

Special Report



**And How
To Avoid
Them**



Smart Business Strategies: 5 Costly Lighting Retrofit Mistakes and How to Avoid Them ¹



Costly Mistake #1: The Cost of “Doing Nothing”

Utility costs are rising across the country, from 30 to over 100 percent a year over the last two years, putting the bite on both large and small companies, and yet reaction time is slow. Since lighting can eat up to 40% or more of a company’s monthly utility bill, it makes good economic sense to retrofit an inefficient system, but there are two main reasons why many companies hold back too long:

Corporate Inertia: After all, the lights still work...and no one’s complaining. With constant on-the-job pressures, who has time for anything but today’s most urgent crisis? The simple fact is, the faster you can make up your mind to get the work done and make sure the numbers work, the faster you can start saving that 40 percent or more. If you’re not aware of how much of your utility bill is due to lighting costs, then find out! A simple test can tell you exactly what wattage your current fixtures use, and a competent lighting management company that is well-versed in the latest technology can show you fixtures that use a fraction of that energy. What are you paying per kilowatt hour now? How much could a more efficient system save you? Once you have the numbers you need to make a decision, do it – waiting just keeps costing you.

What Are Demand Charges?

Utility companies charge a demand charge for the highest 15 to 60-minute interval of usage over a month, which is typically 40 to 50 percent of the energy bill (even more in some cases). Understanding your company’s pattern of electricity usage can help you lower those charges. As a first step, request a copy of your usage history from the utility company, and determine when your peak usage hours occur.

Understanding your peak usage patterns gives you a weapon to lower your demand charges—you can choose to turn off certain equipment or use generators during those periods where your demand charges are figured, a process called “peak shaving.”

Upgrading an older lighting system can also reduce peak demand and energy consumption, another great way to lower those demand charges. In addition, modern lighting improves productivity and reduces heat produced by the lights, thus reducing cooling requirements during peak periods—an added benefit.

Waiting for Utility Rates to Drop: As history has shown us, utility rates seldom drop, and end-of-year rebate rates from cooperatives are usually low. Current events indicate a continued rise in the price of oil and other energy sources, which directly affects the cost of electricity, so there is no better time than now to retrofit your existing lighting system and start putting cash back in your bottom line. Unless you're planning to move your business to a new location, it makes good business sense to retrofit as soon as practical. Hesitation only means missing out on immediate savings.

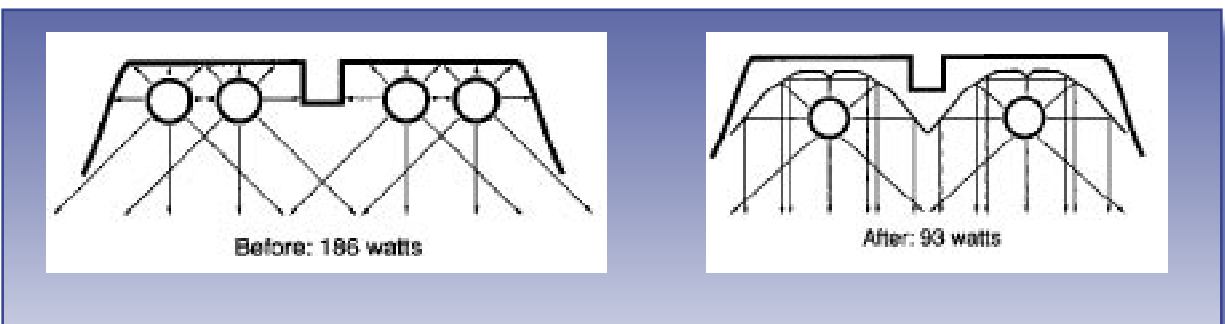
Money-Saving Hint: How to cut lighting energy costs in half

Without sacrificing lighting performance, half of the lamps and ballasts can be removed permanently from fluorescent fixtures. The chart below shows how this will reduce both your energy use costs (kilowatt-hours) and your demand rate costs (kilowatts).

With 50% fewer lamps and ballasts being used, replacement costs drop by one-half! Plus, lowering operating temperatures within the light fixture extends lamp and ballast life.

Additional Money-Saving Hint: Using optical reflectors

Loss of light in fluorescent fixtures is not only a waste of energy—it costs you money. Almost 90 percent of the cost of light can be attributed to energy use, while labor costs and product costs account for only 8% and 4% respectively, yet many people remain focused on the low cost of bulb replacement rather than fixing the larger problem—wasted light. Using reflectors in your fluorescent fixtures focuses the light onto work surfaces instead of allowing it to be scattered within the fixture itself (*see diagrams below*).





In addition to more efficient light production, considerable energy savings can result from retrofitting those old T12 lamp fixtures to fixtures that use T8 lamps, electronic ballasts and reflectors. Compare the wattages in the following diagrams:

Fixture Type	T12 Regular Tubes	T12 Super Saver	T8 Lamp Retrofit
4', 4-tube fluorescent	188 watts	164 watts	55 watts
4', 2-tube fluorescent	94 watts	82 watts	31 watts
8', 2-tube fluorescent	173 watts	143 watts	110 watts

As you can see, the cost of doing nothing can be considerable—and yet many companies continue to waste energy and money by not acting to correct an expensive problem.

Costly Mistake #2: Not Considering Your Employees

Energy savings are important, but your new lighting system will have an impact on your employees and customers...two of the most important sets of people in your business! Not including their considerations in your plans can have costly side effects in the form of lost productivity from health issues, as well as increased maintenance costs. Let's look at health issues first.

Optimum Light Levels

How much is too much or not enough—and what about color? Humans need a certain amount of light to function at their best, and are definitely affected both physically and mentally by the amount of light, both artificial and natural, that they are exposed to on a daily basis. According to a recent press release at www.sciencedaily.com, scientists



at the Rensselaer Polytechnic Institute in New York are pairing up with the National Institute of Health to study this phenomenon, and the following excerpt illustrates the importance of “optimum” light levels:

“Like a clock that needs to be set daily for accurate time-telling, the circadian clock (an internal regulating mechanism that controls the repetition of biological activities such as core body temperature variations, hormone production and secretion, and sleeping and waking patterns, among other functions in the human body) requires similar ‘setting’ from the light each day.

A cycle of very bright days and very dark nights is the perfect regulator for the human circadian system, but patterns of light and dark in today’s modern world are often inconsistent with this cycle.

The advent of electricity has dramatically changed our light and dark exposure patterns, and indoor lighting can be insufficient to stimulate the circadian clock.... Exposure to indoor light sources during the night, including computer screens, may be too bright or seen for too long, to properly set the timing of the circadian clock.

These disruptions can desynchronize the circadian rhythm from the solar daytime/nighttime cycle, leading to sleep problems and psychosocial stress such as mood and eating disorders, depression, and possibly immune deficiencies...”

Light sensitivity to fluorescents poses a real problem for some people, who can experience severe headaches and nausea from exposure to strong fluorescent lighting. Being sensitive to the needs of your personnel in making lighting decisions helps you keep good employees—and there are usually ways to accommodate them without sacrificing quality in your lighting plan. The easiest way to avoid complaints, and keep your employees healthy and happy is to consider them from the start. So before you hire that contractor that was recommended by an interior designer, get some advice from an expert in all phases of lighting, including design and function – not just retrofitting.



Hint: A good rule of thumb is that you can always improve the “color rendition” of light, but you can’t change the color “temperature” without creating a stir among some people. If you have cool white lamps now, don’t go to warmer whites without testing it first – and vice versa.

Maintenance Personnel

In addition to considering your front-line employees’ health and comfort when making lighting decisions, don’t forget your maintenance personnel! Think about lamp and ballast replacement down the road. With poor retrofits, it can be exceedingly difficult to get access to the ballast, or even change a lamp, which can offset your savings with higher labor costs. Ask your maintenance personnel for their input when planning a retrofit, and be sure to consider their advice when making your decision. Otherwise, you might pay for twice as much (or more) in on-going and excessively high maintenance costs after a retrofit.

Costly Mistake #3: Buying on Price

Lighting retrofit projects are sometimes bought on price alone, which is a big mistake. The few dollars saved up front can cost you thousands of wasted dollars down the road. Time really is money in this case – and if you’re still throwing money at your ceiling while bidding out the job and comparing prices, you might as well just flush it down the drain. That’s not to say that you shouldn’t be careful of the contractor you use. By all means, do your homework there, but price alone shouldn’t be your only consideration.

Here are just a few of the many ways you can end up paying for a “low bid” contractor for your lighting retrofit. It’s quite easy for vendors to cut price at your expense by:

- Hiring unskilled labor
- Using lower grade material, or less material
- Using material that’s been used elsewhere



- Using untested, unproven products, or commodity products instead of a custom-fitted product suited for your unique situation
- Not carrying proper insurance
- Employing “bait and switch” schemes
- Cutting corners on installation
- Skipping permits or ignoring code and UL requirements

Sometimes a bad experience with an uncaring vendor can tarnish a good idea like retrofitting, and tempt business owners to do it themselves with cheap, off-the-shelf items. Take reflectors, for example. Using specular reflectors is one of the best technologies for saving money in lighting, but there are thousands of different fixture styles, each with different spacing and mounting heights, so your best bet for the best fit is to use an expert lighting contractor. Plenty of people have tried to do it themselves and later complained that “retrofitting doesn’t work.”

Another common problem can occur in buying off-the-shelf products. Incorrect lamp and ballast combinations, which result in shorter lamp life or premature ballast failure, can void your product warranties. Regardless of price, it’s no bargain if it doesn’t work or doesn’t provide you with the light you need.

Unscrupulous Contractors

Some companies have been known to overstate anticipated energy savings by using a geographic area’s “average” electric rate, overstating existing wattages or understating proposed wattage. Others have been caught performing “rigged” tests by using “hot lamps and/or ballasts” to increase light levels in the test area—but those products are not the ones specified in their proposal—and not the ones installed. To the untrained observer, these tactics go unnoticed, and can end up costing you thousands more than the lowest bid.

Costly Mistake #4: Choosing the Wrong Company

A competent lighting management company is a consultant to you—not just a supplier of products and services. You want a company that will advise you and perform with integrity, and they should stand behind their work. Quality vendors bring valuable knowledge and expertise to your situation, and should have the depth and breadth of staff to allow for quick start-up and implementation...rapidly capturing electricity savings that would otherwise be unrealized.



Ask questions about the company

- What type of expertise do they have?
- Do they participate in professional trade organizations? If so, which ones?
- Do they spend the time and money to provide continuing education—not only to ensure staff is properly trained, but to keep up with new standards, new products and new technologies?
- How about financial credentials?
- Do they stand behind their warranties?
- Is there a list of references with phone numbers? (Verify them! Believe it or not, some companies give away “free” tests to get a list of organizations on a reference sheet.)

Avoid organizations that rely on scare tactics about other companies to sell you on their products or services. A true expert doesn't need to belittle the competition; their work should speak for itself. Be skeptical of anyone who spends more time telling you why not to buy from someone else than providing good examples of their own services.

Choose a quality vendor—one who is well established and will be around for you when you need him again. You'll be helping yourself to avoid the probability of jumping from vendor to vendor, with no one truly understanding your lighting needs and electrical situation.

Costly Mistake #5: Missing the Opportunity

It's a big mistake to believe that a lighting retrofit project is “not in the budget.” That's like saying you can't afford to save money! The monthly act of paying your electric bill means there's money in your business ready to work to save you money now.

A properly designed lighting retrofit generates monthly savings that will exceed your new lower monthly electric bill and pay for the project, and by financing the project, businesses can experience **positive cash flow from the start**.

In addition, businesses that operate in Delaware can also qualify for Delaware's Energy Answers grants for lighting retrofit projects in 2007, which grants businesses a fixed amount per fixture to upgrade to more efficient fixtures. However, there is currently not an extension of this grant on the books beyond 2007, which makes it all the more important to act now, before the opportunity disappears. More on Energy Answers can be found at <http://www.delaware-energy.com>.



At Philadelphia Lighting Maintenance Company, we strive to help you save as much money as possible. We stay on top of new energy-saving technologies and invest in our employees' education to ensure that each job is performed to your satisfaction—but our job is more than just saving you money. There are many changes going on in the energy marketplace today, and we want you to be able to take advantage of the latest advances in lighting while conserving energy and building a healthier, more pleasing work environment at the same time. We get enormous satisfaction from helping our neighbors reach those goals and keep their competitive edge, which has been the cornerstone of our business philosophy for over 60 years.

Don't keep throwing money at your ceiling!

Find out how your business can actually profit from a lighting retrofit.

**Receive a FREE, no obligation
Lighting Survey and Energy Savings Analysis**

by calling Randy at Philadelphia Lighting Maintenance Company today.

1-800-724-5800

