

**VENI, VIDI, VICI, VERDIGRIS -
BUILDING GREEN**

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I. INTRODUCTION

While it has been given a variety of different meanings, the generally accepted view of “building green” in today’s development lexicon is to pursue building techniques that possess energy efficiency, sustainability and environmental compatibility. Further, while there has been a numerous amount of different efforts in developing approaches to design and construction that have sought to reduce impacts to the environment, the measure of success for most of efforts has largely been under the auspice of one primary organization. This group, not much more than a decade old, has been at the forefront of the efforts to pursue environmentally friendly and energy efficient buildings in a variety of industry segments, including residential, retail, office and hotel space, educational and even health care facilities. However, other groups are also encouraging the pursuit of green design and construction, and are developing standards to make certain that these objectives being achieved are tied to tangible factors that are meaningful from environmental and sustainability perspectives.

Today, regardless of the development or building being undertaken, there is the potential and benefit of utilizing green building techniques in and on that project. In order to do so efficiently, effectively and with a maximum economic benefit, it is essential to immerse oneself in the current terminology, the incentives presently available both at the government as well as at the operating model level, the benefits of pursuing more formalized certifications of the achievement of green design and building, the requirements for meeting that standard of achievement and certification, the additional education that needs to occur in order to proceed

with that effort at the project level, and a re-evaluation of contract models customarily used in an industry where these concepts are not yet readily embraced.

In the United States, green building has largely been stimulated by the efforts of the U.S. Green Building Council (“USGBC”). Through its development of the Leadership in Energy and Environmental Design (“LEED™”), Green Building Rating System and the Green Building Initiative, the USGBC has sought to stimulate the design, construction and renovation of buildings that are environmentally responsible, profitable and healthy places to live and work. Indeed, through those efforts, the number of projects seeking the ratings offered by the USGBC under the LEED™ rating system have grown in both number and variety. While in some respects and certain segments of the construction community, reaction has been mixed, the trending toward green building technology is here to stay due mainly to the necessity of producing structures that will more peacefully coexist in their surrounding environment and operate with much less reliance upon non-renewable energy resources and with lessened demands upon water and electricity usages on an ongoing basis.¹ As such, and in this context, “building green” takes upon yet another important meaning, namely one which places in more harmonic balance the concepts of environmental responsibility and long-term economic profitability.

II. MYTHS & MODELS

Considering the diversity of the construction industry, it should not be too surprising that this wide variety of participants would have differing views on a number of subjects affecting them. Nevertheless, one would think that the consensus of this varied group would still arrive at accurate perceptions regarding the impact of their own industry activities on the surrounding environment. However, in a recent survey conducted globally among 1400 respondents involved

in the construction industry, it was guesstimated that 19% of all greenhouse gases were contributed by the building industry. These professionals, who included architects, contractors, developers, landlords and tenants, were asked for their response in comparison to the actual statistics obtained through other means of evaluation and fact gathering. In the United States sub-segment of this evaluation, the respondents identified that only 12% of greenhouse gases were contributed from the building industry. By contrast, the *actual* rate of contribution of greenhouse gases from the building industry was identified as 40%, nearly 2-3 times that of the estimates by professionals in this industry survey.² Other statistical information from U.S. building trade organizations indicates that 12% of all water usage comes from the U.S. building industry, and 39% of the CO₂ emissions come from the same industry segment, along with 65% of total waste output and 71% of electricity consumption.³ Moreover, buildings consume between 65% to more than 70% of the United States' total electricity, not to mention a considerable amount of other resources such as raw materials and potable water, and produce as much as 40% of the Nation's carbon dioxide emissions.⁴ In fact, office computers alone were estimated as consuming \$1 billion worth of electricity yearly just when running idle.

Yet another source identified the significant impacts of the building industry and the existence of those buildings once constructed, estimating that these buildings produced 48% of greenhouse gas emissions, as well as consumption of 1/3 of all energy and 2/3 of all electricity used in the United States. As for the construction operations themselves, the same research indicated as much as 25% of all material deposited into landfills was coming from demolition and waste produced during the construction process, along with approximately 25% of total potable water use impacts associated with building activities.⁵ Even beyond U.S. borders, buildings are already identified as representing approximately 40% of primary energy usage on a

global basis, with the expected consumption rising significantly along with increased development in countries such as China and India.⁶

Perhaps these statistics -- and the apparent misperception of the building industry's impact on the environment -- are what has fueled (in an environmentally friendly way, of course) the growth of the USGBC. The organization itself is built-up of a coalition of corporations, builders, universities, government agencies and non-profit organizations that work together to transform the way in which buildings are designed, built and operated. Since its founding in 1993, the USGBC has grown to more than 8,400 member companies and organizations, a wide variety of resources and information, and also educational and networking outreaches which now number over 70 and counting.⁷ In Pennsylvania, USGBC affiliated organizations include the Pittsburgh Green Building Alliance, the Central PA Green Building Association and the Delaware Valley Green Building Council.

Still, despite the efforts of the USGBC and beyond the misinformation regarding the impact of the building industry on the environment, misperceptions have arisen regarding the cost and impact of going green. For example, in the same global survey referenced above, the same building professionals believed that the cost premium for "green" buildings was approximately 16%. In actuality, some statistics place the cost impact of going green at approximately 5%.⁸

In further specifics, one study evaluating the pursuit of a LEED™ "Silver" rating, concluded that pursuing this approach added about 6% in project costs.⁹ Despite its upfront costs, however, representatives of the USGBC have provided statistics to support the benefits of going green. For example, in a recent statement from the USGBC representatives, it was

indicated that with a \$1 reduction of operating costs of a building, market values could be anticipated to increase as much as \$10.¹⁰

Maybe it is this over-estimation of building costs which has required the green building movement to find proponents in the governmental sector. Indeed, it is perhaps through some of the lessons learned from these projects that statistics will become available to combat erroneous perceptions -- including some that say the costs of green buildings can exceed traditional building construction by as much as 300%.¹¹

Another concern that has arisen in this area comes by virtue of the USGBC itself. Some participants have equated the process of obtaining a LEED™ rating and certification and the associated expense as a “death march” or a “colonoscopy”.¹² In fact, while the USGBC touts statistics regarding the number of projects that have achieved the rating of certified, silver, gold or the highest rating, platinum, there are others who contend that the process is horribly slow, considerably driven by paperwork, and almost certainly in need of rehabilitation in the event the desired objectives of the USGBC and the LEED™ rating system are to continue to grow and flourish like the xeriscape vegetation which is encouraged in areas where low water usage is essential and in and on the roof systems employing heat absorbing roof treatments (utilizing grasses and other similar vegetation). As noted earlier, alternatives to LEED™ have been developed and are gaining greater profile and acceptance in some segments of the building community.¹³

III. THE USGBC AND THE LEED™ RATING PROCESS LEAD THE WAY

Despite some of the foregoing criticisms, it is still an understatement to say that the effects of the USGBC and the LEED™ rating system on green design and construction have

been anything less than monumental. Even though the organization itself and the rating system have been around for a relatively short period of time and have been incorporated into regional green building initiatives even more recently, the effects are considerable. Consider that since the year 2000 with the green building rating system, over 5,000 buildings have sought to achieve some level of LEED™ rating. Further, over 550 buildings have actually received some level of LEED™ certification.¹⁴

In short summary, the LEED™ rating process is essentially a point-driven system, with those points translating to targets to be achieved to obtain the certified, silver, gold and platinum LEED™ ratings. There are five major categories identified as a part of the LEED™ credit system. These include sustainable sites (representing 22% of the available points), water efficiency (representing 8% of the available points), energy and atmosphere (representing 27% of the available points), material resources (representing 20% of the available points) and indoor environmental quality (representing 23% of the available LEED™ rating points).¹⁵

The LEED™ rating process itself is generally broken down into three steps. The first of these steps involve registration of the project itself with the USGBC. At that point, the registrant is given access to the system requirements and is permitted to register the project for future action.

Step two is an implementation phase, where the technical support and reference packages are provided by the USGBC to assist in achieving the necessary credits for the ultimate LEED™ certification review and acceptance process. Credit inquiries and rulings can also be accessed and obtained at this step.

The final step involves the actual building certification. This certification process necessitates submission of the LEED™ document submittals to the USGBC for review and analysis. It has been observed in this regard that this documentation process is one of the most significant parts of the LEED™ rating system. It has also been observed that the LEED™ rating system and the documentation is submitted almost like a legal brief and is judged almost like a law review article, making certain that each reference and statement is supported by some level of documentation tied to the credit point or points being sought.

IV. MARKETS, MANDATES AND A COUPLE OF MISHAPS

In the past several years, the concept of green building has migrated into various markets – both public and private. USGBC statistics indicate that while 2% of green building starts equaling almost \$10.2 billion in construction were pursued in 2004, it appears that by 2010, 5-10% of all building starts representing \$29-59 billion will be pursued utilizing green building techniques. These projected statistics include not only residential, but also commercial structures.¹⁶

In the upcoming year, according to the USGBC, green building products and services should exceed \$12 billion and could reach \$20 billion by 2010. While that may signal some difficulty in obtaining green building-related materials, it should also spur expansion, growth and price reducing competition.

The expansion of green building involves not only the number of projects, but also the varieties and types of projects being pursued. For example, many schools have embraced the concept of green building because of not only the environmentally responsible nature of the construction, but also because they provide important models for pursuit of environmentally

friendly activities.¹⁷ Among the top five types of new LEED™ buildings pursued involve commercial office, multi-use, multi-family residential and public order and safety structures.¹⁸

Green building has also reached the hotel market. While it was believed that hotels would have difficulty in adapting technologies while remaining customer friendly, hotels in at least the State of California have reached out for green building ratings utilizing such features as low-flow toilets, solar lights, specially designed carpeting, well-insulated buildings, and organic chemical-free products in a tobacco-free environment.¹⁹ In fact, some hotel constructors are “going green” by recycling construction waste as the part of its erection efforts.²⁰

Other industry segments that are moving towards green building include:

- a new Gatorade facility (which obtained a gold level certification, along with the designation of being the largest food and beverage site in the world to achieve this rating)²¹;
- retail and office buildings²²;
- shopping centers²³;
- information center for a master planned community²⁴;
- financial institutions²⁵; and
- home building²⁶.

Indeed, going green has even reached heavily traveled tourist areas such as Vail, Colorado, with a proposed plan for the \$1 billion “Ever Vail” project, believed to be the largest LEED™ certified multi-use resort and development project in the Nation. This project will convert a 9.5 acre Brownfield site into a ski resort.²⁷ Green has also come to Las Vegas, Nevada, but not without some controversy which will be discussed further below.

A final area of growth in the private sector worthy of note is in the health care industry. In the health care sector, construction has gone green to not only save energy, but also to provide a healthier environment for the treatment of patients.²⁸

As an owner/developer, PNC Bank has been at the forefront of green building development, including not only its operation data center, a silver-rated building, but also branches which have gone through the LEED™ registration process. Indeed, in 2006, PNC Bank had the distinction of ownership of the most green buildings and in 2007, PNC obtained a patent on the term “Green Branch.”

Some contractors have actually focused on green building as a method of distinguishing themselves in difficult construction markets.²⁹ However, despite the success of the process, and the expansion of LEED™ throughout the United States, including 48 certified buildings at the platinum level, 283 certified gold buildings, 310 silver building and 357 certified buildings, plus 6 more that were classified “bronze” before that level was changed to certified, and despite numerous LEED™ certified projects in Seattle, Portland, Chicago, Pittsburgh, Atlanta, Grand Rapids, and Washington, DC, among other cities, there is still criticism with the LEED™ process as being too burdensome and unrefined.³⁰ That criticism in turn has encouraged some developers to pursue green building efficiencies without seeking the LEED™ rating and certification. However, that approach has been subjected to some criticism as not being fully committed to the process.³¹ The reluctance to pursue this certification at times appeared to be driven by the costs of certification itself. For example, in Lake County, Illinois, the County’s board rejected spending more than \$600,000 to receive LEED™ certification on a proposed central permitting facility.³²

Nevertheless, to date, a significant portion of the LEED™ projects being undertaken are being stimulated by governmental requirements and/or incentives. A number of government agencies that follow LEED™ standards include NASA, the Air Force, the Army, the Navy, the Departments of Agriculture, Energy, Health and Human Services, Interior and State, the EPA

(appropriately) and the General Services Administration (“GSA”). Indeed, the GSA adopted a green building LEED™ certification requirement for tenant leasing. Under this requirement, the building will have to be silver LEED™ rated at a minimum in order to be considered for GSA leasing/occupancy.

The states have also gotten into the act, with sustainable requirements for government funded projects in the following states: Arizona, Arkansas, California, Colorado, Connecticut, Florida, Hawaii, Illinois, Maine, Maryland, Massachusetts, Michigan, New Jersey, New Mexico, New York, Nevada, Oregon, Pennsylvania, Rhode Island, Virginia, Washington and Wisconsin.

Related to the above, there is also government “funding” of green projects, through incentives coming in the form of tax credits. For example, in Massachusetts, there are proposed tax credits that are being planned, beginning in 2008, to provide credits to commercial construction projects larger than 20,000 square feet and residential projects of 12 units or more. The credits are distributed once the project is underway and are spread out over a 5 year period. The green building tax credits are capped at an annual cost to the state of \$25 million with no project receiving greater than \$2 million.³³

In Sacramento, as a part of an effort to become greener than surrounding neighbors, there is a requirement that new state office buildings qualify for a LEED™ silver rating at a minimum. Indeed, developers submitting bids on the state office complex must not only meet this minimum requirement, they also must design their buildings to produce 10% of their own power through some means other than standard electricity.³⁴

In Howard County, Maryland, legislation was recently approved whereby 75% in property tax credits will be provided over a 5 year period as incentive for commercial building

developers to pursue LEED™ certified green building. The same legislation also sets aside a 100 housing allocations annually for environmentally friendly green residential projects in the County. Finally, any proposed commercial building of 50,000 square feet or more would have to apply for LEED™ certification and pursue the LEED™ evaluation process or face fines. These requirements will take effect on July 1, 2008.³⁵

Nearby, in Washington, DC, all new major commercial buildings are being required to meet the USGBC standards.³⁶ Likewise, a recently introduced Senate energy bill further supports the use of high performance green buildings and seeks to trim federally leased or owned building operating costs by 20% over 5 years through energy savings.³⁷

In Pennsylvania, an energy efficiency bill is proceeding through the legislature that would provide benefits to both new construction and renovation to existing multi-family commercial and industrial buildings. This House Bill, No. 46, would establish high performance building tax credits for green buildings that meet their eligibility requirements. At the time of the drafting of this article, that legislation was not as of yet tied specifically to any LEED™ certification requirements. However, a very similar bill, PA House Bill No. 1205 tied the House Bill No. 46 language to the LEED™ - NC requirements. House Bill No. 1205 was also winding its way through the committee review process at the time of this article.³⁸

Not all of the incentives to build green have been provided through these credit vehicles. In the education and public sector, projects are being developed with specific requirements for LEED™ certification targets at the outset. For example, in this regard, a science center being constructed by Eastern Connecticut State University is seeking to achieve several certifications and, consequently, is requiring a number of different elements as a part of its design and

construction.³⁹ Further, the San Francisco Public Utilities Commission has in its future a platinum LEED™ rated headquarters building that it is pursuing at a not-so-insubstantial cost of \$178 million. This construction will incorporate wind turbines on the roof, solar panels and other water conservation and water recycling features.⁴⁰

Still, at the public level, going green or proposing LEED™ certified construction and/or credits has met with some resistance, if not some practical calamity. For example, while advocates in Minneapolis are pressing for the replacement of the Target Center roof (at a size of 3.3 acres), some are balking at the \$400,000 in additional costs that would be required to pursue a green roof. In response, proponents argue that providing such a high profile project would not only produce bragging rights for the community, the costs would be recaptured over a 5 year period through energy savings. As of the time of this article, no permanent decision had been made on whether to proceed with the green roof system.⁴¹

Then, there is always the possibility that you could be too successful in providing incentives. In 2005, green building legislation was passed in Nevada to provide tax incentives for meeting green standards. While some were originally questioning whether the LEED™ standards provided a payback to taxpayers, there is now a greater concern that the number of projects applying for the tax breaks will dramatically reduce tax revenues to that State. The latter concern required the Nevada legislature to take further action, modifying the tax breaks available for green construction.⁴²

Sometimes, green incentives are simply a victim of budgeting constraints at the public level. For example, Maryland was forced to forego its previously enacted green building tax credit when there were concerns that there was a structural deficit facing the state. Nevertheless,

Maryland did sponsor a bill to create a Maryland Green Building Council, even though there are no financial incentives attached to this legislative creation.⁴³

Still, there are a number of public initiatives being pursued to provide, either through expedited permitting, density bonuses, tax breaks and/or a combination of the same, incentives to pursue green, and usually LEED™ certified, building. Summaries of these initiatives are readily available on the USGBC website, www.usgbc.org.

In the educational sector, a combination cost plus incidental benefits may color the road to future construction green. For example, in the Gulf Trace Elementary School System in Florida, not only energy savings drove the decision to proceed with building green. Indeed, despite increasing the initial upfront costs by approximately \$100,000, the School proceeded with green construction based upon a 2006 study of 30 schools already recognized as green. In addition to the energy savings, the survey also found that teachers and students called in less absences and overall felt healthier in these buildings.⁴⁴

Another method of creating incentive for green building is to make it mandatory. In California, for example, a bill was proposed which would require commercial buildings over 50,000 square feet to meet a gold rating by 2013. While some of these requirements may appear harsh and economically unattractive, in certain jurisdictions, where energy conservation is much more essential, they may become the wave of the future.⁴⁵ Also in California, Los Angeles is currently considering a city-wide green building plan, which would require all major commercial and residential developments to cut energy and water use by using low emission paints, recycled materials, irrigation systems and natural light. Further, more than 200 annual privately built

projects over 50,000 square feet would have to incorporate a checklist of features based on LEED™ guidelines.⁴⁶

A final element of incentive is in reputation in the market place. In this regard, the American Institute of Architects (“AIA”) is lending a supporting hand, reaching out to recognize green buildings, including those which focus their attention and efforts on energy, carbon reduction and conservation. Obtaining these awards and recognition may also help to stimulate development in this area.⁴⁷

However, in order to truly become mainstream, LEED™ must find itself into the budgeting process of developers as a means to enhance and not detract from property valuations. For example, if the approach to green in a particular structure can reduce energy expenses immediately, it may make the approach toward green/LEED™ construction much more palatable to that developer and/or its investors. Some developers are already beginning to think about these concepts as they plan their upcoming developments.⁴⁸

Another consideration and challenge facing the implementation of green building features comes from some of the very techniques used to achieve a green result. For example, studies are beginning to be released connecting building risks with certain green techniques and even LEED™ point requirements. Indeed, these requirements and the possibility of building failures of the more traditional and recognized level must be further monitored so that future development, design and construction participants can more readily avoid potential liability for disputes arising out of the efforts to achieve a green and/or LEED™ rating point objective.⁴⁹

V. GOING GREEN: RESOURCES AND RECOGNITION

For those who have already committed themselves to the idea of going green with their next construction project, or for those who are leaning toward the decision, but are not quite yet ready to make the first step, there is still the issue of how one begins the process.

If the goal is to proceed with a green project with the ultimate objective of obtaining some level of LEED™ certification, the first and essential step is consulting with the USGBC itself, as well as any local organization aligned with the USGBC and/or the LEED™ certification program. These organizations are committed to the green building industry and certainly will encourage information gathering as an incentive to begin on the green road to LEED™ construction and certification.

Another essential element to consider particularly with larger projects is the engagement of LEED™ certified professionals otherwise known as LEED™ accredited professionals (“LEED™ AP”).⁵⁰ These professionals, particularly in the design and construction fields, have proceeded through the USGBC’s training process and have completed testing to become accredited with the LEED™ AP designation. Regardless of that designation, however, any party intending to build utilizing the LEED™ certification process should make certain that the design and construction professionals are experienced and familiar with the LEED™ concepts and requirements, including the rigidly enforced recordkeeping provisions.

Moreover, and on certain projects of even a more complex nature, a LEED™ consultant should be considered as an additional member of the design and construction team, providing assistance to the owner in the form of review of the program, design and progress of the project, including collection of necessary receipts and records of purchase and/or disposal.

Through the use of these individuals, there should be an advantage to the developer in the form of minimizing impacts from unavailability of green materials, including necessary energy saving devices such as windmills and turbines. For example, in certain segments of the country, strong demand for windmills and turbines are causing their costs to dramatically increase.⁵¹

Other avenues for finding experienced green design and construction professionals include the non-profit Co-op America's Green Pages (www.co-opamerica.org) and affiliate members of Business Alliance for Local Living Economies. These entities can be found through resources such as the Green Guide, sponsored by National Geographic (www.thegreenguide.com).

Even with the most experienced personnel, the elements of vision and resourcefulness are essential. At times, a unique dedication to the green building effort itself and tracking LEED™ points should be considered. For example, on the MGM Mirage City Center Development in Las Vegas, staff members have been assigned to that project to track LEED™ credits and nothing else. Of course, such an effort or the hiring of an outside LEED™ AP consultant charged with keeping track of required documents for certification may be worthwhile on these larger scale projects, because the loss of one or two credit points could mean the difference between platinum and gold, and possibly the loss of significant tax incentives.⁵²

In the more technological realm, there are clashes between modern energy conservation systems and, perhaps, historical designations. For example, a feature of energy conservation, heat absorption and run-off reduction is the use of roof-contained vegetation. These systems utilize roof plantings to absorb heat, collect water and otherwise reduce the energy costs for the building as well as rendering the building's impact to the surrounding area.⁵³

However, when one person wanted to use a drought-resistant grass on his roof in place of an existing black rubber covering, considerations of historic preservation were raised in the Maryland community of Annapolis, where historic image is of considerable importance.⁵⁴ While at the time of this writing, the matter had not been fully resolved, the issue remains whether and how green construction techniques can be employed in a manner that also peacefully co-exists with the visual environment associated with historic structures. Here, a white or light-reflecting rubber replacement roof might be an alternative/compromise to the roof plantings proposed by the resident. More technological solutions to this apparent conflict should also continue to develop as the green building process proceeds in its evolution curve.

There are many groups which are attempting to assist in how to most efficiently and effectively proceed with green material design and selection. Some of those include www.greenguard.org, www.greenseal.org, www.coolroofs.org, www.greenbuilding.com, and www.fscus.org.

Assuming the necessary design and construction professionals can be located, there are still the issues of estimating the green building costs and preparation of the green building specifications themselves.

On the former point, the Association of General Contractors (“AGC”) has developed programs on LEED™ estimating for green building and is further championing green building education efforts for its membership, including more intensive training programs and exploration of studies on the impact of LEED™ Green Building Rating System on construction participants.⁵⁵ The objectives of these programs are to better understand the LEED™ standards

and LEED™ point system and applying the life cycle analysis to cost estimation, among other points.

As for specifications, green resources continue to grow. Most notably, the Construction Specification Institute (“CSI”) and McGraw-Hill Construction (“MHC”) have worked together to develop “GreenFormat” specifications. These GreenFormat specifications will greatly assist the industry in developing green standards for the construction process. BuildingGreen, a partner of both CSI and MHC, will also be participating in this initiative with not only technical advice, but also database support.⁵⁶ BuildingGreen provides resources for the GreenFormat specification, including an overview of its objectives for both design professionals and manufacturers. Almost in a format consistent with the LEED™ points process itself, there are categories of the GreenFormat Specification tied to agency approval, sustainable standards, sustainable performance criteria, product composition, manufacturer and product information, life cycle issues and manufacturer certification of data.

Another resource specification comes from the Federal Government. These include the Federal Guide for Green Construction Specifications, which can be found at www.wbdg.org/design/greenspec.php, and the EPA’s environmental specifications which can be found at www.epa.gov/rtp/new-bldg/environmental/specs.htm.

There are also specification resources available at the state level. For example, in California, there are green specifications which can be found at www.ciwmb.ca.gov/greenbuilding/specs/section01350/default.htm.

VI. GREENING YOUR CONTRACTS

A final resource that will need to be developed on the green road to LEED™ design and construction involves specifically tailoring existing design and construction contracts to embrace the green building concepts, including the LEED™ review and certification process itself.

A. Green Contracts – The Early Years

In the earliest contracts involving green building/LEED™ rating objectives, contractual requirements were not nearly as detailed. Indeed, while the level of sophistication surrounding the design elements of a LEED™ rating were growing with increasing detail and specificity, contract provisions were not keeping in step.

The subject matter of green building/LEED™ rating objectives was treated most heavily in the request for proposals and the specifications themselves. While there were some reference to the requirements set forth in the general conditions, there was no consequence attached to a failure to address these requirements. Likewise, while in some instances certain cost elements associated with pursuing a green building/LEED™ initiative were identified, this was not always the case. Furthermore, in those instances where it was addressed, the cost elements were very generically identified as a lump sum required to pursue (as opposed to achieve) a LEED™ rating certification.

Little or no discussion was included within many contract documents relative to the requirements of document management and the procedures to be followed in order to obtain or to facilitate obtaining the LEED™ rating. Indeed, there was very little attention given to who is responsible for preparing, collecting, coordinating and compiling the documentation which would be submitted to the USGBC as a part of the LEED™ review process.

Finally, in this regard, not much was identified in terms of penalties or consequences for failures to comply with contractual requirements. Likewise, there was practically no instance where a failure to achieve LEED™ certification as identified was an event of default or even as an element of deficient performance.

Perhaps the reason behind the lack of initial detail to contractual provisions addressing the LEED™ requirements were the result of the green building process being in a honeymoon phase. In the earliest stages, project participants were inclined to pursue all reasonably available efforts to achieve the rating for the facility. Certainly, achievement of the LEED™ rating was a symbol of recognition that could be included as a part of future sales literature and for future building efforts.

Perhaps another reason for a lack of detail in this area stemmed from the lack of definable consequences resulting from the lack of contractual compliance. In its earliest years, it was difficult to articulate in any monetary fashion that a failure to achieve the given LEED™ rating would produce certain economical consequences such as the loss of a tenant or a tax credit. By today's standards, where LEED™ based incentives are specifically set forth, the failure to achieve a given LEED™ rating could have attached to it significant and specific damages.

B. Green Contracting Today

As the trend toward green clearly continues and as projects continue to seek green building/LEED™ status, more attention will have to be paid to the contractual provisions contained in the design and construction agreements for these projects. While some attention has begun to focus on this area, certainly more is necessary.

So far, the number of contractual provisions specifically adhering green building/ LEED™ issues have been somewhat limited. Certain contracts have placed specific dollar values allocated toward green based or LEED™ certification efforts. Other contractual provisions have addressed certain certification levels or targets as a part of the contractual requirements (e.g., the project will be seeking a LEED™ silver rating).

However, more needs to be done to address specific issues related to green building and, in particular, the LEED™ rating system. For example, language needs to be included identifying responsibility for obtaining certification points. Indeed, these issues need to be transferred from the realm of the specifications into the body of the primary contract requirements in order to provide greater certainty between the parties in terms of responsibility.

Furthermore, what needs to occur is the development of language of consequence in the event there is a failure to achieve a specific project certification and that failure can be causally attributed to the designer or contractor. Similarly, the contract documents can address the consequences of not having a facility certified that the desired level, particularly instances where there are consequences associated with obtaining only a certified rating and not a silver rating.

Moreover, as a means to monitor and assure conformance with these requirements, the implications of and remedies for failing to achieve the underlying point standards in particular areas should be addressed. This analysis and monitoring should not be relegated to the completion phase of the project. Rather, it is essential that these activities be monitored as the project is on-going, particularly considering some documentation issues cannot be easily generated after the fact when contemporaneous record keeping has failed. Ultimately of course, all of these issues need to be reevaluated and revisited at the time of substantial completion and

during project closeout. In fact, as addressed further below, the issue and meaning of closeout itself should be reevaluated in terms of when that event takes place. Stated another way, with the necessary element of certification review by the USGBC before the LEED™ rating is obtained, the certification event should be considered the project finish line as opposed to the traditional completion of physical construction activities at the site.

Yet another consideration that needs to be addressed are unique insurance and/or bonding issues presented by the use of green building design and construction elements as well as due to the objective and desire to achieve a LEED™ rating and/or other recognized rating of achievement in green design and/or construction. Many of the “traditional” property and casualty insurance policies or even, for that matter, professional liability policies currently available do not reach warranty and guaranties given by the professional. By the same token, these policies need to be re-evaluated to determine whether they would cover a failure to achieve a given level of LEED™ certification, provided, of course, that this objective actually was able to be placed within the body of the contract documents themselves as a performance criteria.

Without endorsement, it is worthwhile to note that Firemen’s Fund Insurance Company has been very active in insurance related to green building and certifications under the LEED™ rating system. For example, Firemen’s Fund offers Green GuardSM coverage, represented to be the first of its kind for certified green building replacement and upgrade coverages. Furthermore, Firemen’s Fund offers a policy program to allow traditional building to be re-built to green standards in the event of loss.

Similarly, on the surety bond front, there must be consideration given to whether the implementation of a green/LEED™ requirement will expose the surety to risks beyond that

traditionally contemplated by the surety industry. This is a point that should be specifically explored and addressed so as to assure bond coverage in the event that there is a default on the project necessitating intervention by the surety bond provider.

C. The Future of Green Building Contracts

There have been some developments in the contract forms available to utilize when pursuing a LEED™ certified project. The best example is the B214-2004 document released by the AIA in 2004. The B214 identifies those services to be provided by the architect which would be consistent with obtaining LEED™ certification. For example, it provides for preparation of specifications for construction documents. However, it does not elaborate on the requirements to be incorporated in the construction documentation. As such, even the B214 document would have to be modified to include some of these specific elements. Also not addressed in the B214 are any consequences for failure to achieve certification. Likewise, there is no mention of who bears the registration costs if certification is not obtained.

Nevertheless, the AIA B214 document does represent an excellent starting point and framework for establishing an engagement with a design professional for a project seeking LEED™ certification. As such, and as with most of the other AIA documents, it provides an excellent starting tool for the parties to frame their contractual relationship for the given project.

Indeed, coming soon to an AIA contracts store near you are the new 2007 series of design and construction documents. In the new architect agreement, labeled the B101-2007, the architect is required to discuss with the owner whether it is feasible to incorporate environmentally responsible/sustainable design and construction elements into the project. However, responsibility for *achieving* those identified goals is placed jointly on the owner and

architect. Certainly, these provisions will come into greater focus when the final and official versions are released in late 2007.

Government contracts have also begun to incorporate specific language geared towards achievement of the green building/LEED™ rating recognition. For example, in the County of Alameda, California, a specific retention provision has been crafted which ties it toward its Sustainable Building Contract Program. Indeed, the section provides for a monetary withholding in order to secure the energy performance requirements set forth in the agreement.

The provision in question is identified on the Alameda County website (www.ciwmb.ca.gov/GreenBuilding/Design/Contract.htm) as follows:

PERFORMANCE CONTRACT

The Contractor is required to comply with the Performance Contract, Alameda County Office Building, dated May 15, 1998, which is an Attachment to the Contract Documents with respect to the energy performance incentive program for the Project.

ADDITIONAL RETENTION FOR CONTRACTOR'S OBLIGATION UNDER PERFORMANCE CONTRACT

Until the completion of the energy performance analysis at the end of the second year of occupation of the Recorder's Building and implementation of the incentive provisions in the Performance Contract, the County shall have the right to withhold from the final payment an amount up to the Fifty Thousand Dollars (\$50,000.00) to secure the obligation of the Contractor to pay the County under the provision in the Performance Contract. In the holding of such funds, the County shall have all the rights, remedies, and obligations that apply to the contract retention held by the County.

Another example is found in King County, Washington. As shown on the King County website, contract language has been developed specifically incorporating definitions for recycling environmentally preferable products (www.metrokc.gov/procure/green). Furthermore,

King County has identified environmental purchasing policies which are to be incorporated into every public contract.

The benefits of these government contract efforts is to permit any contractor drafter an additional resource for language tied towards green building/LEED™ certification. As such, it is not a resource that should be overlooked when crafting contractual provisions for *private* projects.

Even beyond these resources, and the resource provided by and found in the AIA documents, more can be independently done to increase contractual awareness of LEED™ criteria and the consequences of failing to comply. A starting point is a review of the LEED™ project checklist for points tied towards design and construction activities. Evaluate and consider which of those requirements are then more appropriately designated as “design based” versus “construction based.” For example, the specifications on the following areas will be particularly appropriate for that evaluation: sustainable sites, material and resource, and indoor environmental quality.

Taking these standards, you can then develop those elements which will be necessary in order to achieve the credit point and incorporate that element into the contract as performance-based criteria beyond the generic standard of “achieving LEED™ certification.” Then, liquidated damages and *force majeure* provisions can be tailored to address and accommodate the LEED™ related criteria and standards. Factors to be considered in this regard include those specific LEED™ certifications/green building requirements and the implications of not achieving the desired status. Examples of potential consequences of non-compliance would include failure to obtain available tax credits, failure to obtain government tenancy due to non-

LEED™ certified status, potential impact on additional FAR allowances, specific monetary allocations for LEED™ performance and failure to achieve LEED™ certification.

It is important that these implications be identified not only as a criteria for final project completion and acceptance but also for ongoing performance. For example, it may be an essential element of monitoring and maintaining compliance to permit a performance grounded default for deviating from the LEED™ related activity/objective while the project is in progress.

Yet another point that needs to be addressed in further detail is to require continuation of the architect's and contractor's involvement with the project while the certification process is ongoing. In this fashion, the design and construction team will remain committed to the project and committed to achieving the desired result. Otherwise, by not pushing out the completion finish line, contractually, the designer and constructor may be long gone at the time when the USGBC comes back with requests for clarification in order to establish final point award and certification totals.

It is also important in this regard to consider whether the contract documents themselves may be a basis for achieving a LEED™ credit point. The LEED™ criteria currently identifies a credit point available for innovation in design. A specific reporting requirement for records that will be necessary in the LEED/certifications/ review process should be included in the design and construction documents. For example, clearly delegate responsibilities for record keeping as well as designating a method of record keeping among the design and construction teams. Set forth that the documentation and reviews be prepared consistent with LEED™ based criteria, specify that certifications of waste recycling and appropriate waste disposal are being contemporaneously maintained, require prompt transmittal of records certifying energy efficient

equipment and procedures. Finally, consider requiring that information related to materials of construction including reused, recycled content, regional materials and rapidly renewable materials be incorporated into the equivalent of a operations and maintenance type manual at the conclusion of the project (along with requirements for periodic inspection while the project is ongoing as well).

D. Other Specific Provisions to Consider in Creating “Greener” Contracts

Clearly, an emphasis for design and construction contracts on green building projects should be identifying the objectives for the project in the contract documents themselves and not relegate those obligations solely to the specifications. Certainly, from a review of the LEED™ certification points available, there are activities directed towards design *or* construction and, consequently, should be placed in the respective contracts where meeting that requirement will fall to the designer or contractor, respectively. Of course, there are some other provisions that are a mixture of design and construction obligations requiring both performance *and coordination and cooperation* among and between the design and construction team. These coordination and cooperation obligations should be addressed in the contract documents as well.

There should also be a clear designation of whose responsibility it is to maintain records on the project which records are a central part of the certification process. For example, that documentation obligation may fall appropriately to the contractor in the first instance, requiring the contractor to provide every recycling/disposal record along with every pay application being submitted for the given work period, as well as all purchasing records for materials. At that juncture, once the documentation has been successfully transitioned into the hands of the architect for purposes of payment review, the architect would then bear the responsibility of

maintaining those documents in a coordinated fashion so that the documents can be assembled and submitted as a part of the certification process itself when that time comes.

Some of the LEED™ requirements themselves can be incorporated directly into the contract documents as opposed to the specifications, tying them specifically to liquidated damages for the failure to comply. Again, for example, to the extent that local building materials are going to be utilized in order to obtain a credit point, the contract documents could indicate that a failure to provide this information as a part of the pay application process will permit the architect and/or the owner to deny payment until such time as that documentation is received.

Another key feature of the green contracting process will be to require that the contractor bind the subcontractors and material suppliers to the overall requirements for the project. An express flowdown provision of some sort will be essential in permitting the contractor to make certain that the subcontractors and material suppliers will be buying (both literally and figuratively) into the green process. Additionally, a training obligation could be placed upon the contractor to make certain that the subcontractor teams are adequately sensitized to the objectives of the project and the necessity of complying with these point earning efforts.

A way to provide incentive based-compliance in the construction contract as opposed to penalty provisions, could be found in bonuses for innovation and/or developing methods of achieving points which were not believed to be obtainable by the design and development team. Again, *any point* may become essential in the certification process.

As mentioned above and a point worthy of some further emphasis is to perceive the finish line of a design and construction project utilizing a LEED™ certification standard as the receipt of the successful certification itself, as opposed to the completion of physical construction. The

problem is that the certification process can take many months to complete at times and may require further clarification from the design and construction participants in order to conclusively obtain certain points. Without having the design and construction team incentivized through retainage or some other withholding to participate in this process, the owner may find itself alone when facing the agency (the USGBC) ultimately responsible for the certification destiny of that project. Indeed, some points must endure an appeal process in order to be conclusively determined. These appeals in turn cost money, which should be passed along to the design and construction personnel to the extent that *they* are responsible for the initial failure to obtain that point for certification.

Overall, and as can be seen from the above, the contracts used on these projects must be specifically tailored to embrace and address a green building model and, in particular, a model which is appropriately tailored to LEED™ requirements, if that LEED™ certification is the ultimate project goal. In that fashion, the contracts can help to drive the projects “green focus” and provide remedies in the event negative circumstances and consequences threaten to tarnish the green building effort.

VII. DESIGN CONSTRUCTION CAVEAT LEED™ BASED DISPUTES

Another issue to be considered when pursuing projects seeking LEED™ rating status is in addition to the disputes that may arise in the event a required or desired certification is not obtained. Stated another way, there is the possibility for suits tied to LEED™ requirements in the design and construction of buildings.

For example, consider the situation where a LEED™ related design criteria results in a traditional construction failure. The contractor may then rely upon the “green”

specification/requirement as a basis for avoiding liability due to unforeseen consequences arising from the specification, i.e., due to the use of heat absorbing roof treatments, the increased weight and moisture resulted in increased roof burden and/or vapor penetration into the building. Keeping such a scenario in mind, the LEED™ related plans and specifications must be reviewed for design integrity and constructability by a designer and contractor familiar with LEED™ based innovations. In the same vein, it may be worthwhile to include a provision in a design and construction agreement where the designer or constructor represents their familiarity with LEED™ criteria and that they are experienced in performing those steps which will be necessary to evaluate, design and building a successful and structurally sound LEED™/green project. Finally, the availability of green/LEED™ compliant materials, or better said the shortage of lack thereof, should be considered as a part of green contract *force majeure* and material escalation clauses.

VIII. CONCLUDING THOUGHTS

This is certainly an exciting time facing the design and construction industry. This is an opportunity where, through innovative techniques, one of the major contributors to the waste stream of the economy is reduced and re-channeled into renewable and sustainable technologies and products. Also, buildings are being re-invented so they are in a far superior symbiosis with their surrounding environment than ever before. Of course, in order to encourage those efforts and successes, there must be certainty in the contract process. As such, by reviewing and reconsidering all those “standard contract forms,” as well as revisiting insurance and surety bond coverages, when pursuing a green building and/or LEED™ project, by re-drafting contractual provisions specifically tailored to LEED™ based criteria and/or approaches for green building status, and by updating insurance and surety bond coverages accordingly, the parties will be able

to assure that future projects of this sort will be undertaken, that disputes on these projects will be kept to a minimum, and that, in the event of a project failure, risks will be allocated and negative impacts will be reduced. Moreover, by understanding the green building process, the incentives and the requirements for LEED™ certification, all of the project participants will be able to more certainly achieve the desired “green” objective.

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¹ Some of these differing views on the best methods to achieve green building design and construction have resulted in development alternative standards of review. For example, the Green Building Initiative (www.thegbi.org) has developed Green Globes™ as a green management tool for development and implementation of green building standards for construction. Also, to address some of the unique aspects of green home construction, the National Association of Home Builders (“NAHB”) has developed a National Green Building Standard, addressing issues such as lot preparation and design, resource efficiency, energy efficiency, water efficiency/conservation, indoor environmental quality, operation, maintenance and homeowner education and global impact. www.nahbgreen.org.

² ContractorMag.com, “Showing Contractors How To Make Some Green,” September 27, 2007.

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⁵ Boston.com, “An Incentive To Build Green,” July 13, 2007.

⁶ Buildings.com, “Global Survey Shows That Green Construction Costs Are Misjudged,” August 23, 2007.

⁷ IndustryWeek.com, “Pepsi Co. Facility Goes Green, Gets Gold,” June 22, 2007.

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- ¹¹ CNNMoney.com, “The Confounding Complexities Of Building Green,” August 31, 2007.
- ¹² Milwaukee Journal Sentinel, “Green Approval Can Be Incentive But Shouldn’t Be The Only Reward,” September 30, 2007.
- ¹³ *See, e.g.*, Green Globes and the NAHB’s Green Building Program.
- ¹⁴ Pioneer Press, “‘Green’ Gains Ground Among US Builders,” December 26, 2006. Also, in 2007, the USGBC reported an 11,000 strong membership, over 6,500 affiliated organizations, 70 chapters, 80 governmental adoptions of LEED™ standards, and over 30,000 LEED™ Accredited Professionals.
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- ²⁰ FortWayne.com, “Hotel Builders Recycle Waste,” May 25, 2007.
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- ²² Globest.com, “Regency Set Sights On Green Shopping Centers,” July 18, 2007; TheOlympian.com, “Building Projects Seeks Top Green Certification,” June 18, 2007. Here too the USGBC has reached out to this segment of the building community, developing LEED™ standards for retail construction, including the use of green fixtures, furniture and equipment in both new construction and larger interior build-out settings.
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