

AIA News

Leading by Design

An interview with 2001 Thomas Jefferson Award winner Terrel Emmons, FAIA

by John Simpson, Associate Editor



Q. Was there an epiphany of some sort, or a project you worked on early in your career, whereupon you realized that sustainable design was the way to go?

A. The most significant event was probably reading some of the writings by Amory Lovins of the Rocky Mountain Institute, and then hearing him in person back in 1994. Amory's position, which he defended extremely well, was that sustainable design did not necessarily have to cost more up front if the concepts of "integrated design" were employed during the design process. The Navy at the time was very interested in becoming more environmentally responsible in its facilities programs, but the commitment of significant additional funds that would increase the cost of construction was not something that was likely to happen.

Q. Does the Department of the Navy's adoption of sustainable design principles in its buildings extend to retrofitting existing buildings or is it just for new construction?

A. The concepts of sustainable design apply equally to new construction and to renovation and the reuse of existing buildings. In fact, reusing existing buildings is itself a sustainable action. There are some strategies that are difficult to employ, however. This difficulty could be based on cost considerations or aesthetic reasons, especially in the case of historic structures, where disturbing aspects of the building's exterior may not be a permitted option.

Q. The sustainable design program you installed at the Navy provided critical evidence of the ability of a federal agency to construct high-quality, energy-efficient buildings without increasing upfront costs—and helped inspire President Clinton to mandate the use of sustainable designs at all



PHOTOS COURTESY OF THE AUTHOR

The Park Service's Terrel Emmons, FAIA.

federal agencies via his issuance of Executive Order (EO) 13123, "Greening the Government Through Efficient Energy Management" on June 3, 1999. Is there a chance that this mandate for green design will be reversed or undone by the current or future presidential administrations?

A. Executive orders are not law, but they do express the desires of the President with respect to how his branch of the government is to carry out its mission. EO 13123 was very significant in that it pointed the entire government in a specific direction. Some agencies were already moving in that direction, but many others were lagging significantly behind. The EO has moved sustainability to the forefront for many agencies. We were excited to see the President recognize the leadership of the Navy and a few other agencies. Once it is realized that a significant number of sustainability features can be incorporated into buildings without necessarily increasing first cost, with the result being reduced energy use and a wide range of other positive environmental initiatives, it becomes the smart way to design. These are concepts that can easily be supported by any administration.

Q. How do you measure the effectiveness, on an agency-wide basis, of the use of sustainable design principles? Is this best done by quantifying the energy saved? The money saved? Is the latter easily quantifiable without resorting to building life-cycle costs, which are sometimes viewed with skepticism?

A. There must be a comprehensive and objective means for measuring how well we incorporate sustainability concepts into our buildings. Fortunately, the LEED (Leadership in Energy and Environmental Design) Green Building Rating System, as developed by the U.S. Green Building Council, has emerged as the de facto standard, especially within the government. We can benchmark the degree to which we are making our buildings "green," measure progress as we get better at this, and most importantly as own-

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ers identify standards that we expect the A/E community to attain or exceed in their designs.

Clearly, energy measurement can be the most scientific, and the resulting savings are most easily understood. Documenting improved productivity of building occupants as a result of improved interior environments is more difficult. Similarly, measuring the life-cycle impacts on ecosystems as a result of the mining or harvesting of raw materials and their conversion into building products is difficult, especially when making comparisons between competing products. However, if we look at nothing but energy savings, the argument for sustainable design is overwhelming. Then the other benefits can be viewed as getting a “free ride,” and the debate on their validity becomes unnecessary.

Q. Why has sustainable design traditionally been a hard sell to the public? Is it the perception that it's a costlier way to construct a building? And is that a correct perception?

A. Up until the mid-90s, those few buildings that incorporated sustainability features generally cost more to build. So the knock on sustainable design followed naturally. When the Navy looked for examples of where Amory Lovins' theories had been carried out, we found a few, but no program on the scale of the Navy's annual construction program, and certainly no program that dealt with a wide range of common, everyday facilities. The three-year Pilot Project Program that we carried out between 1995 and 1997, wherein we consistently demonstrated that a substantial number of sustainability features could be incorporated into buildings regardless of their size, location, or function, as measured against the LEED criteria, took on special significance. It proved to other federal agencies that this could be done and led directly to the development of EO 13123.

Q. What can you tell me about the costs of constructing a building using sustainable principles versus constructing buildings in the traditional way? Typically, how soon can building owners expect to recoup the additional upfront costs?

A. If the concepts of “integrated design” are employed, one does not need to spend more to obtain a “green” building. As a result of our Pilot Project Program, we became so convinced of this, the policies I wrote in early 1998 made it mandatory that every project in the Navy (hundreds a year with total program cost in the billions) would incorporate sustainability concepts with no increase in first cost. While it varied from project to project, the minimum expectation was “Bronze Level” under the LEED criteria, with selected projects attaining the “Silver” or “Gold Level.” Therefore “recouping costs” became a nonissue.

Q. How did the partial adoption of design-build at the Navy affect your ability to use sustainable design and keep expenses associated with sustainable design construction in the tolerable range?



Right, NAVFAC's Building 33 before it's renovation; above, the finished product.



A. As I indicated when I addressed the Design-Build Institute of America national convention in 1999, design-build contracting currently offers some special opportunities to maximize the extent to which sustainability features are incorporated into a building. While the A/E community has made great progress in the last couple of years in its understanding and application of sustainable design, the construction side of the house lags considerably behind. When a designer had really “pushed the envelope” in their design, our experience was that most contractors were unfamiliar enough with some of the new materials and systems that their bids came in higher than projected. As a result, some of the best designers were becoming somewhat conservative in their technology proposals to avoid bid busts.

In design-build, where team members are working together throughout the project, the costs associated with various technology alternatives are better understood. With a ceiling es-

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established on project cost, thereby causing all proposals to be within budget, and with little likelihood of significant change orders, a sort of competition is created between the final few bidders as to which one can deliver the best project within the established budget. Where sustainability features have clearly been identified as a major aspect of how projects will be evaluated, proposals have often exceeded expectations in this regard. Design-build also allows one-of-a-kind products to be used by the government, since requirements are generally performance based in lieu of a prescriptive project specification where multiple manufacturers of a given product would be a government requirement. All of this is not to say design-build is always the best approach; there are other considerations. But the approach does have special advantages from a sustainability standpoint.

Q. Is there one project that stands out in your mind as one that you're most proud of?

A. Building 33, the headquarters building of the Naval Facilities Engineering Command, my former agency, was one of the original pilot projects, and the very first one in the Navy where a sustainability charrette was conducted to redirect where design throughout the Navy (and ultimately the federal government) would go. While there were limitations on the extent of sustainability features that could be incorporated, due to the project being a National Register historical property in a historic district, as our own headquarters facility, it clearly conveyed our ideals and aspirations.



Interior of the refurbished Building 33.

Q. You've had success building consensus for the use of sustainable design in federal facilities. Is it more or less difficult to get the ball really rolling toward acceptance of sustainable design in the private sector? If it's more difficult, what will it take for the private sector to accept sustainable design on a more widespread basis?



Emmons' purview is now the National Park Service, whose newest project is the energy-efficient visitors' center at Zion National Park, Utah.

A. When the Navy put out its sustainable design policies in June 1998—the first federal government agency to do so—Environmental Building News, reporting on the event, called it “one of the most significant developments in green building in recent years” and went on to note that, “This could be a very significant shot-in-the-arm for green building and a strong incentive for mainstream A/E firms to take green design seriously.”

With other federal agencies joining our ranks over the next couple of years, culminating in EO 13123, we did get the attention of the construction community. Ten percent of all construction in the United States is funded by federal agencies. State and local governments often follow the federal government's lead, so the overall impact is significant. With the private sector—the other two-thirds of

construction in the U.S.—too often owners are not demanding that their designers utilize sustainable design principles in their design. Therefore, the real burden is on the A/E community, and specifically the AIA, to move the entire profession to where it needs to be in this regard.

Q. You moved on about a year ago to the National Park Service. Did you feel you had done everything that you needed to at the Navy and had bigger fish to fry?

A. One thing we did right in the Navy, from the beginning, was to build grassroots support for sustainable design. Early on, we held three- and four-day workshops in our field offices—where the real work is done—to: (1) educate our people using many of the top experts in the country, and (2) allow our field personnel to generate the ideas and proposals for where we should go as an agency. I could never have sat in Washington and dictated that we make such a major course correction, no matter how correct that decision might have been. Therefore, the Navy's leadership in sustainable design has not resided at the top of the pyramid, but has been a shared responsibility throughout the agency. Consequently, once we had institutionalized sustainable design in the Navy through the 1998 policies, my departure in late 1999 hardly caused a ripple.

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The National Park Service offers many unique leadership opportunities for an architect. At the head of the list is sustainable design. It is certainly the only agency whose purpose for existing essentially incorporates the tenets of sustainability—preserve and protect the natural, cultural, and historic resources of our country. My responsibilities in the Park Service are much broader than just sustainably designed facilities, so it has been a natural progression.

Q. What are your biggest priorities for implementing sustainable design at the Park Service?

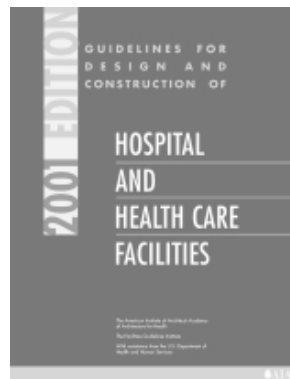
A. I am especially excited about the educational opportunities within the Park Service. We have over 300 million visitors each year to our national parks, and it is often a captive audience interested in learning about our great country. What a perfect opportunity to communicate sustainability issues. In the past, visitor centers or other similar facilities were created to house exhibits. We are now evolving to where, for a selected number of parks throughout the country, the building and site development itself will be an exhibit that demonstrates the use of materials, systems, and design features that demonstrate sustainability as it relates to the local and regional ecosystems.

One such facility, the Zion National Park Visitor Center, just opened this past year. Not only does the building itself incorporate state-of-the-art sustainability

features, but also the entire park builds on this theme, as demonstrated by the propane-powered bus system that has replaced the choking, clogged roads in the park. An educational program prominently featured in brochures, and accompanying markers throughout the visitor center and site, educates visitors as to each sustainability feature and its greater impact on our environment. Similar projects are under design elsewhere. Could an architect ask for more? ■

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