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IDENTIFYING RISKS IN GREEN BUILDING DESIGN

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Green design practices are increasingly in demand as more public and private owners embrace the philosophy of sustainable development. A bright future lies ahead for green building design professionals, who are typically the most visible participants in green building projects. However, these high-profile roles of architects and engineers in green building design also mean that their decisions are subject to heightened scrutiny, particularly if a building should fail to either meet the desired green building certifications or function as intended, during the life-cycle of the project. Yet a green building is the product of more than just innovative design; its green rating is influenced by many factors that a design professional has limited ability to control, such as compliance with waste reduction and recycling criteria during the building's construction, and careful adherence to specified operations and maintenance procedures during operation. Geographic factors, such as proximity to public transportation, also affect the certification level. Innovative construction systems and use of materials may not function as the designer intended. The holistic framework of green building rating systems presents unique risks for design professionals. Identifying those risks is the first step in protecting against unnecessary exposure to liability. This paper provides an overview of the principal risk factors and identifies tools for addressing them.

Certification Uncertainties

Potentially, the biggest uncertainty in green building is whether the project will ultimately earn the desired rating from an independent certifying organization. Currently in the United States, the most widely used third-party certification program is the Leadership in Energy and Environmental Design (LEED) Certification offered by the U.S. Green Building Council (GBC). LEED is a point-based system; projects earn LEED points, also known as credits, for satisfying specific green building criteria within six LEED credit categories: (1) *sustainable sites*; (2) *water efficiency*; (3) *energy & atmosphere*; (4) *materials & resources*; (5) *indoor environmental quality;* and (6) *innovation in design*. Several of these categories also have threshold requirements that must be met as prerequisites to participation in the LEED program. The total number of credits earned by the project determines its level of LEED certification. LEED certification is available in four progressive levels: Certified, Silver, Gold and Platinum. A number of federal, state and local governments have created regulatory programs built upon the LEED framework.

Because certification is granted only after a building has been completed, it is impossible to know in advance whether the building will meet the minimum credit requirements. Design professionals, therefore, should never promise or guarantee a certain level of certification. This advice applies not only to contract documents, but to the firm's promotional materials as well. Apart from giving rise to unrealistic expectations, promising to achieve a particular rating could also be problematic for purposes of professional liability insurance coverage. Contract documents should never contain warranties and/or guarantees that a particular level of green building certification can or will be achieved.

Contract documents should contain language that reflects each player's expected contribution toward achieving the desired level of green building certification. For design professionals, one approach is to enumerate the green processes and components to be incorporated into the building's design. Statements that are subjective, unverifiable or couched in undefined terms only invite confusion and should be avoided.

Charettes and Integrated Project Delivery

In the green design process, it is not uncommon to gather all project participants together for a pre-proposal meeting. The LEED certification process actually identifies these sessions as "charettes." Charettes provide all participants a chance to brainstorm

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and collectively develop solutions to design problems early in the planning process. When designing the project, it may be prudent to aim for "points" above and beyond the minimum credit requirement. The extra "points" can serve as a buffer in the event a few credits are denied during the certification inspection. The members of the charettes should designate a record-keeper, who will be responsible for tracking and documenting progress toward certification. This individual must understand not only the requirements of the rating system, but also the intent behind each point to be earned so that he or she can properly analyze issues that may arise regarding credit qualification. This individual must also be familiar with the resources available for resolving credit questions, including the LEED reference guide and the online database of Credit Interpretation Request (CIR) rulings from the U.S. Green Building Council. The CIR rulings are official responses to technical and administrative questions about how to apply LEED requirements to specific LEED-registered projects. Project applicants can search the database of rulings to see if their issue has previously been addressed in another project. If not, the project applicant can submit its own credit interpretation request.

While charettes play an important role in efficient project development, just like any integrated project delivery mechanism, it is important that all participants fully understand their respective responsibilities and understand that the charettes process is not a means of shifting responsibilities amongst each other.

Knowing the Client's Objectives

Candid conversations about what the client expects and what the design professional can reasonably deliver can prevent misunderstandings based on unspoken assumptions about certification and performance. It is important to thoroughly understand the factors driving the client's desire for a green building. Is the client principally motivated by regulatory, marketing, philosophical or financial considerations? More specifically, is the client seeking to comply with government regulations to attract tenants, to obtain higher rents, to make a statement about its organization's mission, to seek government incentives, such as expedited permitting or tax credits, entitlements or density bonuses, or to realize savings in life-cycle costs? These are informative baseline questions that will assist in the development of the project criteria.

In a recent case brought by a general contractor against a developer of a green building on Maryland's Eastern Shore, the developer filed a counterclaim against the general contractor for allegedly failing to construct a condominium building in accordance with contract requirements specifying compliance with LEED silver certification standards. According to the developer's allegations, the breach of contract resulted in the loss of a tax credit valued at $635,000. See Southern Builders, Inc. v. Shaw Development LLC, No. 19-C-07-11405, (Somerset Co. Cir. Ct. Filed, Feb. 7, 2007 [counter claim]).

The design professional should carefully consider if the final contract reflects reasonable risk allocation between the design professional and client with due regard to the client's expectations and what the design professional can promise to deliver. Contract negotiation is the time for candidly exploring the objectives of the client, the reasonableness of those expectations and the risks to be assumed by the design professional, if all of the client's objectives have not been achieved in the completed project. Contract clauses addressing such topics as the standard of care, consequential damage, including lost rents, income, profits, excessive operational costs, etc., may take on special meaning in the formation of contracts for green buildings.

In the event of a dispute, the choices made in forming the contract may control the risk of future claims and, in the event of claims, the client's measure of damages. Consequential damage claims may include loss of funding, loss of revenues, loss of grant eligibility, rescission of tax credits, exposure to third-party claims of fraud, liquidated damages, adverse marketing perception, breach of lease by tenant and increased maintenance costs, among others, if these issues are not directly addressed in the contract.

In discussing project goals and criteria, it is also important to ensure that the design professional and client share a common understanding of the terms involved, such as "green" and "sustainable." For example, although it may be obvious to the design professional, it may not be evident to the client that "sustainable" does not mean "self-sustaining." A written set of disclosures and definitions proffered early in the planning process can help put everyone on the same page.

Finally, design professionals should specify in their contract documents that any representations on credit submittals are solely made for the purpose of satisfying the rating system credit and are not intended as a guarantee or warranty of functionality or performance.

Concerns Regarding Sales and Promotional Materials

Under no circumstances should a design professional make claims correlating building design with external benefits to the building's occupants. Statements lauding the benefits of green buildings are best left to legislators, such as those in Washington State who, in 2005, introduced the nation's first green building bill containing the following legislative finding:

> *The legislature finds that public buildings can be built and renovated using high-performance methods that save money,* ***improve school performance****, and* ***make workers more productive.*** *High-performance public buildings are proven to* ***increase student test scores, reduce worker absenteeism, and cut energy and utility costs.***
> RCW 39.35D.010 (1) (emphasis added)

While this enthusiastic endorsement of green building design by a political body may ultimately be good for the built environment and the role of design professionals in future projects, these assurances of benefits from green buildings have no place in design professional promotional materials or contracts. Furthermore, these "promises" compound the need for careful client education on what can and cannot be promised or achieved in the earliest stages of contract formation.

The Washington law known as the "*High Performance Buildings Bill*" (ESSB 5509) requires all construction or remodeling projects of any occupied or conditioned space larger than 5,000 square feet that

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require state funding for construction conform to the LEED silver standard. The legislation also applies to remodeling projects costing more than 50% of the assessed value. Fortunately, the law contains an express provision protecting design professionals from liability for failure to meet certification standards:

> *A member of the design or construction teams may not be held liable for the failure of a major facility project to meet the LEED silver standard or other LEED standard established for the project as long as a good faith attempt was made to achieve the LEED standard set for the project.*
> RCW 39.35D.070

This legislative disclaimer or similar provision should be carefully discussed and included in every design professional project falling under the reach of this legislation.

Materials Issues

The introduction of innovative materials is part of what makes green building such a dynamic field. Rapid technological advances, however, mean that certain products may not have a proven track record. When considering whether to use untested or unproven materials, an overly cautious approach to material selection may result in missing out on some suitable options. Thus, design professionals must walk a fine line between encouraging clients to remain open-minded about new materials and cautioning them as to the inherent uncertainties of long-term performance. Design professionals should make reasonable inquiries as to whether the use of an innovative product may create uncertainties in the building process, for example through potential constraints on the product's availability or special installation requirements. If ordering the product requires a long lead time or contractors need extra training or skills to work with the product, these factors must be accounted for in the schedule and budget. The design professional's contract should contain appropriate disclaimers addressing all these uncertainties.

Due diligence in the context of evaluating innovative materials means looking beyond product labels and marketing claims. Industry marketers have spawned an entire vocabulary of new and pithy terms: "eco-friendly," "sustainable," "carbon neutral," "carbon offset," "locally grown," "environmentally preferable," "recycled" and "renewable." Some of these terms may be descriptive, but all are intended to play upon consumer perception to some extent. Accordingly, there are obvious risks in relying solely on a manufacturer's representations in its promotional materials. If resources are available, it is prudent to independently evaluate whether an unfamiliar material will live up to its claims. Depending upon the circumstances, this evaluation could be as simple as conducting informal interviews of others who have used the product and inspecting other installations, or as sophisticated as hiring an independent testing laboratory.

Issues of availability can arise even with more standard building materials. In rural areas, for instance, finding lumber certified by the Forest Stewardship Council (FSC) can be a challenge. A solution may be to use locally-milled lumber for framing and FSC-certified wood for finishes. Once a material is selected for a particular use, the contract should identify it with specificity. The contract should also establish approval criteria for material substitutions.

The growth of green building has been fueled in large part by the increasing variety of products available to designers and builders. Innovative materials are changing both the aesthetics and economics of green building. Thus, it is important to recognize that although green building materials make for easy targets when unforeseen problems arise, forensic investigations often disclose that problems in fact stem from common construction defects. For example, case studies have found that mold and mildew issues initially attributed to green building materials were in fact caused by construction defects that allowed for excessive moisture and inadequate ventilation. For design professionals, due diligence and appropriate disclaimers are key tools for mitigating the uncertainties involved in incorporating new materials into a project design.

Green building construction may also require more involvement of the design team during the construction phase. Contractors may not be familiar with the materials that have been specified or with the construction details that have been included for the proper utilization of innovative materials. The design professional may be called upon for more frequent and intense construction observation, to answer more RFI's, to consider more requests for material substitutions, and to specify and evaluate special inspections and testing during construction.

Contractor Concerns

Like everyone else, contractors new to green building will face a learning curve. The use of unfamiliar materials and practices may lead to project delays and unexpected costs. Because these issues are often difficult to anticipate, it is advisable to incorporate redundant quality assurance measures into the project budget and schedule when working with a contractor lack was extensive experience with green building. Clients will need educating on the budget consequences resulting from these additional activities.

As with material selection, due diligence is required in selecting project team members. It is critical to prequalify contractors by evaluating the depth of the company's experience in terms of the number of people trained or accredited and the numbers and types of green building projects the firm has completed, including a breakdown between new construction and renovations of existing buildings. Ideally, each contractor and subcontractor will have LEED Accredited Professionals (LEED APs) on staff. LEED APs are experienced building industry practitioners who have demonstrated their capacity to facilitate the LEED certification process. LEED AP certification means that the professional has passed an exam administered by the Green Building Certification Institute that comprehensively tests the individual's knowledge of green building practices, principles and LEED requirements. More than 46,000 building professionals from all areas of the construction industry have been accredited as LEED APs since the professional accreditation program was launched in 2001. However, many of these individuals lack hands-on experience working on LEED-registered projects. It is important to require contractors in their bidding or proposal documents to describe their expertise accurately and in objectively verifiable terms. To discourage puffing by bidders or proposers and to protect the design professional from the consequences of a contractor's missteps, construction docu-

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ments should state that claimed experience will be incorporated into project contracts. Because the contractor's experience is linked to the experience of individual project managers, it may also be wise to require the contractor to obtain written consent, or at a minimum to give notice, prior to changing project managers.

Building commissioning can serve as an auxiliary form of contractor oversight. Building commissioning provides documented third-party verification that building systems perform in accordance with project criteria. The commissioning process involves testing, adjusting and balancing the functional aspects of the building. It addresses the building envelope and the electrical, mechanical and plumbing systems. Depending on the level of service desired, the commissioning agent can also help to develop operation and maintenance manuals for the building management. Although building commissioning may be redundant on projects led by veterans of the green building movement, it may serve as a valuable quality-assurance tool on projects carried out by less experienced contractors and subcontractors.

Operation and Maintenance Issues

A customized user manual and proper training are critical to the long-term success of every green building project. The appropriate project participant should train building managers, superintendents and custodians in the protocols for maintaining building components. In some cases, it may be necessary to update the manual and training after the initial start-up or establishment period. With green roofs or living walls, for example, maintenance activities, such as weeding, irrigation and plant rotation, will inevitably evolve as plants become established. Landscape architects designing such features will need to provide the end user with the tools, skills and infrastructure to ensure optimal performance for the building.

Special Risks in "Post Card" Architecture

The trade press has recently been full of examples of very high profile green projects that have experiencing dramatic failures early in the life-cycle of the buildings. Flat green roofs have leaked, 'energy efficient' HVAC systems have not functioned as intended, glass curtain walls and screens have fallen to the street or captured and released ice onto pedestrians below, and mold and water damage claims seem to have proliferated. These are but a few of the many examples of dramatic failures. These problems seem especially intense in projects where the desire for something new and eye-catching has overshadowed the need for the plain common sense and caution that should be inherent in every design. Design professionals have a great deal to contribute to the laudable goals of green design and construction by applying the time-tested "lessons-learned" of utilizing only prudent design techniques and always applying scrutiny in the design process. Will the design function as intended? Is the design practical and constructible? Will the design stand the test of time over the life-cycle of the project? Will the client be able to manage and utilize the project as intended? Was the design subjected to reasonable internal and external peer review to test all the assumptions of the design?

Conclusion

Green design is clearly here to stay with the ever-increasing focus on the impacts of the built environment on Earth. However, as with any new initiative, there are new risks to be understood and managed. Design professionals seeking to position themselves at the leading edge of the green building movement should work with legal counsel to identify and anticipate project-specific liability exposures. Together, they can develop a forward-thinking risk management strategy that relies on client education, appropriate contract terms, including disclosures, disclaimers and meaningful risk allocation, and due diligence procedures designed to help the project fulfill the reasonable expectations of all the participants.

One of the major design professional insurance underwriters, Beazley Group, is now suggesting a contract clause along the following lines to its insureds:

> *The LEED Green Building Rating system or similar environmental guidelines ("LEED") utilizes certain design, construction and usage criteria in order to promote environmentally friendly building. The Owner acknowledges and understands that LEED is subject to interpretation, and achieving levels of compliance involves factors beyond the control of the Design Professional, including, but not limited to, the Owner's use, operation and maintenance of the completed project. In addressing LEED, the Design Professional shall perform its services in a manner consistent with that degree of skill and care ordinarily exercised by design professionals performing similar services in the same locality, and under the same or similar circumstances and conditions. The Design Professional will use reasonable care consistent with the foregoing standard in interpreting LEED and designing in accordance with LEED. However, the Design Professional does not warrant or represent that the Project will actually achieve LEED certification or realize any particular energy savings. The Design Professional shall not be responsible for any environmental or energy issues arising out of the Owner's use and operation of the completed project.*
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> Reprinted with Permission: James Schwartz, Shades of Green: The Claims Outlook and Some Preventative Steps to Take, May 8, 2008.

We offer this sample clause only as an example of the kind of focused clause that could be negotiated for an appropriate contract for the design of a green building.

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