



Distribution Center MANAGEMENT

Managing people, materials and costs in the warehouse or DC

Facility Management

Good lighting can illuminate productivity and cost improvements in the DC

Want to reduce your DC's energy costs while improving productivity, safety, and worker comfort — without breaking the bank? Here's a bright idea: Change your lighting.

Many DC managers don't realize how the right light affects operations. But some warehouses and DCs have seen all of the above benefits and more simply by upgrading their existing lighting systems with new technologies available on the market today.

"People just take lighting for granted. They flip the switch and turn the lights on. When they start realizing they can improve employee morale, productivity, the way things look, and reduce energy costs, they start to consider it," says Marilyn Dare, a project manager for the New York State Energy Research and Development Authority (NYSERDA).

That's why NYSERDA has created the New York Energy Smart Small Commercial Lighting Program (SCLP). The program is designed to promote effective, energy-efficient lighting solutions for businesses — including warehouses and DCs — that result in better lit

spaces, which allow people to see more easily and cost less to operate.

And even if you're not in New York State, the principles of the program can help many DC managers with lighting design.

A need for change

In the 1970s and 1980s, the most common type of warehouse lighting was high pressure sodium (HPS). At the time, HPS was considered a very energy-efficient type of lighting. It's a source many people

are used to seeing in street lighting and security applications. But, according to Jeffrey Schwartz, LC, lighting technical specialist with ICF International, who helps implement the SCLP for NYSERDA, it's not a comfortable light to work under.

"It has a tendency to distort colors, which makes people uncomfortable when working under the light, especially for long periods of time," he says. HPS lights can create glare for employees, and are not always effective for getting light down to the warehouse floor.

HPS fixtures can also be inefficient.

Why upgrade?

- Reduce energy costs
- Improve productivity
- Improve safety and comfort
- Reduce maintenance
- Quick payback

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While most people think of lighting as the bulb, the light fixture itself is also important. Typical HPS fixtures are only about 65 to 70 percent efficient. What that means is only 65 to 70 percent of the light produced actually gets out of the fixture to light the space. The remaining 30 to 35 percent is lost in the fixture.

How can you tell if your DC has HPS lighting? Schwartz says if you look at the lighting, it will be a yellowish, pinkish color. HPS fixtures also have one lamp per fixture. If your warehouse or DC was built sometime between the 1970s and early 1990s, and you haven't had an upgrade since, it's likely you have high pressure sodium lights.

The benefits of good lighting

The lighting industry has made many significant technological advances since the days of high pressure sodium lighting. The new kinds of lighting, which include high-output T-5 linear fluorescents (T-5HO), T-8 linear fluorescents (T-8), pulse start metal halide, and high performance T-8 (HPT8), are more energy efficient and provide the same amount of light for less wattage. The benefits of upgrading include:

Reduced energy costs. According to Schwartz, the key is to reduce your energy costs without compromising the levels and quality of light. Sure, you can save a bundle by turning off every other light in your warehouse, but when your pickers can't read a label properly, that's not an effective solution. Today's lighting systems allow you to get the same amount of light for less wattage. The fixtures, too, are far more efficient, and Schwartz says they can get anywhere from 90 to 95 percent efficiency. In fact, NYSERDA says one warehouse in New York State reduced its energy costs by approximately \$17,000 per year simply by upgrading its lighting.

Improved productivity. Good lighting can reduce the number of errors and product damage in the warehouse. For example, a facial tissue manufacturer found the old HPS lights in its warehouse weren't effective at getting the light down to the warehouse floor. By upgrading the lighting to T-5HO fixtures, employees working in the space can now read fine print on the labels more easily, improving picking times. Another distribution center reduced its product damage by 75 percent by installing pulse start metal halide high-bay fixtures, according to the center's management.

Improved safety and comfort. It's tough to put a dollar amount on worker safety and comfort, but both Schwartz and Dare agree it's a big plus. Good lighting can allow employees to do their jobs more effectively and not strain their eyes to see.

Reduced maintenance. When you look at the life-cycle costs of new lighting technologies, there is less maintenance and changeover because the lamps tend to last longer. For example, Dare says a 32-watt HPT8 lamp lasts approximately 4,000 hours longer than a typical standard 32-watt T-8 lamp. That means the HPT8 lamp will last approximately 24,000 hours, and you can schedule relamping procedures farther out in your operation schedule.

Quick payback. It's not uncommon for a warehouse to see payback periods of a year or less after installing a new lighting system, Schwartz says. When you're using anywhere from three quarters to one fourth of the energy per fixture, the cost of upgrading and installing the lighting will pay for itself quickly. Schwartz says many of the major utility companies across the U.S. are currently offering

One warehouse in New York State reduced its energy costs by \$17,000 per year.

financial incentives to help offset the initial cost of upgrading. For example, New York City offers an incentive of up to \$105 per fixture. This amount varies across the country, so it's important to check with your utility provider to find out if there are any financial incentives available.

Getting started

Once you've decided to upgrade, both Dare and Schwartz recommend talking to an electrical contractor or lighting practitioner to get started, particularly if you don't have a dedicated facility maintenance staff to look after these types of upgrades. A good contractor will work with both your facility and with their own distributors or manufacturers to find the appropriate lighting option for your option.

You also don't have to tackle a lighting upgrade all at once. "We're seeing this happening on a constant basis, and it's not a big thing," Schwartz says. "Typically, it's bringing in some scaffolding and changing one fixture at a time, one light at a time."

And will the cost savings and

Leave the lights on

If you're looking for ways to reduce energy costs in your DC, a typical solution might be to turn the lights off when you're not using them. Since your electricity bill is based on the wattage used per hour, it seems like a simple solution.

But what if you can't turn the lights off? Many times, it's not practical to shut down lighting in areas of your DC without compromising productivity. That's where occupancy sensors come in.

According to Jeffrey Schwartz, LC, lighting technical specialist with ICF International, you can connect occupancy sensors to your lamps that will turn on when someone enters a working area and turn off when that person leaves.

Take a four-lamp fixture, for example. You can have two lamps on, and connect the other two to the occupancy sensor. For safety and security, you always have some light level, but when someone is there to work, the light level increases.

"Typically, an occupancy sensor can save as much as 30 percent or more," Schwartz says. "There are many facilities where certain aisles are high-activity aisles and others are low-activity aisles ... occupancy sensors might make sense in the slow-moving aisles."

But occupancy sensors aren't the solution for every DC, Schwartz warns. "If you've got an area where everybody's in and out on a constant basis, all day long, 24/7, you don't want to do this," he says.

improvements make the upgrade worth the effort? Dare says it will. "A lot of people look at lighting as being the low-hanging fruit," she says. "But the benefits are huge."

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