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COMMERCIAL REAL ESTATE EFFICIENCY SOLUTIONS - EASY & AFFORDABLE !

Michael A. Makofsky, President,CEO Tech Reps, Inc. July 17, 2015

Adding 3-5% to a commercial building's bottom line is easier than ever ! Over the last several years, technological advances have enabled commercial office, industrial and mixed use buildings to take advantage of many easy and affordable approaches to save energy, conserve precious resources and increase your sustainable footprint. And, the reality is that paybacks/ROI can be as low as 2-3 years in many cases. Utility companies are offering incentive & rebates encouraging such achievable solutions versus building multi-million dollar power plants. There are many ways to accomplish this and below are several very effective & popular approaches you may want to consider.

ADVANCED WINDOW FILM

Window film technology has been helping to cool, beautify and protect buildings for generations, it is popular for protecting interior furnishings and floor and wall coverings from fading as well as reduce heat load in the summer. Now revolutionary advancements in window film technologies will not only prevent heat gain and sun damage, it contains properties that serve as an effective thermal insulator.

Commercial building operators have been using various varieties of window tinting to prevent suns damage and heat but are largely unaware of these additional benefits. This process is also not as dark and reflective of previous generations, and is capable of transforming the appearance of a building with a more uniform appearance.

There are many brands and varieties of window solar barriers on the marketplace today. Each boast of their ability to block or render harmless various solar wavelengths that have proven harmful and increase internal temperatures. The most common solar band that window manufacturers seek to disrupt is infrared. This harmful bandwidth is most effectively reduced with a coating called Low-E. The Low-E treatment has been a staple of the industry for over a decade. Low-E coatings have improved in effectiveness over the years and the problem of visible iridescence from first generation applications has been eliminated. A quality Low-E treatment will effectively slow the fading and sun bleaching of interior assets. Buildings without infra-red protection can be as much as 20 to 25 degrees warmer that one protected with traditional treatments.

Savings of 5-15% in total building electricity costs, kilowatt-hour consumption, and kilowatt peak demand can often be achieved, with the savings amount dependent upon several factors, such as: glass type, window to wall ratio, presence of overhangs, climate, performance level of film used, and the efficiency of the building's cooling equipment.

LED LIGHTING

Energy Conservation is on the minds of building owners and operators for all of the right reasons. Of all of the efficiency options for commercial building owners, it is lighting that has received the most incentive request by far. Lighting can be very personal, proper light quality and quantity is important for productivity and security, yet it is often only responsible for 20% of total facility power. Lighting savings however seemed to be favored by all, savings can be calculated precisely, and 2 to 3 year ROI's bolstered by incentives, can be assured. For the last several years corporate planners have had a difficult decision regarding lighting conservation and exactly what to do with the thousands of inefficient tube light bulbs in their ceilings. Most realize that incentives and savings opportunities exist but that doesn't make the decision any easier. The first instinct is an upgrade to a more efficient florescent or a higher quality, more expensive LED bulb. Until now, due to the dramatically lower price point of LED lamps, most building owners are converting their T12 fluorescent tubes at 40 – 55 watt to LED. This decision is supported by issues such as the longer lifespan of LED, decreased fixture replacement, light quality and amount as well as lighting automation and dimmer controls. And now, LED lamps use as much as 75% less energy than its competition. For example, a 400W Metal Halide (HID) lamp can be replaced with a 100w LED - and offer longer life with increased savings over time.

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Fortunately, manufacturing advancements have led to a pricing revolution in LED making many applications affordable. These advancements have resulted in the recent release of new LED High Bay and Tube designs that are both affordable and effective. LED retrofit products have a special advantage in that all of the chips and their Lumens are directed downward where needed. LED products offer a long list of advantages to commercial properties, and most retrofit LED products will show an ROI under 2.5 years. And, LED lighting is frequently eligible for incentives by power companies - just be sure DLC (Design Lights Consortium) APPROVED LED lamps are used. They come in different light temperatures or hues (known as Kelvin) and amount of light output (known as Lumens) for a fully customizable effect. These LED lamps offer dimmable options and work well with all automation controls to maximize savings and deliver desired results. The extraordinary news is that LED technology is making florescent bulbs a thing of the past. Studies also have shown that LED lighting provides less eye strain and increases productivity, as well. Fortunately, LED tubes have become affordable enough to change forever the technology used for this badly needed class of bulb.

Aside from the watt to watt energy savings LED products allow for additional savings that should not be ignored. In fact LED tube lighting produces so much light that often it is not necessary to have a 'one-for-one' replacement. It is called de-lamping and often 30 to 40% less product is used for significant savings. LED tubes will come in different output in wattage for maximum flexibility. LED also produces much less heat which will decrease air conditioning energy costs. If a business is replacing 24 hour indoor and/or outdoor lighting or using the strategies listed above, the ROI will likely be less than 24 months - even before or without incentives.

HVAC IMPROVEMENT

Refrigerant Oil Enhancement has proven to be a highly effective conservation strategy; it's affordable and increases efficiency in any air conditioning or refrigeration unit with a refrigerant line. This conservation product is a specifically blended refrigerant oil supplement that has a fast ROI and multiple beneficial attributes when added to the refrigerant line of existing HVAC and refrigeration compressors along with the existing refrigerant oil. When applied this technology has proven to reduce amps, noise and increase cold air output.

Daytime energy has become the bulls-eye on the target to reduce pollutants from aging coal power plants. These plants are still relied on heavily during daytime hours, particularly warm days. It is said that HVAC and refrigeration is responsible for up to 50% of this nation's energy usage. It is this reason; that inspired the installation of millions of new electric company "smart meters" installed on buildings to allow for the accurate timed metering of energy usage as well as other informational services. Business can expect consistently higher daytime rates as this process evolves across the country. Simply ask a building owner from California, where daytime rates in certain areas were reported to be 4 to 5 times more than those at night. For this reason enormous focus is on air cooling and all available efficiencies. The time to act is now if you will be ready for what could be another hot summer.

This efficiency technology is called Refrigerant Oil Enhancement; it requires no new equipment and will normally show a payback within a year. This product is a specifically blended refrigerant oil supplement that has multiple beneficial attributes when added to the refrigerant line along with the existing manufacturer installed oil.

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Research presented by ASHRAE (America Society for Heating Refrigeration and Air Conditioning Engineers) in 1994, showed conclusively that cooling system performance is degraded by as much as 30% due build-up of lubricants on internal surfaces throughout the heat exchange system. This build-up causes heat transfer degradation, increases pressure drops, elevates boiling points and reduces the latent heat capacity of the equipment. The end results of these problems are a substantial loss of cooling capacity, loss of lubricity, significantly increase operating cost and shorten equipment life. It is a process called oil fouling, and it is a natural result of standard, inexpensive manufacturer installed lubricant.

ASHRAE states that insulating oil build up will reduce system efficiency by 7% in the first year, 5% in the second, and 2% or more in subsequent years. Normally by the 24th month of operation, system degradation is evident in the reduction of cooling capacity and increase noise and running amps due to the loss of lubricity. This inferior oil oxidizes and insulates the inner surfaces of the heat exchanger thereby impeding heat transfer.

Fortunately an oil lubricant additive exists that serves as an antioxidant and is designed to improve the functionality of the existing oil. As this oil vaporizes and travels throughout the system along with the refrigerant it lubricates and protects all system moving parts and seals. It has a Polarizing Compound which enables the formula to bond to metal on a molecular level. This property enables it to displace the insulating build-up of compressor lubricating oil inside the refrigerant circuit and bond directly to metal surface to form a coat with single molecule thin layer. Furthermore, the supplemental oil additive molecule does not allow oil build-up to re-form. Consequently, heat transfer is no longer impeded in the heat exchanger coils since the displaced compressor lubricating oil must return back to the reservoir. This will improve the Delta-T and satisfy the thermostat faster. A superior Oil Additive will also increase the lubricity of compressor installed oil and reduce wearing on compressor moving parts. This oil supplement was proven to be over 1500 times more effective than standard refrigerant oils and will protect seals, lubricate moving parts and reduce oxidation. This will reduce maintenance and extend system life. This patented supplement will be specifically blended to match the refrigerant type and will work in all reciprocating, rotary, scroll, screw, centrifugal compressors, and walk in refrigeration.

SOLAR

So… exactly how DOES solar work… and is it right for my building ?

1. Solar panels capture sunlight and convert it to DC (Direct Current) electricity.
2. Your solar system converts that energy to an AC (Alternating Current) that powers your business.
3. Energy you generate & don't use goes back to the utility grid and creates an electricity "credit" for your business.

Solar panels convert sunlight into clean, efficient energy that can power your building year round. When the sun shines, the electricity travels from the panels through wires into a piece of equipment called an inverter. An inverter converts the type of electricity produced by the panels (called Direct Current, or DC) into the type of power your business uses (called Alternating Current, or AC). Once the electricity goes through the inverter, it travels into your building's electrical panel. At night, when your panels are not generating electricity, you continue to get electricity from the local utility. However, during the day, your solar panels may produce more power than you consume, feeding power into the utility grid, supplying clean electricity to your community and spinning your meter backward. Many commercial building owners are looking for alternative energy solutions to expand sustainability initiatives while making a solid financial investment. Solar developers work with them from the initial project feasibility stage through financing and construction to state of the art solar facility. Significant achievements are being realized. For example: a recently published case study showed a commercial building using a 4,000-panel installation offsetting approximately 50% of a 300,000 sq. ft. building's annual usage.

The vast majority, nearly 90%, of solar panels sold today are crystalline silicon panels. To make these panels, raw silicon (sand) is melted at very high temperatures and impurities in the silicon are removed. In their place, new specific impurities (called dopants) that allow the movement of electrons within the silicon are introduced. The special semiconductor properties of silicon, combined with these specific impurities, allow electricity to be generated when light hits the silicon. The melted silicon is cooled and forms crystals as it solidifies

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into an ingot of pure silicon. The ingot is then sliced into thin wafers which will sit out in the sun and generate electricity. The thin wafers are soldered together to a metal backing, covered with incredibly durable glass that resists hail strikes, and mounted in the roof of a building.

Over the past 4-5 years, with dramatic technological advances in Photovoltaic panels, pricing has dropped significantly while energy efficiency, reliability and longevity have increased markedly. What does that mean for a commercial property ? Previous ROI's of 7-10 years are now in the 3-5 year range making Solar a more attractive & renewable power option.

OTHER ENERGY SAVINGS/EFFICIENCY RESOURCES:

CARBON WAR ROOM – REAL ESTATE/SUSTAINABILITY RELEVANCE CASE STUDY

Carbon War Room recently released a study that shows the clear connection between the sustainability of buildings, real estate investment returns and stock market performance. Investments in energy efficiency retrofits increase cash flow at the building level but also generate gains to building owners from higher levels of market performance due to increased sustainability of their building portfolio. Building owners should strongly consider utilizing third-party financing solutions for facility improvements as a way to both preserve their existing capital reserves and to implement value-producing energy retrofits.

CONCLUSIONS...

This study on real estate investment trusts (REITs) by the University of Cambridge on the association between sustainability indicators and key financial indicators is additional evidence that investing in sustainability makes good business sense. REITs with higher GRESB scores have higher returns on equity, higher returns on assets, and stronger risk-adjusted stock performance. This outperformance is largely driven by performance in the Implementation & Measurement dimensions. This study complements the numerous other studies that reach similar conclusions, listed for convenience below. The message has never been clearer: in real estate, smart business managers are investing in sustainability.

Click here to read the study

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