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**Best Buys in HVAC:
Determining Life-Cycle Costs of
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DID YOU KNOW?



U.S. regions that use the wholesale energy markets to buy and trade electricity save about \$3 billion a year, according to recent [study results](#) released by the University of Chicago's Harris School of Public Policy.

MARKET TRENDS



**Occupant Benefits of
Green Building
Environments**

Greetings!

So now that you hopefully have your 2017 Energy Efficiency Plan drafted, how do you plan to implement it? Don't let your New Year's Energy Efficiency Resolutions be forgotten; investing in energy efficient facility equipment pays for itself over years of lowered utility and operations costs as well as a myriad of other benefits for building occupants.

The informational articles below are designed to help you choose the best equipment investments for your business and provide you with easy finance options for your building's efficiency upgrades. Questions? Call the experts at [Air Temp Heating & Air Conditioning, Inc.](#) today to help you create an energy-saving action plan for your building!

Best Buys in HVAC: Determining Life-Cycle Costs of HVAC Systems

According to a *Building Operating Management* survey of facility managers, about a third of chillers and boilers/water heaters installed in today's facilities



are more than 20 years old. Not only is aging equipment more likely to suffer from equipment failures or even need emergency replacement, but it is often less efficient than newer equipment. High-efficiency systems usually have higher up-front costs than standard systems, but the overall lifecycle costs of such equipment can more than make up for this difference.

But how do facility managers determine which HVAC system will be the best buy over its lifetime of use? A commonly used measurement is the simple payback period - calculating how many years it will take for the equipment to pay for itself in energy savings. But for a full understanding of equipment costs, facility managers should take into account equipment's full life-cycle expenses. This includes upfront costs, operating costs, maintenance costs, special costs, and end of life disposal costs. The Hydronics Industry Alliance created the free, easy-to-use [Commercial Building Efficiency](#)

Occupant Benefits of Green Building Environments

Workers in high-performing, green certified buildings exhibit

26.4% higher Cognitive Test scores

6.4% higher Sleep Quality scores

30% fewer "Sick Building" symptoms such as

- headaches
- nausea
- fatigue



View a larger version of this image, [here](#).

Recent studies led by Harvard University and SUNY Upstate Medical University, "[The Impact of Working in a Green Certified Building on Cognitive Function and Health](#)" licensed under [CC BY 4.0](#), found that occupants of high-performing green buildings exhibit higher scores on several wellness and cognitive functioning tests than occupants of high-performing buildings without green certification.

Researchers believe these improvements can be attributed to Indoor Environmental Quality (IEQ) factors including improved indoor air quality, thermal conditions and lighting. But the findings suggest that the benefits of green buildings go beyond just these 3 known factors to improve occupant wellbeing.

Q & A



[System Tool \(BEST\)](#) to help compare these costs across multiple HVAC systems - providing useful information including average installation cost, replacement cost, maintenance cost, monthly energy cost, electrical and fossil fuel consumption costs, total system life cycle cost, cumulative life cycle cost by year, system payback time, and more.

Energy Efficiency Financing Navigator

Energy efficiency is a powerful way to reduce operating costs, cut greenhouse gas emissions, and improve the reliability of buildings. However, upfront costs can be a major



barrier to getting energy efficiency projects done. Many organizations don't have the capital available to pay for the equipment, installation, and servicing of energy efficiency upgrades out of pocket. Even those with plentiful cash may prefer to spend it on their core operations rather than efficiency. That's where financing comes in. There are many financing options that range from simple loans and leases, to more specialized options designed to overcome specific challenges, such as property assessed clean energy (PACE) or energy services agreements.

Navigating the vast array financing options available can be overwhelming. To help make the process more manageable, the Department of Energy's Better Buildings initiative recently released its [Financing Navigator](#), an online tool designed to help identify funding for energy efficiency projects. Through the Navigator, users can connect to the larger Better Buildings Challenge Financial Ally community, which includes banks and lenders that are committed to making bold financial investments in energy efficiency and are actively pursuing new opportunities to finance projects. [Click here](#) to find out more about the program and try out this free financing tool.

QUESTION: What is Sick Building Syndrome?

ANSWER: According to the EPA, sick building syndrome is a situation in which the occupants of a building experience acute health- or comfort-related effects that seem to be linked directly to the time spent in a building. No specific illness or cause can be identified. The complainants may be localized in a particular room or zone or may be widespread throughout a building.

CONTACT US



Air Temp Heating & Air
Conditioning, Inc.
1165 Front Street
Binghamton, NY 13905
Phone: 607-772-8362

6820 Ellicott Drive
East Syracuse, NY 13057
Phone: 315-432-8591

8181 Seneca Turnpike
Clinton, NY 13323
Phone: 315-735-7539
www.airtempvac.com



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