

A Window into the Benefits, Criticisms and Pitfalls of LEED Construction

Thomas Hale, Andrew Gaudreau
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Millions of rays of sunlight illuminating the high rise of transparency. Natural resource overload. An array of steel, glass and tall columns. Open staircases. Indoor bridges. Glass room partitions giving the feel of a completely open floor plan. These are just a few ways to describe the new University of Baltimore School of Law building. A modern-day mecca of LEED construction in Baltimore. This building was constructed with high expectations: to be one of the “greenest” buildings in Baltimore and in the metropolitan region. It has all the features you would expect from a LEED-certified building. This includes a rainwater harvesting system, a green roof, terraces and a sunken garden that contains native and adapted plants. It has a system dedicated to managing fresh air through automated windows throughout the building. Fifty percent of the construction materials were recycled. The only disappointment is that this building was constructed *after* our time attending this University.

“Green buildings” are the wave of the future. As a society, we have been growing increasingly aware of, and concerned about, preserving the environment for future generations. For example, the automotive industry is working to reduce carbon emissions. Consumers are encouraged to bring reusable bags to grocery stores rather than use the plastic or paper bags offered at the check-out line. Water conservation has become critical, particularly in drier climates. These steps are important for our planet as climate change manifests an increase in natural disasters.

The construction industry is no different and is following suit in the sustainability movement. We are in a global warming crisis, and buildings emit a substantial amount of greenhouse gas emissions. LEED, or Leadership in Energy and Environmental Design, was the construction industry’s movement toward making changes. LEED was developed in 1994 by the U.S. Green Building Council (“USGBC”) to raise awareness about green building, to promote green building practices, and to create a common standard for measurement.¹ Buildings all over the world have now become LEED-certified. In fact, many municipal jurisdictions now require that certain buildings be LEED-certified.

¹ See USGBC, *Guiding Principles*, http://communicate.usgbc.org/usgbc/2006/08.15.06_guiding_principles/guidingPrinciples.

A Window into the Benefits, Criticisms and Pitfalls of LEED Construction

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The good news is that LEED has increased awareness about sustainability and green buildings. The bad news is that it is complicated. The planning, design and building phases of a LEED project are more involved than traditional buildings. Here comes the blinking warning across your computer monitor: **WARNING** - design and building professionals need to be aware of what is involved in order to avoid pitfalls, potential legal ramifications and stressful relationships between contractors and their clients.

This article explores the LEED process and its potential pitfalls, the possible legal issues contractors may face, and how to deal with these issues to increase the chances of a successful build and a long-lasting client relationship. This starts with understanding how a project becomes eligible for LEED certification.

How does a project become eligible for LEED certification?

It's all about the ratings!

LEED has developed four (4) "rating systems" because many types of projects are eligible. These ratings include:

- (1) LEED "Building Design and Construction,"

which applies to newly constructed buildings or buildings undergoing a major renovation;

- (2) LEED "Interior Design and Construction," which applies to interior spaces that are a complete fit-out;

- (3) LEED "Building Operations and Maintenance," which applies to existing buildings that are undergoing renovation; and

- (4) LEED "Neighborhood Development," which applies to projects involving new land development or re-development projects.²

² USGBC, *Better buildings are our legacy*, <https://new.usgbc.org/leed>.

A Window into the Benefits, Criticisms and Pitfalls of LEED Construction

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A single project is not limited to only one of these types of certifications – one project can actually receive multiple ratings.

Each of the LEED rating systems requires that certain basic standards be met. These standards are prerequisites. For example, a prerequisite for all LEED BC+C projects is that they do not use chlorofluorocarbon (CFC)-based refrigerants in HVAC and refrigeration systems because CFCs contribute to ozone layer depletion.³ Another prerequisite for LEED BD+C projects is indoor and outdoor water use reduction.⁴

But, it's also about the points!

In addition to the prerequisites, a planning team can earn “points” through credits by satisfying other performance criteria. LEED performance criteria encompasses the following areas:

- Location and transportation. This category takes into consideration where a building is located. For instance, does the location of the building promote the use of public transit because it is located near a subway station? Does the building take advantage of existing

infrastructure and reduce strain on the environment? Does the project include brownfield redevelopment, turning a contaminated site into a reused site?

- Sustainable sites. This category looks at whether the site selected for a project maximizes sustainability. For example, will the location promote rainwater management and heat island reduction? Will planted areas capture water to prevent erosion? Will landscape design assist in keeping the building cooler in warm months by incorporating trees that provide shade?
- Water efficiency. This category evaluates whether a building is designed to save on water use, including indoor water use, outdoor water use, and metering. Indoor water use includes capturing rainwater or graywater (water from bathtubs, showers, sinks and washing machines) to flush toilets or using waterless urinals or high efficiency toilets. Outdoor water use looks at landscape design and plant selection.

³ USGBC, *LEED v4 for Building Design and Construction*,
https://www.usgbc.org/sites/default/files/LEED%20v4%20BDC_04.6.18_current.pdf; Reva Rubenstein, et al., *The Treatment by LEED of the Environmental Impact of HVAC Refrigerants*, Sept. 28, 2004,

https://www.usgbc.org/sites/default/files/TSAC_Refrig_Report_Final-Approved.pdf.

⁴ USGBC, *LEED v4 for Building Design and Construction*,
https://www.usgbc.org/sites/default/files/LEED%20v4%20BDC_04.6.18_current.pdf.

A Window into the Benefits, Criticisms and Pitfalls of LEED Construction

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06/2018



- Energy and atmosphere. This category is perhaps the most significant for achieving LEED certification. Considerations in this category include whether the building promotes energy performance. The focus here is on reducing energy needs, looking at factors such as building orientation, the building envelope, the use of high-efficiency HVAC systems and ventilation. Several credits and prerequisites in this category pertain to satisfying ASHRAE standards.
- Materials and resources. The issue in this category is whether the building materials are sustainable and how waste is dealt with. This category is based on the EPA's goals of source reduction, material reuse and recycling (the latter of which is a LEED requirement) and turning waste into energy. Does the building use salvaged materials? Note that LEED does not encourage the reuse of windows or window glazing because older windows tend to be energy-inefficient.
- Indoor environmental quality. The goal of this category is to protect the health of building occupants and to enhance productivity. Considerations include whether a building well is ventilated (per ASHRAE standards or other international standards as appropriate) and whether it is daylight. Additionally, does the building use green cleaning materials?
- Innovation. The innovation category is the category for the incorporation of building components and design ideas which are not encompassed by the others. The question is, does the building uniquely meet "green" goals that are not specifically covered in the LEED system?
- Regional priority. This category acknowledges that different areas of the world have different sustainability needs. Take, for example, the American southwest and water conservation. In other regions, brownfield redevelopment may be more of an issue.⁵

Judgment Day – how buildings are ultimately rated.

Buildings are rated under LEED by the number of points they earn when satisfying performance criteria (note that points are not awarded for prerequisites). Ultimately, a LEED-certified building can achieve one of four ratings levels:

⁵ See generally USGBC, *The LEED credit library*, <https://www.usgbc.org/articles/leed-link-leed-credit-library> (last visited May 4, 2018).

A Window into the Benefits, Criticisms and Pitfalls of LEED Construction

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06/2018



- LEED Certified (40-49 points);
- LEED Silver (50-59 points);
- LEED Gold (60-79 points); or
- LEED Platinum (80+ points).⁶

A great example of a LEED Platinum building is the new University of Baltimore School of Law. This building is a far cry from the prior building, which was constructed decades ago and resembled a high school – complete with hallway lockers. The new LEED Platinum building is awe-inspiring. It is located at the busy intersection of Charles Street and Mount Royal Avenue, with Penn Station nearby, which is a hub for people traveling throughout the Eastern corridor. It is also located within blocks of the light-rail and many bus stops. There are outdoor, landscaped terraces. As reported in the Baltimore Brew, there is a 12-story atrium which is designed to siphon off rising hot air. The acoustics in the classrooms are improved by acoustical baffles. There is a double glass façade on the exterior of the building that deflects outdoor noise, yet the windows can also be opened. The roof harvests rainwater, which is stored in cisterns and then used to flush toilets. The building utilizes natural ventilation. The building is lit from the sides rather than top-lit. The

concrete slab floors even contain 50 miles of plastic tubing for radiant heating and cooling. There is reportedly \$400,000 in annual energy savings, even though the building cost approximately \$5 million more than a traditional non-LEED-certified building.⁷

This is a far cry from the prior building, and frankly, the entire neighborhood has improved since the building was completed.

What's all the hype with LEED?

The idea is obvious: The higher-rated the building, the more environmentally friendly and efficient it will be. We save the environment; enough said – right? But wait: there's more.

There is also a significant marketing component. Buildings that achieve LEED certification tend to receive more publicity (and perhaps attract more tenants) than other more conventional buildings. LEED certification can increase a building's market value. In today's market, it is important and valuable to be "green" because people care about the environment and sustainability.

Other benefits include:

- Energy efficiency.

⁶ USGBC, *Better buildings are our legacy*, <https://new.usgbc.org/leed>.

⁷ James D. Dilts, *A law school building that's smart and stimulating*, Baltimore Brew (April 10, 2013),

<https://baltimorebrew.com/2013/04/10/a-law-school-building-thats-smart-and-stimulating/>.

A Window into the Benefits, Criticisms and Pitfalls of LEED Construction

Thomas Hale, Andrew Gaudreau
06/2018



LEED buildings are designed to be energy efficient and save resources, and they should help minimize waste. Needless to say, LEED-certified buildings can save money and operating costs over the long-term. Energy-efficient buildings also help reduce greenhouse gas emissions. For instance, the use of CFCs is prohibited in new construction, and renovations require the phase-out of CFCs.⁸

- Healthier and more productive work environments.

LEED buildings help create positive and healthy work environments. Long-term exposure to products containing volatile organic compounds such as paints, adhesives and ceiling tiles can contribute to sick building syndrome.⁹ By not using these materials, productivity of building occupants

necessarily increases.¹⁰ Use of better ventilation also helps decrease indoor contaminants.

- The lifecycle approach.

LEED takes into consideration a building's lifecycle and not just the up-front costs. The "lifecycle approach" refers to evaluating the operation and maintenance costs of the building and not just the construction costs.¹¹ In other words, "the big picture." Traditional building only looks at the design and construction costs. The lifecycle approach helps the building owner understand and evaluate the actual costs of operating and maintaining the building. At the planning phase, adjustments can be made to help minimize long-term costs of building operation.

⁸ USGBC, *LEED v4 for Building Design and Construction*, https://www.usgbc.org/sites/default/files/LEED%20v4%20BDC_04.6.18_current.pdf.

⁹ See, e.g., Sumedha M. Joshi, *The sick building syndrome*, *Indian Journal of Occupational and Environmental Medicine*, 2008; 12(2):61-64, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2796751/>.

¹⁰ See, e.g., Niemelä, R., Seppänen, O., Korhonen, P. and Reijula, K., *Prevalence of building-related symptoms as an indicator of health and productivity*, *American Journal of Industrial Medicine*, 2006; 49: 819-825.

¹¹ See GBCI, *Whole building life cycle assessment through LEED v4*, <http://www.gbci.org/whole-building-life-cycle-assessment-through-leed-v4>.

A Window into the Benefits, Criticisms and Pitfalls of LEED Construction

Thomas Hale, Andrew Gaudreau
06/2018



- LEED-certified buildings can earn tax breaks.

In certain jurisdictions, including in Maryland, property tax credits may be awarded for “high performance buildings.”¹² Given this benefit, as well as the other cost-saving and environmental benefits, why not “go green”?

What’s the downside to LEED?

Despite the numerous benefits of the LEED system, make no mistake – people are critical of LEED. LEED certification can be time consuming and confusing. Achieving LEED certification will involve greater up-front costs that seem like an impediment to getting the project going. Additionally, once a building becomes LEED-certified, there is no guarantee that the building will be made to function in an environmentally-friendly way. Let’s be clear – while the design of the building will *hopefully* lead to long-term savings, there are maintenance and operational costs to consider so that the building actually performs as intended. If you do not operate the building as intended, is the cost worth it? Not likely.

¹² See, e.g., Md. Code, Tax-Property Article, § 9-242.

¹³ Sam Roudman, *Bank of America’s Toxic Tower: New York’s Greenest Skyscraper is Actually Its Biggest Energy Hog*, The New Republic (July 28, 2013), <https://newrepublic.com/article/113942/bank-america-tower-and-leed-ratings-racket>.

The Bank of America Tower at One Bryant Park in New York is one example of a building that has been criticized as not being environmentally-friendly. The building opened in 2010 after achieving LEED Platinum – the first skyscraper to achieve this rating. However, according to a 2013 article by Sam Roudman in The New Republic, based on New York City data, One Bryant Park produces more greenhouse gases and uses more energy per square foot than other comparably-sized skyscrapers in Manhattan.¹³ Mr. Roudman reports that a third of the building’s floors are trading floors whose computer workstations create a huge energy drain. In the same vein, heating, cooling and lighting the trading floors require enormous energy. While LEED criticized Mr. Roudman’s article as ignoring how, for example, the building recovers waste heat from its operation, the article underscores that a building’s LEED certification does not mean that it will be operated in an environmentally-friendly manner.

Another criticism is that LEED certification has become formulaic and non-innovative. Points are easily awarded for “low-hanging fruit” and certification can become a simple numbers game.¹⁴ For example, building near public transit results

¹⁴ Kaid Benfield, *As Important As it Is, LEED Can Be So Embarrassing*, City Lab (Jan. 18, 2013), <https://www.citylab.com/equity/2013/01/good-and-important-it-leed-can-be-so-embarrassing/4435/>.

A Window into the Benefits, Criticisms and Pitfalls of LEED Construction

Thomas Hale, Andrew Gaudreau
06/2018



in points, but it is not that difficult to earn those points if you are in a city. Less points are awarded for innovative design techniques which may actually have an important impact.

Avoiding Pitfalls in LEED Construction

LEED is generally a voluntary process, but sometimes it is required. Building professionals need to be aware of the jurisdictional building standards. For example, certain jurisdictions have codified the IGCC (International Green Construction Code), which establishes regulations for new and existing buildings related to energy, water conservation, and other domains. In Maryland, all new or significantly renovated fully-State funded buildings require a LEED Silver certification or other comparable rating.¹⁵

All of this is great background information, but why does it matter? The answer is that contractors involved in LEED projects need to understand the “big picture” so that they don’t inadvertently drop the ball and are held responsible for the failure of a project to achieve the desired LEED rating. There are several issues that contractors should be aware of to avoid this pitfall.

From the get-go and before construction even begins, there is an intense planning phase in which the project team –

which includes everyone from the owner, architects, engineers, design consultants, contractors – meets to strategize and develop goals and LEED credits for the project. Everyone needs to be on the same page, to collaborate and to understand the end-goals. Each player needs to understand his or her role. This type of collaboration and communication continues throughout the building process to ensure that the building plans are developing as anticipated or that necessary changes are recognized and corrected. The contractors benefit by early involvement in better understanding this process.

For each contractor, this requires a clear understanding of its scope of work. The scope of work needs to be clearly defined from the inception of the project and establish who is responsible for what – and not only with regard to actual construction. For each contractor, additional responsibilities may include collecting documentation and paperwork, such as receipts for building materials, which will lead to credit approval. A contractor may not have these types of responsibilities in the non-green building setting.

Contractors must also work closely with the architect and LEED consultant to carefully understand and follow the project specifications. This is because the specifications will be geared toward earning

¹⁵ See Md. Code, State Fin. & Proc. Article, § 3-602.1.

A Window into the Benefits, Criticisms and Pitfalls of LEED Construction

Thomas Hale, Andrew Gaudreau
06/2018



the planned LEED credits. For example, the specifications may provide that the building components must be purchased from within a certain radius of the project – because long-distance shipping is inefficient and has a negative environmental impact. The specifications may also include disposing of project materials on-site and recycling building waste. Contractors need to understand the specific purpose of the specifications so that they (and/or their subcontractors) are not doing something to jeopardize the status of the certification. They cannot make decisions on their own without consulting the project team, and they have to follow the specifications to a “T”.

Procurement is another issue. If contractors are charged with overseeing the purchase of specified sustainable products, any material substitutions and/or change orders have to be consistent with the original so that they do not negatively impact the credits to be earned. If there are substitutions or change orders, the contractor, again, needs to consult with the project team to make sure that they are acceptable. To illustrate this point, to achieve credit points for the windows used in LEED BD+C: Homes, the windows need to have “ratings from the National Fenestration Rating Council [which] exceed the requirements in the

ENERGY STAR for Homes, version 3, prescriptive pathway.”¹⁶ Any other type of window, no matter how new and/or environmentally savvy, will not suffice. As another example, as of 2016, the USGBC introduced a new credit (of up to 4 points) for using “legal wood” – wood that has been verified to be legal – to promote responsible wood sourcing and chain of custody.¹⁷ If a project is seeking a credit in that category, using the wrong type of wood; for example, wood that does not satisfy ASTM D7612-10 and which does not come from a “responsible source” and/or “certified source” per ASTM D7612-10,¹⁸ can jeopardize the project. Design elements for a green building serve a unique purpose. There is not a lot of room for interpretation.

Contractors also need be aware of the issue of commissioning. LEED projects are heavily commissioned. The commissioning is often completed by an independent third-party, as opposed to a project team member, and it takes place during the construction and first year of occupancy phases of the project. If the third-party commissioner finds that a product, even though properly specified, was not installed correctly, it is likely the contractor’s problem to fix. The final commissioning report will verify that all

¹⁶ USGBC, *LEED BD+C Homes – Windows*, <https://www.usgbc.org/credits/homes/v4-draft/eac9>.

¹⁷ USGBC, *USGBC Announces New LEED Pilot ACP Designed to Help Eliminate Irresponsibly Sourced Materials – Like Illegal Wood – From the Building Material Supply Chain*,

<https://www.usgbc.org/articles/usgbc-announces-new-leed-pilot-acp-designed-help-eliminate-irresponsibly-sourced-materials%E2%80%9494>.

¹⁸ See USGBC, *LEED BD+C Homes – Legal Wood*, <https://www.usgbc.org/node/10147000>.

A Window into the Benefits, Criticisms and Pitfalls of LEED Construction

Thomas Hale, Andrew Gaudreau
06/2018



construction is in compliance with specifications and other contract documents.

Contractors should be wary of any type of form contract in the context of LEED construction. Form contracts do not delineate the risks and responsibilities for achieving LEED certification. *Shaw Development v. Southern Builders*, commonly cited as the first LEED-related litigation, involved the use of an AIA industry-standard agreement. The Project Manual and Scope of Work generically provided that the “Project is designed to comply with a Silver Certification Level according to the U.S. Green Building Council’s Leadership in Energy & Environmental Design (LEED) Rating System, as specified in Division 1 Section ‘LEED Requirements.’”¹⁹ There does not appear to have been another provision in the agreement as to who was ultimately responsible for achieving that level of certification. When the general contractor, Southern Builders, filed a mechanic’s lien against the project (after it failed to achieve LEED Silver), Shaw Development filed a counter-claim, claiming \$635,000 in lost tax credits. Although the case eventually settled and the building did achieve LEED certification, one take-away is that the form contract did not provide sufficient protection for the contractor because it failed to define who had ultimate responsibility.

Form contracts create other risks because they do not address the roles and responsibilities of each party in a LEED project. There is the risk that form contracts do not clearly define terms that are specific to LEED projects, including terms like “sustainability.” Form contracts may not provide insurance coverage for failure to achieve certain green building standards. The warranty provisions of a form contract may not make sense. Force majeure provisions may not take into account the realities of delays such as certification approval. Provisions regarding “substantial completion” may not take into account the extra steps required to achieve a LEED rating. Significantly, make sure that the contract does not “guarantee” that a LEED certification will be obtained following your work. There are a lot of moving parts in a LEED project, and many have nothing to do with the work of the contractor. In other words, the responsibility for obtaining the rating does not squarely fall on your shoulders.

While delays are inevitable in many construction projects (and often litigated), they are particularly important to consider in LEED projects. In *Shaw Development*, one of issues was the delay in construction.²⁰ Delays can also result from a lack of materials. Remember that one of the criteria for obtaining LEED credits is the distance of the material to the project site. If the material you

¹⁹ *Southern Builders, Inc. v. Shaw Development, LLC*, In the Circuit Court of Maryland for Somerset County, Case No.: 19-C-07-011405.

²⁰ *Id.*

A Window into the Benefits, Criticisms and Pitfalls of LEED Construction

Thomas Hale, Andrew Gaudreau
06/2018



need at the time of construction is in short supply or not available, it may not be an option to get the material elsewhere, because doing so will risk obtaining that necessary credit. Keep this in mind during the contract process – is delay in obtaining the necessary materials considered excusable delay? Delays are also problematic because LEED projects attract tenants. If tenants are lined up at the door to move in by the proposed date of completion, and the building is not done, the owner can possibly make a claim for lost rent (in legal terms, consequential damages). How does the contract protect the interests of the contractor in this situation? This underscores the importance of drafting good contract terms at the outset of the project.

The Verdict - The Final “Punch-list” of LEED Certification

The moral of this story: LEED construction is the wave of the future. Like catalytic converters for cars, emission control systems for factories, LEED construction will likely be a requirement for our society rather than a preference utilized by those who are environmentally-conscious. Contractors will need to learn and understand how this process works to be effective and profitable.

The benefits of this type of construction are significant if the systems are regularly maintained. Just like the University of Baltimore School of Law building, one can have a building that is efficient, environmentally friendly, and still look

fantastic. But, it does take work to keep it maintained and efficient.

As a contractor, the key in this type of construction is continuous communication. Understanding the planning, the process and each respective contractor’s responsibilities is imperative. While there is plenty of planning in normal construction, it is even more important in LEED construction. Ensure the correct materials, as the correct construction process could make or break a LEED certification. Having clear documentation of the role of each party and the materials that are required on the job before the job starts will better the chances of a smooth and timely build and better the chances of achieving the desired LEED certification. It will also better the chances of avoiding a future dispute. Just like typical construction, it is all about clear contracts, meeting deadlines, and effective execution.

So, what happens when a job “goes south?” Well, that will have to wait for the next segment of a series of articles from Leder & Hale, PC.