Energy Efficiency and Improving Patient Care

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Healthcare facilities present both a challenge and an opportunity to facility managers and engineers looking to increase energy efficiency. Issues such as 24/7 operations, energy and water use intensity, infection control, and regulatory requirements put healthcare facilities in unique circumstances. These issues require different solution strategies than what may be appropriate for other facility types.

Because standard efficiency solutions are often not perceived to be appropriate for healthcare facilities, there exist many misunderstandings about how energy efficiency can and should be carried out. In a place where so many other things seem to take precedence—patient safety, equipment reliability, system redundancy, and the tightening of budgets—energy efficiency can get lost below a myriad of more pressing priorities. In reality, energy efficiency goes to support all of those things and in the end creates an environment more conducive to delivering the best patient care.

**Misconceptions about Efficiency**

Efficient does not inherently mean “less”. It means “appropriate”. Energy efficiency is only in part about the size and efficiency of systems and equipment. An equally important factor is the management of those systems. A highly efficient system that runs at times it is not needed is not energy efficient and more importantly never appropriate. Inappropriate systems adversely affect building occupants in a variety of ways. The most direct way is through trouble calls; spaces being too hot or too cold. Inefficient systems also tend to be accompanied by other more serious problems, such as bacteria, dust, mold and other airborne agents that can cause and spread illness. There is also a misconception that a balance exists between efficiency and redundancy; and that, in order to improve one, you must sacrifice the other. That is not the case. There are many ways to design redundancy and capacity into systems without sacrificing efficiency. In fact, increasing the efficiency of your current systems is probably the simplest and most cost effective way to increase overall system redundancy.

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The Relationship between Energy Efficiency and Equipment Reliability

A system that is operating as it was designed to will not only be the more energy efficient, but it will also be more reliable. There is a synergy between efficiency and reliability. Both require a well-designed system that is adequately monitored and maintained. If the processes are in place to maximize system reliability, odds are the system is also at or near its peak efficiency. Increasing efficiency also leads to longer equipment lifetimes, more predictable maintenance intervals and lower maintenance costs. A more reliable system maintains staff focus where it should be, on the patient, and not on the building systems.

The Business Case

An average hospital in the United States spends about 2% of its total operating budget on utility costs. If energy costs make up such a small portion of a hospital’s expenses, why should a facility target energy efficiency to raise its bottom line? The aggregate total margin of US Hospitals is on average 5%. Put a different way, in order to generate $1 in additional revenue, the hospital needs to produce $20 in additional services. On the other side, every dollar saved in energy costs goes directly to the bottom line, without requiring any additional production.

Furthermore, cost savings from increased energy efficiency are completely tax free. Even a very modest efficiency goal of 25% energy savings could increase profits by 10% on an average hospital. For a less-than-average facility, next year profits could easily double simply through energy efficiency. This frees up resources and reduces economic uncertainty. Every dollar not spent on utility bills and unnecessary maintenance, is a dollar that can be spent on improving patient care.

Recent Healthcare Reform, coupled with Federal and State budget cuts, places even further pressure on hospitals to be leaner, smarter and more efficient in all ways. With Healthcare Reform, more and more patients will be accessing their healthcare services through public payers. In California alone, an estimated 4 million patients will be added to state and federal funded programs in the coming years. As the patient population in the public payer market grows, the available margins for hospitals and healthcare provider’s decreases.

Federal and State budget cuts compound this effect, shifting more and more cost from public sources to private. In turn, private payers are looking to shift their risk to both the patient and the provider. The hospitals that will succeed in competitive markets, both in the near and long term, will be the ones that are the most successful at cutting costs while maintaining or improving their level of service. Energy efficiency is one of the smartest and simplest ways to meet both of those goals.

The Common Mission

The fundamental mission of every healthcare facility is to protect and improve the health and well being of the community. Reductions in energy use and all of the associated carbon emissions also go to serve that end. There is a direct relationship between then health of the individual and the health of the environment that individual lives in. As healthcare facilities look for new avenues to positively impact the health of their communities, increasing energy efficiency has become a very attractive way to both serve the bottom line of the facility and serve the needs of the community. When building systems are running efficiently and reliably, building occupants tend to be happier. Patients see improved health outcomes. Staff is more productive. It also has enormous potential to change perceptions of the facility in the community. Decreasing your carbon footprint can increase your standing with patients, staff and in the community.
P2S Engineering, Inc. is a full-service mechanical, electrical, plumbing, technology, commissioning and energy engineering firm that is committed to sustainability. We provide services that cater towards a unique point of view—the client’s.