

How to Improve Efficiency and Reduce Energy Costs

Improved Productivity and Reduction of Downtime

One of the goals of every operation is to be able to keep machinery running 24/7 with as little interruption as possible. Stopped machinery and equipment not only costs money in reduced productivity, but also in maintenance costs – supplies, parts, and labor. It is important to find ways to quickly notify operators and maintenance personnel when and where a problem occurs so they can quickly take corrective action.

The concept of a “Visual Factory” has been around for several years and has helped many operations improve their processes. The basic principle is to make critical information, such as run rates, equipment in need of parts replenishment and stopped machinery, clearly visible to everyone who needs to know including operators, supervisors, maintenance personnel, plant managers, and others. A visual factory can be accomplished in several ways – anywhere from bulletin boards showing daily status to full blown SCADA systems with large *andon* signs. There are simple, relatively low-cost ways to achieve a visual factory. Some examples are:

1. A [status indicator](#) light shows the condition of a piece of equipment or workstation. Red can mean the machine is stopped, amber that parts are needed, green that everything is okay, blue that a quality inspection is needed, and white that engineering help is needed.
2. [Alarms](#) with different tones that will alert an operator when a condition arises. Different tones can mean different things, such as a machine is stopped; a machine needs parts, etc. An improvement to alarms would be an [annunciator](#) that can play messages that specifically say what the problem is instead of just sounding an alarm. For example, the message could say “Machine one is running low on carton boxes.”
3. A [sign board](#) that tells the status of a workstation, cell, or line. Such sign boards have the capability of showing what the plan is for the shift or day, how many have actually been produced, and whether the line is ahead or behind the pace based on the takt time (how long it should take to produce one unit).
4. Improved lighting can help improve productivity by making things easier to see so operators can make tool changes more quickly, or inspectors can more easily see detail on the part that is being inspected. Good lighting reduces eye fatigue to help operators maintain high accuracy, thus reducing scrap. [LED lighting](#) has come down in cost and its brightness has improved so that they rival incandescent lights or fluorescent lamps. An advantage of LED lighting is that many of them are made of durable polycarbonate or aluminum or steel enclosures with acrylic lenses so users don't have to worry about glass from broken bulbs of fluorescent tubes.
5. Tool cribs that show a shadow of the tool so that people can easily return the tool to the proper place.
6. Floor markings showing where pallets or containers need to be placed helps keep things where they belong which in turn helps keep the work environment more efficient.



There are many other ways to make the operation more visible to everyone involved. These methods can be used by themselves, but for the biggest impact they should be used in combination. For example, having a tool crib with tool shadow is fine but if it's difficult to see the shadows its purpose would be defeated. - having a well lit tool crib with the tool shadows would be the ideal situation.

As a factory becomes more visual, productivity rises because employees want to do their best in meeting targets for their own workstation all the way up to the plant level. As employees strive to reach their goals, issues that hinder or prevent them from reaching them will surface and will allow opportunities to remove these barriers so that the entire process becomes more efficient and productive by reducing downtime, bottlenecks, work in process, scrap, etc.

Reducing Energy Costs – The LED Advantage

Low Power Consumption

LEDs consume about 1/8 the power of traditional incandescent bulbs. Less power consumption translates into direct cost savings and less pollution from power generating sources.

Long Service Life and Reliability

LEDs last from about 40,000 hours to 100,000 hours which is about 4.5 years to 11.5 years of continuous operation. By comparison, an incandescent bulb lasts one year or less depending on conditions

Low Power Consumption

PATLITE'S high-intensity LEDs are 8 times more efficient than conventional incandescent bulbs.

PATLITE LED
Incandescent bulb



Note: For one LED module and one bulb with continuous operation

Long Service Life and Reliability

PATLITE'S high-intensity LEDs promise an extended service life of 100,000 hours, That is more than 11 years of continuous operation!

PATLITE LED
Incandescent bulb



Note: Both with continuous operation

Reduced Maintenance and Labor

PATLITE'S high-intensity LEDs drastically reduce costly maintenance requirements for replacing bulbs. The life of PATLITE'S high intensity LEDs is over 16 times longer than conventional incandescent bulbs,

PATLITE LED
Incandescent bulb



Reduce Waste

Changing LED modules once every 4.5 to 11.5 years vs. changing incandescent bulbs once a year means less waste (bulbs and packaging) going into landfills.

Lower Expenses

One three-stack LED tower is estimated to save \$1,000 per year in labor, parts and electricity compared to incandescent bulbs.

ABOUT PATLITE

Founded in 1947, PATLITE is a leading provider of innovative LED status indicating lights, sound alarms, visual and audible communication network systems and solutions which enhance the safety, security and comfort of workplaces and communities.

The company's products and services help improve the quality control, productivity and safety of industrial automation, commercial, municipal and governmental customers. PATLITE has more than 600 employees and the wholly-owned sales subsidiaries in the USA, Germany, Singapore, Korea, and China.

For more information visit www.patlite.com, email sales@patlite.com or call 1-310-328-3222.