome, with a translucent daylighting system by Kalwall, the school reportedly saved \$100,000 in electrical costs the first year.

The ideal daylighting system can also positively impact a facility's HVAC costs. While traditional glass windows can be a thermal nightmare, the most highly insulated daylighting panels can provide thermal performance similar to that of a solid wall in addition to maximizing solar heat gain control. Diffuse, balanced light also does away with hot spots for an overall more comfortable space.

Translucent vs. Transparent

One of the easiest ways to optimize campus daylighting strategies is to focus on translucent materials vs. transparent ones. Transparent

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materials—primarily glass—are a daylighting standard, but they are not the MVP. Glass struggles when it comes to quality of light—allowing unfiltered glare—and energy efficiency. Translucent materials more naturally diffuse light, and some can have very impressive thermal performance properties. But there are even more reasons to consider one over the other.

In athletic settings, especially gyms and locker rooms, privacy is important. Translucent materials provide line-of-sight protection while introducing diffuse light into a space, whereas people can see straight through glass. Choosing translucent materials can not only provide personal protection, but also protection for a team’s game book. The translucent panels prevent spying and videography from unwanted outside sources; this consideration is just one of the reasons this kind of daylighting is the top choice for universities and professional sports teams across the country.

Alternatives to glass are also more likely to offer impact resistance. It’s a great benefit to know that in facilities where balls are flying everywhere, maintenance crews aren’t going to have to deal with fixing broken glass every season.

A Winning Solution

Daylighting helps both people and facilities perform at their best, but the perfect strategy isn’t one size fits all. Whether campus planners intend to build a new facility or renovate an old one, starting with daylight modeling can help to identify the right materials and positioning for the space. By simulating the building and capturing every pattern of daylight, 3D software helps measure key daylighting metrics, such as spatial daylight autonomy (SDA) and annual sun exposure (ASE). These models not only ensure that planners are getting proper daylighting levels and avoiding issues with glare, but they can also help to document code compliance and points for sustainability programs.

So, we recommend that campus planners kick off the next project to a great start by adding daylight modeling to the playbook.



ABOUT THE AUTHOR: Mike Crowder, LEED AP, of Kalwall Corporation, has 25+ years of experience in the building materials industry. He travels across the U.S.

and Canada, educating architects, engineers and contractors on the benefits of natural daylighting. Learn more about Kalwall’s complimentary daylight modeling services at www.kalwall.com/daylight-modeling-services/.

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