

comfort zone

in this issue

Simple Ways To Save Energy

Energy Conservation

Make the Best of the Economy

One Link of the Chain



simple ways to save energy

A recent survey of building owners by Climate Control Company showed that energy savings is definitely top of mind in today's environment, with 84% of owners having completed some type of energy savings measure within the past year. The same survey showed that less than 1/3 of building owners are working with a mechanical service contractor to implement these energy savings measures.

It just takes finding the right mechanical contractor, one who is a source of ideas on how to save energy, and works with you as a partner to develop the right energy savings programs for you and your building. Below are some simple suggestions that may save you energy.

Scheduling issues

The most commonly found control issue is scheduling issues, which result in over a billion dollars of wasted energy each year. Building operators must make sure the building is at the desired temperature when the first person arrives in the morning through the time when the last person leaves at night, not to mention the off times when the building is not "on" when someone wants it to be. Here are three ways to identify scheduling issues:

1. *Walk the building at night*
Walk through your building during off hours to be sure systems are functioning properly.
2. *Use trending capability of the building automation system*

All building automation systems offer trending where points of control can be captured in a log file, exported, and reviewed.

3. *Use independent sensors*

Place independent sensors in the building to accurately record temperature, light, or carbon dioxide levels.

Programmable thermostats

A programmable thermostat is a relatively inexpensive way to cut down on a building's energy use. Changing the set point during unoccupied periods changes the energy use significantly, and programmable thermostats make sure these changes happen automatically.

Economizers and demand controlled ventilation

An economizer sits between the thermostat and an outside air damper, and uses sensors to judge the outside air condition. When a thermostat calls for cooling, if conditions allow, an economizer opens the outside air damper to let in cool outdoor air, rather than use energy by starting the compressor.

Demand controlled ventilation systems address the problem of over ventilation by monitoring actual carbon dioxide levels in the air and controlling the amount of outside air coming into the building. More people get more air, fewer people need less air. It saves energy and money by reducing the amount of excess outside air, which must be conditioned, during periods of lower occupancy. ☐☐☐



energy conservation

In today's economy there is unprecedented interest in energy conservation. BOMA (Building Owners and Managers Association) recently announced its goal of 30% reduction in energy use by 2012. The American Society of Heating, Refrigeration, and Air Conditioning (ASHRAE) and the U.S. Department of Energy have announced that they will work together to increase building energy efficiency standards for the year 2010 by 30% over 2004 standards.

This newfound interest in energy conservation is driven by three key trends:

- Rising energy costs
- Green/sustainability factors
- Utility supply and demand

Rising Energy Costs

When something gets more expensive, people tend to buy less of it. But when it's a necessity like energy that's increasing in price, it can be tough to cut back. In fact, even though energy prices have steadily increased, energy usage in the commercial building sector has also been steadily increasing. Electricity rates have risen 21.7% in just the past three years.

Green/Sustainability Factors

As media attention focuses more on carbon

emissions and global climate change, the reaction of the business world has been to direct efforts towards sustainable business practices. Cutting energy is one of the best ways for a company to make a big change to their carbon footprint.

For those who have not yet caught on to the trend, the U.S. may begin imposing carbon emission reduction goals as local, national, and global political pressure builds. In addition to the cost of energy, there is now a direct economic cost of the carbon produced, which some day could rival the cost of the energy itself.

Utility Supply and Demand

Demand for electricity continues to rise, with a project 41% increase in demand by the year 2030 as compared to 2005. At the same time, it's difficult for utilities to increase supply. While promising, renewable energy sources, such as wind or solar power, are expected to contribute no more than 3% of the total demand. Utilities recognize that it's more feasible to incentivize conservation through rebate programs than to increase rates. Commercial consumers, as the biggest customers, have a lot to gain from conserving their energy use. ☐☐☐

make the best of the economy

While the outlook on the economy might seem a little scary, there are things we can do to keep our spirits up. From a purely economic perspective, we can reduce expenses, lower expectations, and brace ourselves for tough times. We also have the "choice" to make the best of it and think positively.

- See this as an opportunity to pause for reflection
- Realize the adventure and learning experience possible
- Redefine success for you
- Take consistent daily action no matter what
- Prune the tree to improve the health of your business
- Take time to give back and help others
- Reach out for support—don't go it alone
- Success is still found through your uniqueness and authenticity! ☐☐☐



computer room humidity control

The best way to control humidity in the IT environment is to minimize the things that cause humidity levels to change, and maximize the performance of the systems designed to regulate humidity.

Humidifiers are used to increase the moisture content of air. They exist in virtually all data centers and in some cases are almost continuously used. They are commonly installed in precision cooling systems but may also be stand-alone central systems. Humidifiers installed inside computer room air conditioning units replace water lost to condensation before the air exits the cooling unit. Water vapor supplied by central humidification systems has to migrate across the IT environment. This equalization process happens quickly and in most cases the cooling air is acceptably humidified prior to its entry into the IT equipment. In environments with limited hot/cold air mixing or fully ducted air supply or return systems, condensation within cooling units can be minimized or eliminated resulting in lower capital, operation, and maintenance costs. Proper air management practices favor the use of central humidification.

Setting humidity higher than actually required by IT equipment lowers the heat removal capability of the unit and wastes

electrical energy. Humidifiers must add unnecessary water to the air flowing through the CRAC unit. This can waste thousands of gallons of water per year in a typical data center. Furthermore, steam canisters are a significant source of heat that must also be removed by the CRAC unit and further detracts from its capacity.

Operating a data center at 40% minimum relative humidity instead of 45% or 50% can save significant amounts of water and energy. Operation of the system within lower limits of the relative humidity design parameters should be considered for efficiency and cost savings. A slight change in set point toward the lower end of the recommended range can have a dramatic effect on the heat removal capacity and reduction in humidifier run time.

The amount of moisture contained in the air used to cool IT equipment can help ensure its availability or lead directly to its failure. There is an independent relationship between humidity management and cooling air management procedures. Effective humidity control in the IT environment is most effectively applied as part of an overall IT environment strategy involving optimization of air management, IT load planning, and infiltration minimization. ☐☐☐

get a grip on wasted time

Wasted time represents a contractor's greatest potential loss. For Metro, our first step in preventing loss is to plan ahead for routine maintenance visits, emergency calls, or large construction projects.

Imagine a crew showing up to start a project, trucks full of materials and expensive rental equipment. Unfortunately, no one confirmed the appointment with the owner and the techs have nowhere else to go. This just cost the company money, the technician's faith, and the client's trust.

This scenario is easily preventable by picking up the phone. Techno gizmos are great for confirming details, but often important information gets lost in the email or text message translation. ☐☐☐





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r-22 phase out timeline

The US EPA has enacted regulations which will phase out the use of HCFC-22 in the near future. Air conditioning manufacturers will no longer be allowed to sell R22 equipment as of January 1, 2010. In the aftermarket service business, the allocation rights for producers who manufacture R22 will be cut each year, making the remaining R22 supply potentially smaller than the service demand. This could make R22 scarce in the future, and drive prices higher.

January 1, 2010: Chemical manufacturers may still produce R-22 (Freon) to service existing equipment, BUT not for use in new equipment.

January 1, 2015: Mandatory 90% reduction in Freon production

January 1, 2020: Only use of existing refrigerant permitted to service existing systems. The blending of new Freon no longer permitted 

Metro Mechanical provides design/build, plan/specification and planned maintenance to clients who recognize the value of a partner who works diligently and creatively to find the best possible solution for each particular project.

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