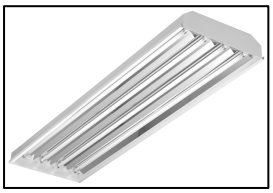
7 Tips to Reduce your Distribution Center Energy Costs

Today's headlines constantly tell of the increasing cost of energy and the reduction of capital investment monies. Warehouses are large consumers of energy and not always on the top of the capital spending list, which makes implementing low and no cost methods of saving energy particularly important.

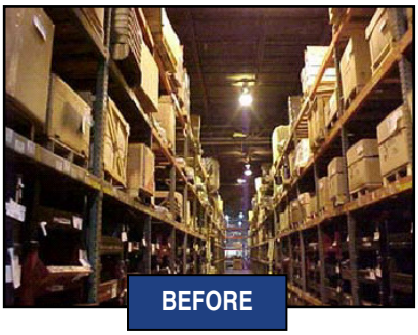
The seven tips below help reduce energy consumption while maintaining or increasing operator comfort.

1. Go fluorescent



Many warehouses use sodium or metal halide fixtures to provide lighting, especially in high bay areas. But advances in fluorescent lighting technology now provide a viable alternative to these energy consuming sodium and halide fixtures.

New fixtures use advanced design fluorescent tubes in conjunction with special lenses to provide light. In many cases, these fluorescent fixtures provide more light output than the fixtures they replace. This is particularly true in older buildings, where new fixtures often provide over double the light output.



These fixtures can provide energy savings that range from 60 to 80 percent over comparable sodium or metal halide fixtures. An added advantage is that the payback is very short.

Other savings fluorescents offer include:

- Lower maintenance costs
- One time federal tax incentives of up to $.60 per square foot (based on the savings achieved)
- Potential local incentives and rebates from utility companies

In addition, fluorescent lamps run at a much lower temperature. This allows for potential insurance savings due to reduced fire risk.

2. Lights out

The simplest way to save energy is to simply turn off the lights. To ensure lights are out when they're not being used, energy management systems and motion detectors are available.

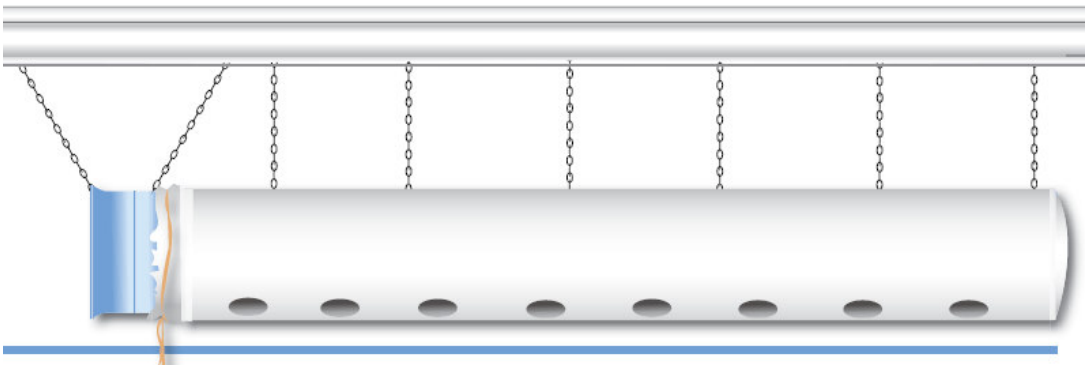
Energy management systems turn off the lights on a predetermined schedule. They can be set to turn off lights at a set time every day or configured to turn off specific sections of the warehouse when they are unoccupied. These systems can also be used in office areas to shut off non essential lights at the end of the day. The savings from these types of systems offer very quick paybacks.

Motion detectors offer a more granular type of control for lighting. They are typically installed in rack areas and can be used for specific aisles or groups of aisles. Sensors are placed at both ends of an aisle. When a predetermined time is met where no activity has been sensed in the aisle, the controls turn off that aisle or a specific set of aisles. These sensors make the most sense when building activity levels differ during normal business hours.

3. Spot cooling

Many warehouses use box fans to spot cool operators in the loose pick area. While this is an effective method, it often leads to the use of multiple fans and their associated electrical and space requirements. A simpler method is to use a tube axial fan attached to a large flexible tube. The tube has vents located at various points to provide spot cooling.

The use of only one fan to provide controlled cooling decreases the amount of energy spent, and also decreases the amount of maintenance previously required by multiple fans.



4. Wide open spaces

Receiving and shipping docks typically pose a heating and cooling challenge, especially in warehouses with large clear heights. In the summer, trying to cool lower levels in the large cubic volume of a dock area results in large energy bills. In the winter, these same areas tend to keep higher levels warmer due to warm air rising.

Low velocity, high volume fans alleviate this situation. Characterized by blades that are over 10 feet long, these fans help destratify the air in large clear height buildings.

In winter there is often a 15-20 degree temperature differential from floor level to ceiling level. These large ceiling mounted fans help bring that warm air down to the ground level. This can achieve upwards of 25% heating savings.

In the summer, the breeze these fans generate can achieve a perceived temperature differential of 8-12 degrees at the floor level, allowing for less cooling while still maintaining operator comfort. Plus their low rotation speed results in much less noise than high velocity solutions.

A typical fan can handle roughly 20,000 ft^2 of floor space and run for less than $0.05 an hour. They also mix the air and can reduce overall moisture at the floor level, which in turn can reduce product waste due to high moisture.

5. Mind Mother Nature

In many areas of the country, the daytime summer temperature is often 10-20 degrees higher than the nighttime temperature. When this is the case, it is very beneficial to open the dock doors and run in-wall fans to cool the building at night. When this tactic is employed, the overall temperature of the building and product can be dramatically lowered during the night. During the day, the dock doors should be sealed (except to load a trailer), and the wall fans turned off. This allows the overall temperature of the building to be maintained at or near the nighttime level.

Note that this tactic works best in conducive climates and warehouses with good dock seals.

6. Turn the conveyor off

In addition to lights, large amounts of energy are often consumed by the conveyor system. Many warehouses still run the conveyor in the pick area while finishing off the loading and shipping functions. One of the simplest methods to achieve energy savings with a conveyor system is to turn off sections not in use at specific times.

Several warehouse control systems offer the option of automatically shutting off sections of conveyor on a set schedule, or after a predetermined amount of no activity. There are also specific types of conveyor that will shut off smaller sections of conveyor after periods of inactivity. Keep these options in mind when looking for upgrades or replacements of conveyor systems.

7. Building design

When erecting a new building there are a myriad of options to consider to be energy efficient and environmentally friendly. For new distribution centers it may be worthwhile to pursue information regarding Leadership in Energy and Environmental Design (LEED) certification. LEED is a third-party certification program and the nationally accepted benchmark for the design, construction and operation of high performance green buildings. Visit the US Green Building Council website (http://www.usgbc.org) for more detailed information on the criteria for LEED certification.

Older buildings can take advantage of simple measures to increase lighting efficiency, such as installation of windows and skylights. Natural lighting can reduce man-made light requirements and has also been proven to elevate operator mood. Painting the walls and ceiling of the facility white can further reduce overall lighting requirements

Advances in solar technology, including tax incentives and proven cost reductions, also provide another option to consider when attempting to save energy.