

Responsible Government

Stewardship through the “greening” of public assets and services

By J. Patrick Farley, AIA

We live in times of great change. Energy markets are increasingly volatile, weather-related natural disasters are on the rise (attributed by a majority of the science community to human-induced global warming), and the presence of industrial toxins in our air, water and soil is making for some intense discourse from the coffee shop to Capital Hill as citizens become progressively more aware of the ramifications. In no other arena is the environmental correlation of these issues more prominent than in the building industry. The construction, operation and maintenance of buildings in the U.S. annually draws down roughly 40% of our raw materials and energy, contributes about 35% of total atmospheric emissions (NO₂, SO₂, & CO₂), uses 25% of our wood, and close to 16% of our water. When considered on a life-cycle basis, buildings not only dominate energy consumption, but exact a toll on finite natural resources well beyond that of other human endeavors. Moreover, the built environment impacts not only personal health and well-being but that of entire communities, and therefore, the whole planet. Over the past 30 years or so – and especially over the past decade – awareness of these interconnections has taken hold in real and meaningful ways, not just within the design and construction professions, but across the broad spectrum of players involved in the development of building projects. In particular, government and its public agencies have taken on a significant role in what is commonly referred to the “sustainable” or “green” building movement. The impacts to the positive are proving their worth and giving further credence to the notion of ‘stewardship’ - - a much-needed shift, considering the size and complexity of the typical public project multiplied by the sheer number of them occurring at any given time across the country.

The case for “green” design

The average American spends approximately 90% of his or her time indoors, so it stands to reason that the quality of the interior environments we create is paramount within the process behind their implementation. Spaces for living and working that are designed with an elevated regard for ergonomics, air quality, thermal comfort, balanced lighting and, of course, function, are inherently more conducive to

lower absenteeism and higher productivity - - studies can be cited as proof, but there's also a certain intuitive logic at the heart of it. Furthermore, in order to achieve at least some of these results *inside* a building, as much (if not more) attention must be directed toward the *outside* – or otherwise to those components or systems not visible or exposed to its occupants. Strategic and efficient use of materials, placement of windows, proper ventilation and filtration, effective heating and cooling, and appropriate landscaping are some of the implements of design that have direct effect on the quality of life inside our facilities – no matter the building type. This integration and interconnection between inside and outside also represents the entwinement of buildings with our environment at the macro scale - - though seemingly infinitesimal, every responsible decision we make with respect to our immediate or local condition reduces our impact on the planet as a whole. This is ultimately the hallmark of “green” building, where the design goals throughout the process are heavily driven by the inextricable link between buildings and environmental concerns such as climate change, species loss, deforestation, and human health problems resulting from toxins in our environment.

Buildings built in a ‘sustainable’ manner consider both the upstream (IE – how are a product’s raw materials sourced?) and the downstream effects of choices associated with their design, construction, renovation, operation, maintenance and eventual reuse. Critical within this approach are the intentions to preserve open space and protect watersheds and other sensitive ecosystems, minimize or avoid waste, provide for recycling and use recycled materials, minimize energy demand and incorporate alternative or renewable energy sources, and avoid toxic substances. Green design is not really a new idea, but is one that is taking on increasing urgency in a world of rapid population growth, increasing consumption and diminishing resources, and there is an ever-increasing need for leadership toward more sustainable practices in the public sector.

The case for government commitment to “green” building

Government institutions exist for the sole purpose of ensuring the rights, health and well-being of society. Central to this concept is the responsibility of government to steward public resources not only for the here-and-now, but over the long term – in fact, policy-making, legislation and management of systems and infrastructure strives continuously toward a better future for all. Environmental building is a

means to the same end. Green development practices are arguably the most powerful manifestation of stewardship, both in terms of nature and dollars. It includes explicit goals for sustaining long term capital value and operational efficiency (and the inherent savings), rather than the sort of myopic thinking that tends to dominate “conventional” building practices. An example of this is the installation of cheaper windows regardless of the fact that energy costs over the life of the facility will be greater as a result. From an environmental perspective, this is a form of deficit spending whereby avoidable costs are passed along to future generations so as to capture the benefit of savings for the short term only.

Modern “green” buildings that are designed and built on (at least) a 100 year horizon are inherently different in their conception. They are not only healthier places to work, low on energy needs (possibly energy independent) and longer lasting, but they have been considered with respect to their “next life” - - that is, what happens when the current need takes a dramatic turn? What happens when a government agency is no longer needed or simply outgrows its current confines? Though often not considered as such, one of the most sustainable or “green” decisions that can be made with regard to building is to avoid new construction in the first place. Retaining existing building stock and rejuvenating it through renovation, restoration, preservation, and/or expansion equates to land conservation (aside from the obvious on-site benefits) and is certainly a strategy that is advantageous with respect to the ever-thinning taxpayer dollar. But, with each project in the new construction arena, government has an opportunity to ensure that this “long view” mindset becomes a given in future capital outlays - - one could consider it a new paradigm, where buildings are considered ‘evolutionary’ and have many lives; it’s a new take on preservation, inspired by the notion of “feedforward” thinking (versus “feedback”), where a little innovation at the front end “feeds” future operations in such a way that everything has built-in flexibility and nothing is thrown “away”, as is all-too-common today. Whole buildings can be constructed in such a way that they can essentially be “disassembled”. Structural, mechanical and other systems are designed with this future in mind. “Systems” furniture (those ‘cubicles’ of various shapes and sizes that dominate office environments around the world) is geared toward this end – they tend not to wear out so much as “ugly out” so they are designed to be refurbished, recycled or otherwise rearranged to serve a renewed purpose. Similarly, it has become common in the “green” world for office buildings (even speculative projects) to be built with “raised access” floors to more effectively allow for the “churn” endemic to this

sector – electrical, communications and even air delivery systems need to be altered regularly (especially in leased spaces) and can be designed with a sort of “plug and play” mentality. Compared with the more conventional approach whereby buildings are “gutted” and the material is sent to the landfill, this approach yields significant bottom-line savings both economically and ecologically.

Drivers in the ‘Movement’

The momentum within the current environmental building movement can largely be attributed to the work of the U.S. Green Building Council (USGBC). Over the past decade, the Washington D.C.-based non-profit organization has become the point-source for education and advocacy across the nation and, less than two years ago, helped initiate the international version – the World Green Building Council. The USGBC comprises a coalition of leaders representing a cross section of the whole building industry whose mission is to “promote buildings that are environmentally responsible, profitable and healthy places to live and work”. Forging strategic alliances throughout industry and at all levels of government, their efforts are consensus-oriented, member-driven and committee-based. Aside from staging workshops regularly across the country as well as an annual conference and expo, the USGBC launched – in 1998 - the Leadership in Energy & Environmental Design (LEED) rating system. A voluntary program that is now largely considered the gold standard around the industry, LEED was developed by the USGBC to provide a measuring stick for defining “green” buildings. With areas of evaluation that cover site development, water efficiency, energy & atmosphere, materials & resources, indoor environmental quality, and innovation & design process, LEED connects performance standards with quantifiable results that will benefit building owners and occupants over the long term. The surge within this movement – especially with respect to LEED itself – has been impressive. Founded in San Francisco in 1993, the USGBC has seen its growth skyrocket from a little over 100 members in 1999 to currently over 3500 member organizations representing a broad spectrum: architects, building owners, designers, education institutions, engineers, environmental non-profits, general contractors, government agencies, product and system manufacturers, nonprofits, real estate developers, subcontractors, urban planners and utilities. When initiated in its pilot stage, LEED covered only new buildings. Points are awarded based on achieving certain benchmarks within the evaluation areas mentioned previously. Depending on the

outcome, a certification can be granted at one of 4 levels: basic, silver, gold and platinum. There are currently over 100 certified projects (though only 6 have attained platinum level) across the country and even more in the certification "pipeline". This number grows daily and will only increase further as the LEED system evolves. No longer is this rating system limited to new construction. With several versions currently in pilot phase, LEED will ultimately encompass the entire range of project categories: new construction & renovations, existing buildings, commercial interiors, core & shell (geared toward developers), neighborhood developments and homes. Furthermore, to reinforce LEED's power and reach - and to serve as the centerpiece of its education program - the USGBC launched its Accreditation program in 2001. Any individual associated with or employed by a member organization can become a LEED Accredited Professional by taking a proctored exam to test their familiarity with "green" design and building as well as their in-depth knowledge of the LEED Rating System.

Other similar efforts are being undertaken by the government sector at all levels to demonstrate the value and commitment to the technologies and practice of green building. At the Federal level, the Department of Energy (DOE) leads the charge. Teaming with EPA, its Energy Star program aims to reduce energy consumption in buildings, both in terms of installed equipment as well as the building itself - - commercial buildings and homes can qualify as Energy Star rated, based on the savings they offer. In a cooperative with the National Association of Counties, the "Courthouse Campaign" program was recently launched to promote more energy efficient and environmentally sound county facilities. Another DOE program, Rebuild America, forges partnerships with organizations as well as whole communities - from small towns to entire metropolitan centers - to focus on energy efficiency and better building practices. Its Million Solar Roofs Initiative leads DOE's effort to assist with the placement of one million solar energy systems on the roofs of buildings across America by the year 2010. To bolster this effort, the first Solar Decathlon student competition was held in 2002 (the next installation will occur in 2005) to promote the most environmentally effective and aesthetically appealing solar-powered homes. And not surprisingly, the National Park Service - with its Sustainable Design Initiative - is headed toward full commitment to environmental integrity in all aspects of its operations.

The means are also available to make the transition to healthier and more cost conscious operations in all buildings - especially those supported by taxpayer dollars - more achievable. Use of Energy Star

rated office equipment (computers, copiers, printers and appliances), purchasing high-recycled-content paper supplies, using soy-based inks, double-sided copying & printing, using video-conferencing in lieu of travel are all relatively “easy” changes to implement. In essence, the commitment to elevating the design and construction of whole buildings to a more sustainable level is simply an extension of these sorts of measures to a much larger scale.

Leaders in the ‘Movement’

In the fall of 2002, the nation’s largest landlord – the General Services Administration - made the official commitment to achieving environmental and economic balance across the board. All projects the GSA’s 2003 budget had a stated goal of achieving a LEED Silver certification. It took the better part of six years - beginning with a Federal courthouse in Denver, Colorado - but this agency realized early on the benefits of green buildings to its tenants (mostly government workers) - - healthier places to work translate to more productivity in addition to lower operating costs and longer lasting facilities. Along with the GSA, the Navy and other branches of the Armed Services have committed to “green”. Long known for the efficacy with which they perform, the military has taken to LEED as a real tool to further sharpen operations for sustained benefit to their own as well as to those of us they are charged with protecting.

Local and state governments are also following suit. Across the country, environmental building policies and programs abound. Seattle has its “Sustainable Building Policy” which heavily emphasizes LEED; Portland is one of the true leaders in municipal commitment with its LEED-based green building program (in fact, the upcoming USGBC conference, “Greenbuild” is to be held there this Fall); San Jose, Boulder, Denver, Austin, Texas, Scottsdale, Chicago, and a host of other areas all have similar high-commitment and well-established initiatives and programs. At the state level, New York has instituted its State “Green Building Initiative” with tax incentives for developers and builders of environmentally responsible projects. Recognized as a leader in adopting sustainable building practices for facilities used by state government, Pennsylvania has 47 projects either in use, under construction or being planned using LEED. It also was the first state government in the country to purchase green power. It has mandated that no less than 5% of all electricity used by the state government be provided by “green” sources such as wind, solar, landfill gas or hydroelectric.

In our own state, Arlington County has required public projects to follow LEED guidelines for about the past 6 years – they now require developers to use the LEED ‘Sustainable Sites’ score card when submitting site plans for review, in addition to documenting other environmental strategies in their project. To encourage the commitment to better practices, the County requires developers to pay into a green-building fund which can be avoided if LEED certification is achieved. Furthermore, limits on certain floor area requirements are relaxed to provide additional incentive to meet the standards.

Universities across the country (many state-owned and subsidized) have begun to require LEED as the benchmark in their capital projects. Here in Virginia, Old Dominion University is awaiting evaluation of its new Engineering and Computational Sciences Building for LEED Certification and is in planning stages for other facilities with LEED aspirations. Additionally, the University of Richmond recently completed a new academic building that is currently being evaluated for LEED certification. In fact, the University’s master plan now requires achievement of the highest environmental goals possible with each new project.

At the current rate of progress, there will come a day in the foreseeable future when it is no longer necessary to distinguish between “green” design and good design, when *anything but* sustainable building will be considered out of the ordinary – and in fact, will be frowned upon as “cheap” and short-sighted. Recognizing that our built environment has major impact on natural systems is the first step toward this end; the understanding that human systems and the natural world are intertwined in such a way that what we do to one, we do to the other is beginning to manifest itself in the form of better building practices across the country. Design is primarily driven by the desire to improve quality of life. Whether it occurs at the “grass roots” level or government level, environmentally-minded design is intensely centered on this goal. Individual citizens have major impact on the marketplace, but government has the ability to raise the bar to a higher level in that it can affect policy making and laws through its own actions and commitments. When planning and constructing new buildings, government entities can simultaneously enhance their stewardship of public resources – both financial and natural - through a sustained reduction of operating costs while providing environmental leadership as a net benefit. It is in this context that the goals of good design and government’s purpose coincide in an extraordinary way to provide for the rights and common good of society as a whole over the long haul.

For over a thousand years, the Iroquois Nation has lived by the declaration that “*in our every deliberation, we must consider the impact of our decisions on the next seven generations*”. In fact, our own system of government owes a great debt to the Iroquois form of representational democracy, which inspired Jefferson, Madison and Franklin in their conception of the U.S. Constitution. This notion of a long term relationship between governance and ecological health served as the foundation of an entire culture – and in fact, the sensitivity to future generations’ rights defined the very context of policy-making. In the modern world, sustainable development and green building are the current medium for this practice. Waste stream reduction (or elimination), water efficiency and quality, energy efficiency and alternative energy usage, resource efficiency and forest stewardship are a few of the touchstones that signal the intention to respect the rights and needs of our descendants. However, this does not demand a compromise of provisions for the current generation. Designing out waste, inefficiency and negative health effects will result in cleaner air and water, reduced dependence on foreign energy, enhanced productivity along with all the attendant economic benefits. As this commitment propagates through society, it not only benefits more and more Americans, it will have global impact; hence, better design has the capability to reverse the negative effects of our current practices on other parts of the world.

Environmentally responsible public buildings represent the best of society’s intentions. They are the physical manifestation of our desire for stronger communities with sustained value. The structures we build should exemplify our recognition of not only the necessary balance between economics and ecology, but the interdependence of people’s and planetary health. A government with these values fully integrated at all levels is truly functioning with the ultimate sense of stewardship.

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