



Green, Sustainable or High Performance? Knowing the Difference and Managing the Risks

Ujjval K. Vyas, Ph.D., J.D.

Introduction

It is hard to escape the media barrage involving “green.” For the last two years, *The Economist* has produced special sections on climate change and green business practices. Sustainability, another common term for green, has become a regular topic in corporate boardrooms and in the *Harvard Business Review*. In September 2006, CalPERS, the largest pension fund in the U.S., joined with Hines, a major real estate company, to create the Hines CalPERS Green Development Fund, a closed fund with \$120M in equity and a leveraging potential of over four times that amount. The fund specializes in developing and purchasing sustainable buildings certified using the Leadership in Energy and Environmental Design (LEED) Core and Shell product developed by the United States Green Building Council (USGBC). Suffice it to say that when the largest pension fund in the country is investing in sustainable buildings, the ground is changing rapidly.

Before “green” entered the mainstream, little attention was paid to how the construction process was changing or to the context within which the players were responding to pressures for green project goals. Investment portfolio managers, lenders, appraisers, developers, private and public owners, design professionals and consultants of all types, contractors, subcontractors and facility managers all have different reasons for pursuing green, but increasingly each is responding to the changes, for better or ill.

Defining Green

While the terms “green,” “sustainability” and “high performance” are all used interchangeably, they have different definitions as applied in the construction

arena. The term “green” is derived originally from the Green Party in Germany, which was ideologically driven by environmentalism, pacifism and an anti-nuclear-power position. Green is commonly associated with use of the precautionary principle as a decision-making mechanism. It has now become a generic word that is applied to a dizzying array of products all seeking to tap into this growing market.

Green building is an attempt to develop, design, construct and operate buildings in a manner that reduces the use of natural resources and energy from fossil fuels, encourages recycling of construction materials and waste, and ultimately develops land in a manner imagined to be less injurious to the natural landscape and community resources. On the other hand, it is also characterized by ideologically or politically motivated disregard for economic or scientific verification, which means there is also less concern with actual performance.

“Sustainability” is at least partially interested in the economic issues, if only to deploy the marketing of green for financial gain. Sustainable building is often an attempt to distance the project goals from the purely ideological props of “green.” Sustainability also is used when discussing corporate responsibility with regard to the so-called “triple bottom line”—where environmental and community impacts are considered in addition to economics. Even so, sustainable buildings as currently produced often do not concentrate on measurable and verifiable performance improvement, since failure to achieve the performance could damage the marketing goals of the project for the owner or concerned entity.

“High-performance buildings,” on the other hand, provide measurable and verifiable improved outcomes. In essence these are building assets for which the owner puts in place contractual schemes to create an enforcement/incentive structure to achieve appropriately benchmarked improvements guided by economic and technical information. Normally this type of building uses prudence as its guide and employs a meaningful cost-benefit analysis based on objective information. High-performance buildings often use performance contracting or design-build delivery mechanisms and are driven by a full integration of the contractors and design professionals from the earliest phases of the process.

It is important for construction project participants to keep this full spectrum of green in mind since a primary risk in this arena stems from the mismatched expectations of the parties. When an owner says he wants green, he may be under the impression that some type of performance will be delivered for the added costs. As we shall see, an architect promulgating green may have little concern for the ultimate performance of the building.

As owners are becoming more convinced that performance improvements or benchmarks can be proscribed for a building project, they are coming to demand a different set of options to the business-as-usual contracting and process schemes. For these highly motivated owners a contracting and risk analysis is vital to obtaining their desired outcomes.

In the following pages, I will use “green” as a generic term that covers all three of these and more specific terminology when necessary.

Four Factors Driving the Green Trend

The interaction of four important factors created the perfect storm for green. Each in and of itself, nor even in combination with one or two others, would have been enough. All four had to be present to lay the groundwork for the current green trend: advocacy, technology, politics and economics.

The original advocates for green building were architects and a few engineers from the early 1970s and the Earth Day generation. This advocacy did

not result in a significant number of either residential or commercial buildings. They did have some impact on the move towards more insulation and tighter building envelopes as a result of the OPEC oil embargoes and subsequent high volatility in oil prices. It was these advocates who originally formed the American Institute of Architecture’s Committees on the Environment at the national and chapter level. Since then, a small segment of radicalized architects have always been advocating for changing the built environment to include environmental and resource usage issues.

The debates around global climate change and the focus on CO₂ as a primary indicator of fossil fuel usage and harm to the global climate created a direct link to the building sector. It has become commonly accepted that in developed countries, up to 40% of all energy use is dedicated to heating, cooling, ventilation and lighting of buildings. This energy use is directly tied to fossil fuel use, especially coal-fired power plants, and the concomitant CO₂ emissions. Thus, a decrease in energy use by the building sector will have a direct impact on global warming potential. We won’t wade into the global warming debates here, but it should be clear that the overlap of advocacy for global climate change and the architectural profession will have a substantial impact on the way the building sector perceives its role and goals. Architects have traditionally accepted and nurtured a view of their profession as participating in a salvational endeavor and its individual practitioners as a group discharging a special mission.

I presented at the 2007 National AIA convention, which had the theme “Growing Beyond Green.” In point of fact, the conference was evidence of a transformation in the architectural field. Five years ago, perhaps ten percent of architects identified themselves as driven by environmentally conscious design. Now most architects would say they have a serious interest in this area, whether or not they are truly knowledgeable. The AIA Documents Committee, which released a new set of standard documents in fall 2007, is seriously considering the addition of provisions that directly speak to architects’ responsibility for environmental issues. The AIA has joined what is called the “2030 Challenge” to drastically reduce carbon emissions through building design and it now promulgates

green or sustainable design at every level of the organization. Architectural journals, schools, organizations and websites of every stripe have fully embraced green architecture.

Technological changes in the construction industry have played a vital, though small role in the coming of green buildings. Clearly the invention of new types of glass coatings and assemblies, advanced HVAC delivery, filtering and refrigeration systems, and smaller scale innovations linked to alternative energy delivery allow new design and building geared to environmental and energy concerns. There is a common misunderstanding that the risks associated with green buildings are primarily linked to the implementation of innovative new materials and products. This is in fact not true. Integration of the building envelope system, the structural system, the HVAC systems and other operational systems delivers the actual performance of the building. Both insurers and counsel who are unfamiliar with building science tend to overemphasize the media's fascination with new inventions featured in "cutting edge" green designs. Such a view can lead to misguided counsel to design professionals that they should limit any independent review or due diligence for the use of products.

Although technological advances in the construction industry have not been as important as advocacy or politics, they have played an important role in capturing the imagination for possible novel means of delivering energy without the use of fossil fuels. Wind turbine power, biomass, photovoltaics and other alternative energy systems have made substantial technical strides towards viability. Even so, some alternative energy generation systems may lead to serious revenge effects. For example, biomass is changing farming practices and skewing the markets for corn and soybeans.

The political environment for green building has radically changed in the last decade with the direct tie-ins to climate change issues. A similar transformation took place in terms of urban planning almost twenty years ago. Neither the right nor the left was comfortable being perceived as destroying the past or encouraging rapacious "urban renewal" regardless of any actual knowledge regarding the complexities of urban or regional planning. This transformation is characterized by political rhetoric

in which all sides wish to be perceived as environmental stewards.

Green has become akin to motherhood and apple pie. No politician can afford to be seen as going against such platitudes, hollow or not. Through its many agencies, the federal government has taken an important role in promulgating green buildings, especially through the GSA, DOE and EPA. Many state governments have passed legislation that forces buildings built using state funds to attain certain benchmarks of green. Many municipalities and city governments are actively pursuing green building to various degrees. The upshot of all this activity is that green building is becoming entrenched into the regulatory and statutory context for construction projects. Just as one example of the difficulties that an advocacy-based legislative agenda can create, the city council of Palo Alto wanted to force private construction activity to comport with a specific rating system product benchmark. The city attorney rightly cautioned that such a legislative enactment was probably unconstitutional. Much of the legislation currently on the books was crafted with little knowledge of the construction industry or a fully vetted objective analysis for the use of public funds in this manner. This is especially the case when the legislation concentrates on green or sustainable buildings as opposed to high-performance buildings. Only the latter should be considered when public funds are involved, but there appears to be a great deal of confusion among legislators and regulators about the legal and technical processes necessary to deliver high performance. Architects are particularly against regulatory action based on performance since this would diminish the value of design and create insurance coverage issues.

None of these changes would matter much if there was no economic basis for producing green buildings. Claims about the economic viability of adding green attributes to buildings have been made only relatively recently. The first attempt at analyzing the incremental cost increases and possible returns on investment was produced in late 2003 as a report for the California Sustainable Building Task Force. Numerous subsequent studies usually reiterate the information provided in this early study. The results of the study—though the

methodology was suspect—indicated that the incremental cost for producing green buildings using the LEED rating product was somewhere between two and ten per cent. The importance of this is that together with an almost endless stream of conferences, seminars and presentations all over the country that repeat this information, these studies provide the backbone for the so-called “business case” for green building.

Understanding Green Rating Systems

Most green buildings, except for high-performance buildings, often use a rating system product to create marketing buzz and to attempt some benchmarking for laudable goals. Rating systems are essentially lists of “options” which count towards a point system within a limited set of categories associated with the building project—usually site selection, energy, indoor environmental air quality, materials selection, and reuse and recycling. Although there are a number of rating system products for commercial and residential buildings, the Leadership in Energy and Environmental Design (LEED) product developed by the United States Green Building Council has been the most successful in marketing green and generating momentum for this movement.

It is important to clarify at the outset that the value of rating system products is directly related to the goals set by the owner for a green project. If green is primarily used as the basis of an intangible outcome—community buy-in, competitive advantage based on public perception of value, or an aspirational promise of performance—then the rating system product serves primarily as a philanthropic or marketing enterprise. Used this way, rating systems have proven quite useful in convincing both the public and private sectors, especially private philanthropic organizations and foundations.

On the other hand, if green is linked to the performance of the building asset over its lifecycle, then rating systems have proven less useful. Apart from BOMA’s adoption of the Go Green system, which is explicitly structured to provide information that building owners and facilities managers can use to assess and improve building performance, rating systems are not created to deliver measurable

results at this time. In fact, sustainability celebrities such as William McDonough of *Cradle to Cradle* fame refuse to allow their buildings to be assessed for post-construction performance. This confusion between marketing and performance in rating system products can create mismatched expectations and increased risk.

There are several major commercial rating system products in the U.S. and Canada. Each country has its own homegrown product and a newer product attempting to cross the border. The USGBC, which is a 501c (3) not-for-profit organization, initiated a pilot study of its commercial building product through the participation of the GSA in the late 90s. At that time, the head of the USGBC also happened to be a high-level functionary at the GSA and was able to jumpstart the movement via this important participation. The GSA remains committed to some form of green building although in the last few years, high-performance issues have come to the fore. The USGBC has recently licensed its product to a Canadian organization named, aptly, the Canadian Green Building Council. The latter has in essence taken the product whole hog from the U.S. and with a few minor changes seeks to penetrate the market in Canada.

The Canadian commercial rating product, Green Globes, has been in use since 1996 and provides a very similar rating system product to the USGBC system except that it is primarily an online product with a decided concern for ease of use and providing design guidance. Green Globes currently does not have the same brand recognition in the U.S. nor the same number of buildings certified. It should be of little surprise that the two products are so similar (regardless of the marketing animosity). Both were derived from the British BREEAM system and are basically correlating a list of options for the building project with a point-keeping system. Benchmarked amounts of points obtained provide the levels for ratings from one to four globes in the Green Globes system while the LEED system has chosen to adopt the metals theory of worth by designating buildings as Certified, Silver, Gold, or Platinum. The Green Globes commercial product was released and administered in the US through the Green Building Initiative (GBI) also a 501c (3) not-for-profit organization. The latter is currently

taking their product through the ANSI certification process. (A point of full disclosure: I am a LEED accredited professional and served on the finance committee of the US Green Building Council's Chicago Chapter. I am also on the Board of Directors of the Green Building Initiative, the Green Globes licensee in the US, and serve on its Audit Committee.)

It is important to keep in mind that rating system products were developed by activist architects and are overwhelmingly concerned with the design phase of the green building effort. So while certification in each system is a general indication that green issues were addressed in the pre-planning, design and construction phases of the project, both systems are still tied to the architectural profession's view of project priorities. Pre-design phases involving land use, financing, and real estate development are almost completely ignored, and for the most part, so are contractors' concerns or owners' post-construction operational necessities. This is especially the case with the LEED product, which has design professionals as its main champions and constituency in the U.S. and Canada. This bias often results in a disproportionate interest in design rather than the performance of building assets. It also privileges the architect's or design professional's role in the process. It should be noted that the licensees of the LEED product in Canada have adopted the marketing strategy and views of its licensor, the USGBC, by seeking to make the rating product part of legislation at the municipal, provincial and federal levels, either through code changes or legislative fiat. In this sense, LEED and Green Globes are quite different. LEED would like to be seen as initiating a command and control regulatory scheme for real estate assets and building projects of all types. Green Globes, on the other hand, is a voluntary, market-guided product. As performance issues become more prominent, other performance-based rating or other systems will arise that address more fully owners' needs for actual building performance. For example, the GSA's P100 internal standard is a more performance based option operating concurrently with the GSA's sympathy for the LEED product.

Each system may be used without seeking actual certification. One of LEED's signal characteristics

is the need to provide a great deal of documentation before certification can be achieved. This remains one of the reasons why only a few hundred of the thousands of registered projects in North America have actually been certified. The nature of this documentation and the cost for going through the process continue to pose economic and legal risks for owners, design professionals and contractors. On the other hand, the cost for the Green Globes product is minimal. Both USGBC and GBI are in the process of creating products to address the existing commercial building market but the USGBC has also marketed products aimed at niche building project areas including healthcare, interiors, retail, neighborhood development and the aforementioned core and shell. The last of these was created by USGBC specifically for builders of speculative office towers and allows a developer with only an interest in the building enclosure and the structural systems to attain some level of LEED certification for marketing needs.

The Green Globes product provides third party verification of the building project's sustainable elements through an independent assessor, although the nature and scope of the verification remain unclear. The LEED product does not provide third party verification, basing certification on the documentation provided for review. At present, neither system is capable of third party verification of the performance of the building. It is crucial to remember this since owners and others may mistakenly come to rely on these representations and find their expectations unfulfilled.

In the residential arena I will only address the U.S. market since the Canadian market is more fractured. In the U.S., the National Association of Home Builders (NAHB) has "Model Green Homebuilding Guidelines" that have been promulgated for several years. The Green Building Initiative functions as a mechanism for marketing and distribution of this program. Since it is produced by the NAHB, it is sensibly responsive to the concerns of developers and homebuilders, especially in terms of incremental cost. But the need for each local NAHB chapter to adopt a local version of the Guidelines has made it difficult to increase their visibility and use. The USGBC has launched its own residential rating system product in the last eighteen months, supporting it with an extensive marketing campaign.

However, this product has yet to demonstrate its usefulness. Both the NAHB and LEED residential products will face difficult tests as the housing boom cools.

It should also be kept in mind that both these rating system products create extra initial costs in three ways: 1) the fee for the product itself—about \$500 for the Green Globes product (and up to several thousand dollars if a full third-party verification is chosen to acquire a certification benchmark) and up to \$22,000 for the USGBC product depending on the size of the project; 2) administrative costs for additional documentation or management of documentation streams, which are generally high for USGBC products and lesser for Green Globes products; and 3) increased costs of construction administration for both design professionals and contractors to ensure that the attributes required by the certifications are managed appropriately through coordination of all the construction parties.

The Decision-Making Environment Affects All Players

The changes taking place to incorporate green in the construction industry have implications for all the parties in the process. For the owner/developer, there is the chance of increasing asset value through higher net operating income as a result of decreased operating costs tied to energy savings; there is the opportunity to differentiate the project in the market by targeting a demographic highly sympathetic to green rhetoric; and there is a need to respond to tax incentives or regulatory changes. For banks and other lenders, including pension fund investors and managers, there is the hope that green buildings will decrease the volatility of a real estate portfolio within a larger diversified investment strategy as a result of less exposure to energy price fluctuation. For design professionals, especially architects, this new constellation of building concerns provides validation of their assumed central role in the built environment and of the traditionally-taught view of architects as providing special guidance to help save the world. Contractors, especially design-build contractors, see this as a new opportunity to respond to owner needs. Contractors that do not pursue green will find themselves struggling in the marketplace,

especially as various kinds of green become legislated and more and more RFPs demand some type of LEED or green building project experience from all bidders.

These changes linked to green create opportunities for new entities, new market share for others and incentives for established companies and professionals to master new competencies to protect existing market share. The shifting landscape also creates risks which need to be managed. Green building, like the coming of Building Information Modeling, intelligent building systems, advanced construction document and management technologies, changing project delivery models and demographic changes, necessitates a change in knowledge bases and more creative counsel to solve problems.

Before we address in more detail the risks to some of the specific parties delivering a green building project, there are two general risk issues that need to be addressed: information reliability and misguided advocacy. The two problems are clearly linked—bad information or information not closely examined is often intertwined with a strong desire for belief to substitute for judgment. I will separate the two for ease of discussion.

Any rapidly changing market puts a premium on good information for making credible decisions. It is no surprise, then, that “caveat emptor” is the proper watch phrase when it comes to green. Take for example the Hines CalPERS Green Development Fund. Hines itself admits on its website that its executives have “been actively involved in the development of the U.S. Green Building Council’s LEED (Leadership in Energy and Environmental Design) programs” and that the “fund will focus on developing office projects throughout the United States.” In order to develop these projects and gain maximal value, it is not surprising that Hines has spent a large amount of time promulgating the ostensible benefits of green and LEED though, to my knowledge, no data on these benefits exists apart from anecdotal evidence. Most of the fundamental studies dealing with basic claims to buttress the positive economics, occupant health outcomes and occupant productivity are seriously flawed or incompetent. I do not want to suggest that no good work has been done, only that

precious little exists and the really credible work remains to be done. Unfortunately, for marketing purposes, many in this area are already referring to these poor studies as “definitive.”

The most important concern for private and public owners, and for developers who are putting up more than vanity buildings is the return on investment calculation. Too often the return-on-investment information provided suffers from reliance on the same poor studies or other highly biased studies produced by groups seeking to validate the rating product's value. One egregious return on investment claim is that the use of the rating product will increase worker productivity. By noting that the overwhelming cost to a corporation is for its employees over the lifecycle of the building—often enough said to be over 75% of total corporate expenditures—any minimal increase in worker productivity can provide a huge return for the corporation. Claims are often made that a three-to-five per cent increase in worker productivity as a result of sustainable building features more than pays for all the increased initial costs of design and construction, certification, and any incremental increases in maintenance and operation. Sadly, measuring worker productivity is very difficult, especially in the professional services arena where most of the rating products concentrate. Worker productivity has been an area of intense study for almost a hundred years and continues to confound both reliable measurement and analysis. Any building owner depending on claims of increased employee productivity should realize that such claims do not rest on solid ground.

Incremental increased cost analysis has also relied on questionable studies with inadequate data points or questionable assumptions. For example the “definitive” study often cited in support of the LEED product (the same study I mentioned above that was done for the California Sustainability Task Force) claims a two per cent increase in initial capital expenditure to deliver a LEED certified building. This study is dependent on only 30 data points of a wildly varied nature and based only on California buildings where the building code requirements are very close to the LEED certification benchmarks. Yet this study is commonly cited as evidence to convince skittish owners throughout the country. Even more striking, a highly touted

recent study, conducted by the same consulting group that produced the California Sustainability Task Force report, and deeply biased in favor of validating the LEED rating product, claims the use of LEED product for schools will result in a 37% reduction in asthma. On closer analysis, this claim is completely groundless based on both epidemiological practices and study methodology. I mention these studies not to be overly critical, but to provide examples of the caveat emptor problem. And as we shall see, accepting these claims at face value may actually put design professionals and attorneys acting as environmental advocates at risk by aiding and abetting the mismatched expectations for both public and private owners. It should be understood that these studies are not exceptions but the norm.

The problem of caveat emptor is exacerbated by the activist zeal that is often overtly or covertly the engine for the decision-making process, and by those abetting this zeal because it creates business opportunities for their own products or services. This type of bias must be accounted for when acting as counsel or when dealing with other parties in the construction process. An owner pursuing green on the basis of activist zeal poses a quite different risk management problem for legal analysis as opposed to an owner seeking actual performance. The contractual options as well as potential risks cannot be understood unless legal counsel is aware of this framing condition.

Activist zeal and reliance on poor-quality information are also converging in the legislative arena. Municipalities or other governmental entities that seek to legislate by privileging either LEED or Green Globes products should consider the following difficulties already found in much of the hastily passed legislation currently in place. First, do municipalities want to cede control over this area of building performance to organizations over which they have no control? Essentially, a municipality would be allowing an NGO that has its own agenda to set the standards. Second, it is clear that the rating systems are in flux. LEED in the U.S. and Canada continues to evolve in directions that are not clear in terms of either process or requirements. Green Globes, too, is evolving in directions that were unimaginable only two years ago. Legislation adopting or tying building attributes to such

moving targets will substantially increase procedural and enforcement difficulties. In fact, U.S. LEED version 3.0, released in 2007, promises to be very different than the current products. Third, it is clear from the position actively taken by the USGBC that increased risks, economic or otherwise, are not to be considered in their decision-making.

Given these three concerns, governmental entities need to be careful that they make their decisions for adoption of any rating product with a vigilant eye to the highest level of objective analysis possible. This is especially the case if, as I have suggested, there is little, or highly suspect data to support the claim that the performance of the building stock can be improved by using the rating products as currently structured.

Managing Legal and Business Risks for Owners, Design Professionals, and Contractors

Turning now to risk management issues for sustainable building, I will restrict myself to new commercial construction for the sake of brevity. I find it useful to demarcate the risks according to the major roles in the process: the owner (either public or private), the design professional, and the contractor.

Starting with the owner's role, the first and most important demarcation for risk assessment begins with the owner's decision about what green means in the context of a particular project. If the primary use of green is for marketing, the risks will be different than if the owner wants to increase the asset value and decrease operating and maintenance costs. For example, if a condo building does not perform to expectations, marketing-driven sustainability will not consider it a problem as long as the units sell. But if the developer or owner markets the project as delivering specific energy savings or health benefits, either expressly or impliedly, such representations could lead to the potential for claims activity. If the owner has publicly represented that the project will achieve a specific rating and the project subsequently fails to achieve that rating, pre- or post-construction residential and retail customers may seek redress for the lost value of their purchase. If the owner was led to assume such performance attributes were going

to be delivered as a result of representations made to him by a zealous design professional or even a misguided contractor desirous of the work, one can see how a host of suits could be brought involving multiple defendants.

Owners, owner's representatives, private equity or debt holders, and public financing decision-makers should ask direct questions regarding the sustainability performance claims made by any design professional and demand the necessary backup as part of standard due diligence. At the very least, the owner should clarify these issues in the contracts. Using standard contracts without further careful review and hoping for the best does not constitute good risk management. This is especially true when the project involves innovative solutions that, while technically feasible, can fail because of other process or technical problems. For example, though geexchange systems have been used for a long time, the capacity to drill and create the proper loops in different conditions, especially urban sites, can pose challenges both technologically and in terms of project delays. And it should be noted that the problems on a sustainable project may not be primarily technological but rather involve changes in construction processes or scheduling. These issues should be addressed by involving the construction entities as early as possible in the decision-making process to help foresee and troubleshoot these types of problems.

Another important concern for the owner is ensuring acquisition of the necessary documentation for obtaining the rating product certification from the various responsible entities. For LEED, the certification is based on a large volume of documentation provided to the USGBC. Given the complexity of maintaining and processing the documents as well as oversight to ensure that the construction processes are implemented, an owner needs to consider how the added costs are to be allocated per contract. Depending on the situation, a sustainability consultant with substantial construction experience, not just design experience, should be added to the team to anticipate such problems, manage documentation acquisition and delivery, and provide guidance from pre-planning through construction.

Finally, since certification under any rating system can be vital to the marketing advantages desired by the owner, the contracts should be coordinated and explicitly note the necessary maintenance and delivery of a proper documentation stream to obtain certifications. The underlying contracts should have coordinated provisions for all the primary and secondary parties, including the multiple tiers of subcontractors and subconsultants.

If the owner wants to assure the performance and/or certification, the best option is to define this in the contracts, both for the design professionals and the contractors. It should be made very clear to the design professionals that they will have to bear some of the responsibility for delivering this performance. Owners should explore the creation of clear performance specifications in the underlying documents and should actively seek potential alternative project delivery mechanisms such as contractor-led design-build. Both negative and positive incentives should be considered by the owner. There have been at least a few reported instances of owners using liquidated damages clauses or other penalty clauses for failure to obtain certifications. Such incentives and alternative delivery systems are especially apt for municipalities and government entities to discharge their public trust duties. Governmental entities that mistake the steak for the sizzle are, arguably, not living up to their fiduciary duties as guardians of public monies.

Moving on to our second group, design professionals may not be aware that they are subject to an increased possibility of risk, often as a result of their own enthusiasm. Green, in all its guises related to the built environment, has become a mechanism for a growing self-importance of individual architects and the profession at large. In a previous time this self-importance was based mainly on creativity. On sustainable building projects, however, architectural optimism can often prove decidedly risky for an owner or contractor. This can create legal exposure if an architect pursues green based on his desire to be creative as opposed to meeting the needs of his client. An excellent recent article in a newsletter to insureds of the major Canadian design professional insurer aptly noted:

Many architects and engineers involved in the field today are convinced that they should advocate the pursuit of "Sustainable Design" as a societal imperative. This enthusiasm coupled with cost information that is usually not readily verifiable from the architect's own experience (and is not often available from an objective source) can lead to more optimism about costs that would ordinarily be the case. These architects may be "selling" the idea of a LEED project to their clients and there is a risk that the client may feel misled when the assumptions on which he agreed to the approach don't prove accurate. (John Hackett, "LEED Us Not Into Temptation...Sustainable Design/LEED from an Insurer's Risk Management Perspective," September 2006. Internal newsletter for Pro-Demnity Insurance Company.)

Another area of risk that results from the unique interaction of the LEED product and the design professional's insurance coverage involves the requirement to sign the LEED letter templates as verification of documentation and performance of varying types and degrees. As is commonly known, a professional liability policy generally excludes any explicit warranties or guarantees provided by a design professional, either orally or in writing. The LEED letter templates use language that design professional insurance underwriters consider problematic. Thus any claims that arise related to the subject of the LEED letter template may find a design professional stripped of his coverage or subject to a reservation of rights. Besides being a serious problem for the architect, such a situation increases the pressure on other potential defendants since there is now one less policy to respond to the claim. Many of the more risk-savvy design professionals in the U.S. refuse to sign the letter templates—thus putting at risk the certification to an owner.

The USGBC is aware of the problem and their solution is puzzling. The letter templates were a feature of version 2.1 of the LEED products. This required physical signatures by the responsible parties, often including design professionals. In version 2.2 released in 2006, the documentation was put online for submission (the Canadian version continues to use the actual letter templates). When recently asked about the continuing problem of the letter templates for the design professional's E&O coverage, the USGBC asserted that the

problem had been solved. On closer examination one discovers that the online version asks the design professional to certify or verify the information provided by clicking on a radio button. The USGBC seems to be under the impression that simply clicking or selecting a button online that is clearly marked as an acceptance of certain conditions does not constitute a “signature.” The GBI product escapes this problem by simply allowing self-certification except if the owner wants to acquire the one to four globes awarded under the Green Globes rating system. For an award of the Green Globes rating, a third-party verifier/validator must be engaged to review the documentation and perform a site visit.

Another potential problem to be aware of is voluntary and involuntary increases in the standard of care for design professionals resulting from representations of special knowledge regarding green or the LEED Accredited Professional status conferred after taking a USGBC-administered exam. It is common now for architectural offices to have large segments of employees possess the LEED AP status. Even if this designation is hollow—it is more an indication of familiarity with the USGBC rating system product than with any additional building science knowledge linked to green design or construction—it is being marketed in a manner that creates a public expectation of special skills and competencies. There would be a strong argument to suggest that offices or individuals with such an accreditation should be held to a higher standard.

Other issues for a design professional include scope creep attendant on redesign after a project is put out to bid, especially if the green elements are integrated and now require redesign; increases in contract administration scope to satisfy rating system requirements, especially in LEED 2.2 for new construction; and issues related to affirmative representations to owners regarding costing analyses. I have used LEED for this discussion because the problem is easier to see, but other rating systems may also create similar problems.

In general, design professionals are licensed by the state in a kind of quid pro quo social contract. Design professionals are given a monopoly by the state to provide to the general public certain

professional services to protect the health, welfare and safety of the public. In this case the architect is the most relevant example since the USGBC is overwhelmingly populated and controlled by architects, but this analysis would apply to other professionals such as licensed engineers. Further, as a profession, architects are responsible for independent due diligence in the specifications they create and the recommendations they make to their clients.

Licensed architects are different than “designers” in this respect. Designers give opinions; licensed architects give professional opinions. This is not to denigrate designers, only to explain a legal distinction. To discharge their duty to protect the health, welfare and safety of the public, architects, like doctors, must subsume their personal beliefs to an objective standard of practice. We have already discussed the rather flimsy nature of many of the studies architects are using to buttress their advocacy for green. Understanding this legal distinction, the manner in which some architects and the architectural profession advocate for green opens up the possibility of a larger-scale failure of professional responsibility.

The architectural profession as a whole and many architect advocates are on notice that these studies are inadequate and yet they continue to recommend design, costing, and planning options that are based on a personal ethic, not a professional opinion based on prudent and objective due diligence. The AIA documents committee is currently considering the following language to be included in some prefatory manner:

The AIA will: Promote sustainable design including resource conservation to achieve a minimum 50 percent reduction from the current level of consumption of fossil fuels used to construct and operate new and renovated buildings by the year 2010, and promote further reductions of remaining fossil fuel consumption by 10 percent or more in each of the following five years.

Certainly, this would not be tolerated in the medical profession. Substituting a doctor’s own religious beliefs, idiosyncratic clinical views or improper due diligence in the face of easily obtained medical information would amount to malpractice. It is disturbing that the AIA believes that advocacy language should be put into the

new standard documents used by a large segment of the construction industry—putting aside the incredibly ambiguous nature of this language and the new types of responsibilities it would require of an architect signing such a document.

To assure proper risk management for architects and those who hire them, this larger scale discharge of responsibility should be kept front and center during negotiation and contract formation. In general, one should be wary of architects, regardless of their academic or professional reputation, who are primarily interested in proselytizing to the project participants. Such behavior often indicates an increased risk for the project as a whole unless the primary task is to build a “monument” outside the purview of any worthwhile economic or risk calculus.

Our last group, contractors, faces risks related to marketing- or performance-based outcomes as well. Contractors are starting to market themselves as “green” to maintain or acquire a competitive position in the marketplace—witness the active pursuit of green by Turner Construction, Alberici, and Pepper Construction, to name just a few in the U.S. The Association of General Contractors (AGC) has taken an active interest in this area at both the national and chapter levels within the last few years.

On the other hand, contractors that do not have experience with this kind of project but must show such experience in their portfolios to win projects will be sorely tempted to underbid and/or take on other risks to win these projects. This is especially a problem when the RFP requires a certain number of previous projects with a LEED certification or green experience. In effect, this changes the construction market from one that is generally fungible to one that is highly constrained or even anti-competitive. This has become a common mechanism in RFPs produced by government entities, sometimes voluntarily, but most often involuntarily due to legislative activity.

Contractors will be tempted, like architects, to make promises or represent themselves in a manner that will lead purchasers or developer/owners to assume that the contractor’s expertise will lead to tangible performance outcomes. Expectations must be carefully managed, especially when there is a coordinated marketing strategy at

work for the project as a whole, such as Dockside in Vancouver or the Solaire in New York. Warranties for products and assemblies need to be carefully addressed and guaranties/surety bonding, which can be an excellent way for owners and developers to assure performance outcomes, need to be assessed and priced correctly by the contractor and any other third parties. Commonly, the contractor or third party is unaware that bidding and delivering a sustainable building needs to include such assessment. In fact, the market for products that act as a backstop for delivering the requisite performance or certification may prove an option for both insurance and surety companies if the underwriting is properly informed and analyzed. Even so, at least one surety in the U.S. has halted issuing bonds on LEED projects after a recent claim experience with an HVAC subcontractor performance bond.

The first point of concern for a contractor will be determining the viability of a cost estimate for delivery of the project. In the U.S. at least, few estimators are explicitly aware of the implications of a LEED or other rating system certification requirement as constituting a possible performance/prescriptive specification. The pricing and risk profile for such additional burdens needs to be clarified to avoid downstream claims and to obtain proper insurance or guaranty/bonding coverages. One plausible study found that managing the LEED certification process for a building of several hundred thousand square feet required 573 man-hours. Even by conservative standards the additional cost could be \$50,000 simply for contract management. Combine this with the rapidly increasing cost of basic materials due to global demand, and the need for extremely careful estimating and bidding becomes obvious. All of this should be considered in the contractual language to protect both the contractor and the owner.

It is also very important to be aware of the types of design specifications, and their possible long-term performance failure, that architects seeking rating system certification often use. For example, underfloor air distribution systems in commercial buildings have become a favorite of sustainability designers. One product manufacturer for such systems boasts that an underfloor air distribution system can help a project get up to 16 of the

26 points needed to obtain LEED certification. However, recent objective analysis shows leakage rates that far exceed normal limits, leading to a complete failure in delivering the energy savings and indoor environmental comfort frequently promised. The contractor will undoubtedly be joined in any litigation arising from this lack of performance via a construction or installation defects theory. After conducting detailed post occupancy performance evaluations, the General Services Administration—the largest holder of real estate assets in the U.S.—is seriously considering disallowing the specification of underfloor air distribution systems. Bamboo flooring, wheatboard cabinetry and photovoltaics are other common specifications that have repeatedly shown potential for inadequate performance or increased risks. As another example, the insistence on operable windows increases substantially the possibility of moisture penetration into the building envelope and interiors.

Contractors are in a particularly vulnerable role since all performance failures lead to cognizable allegations of construction defects. Thus they will be drawn in to all subsequent litigation in this arena. Since the documentation required for LEED certification is extensive and often requires design professionals and others to provide narrative explanations, it will become an important discovery request. Up until now, most of the projects pursuing some kind of certification have been vanity or special pleading projects, so the possibility of suits has been limited. Neither the owner nor the other members of the team can afford to lose the good will associated with the green claims. Numerous projects are now known to have failed, and often miserably, but there are still no reported cases. At the recent AIA national convention, CNA, through its broker V.O. Schinnerer, did provide at least a dozen or more claims that have been flagged by the insurer as “green” claims. As green moves beyond vanity projects, it is likely that litigation will follow, as it commonly does for many other types of construction projects.

Conclusion

Green building provides exciting opportunities for the many parties involved in the management and delivery of new construction projects or existing real estate assets. Trite as it sounds, this newly

emerging area requires careful risk management to allow the positive potential of green buildings to come to fruition. First, green needs to be firmly aligned with high-performance buildings, with creative legal, building science and business solutions supporting this laudable outcome. Second, and of equal importance, is the need for objective examination of the issues at stake instead of loose ideological or advocacy positions. Any time the market is changing, there is the possibility that new and more thoughtful solutions can be attempted as the grip of the older paradigm is loosened. Equally true, when the market is rapidly changing, an influx of poor or intentionally misleading information can lead a gullible or sympathetic decision-maker astray.

Because they are accustomed to managing their clients’ risks, attorneys can help their clients avoid the pitfalls and demonstrate the viability of new contractual and risk management techniques associated with performance-based building projects. EPC contracts, performance contracting, ESCOs and existing capital, maintenance, and operating budget practices have already paved the way. Long-term owners know that making their building assets perform better over the life-cycle of the asset is by definition a good thing as long as the additional incremental capital expenditure and risk adjusted costs do not exceed a credible present value cost/benefit analysis. Sustainable, or even better, high performance buildings provide a new and important way to re-imagine the construction and real estate industry. Whether such a change will fully take root is not yet fully clear, but it is clear that managing risk will be an increasingly important activity in the changing landscape.

This is an edited version of a presentation entitled “Business and Legal Risks Associated with ‘Green Building’” delivered at the Defense Research Institute Construction Law Seminar in 2007.

