

ASK THE EXPERT

Sustainable Thinking

Expert: Set Benchmarks, Show Financial Benefits

With a career spanning more than 30 years, Alan Whitson, RPA, president of Corporate Realty Design & Management Institute, has experience building and financing sustainable buildings. He regularly consults, writes and speaks on the subject of high-performance buildings. Whitson, a member of the HC&O advisory board, answered questions from readers and the editorial staff.

Q: *What are a few simple approaches that can be relatively easy to implement to reduce energy in an existing facility?*

A: First, do the things you should already be doing. For example, make sure that dampers are not stuck in the open or closed position, system set points are correct, and change air filters at the correct interval. There are hundreds of preventive and regular maintenance items that when neglected can devour energy and water at an alarmingly high rate.

Second, benchmark your existing energy use. The EPA's Energy Star program is a great place to start. You cannot improve what you do not measure.

Q: *What are some of the most important factors architects and engineers need to consider when designing a facility and striving for sustainability?*

A: While most people think recycled content is the most important factor,

longevity or long product life is at the top of my list. The longer you can keep a floor covering on the floor, a lamp burning, or the roof on your building, the better the impact on the environment and the bottom line. However, that assumes you are using the best-performing product from the onset.

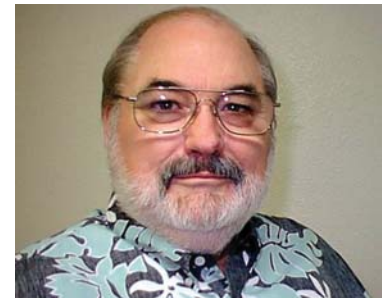
Second on my list would be the integrated design process. The idea is to get all of the players together at the very beginning and define the goals, objectives and constraints for the project. A good example of how this can work is the Center for Health & Healing at the Oregon Health & Science University in Portland, Ore.

Third, set big audacious goals. That's what they did at the Center for Health & Healing. Too often, architects and engineers settle for "good enough."

Fourth, look outside of the health care paradigm. A lot of very good design and engineering work has been done in hotels, data centers and research facilities; it is criminal to ignore it.

Q: *How can sustainability be incorporated when working with a limited budget? How should facility owners spend their money?*

A: It's a myth that sustainability costs more. If it does, you did it incorrectly or you valued something else in the project more than sustainability,



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which is often the case.

I would encourage owners to spend more money on design and engineering. By the time you have spent half your architectural and engineering budget, more than 90 percent of your operating costs are locked in. The best value for an owner's money is intensive energy modeling and commissioning.

Q: *How can facility managers encourage CEOs to invest in energy-efficient improvements?*

A: Show them the money. Since labor costs dominate the expense side of the ledger, it is hard to get anybody's attention about energy costs. One trick is equating energy savings to revenue.

Another powerful tool is to explain the consequences of not accepting recommendations. Say you need \$100,000 for a project that will save \$20,000 a year. The equipment will last more than 25 years, so for our analysis we will make the investment horizon 25 years and assume that energy costs will increase at 5 percent a year. During our 25-year investment horizon, our project will save \$954,541.98 and

will provide an internal rate of return of 24.7 percent.

What are the consequences of not accepting your recommendation? \$358,276.64. Let me describe what this number means and then I will illustrate how to calculate it.

If the CEO rejects your project, she will have to put \$358,276.64 into an account earning 5 percent per year for 25 years to offset the savings you would have achieved with your project. Now, if we convert that savings into an equivalent amount of revenue, assuming a total margin of 3.9 percent — the median for U.S. hospitals — your CEO will need \$9,186,580.51 in additional net revenue

that year to fund that \$358,276.64.

The number crunching is straightforward. I took the \$20,000 a year in energy savings and increased it by 5 percent each year for the increase in energy costs. Then I discounted that cash flow at 5 percent to get the present value of the 25 years of energy savings (\$458,276.64). Subtract from that the \$100,000 initial investment and you get \$358,276.64 — the project's net present value.

Q: *Why should people in the industry care about creating sustainable hospitals when the focus should be on healing the patient, not the environment?*

A: It has been my observation that

health care organizations that are concerned about their impact on the environment tend to do a better job healing their patients. The people that run the Fred Hutchinson Cancer Research Center, Seattle have a great perspective on this issue. Every dollar they can save is another dollar the “Hutch” can invest in cancer research. ■

Send us your inquiries about health care facility design, construction and operations. Please send your questions to Michelle Murphy at michelle@emlen-pub.com with “Expert Question” in the subject line.