the economics of green design:

Can We Afford to Ignore It?

By KIRSTEN CHILDS, ASID

The "green" movement in design and architecture took noticeable shape following the completion of the construction of the Natural Resources Defense Council (NRDC) headquarters in 1989 and the Audubon House in 1993, both in New York City. More than 10 years later, these projects continue to set standards for energy conservation and environmental quality in the built environment.

While demonstrating long-term cost savings and addressing issues of productivity and human well being, projects like the NRDC headquarters and Audubon House did in fact have some "first-cost" premiums associated with their construction. The reasons are clear: few environmentally sensitive products and systems existed, and developing technologies, along with lack of competition, made those available more expensive. Energy "simulation" or modeling, the essential tool now used to optimize building performance, was an additional non-traditional expense for the professionals involved in these projects.

Meanwhile, the business model in the U.S. at that time focused entirely on "first cost," reinforcing the development and construction of the least expensive houses, commercial buildings, retrofits and interiors. In other words, if it was cheap, it got built with little or no consideration of operational and renovation costs down the road.

Available studies confirming the measurable, qualitative benefits of high-performance design were hard to find. Glitzy buildings were built with exotic marble and bronze detailing in the public spaces, which were actually the worst buildings the prevailing code would allow. Features that exemplified this first-cost-driven philosophy included cheap, often toxic materials and 'leaky' construction, poorly designed and controlled HVAC systems—which also contributed heavily to global pollution—minimal ventilation and/or fresh air, and often little or no access to daylight. And we wonder why "building-related illness" and "sick building syndrome" have become common terms in our time!

We are still battling this business model today. Individuals who do not have the ongoing responsibility to run a building efficiently, address the continuous need for repairs resulting from poor workmanship or pay the fuel bills, and have no interest in productivity or how people live and work in

> The first cost of commercial building combined with the maintenance and operations costs over a 30-year span are less than 10 percent of the total lifetime costs of a building. Personnel costs equal 92 percent. From this perspective, keeping the occupants healthy and productive makes strong business sense.
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> JOSEPH J. ROMM, LEAN AND CLEAN MANAGEMENT, KODANSHA INTERNATIONAL, 1994

The EPA estimates that "sick building syndrome" costs the economy $60 billion in lost productivity and increased health care cost.

structures, continue to question the economics of green design.

"If you want a cheap building, you get a cheap building, only it won't be cheap to operate," noted Steven Winter, president of Steven Winter Associates and chairman of the U.S. Green Building Council, in an interview for *Building Operating Management* in November 1999. He went on to say: "Most people think green buildings automatically increase the cost of the building, sometimes dramatically. That is not necessarily true. While there might be some incremental cost increases, the net cost can be a positive one."

While some systems like renewable energy (building integrated photovoltaics, bio-fuels, hydrogen fuel cells, etc.) and gray water systems do still carry a first-cost premium, many basic sustainable design strategies—those everyday systems and materials that many architects and designers are now employing on a regular basis—don't add one penny more to construction costs compared to conventionally designed buildings. We now also have the means, the methodologies, the technologies and, most importantly, third-party substantiation to support this statement. Recent studies, undertaken by groups such as the Rocky Mountain Institute and discussed by such luminaries in the field of biophelia as Judith Heerwagen, Ph.D., document and quantify the inherent human and economic value of green design. And there is a growing commitment to green design from professionals. Indeed, there are few self-respecting architectural and/or interior design firms in the U.S. that do not, at the very least, say they employ green design principles.

With contemporary technology, it is relatively simple both to achieve and quantify energy conservation in buildings. Today's designers also have the means to manipulate multiple options—building orientation, glazing, thermal insulation, lighting systems, etc.—and to specify any number of readily available, enhanced building materials and systems to achieve energy savings in the magnitude of 40 to 75 percent over code compliance.

This reduction in energy use also allows savings in equipment costs because less equipment, ductwork, piping, etc. are needed. Less use of fossil fuels also reduces global atmospheric gases that interfere with the natural climate cycle, destroy habitat and poison our water.

Although it is more difficult to quantify productivity gains, which derive from less hard data such as aspects of human comfort and well-being as well as reduced errors and absenteeism, studies show that these gains represent many times the savings realized through energy conservation. Increasingly, actual case studies are dramatically demonstrating this important economic factor. In *Cool Companies*, Joseph Romm presents a series of case studies of organizations that have consciously used building design to foster strategic goals, such as increased productivity, reduced operating expenses and improved corporate image, noting that many of these companies cite building design as a factor in their concerns over attracting and retaining high quality workers.

With the help of programs that promote awareness, such as the U.S. Green Building Council's (USGBC) LEED Rating System and the AIA's COTE Awards, the building community will soon come to the same conclusion: the economic and qualitative advantages inherent in green design can no longer be denied. Green design is worth it! ❍

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*After working with a number of distinguished architectural firms including Skidmore, Owings & Merrill and Richard Meier Associates, **Kirsten Childs**, ASID, joined Croxton Collaborative Architects as director of interior design in 1985 where she played a key role in developing the company's sustainable agenda. Childs has received national recognition from several professional organizations including ASID, which she represented at the "Greening of the White House." She continues to represent ASID at sustainable symposia across the country and has published numerous articles in professional publications. In 1989, she directed a team of professionals in the design of the NRDC, which was acknowledged as the first recipient of* Interiors *magazine's Award for Socially Conscious Design in 1990, and subsequently received the AIA National Award for Environmentally Sensitive Design in 1991. Childs is a LEED Accredited Professional, a member of the USGBC LEED 3.0 Steering Committee and chairs the LEED 3.0 Interior Environmental Quality Section.*