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## REFERENCE

Michael J. Crosbie is a senior associate with Steven Winter Associates Inc. (an architectural research and consulting firm) and the chair of the Department of Architecture at the University of Hartford.

## FACE OF THE AIA

## SUSTAINABILITY

## The True Cost of Green: What's Your Baseline?

by Michael J. Crosbie, PhD, AIA

**Summary:** If you are an architect who offers sustainable design services, you have no doubt been asked: "How much more will a green building cost?" The assumption on the part of most clients is that there will be a surcharge for building green. A few studies have turned up evidence that the cost impact may not be as bad as most clients might imagine.

In 2003, the Sustainable Building Task Force of the California State and Consumer Services Agency released a study, The Costs and Financial Benefits of Green Building. The study, which focused on construction costs only, used the LEED® rating system as the basis of determining what a green building actually is. The report noted that a sustainable building could be achieved with little or no increase in construction costs and that a minimal "upfront investment of less than 2 percent of construction costs yields life cycle savings of over 10 times the initial investment."

## Where do you start?

The tricky issue of cost impacts for sustainable building, however, is where you start. A cost "premium" of 2 percent, for example, is not translatable to a building that is barely meeting the energy code as built. Determining a "green surcharge" would be relatively easy if all buildings were constructed at the same level of quality, but we know this isn't the case. So, to the client's question of "What's it going to cost to go green?" the architect must ask the client a question: "What's your baseline building cost, and how accurate is it?"

In terms of energy performance, a common baseline is the ASHRAE 90.1-2004 Standard. Many clients will report that this was the baseline for their last building, and conclude (erroneously, it might turn out) that a green building can be achieved by adding 2 percent to the construction budget (according to our example above).

What many clients do not understand is that even though they may have intended to meet the ASHRAE 90.1 Standard in their last building, they might have missed documentation of what was actually built compared to what the Construction Documents called for.

To really understand how the building is performing in the field, you need to develop a testing protocol and carefully monitor the building as it was constructed and commissioned. (The client might have not had the building properly commissioned, which will add another layer of mystery to its actual performance.) Results of monitoring over a certain period would then have to be analyzed to determine performance. Without such data, it is difficult for a client to argue that their last building met ASHRAE 90.1 or not.

**Even though clients may have intended to meet the ASHRAE 90.1 Standard in their last building, they might have missed.**

### A moving target?

If the building doesn't meet the standard that the client believes it does, then achieving a green building that goes beyond the ASHRAE 90.1 standard will probably cost more than the client thinks. In fact, there might be a healthy premium simply to meet the baseline that the client believes they've already met. And for many clients, the baseline is a moving target. Whether it is actually achieved will vary from building to building depending on the program, location, developer, contractor, building official, etc. Long story short: most clients have incomplete information about how their buildings are actually performing, and what standards they really meet.

The approach we have taken as green consultants is to nail down the baseline early in the process through careful examination of the client's previous projects. With the baseline set, and a better understanding of whether the client is meeting it or not, what is necessary to achieve a sustainable building that goes 10, 20, or 30 percent above this baseline can be determined, and the associated costs can be gauged.

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