

The Problems with LEED

POSITION PAPER

Analysis suggests LEED buildings perform no better, and in fact perform worse, than non-LEED buildings. Many recommended actions, especially those selected by users, have little to no effect. Too few of its standards are results-driven, with high pay-back in areas other than environmental stewardship. Its rewards are self-serving, and used more often by a narrow group of elite users rather than a broad population. Recommendations include recognizing the shortcomings of current use characteristics, bringing clarity to the essentials of desired end performance, and refashioning certification standards to alter use of the program.

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Rent-Seeking

The self-serving behaviors identified in the analysis may best be described as rent-seeking behaviors. **Rent-seeking** occurs when people try to obtain benefits for themselves through political methods rather than wealth creation. Methods include such measures as getting a subsidy for a good they produce or by winning a special dispensation that hampers their competitors. Based on independent assessments of the growing stock of completed LEED projects, results seem to suggest that most users of the program are drawn more to self-serving collateral benefits rather than to implementing methods that lead to measurable environmental improvements. Rent-seeking is the unintended arena in which LEED finds itself.

History and Background

Launched in 1993 when Rick Fedrizzi, Mike Italiano, and David Gottfried got together in a proverbial “garage” to knock around ideas for raising awareness of environmental issues in building design, the group’s worthy initiatives soon won support, grew more comprehensive and eventually codified into LEED (Leadership in Energy and Environmental Design) standards in 1998.

Today the US Green Building Council (USGBC), the non-profit consortium of building industry and environmental interests that administers LEED, is a large organization. It has grown from the humble garage in 1993 to an organization with more than 150 professional staff, 200 volunteers on 20 committees, and 20,000 members. It collects millions of dollars in certification fees, not to mention in professional certification fees and in revenues from many other programs. More than 13,000 projects worldwide claim some level

of LEED certification. LEED is well established as a global initiative with highly recognized and respected programs.

LEED Achievements

LEED literature cites impressive achievements:

- LEED raises awareness of environmental issues by offering compelling rationales to users, to user clients, to user peers, and to the public at large that make users feel they are aiming for worthy environmental goals.
- LEED is a powerful tool because it offers multiple paths customized for a wide variety of project types. LEED v4, rolled out in November 2013, adds six more project types, and does a better job integrating between LEED platforms.
- LEED is pervasive throughout the world.
- LEED causes large expensive projects that are inevitably going to be built to become more environmentally sensitive.
- LEED draws attention to the benefits of reusing old buildings. Based on design work in architecture schools where LEED standards are integral, the high number of rehab projects submitted on review, which did not occur prior to LEED, suggests that a growing number of rehab projects will begin filling professional portfolios, which is a sorely absent piece of the architectural marketplace.

LEED Assessments

Despite cited achievements, and ignoring thinly veiled attacks by industries pushing their own polluter-friendly products, and by politicians pushing broad

anti-environmentalist agendas, a number of credible and carefully researched critiques by non-competing parties testify to significant shortcomings of LEED. As Kaid Benfield opined in his January 18, 2013 Atlantic Cities editorial titled, [As Important As It Is, LEED Can Be So Embarrassing](#), “Man, there are a lot of warts in this system.”

The obvious nature of the “warts” revealed in the studies makes it difficult to reconcile the rosy self-assessment by LEED with the less-flattering assessments painted by independent investigations. Indeed, no less than the New York Times, the Wall Street Journal and National Public Radio among a host of others have run features, which shine glaring lights on negative assessments. The startling assessments generally confirm that, on average, LEED buildings perform worse than non-LEED buildings.

An August 30, 2009 feature in the New York Times titled, [Some Buildings Not Living Up to Green Label](#), writer Mireya (Mia) Navarro highlights performance issues when she reports that the LEED certified Federal Building in Youngstown, OH could not score high enough in energy efficiency to qualify for the Energy Star label granted by the EPA. Navarro goes on to write, “The council’s own research suggests that a quarter of the new buildings that have been certified do not save as much energy as their designs predicted and that most do not track energy consumption once in use. And the program has been under attack from architects, engineers and energy experts who argue that because building performance is not tracked, the certification may be falling short in reducing emissions tied to global warming.”

New York environmental consultant Henry Gifford was so surprised by the poor performance of a LEED certified building of one of his clients that he investigated the source for LEED’s claim of “25-30% reductions.” He was shocked by the small sampling of built projects (121 buildings volunteered by their owners) to support the claim and by lack of rigor used in calculations. When Gifford analyzed the same sampling, and applied appropriate rigor, results indicated that the same buildings actually used “29% more energy than the most similar buildings in the dataset that the study authors chose to use as a comparison!” Gifford concluded, “Going to so much trouble and expense to end up with buildings that use more energy than comparable buildings is not only a tragedy, it is also a fraud perpetrated on US consumers trying their best to achieve true environmental friendliness.” Incensed, Gifford filed a \$100,000,000 lawsuit against LEED alleging false advertising. Unfortunately, his suit was dismissed for not indicating how the advertising harmed him in order to gain standing as required by the Latham Act. Nonetheless, his findings are alarming, and are consistent with subsequent studies.

In 2013 John Scofield, a physicist at Oberlin College, furnished a detailed study titled, [A Re-examination of the NBI LEED Building Energy Consumption Study](#). In the study Scofield examines more than 7,000 LEED certified buildings to test USGBC’s claim that the extra cost of LEED certification is more than compensated by “25-30% reductions” in future energy and water use. Scofield found no basis for this claim. His study establishes that, while some LEED buildings performed better, many non-LEED buildings performed better. On average the study finds, “that the average energy consumption by LEED certified buildings is actually higher than the corresponding average for the US commercial building stock.”

Although no studies yet single out buildings with the highest LEED-Platinum certification, anecdotes trickle in about the poor performance of Platinum buildings on college campuses compared to older non-LEED stock, even though the Platinum buildings are designed by some of the most well-meaning and highly-regarded sustainability-accredited architects, such as Hopkins Architects in the UK and Centerbrook Architects and Planners in the US.

The June 13, 2013 issue of USA Today featured an expose on LEED titled, [In U.S. Building Industry, Is It Too Easy To Be Green?](#) The feature unfolds the shameful story of how the Palazzo Hotel and Casino in Las Vegas was able to win LEED Silver Certification with points gleaned almost entirely from attributions having little or no contribution to the environment, such as using steel and concrete like most every other building, or from questionable points, such as posting signs to assign hybrid vehicle parking in an otherwise unexceptional parking lot. Without changing much if any of their pre-LEED building agenda and paying 3% fees, the Palazzo’s LEED Silver Certification won them a Las Vegas jackpot of \$27 million in tax-payer paid tax breaks over 10 years. A Tower Oaks project outside Washington DC was able to triple their tax-payer paid tax breaks just by adding two easy points to their score, moving LEED certification from Gold to Platinum.

Roughly 170 cities give LEED builders tax breaks, grants, expedited permitting or waivers allowing them to construct larger buildings than local law allows. Roughly 2,000 developments, buildings and homes have received \$500 million in taxpayer paid tax breaks nationwide. With such huge rewards for so little effort, it is not difficult to see why the program attracts such rent-seeking behaviors.

In an April 30, 2014 Forbes Magazine op-ed entitled, [LEED-Certified Buildings Are Often Less Energy-Efficient Than Uncertified Ones](#), senior research analyst for the Environmental Policy Alliance, Anastasia Swearingen, reporting on the lack of accountability, summarizes, “It’s like telling your parents you’ll take care of

the house while they're away and then throwing a huge party, except in this case your parents never return to see the damage."

Although California, Connecticut, Maryland, Massachusetts, New Mexico, Nevada, and Rhode Island all require LEED certification for state-funded projects, four states have effectively banned the use of LEED in new public buildings: Alabama, Georgia, Maine, and Mississippi.

LEED v4

In late 2013, USGBC released what they claimed to be the most significant and comprehensive update since LEED's inception, LEED v4. The new LEED v4 features more "aggressive" energy and water efficiency prerequisites and credits, and "unprecedented" building product reporting and disclosure requirements, and material transparency, requiring a better understanding of the products being used in a building and where they have come from.

However, although LEED v4 addresses some issues, many remain. According to [Rory Stott in ArchDaily](#), "One thing that certainly hasn't changed is LEED v3, which (thanks to fears that v4 is too big a change) is still available until June 2015. Considering the fact that LEED has always been criticized for being too easy to 'game the system,' offering two completely different systems for developers to choose between seems a retroactive step.

"And, perhaps most critically, LEED v4 still seems to have nothing which encourages true innovation in green building – preferring instead to emphasize their cut-and-paste rules for how to be green."

LEED Issues

The LEED issues most frequently cited by investigative reports fall into the following categories:

- LEED certification is overly complicated, time consuming and expensive, adding \$150,000 in taxpayer borne costs for new Federal buildings, according to Forbes. The added time and expense, and the, at best, ambiguous outcome limits LEED users to those large enough to accrue significant tax benefits, to those publicly funded that carry LEED requirement, and to those for which financial accountability is not a principal objective. None of these reasons for engaging the program guarantee a better environment.
- LEED has become pro forma, more about earning points than improving the environmental. Users "game the system" by going after low-hanging fruit to rack up scores, even if underlying measures don't result in environmental improvements. LEED v4 addresses accountability with improved performance standards, but according to Healthcare Design Magazine, "the process of developing environmental prod-

uct declarations (EPD), healthy product declarations (HPD), and lifecycle assessments (LCA) will be challenging and time-consuming... very few products have EPDs, fewer have HPDs, and no one really knows how to do a comprehensive LCA." Users may opt to skip the complexity of performance standards, since points are not taken away for not submitting. In addition, LEED v4 awards credits simply for reporting the LCA of a design, rather than what that report shows. In other words, if a submitted LCA shows that a building is environmentally unfriendly, that building will still get LEED credits.

- LEED is insufficiently demanding of its applicants. Points go to universities that offer a course on green building, to employers that give workers a video-game room and fitness center and to builders for installing a modern fire-alarm system that "minimizes stresses on the firefighters," council records show. LEED v4 is aspirational in weighting and developing credits to encourage projects to do "more good" than the previous efforts to do "less bad." However, there is still no penalization for avoiding requirements with the most onerous impacts on the environment.
- LEED is indiscriminate in its weighting of credit points. Installing a bike rack outside a building receives the same number of points as redeveloping a brownfield site, even though bioremediation of brownfield is considerably more involved and expensive than installing a bike rack.
- LEED's focus on certifying proprietary products rather than defining generic product standards can lead to confusion and give proprietary brands unfair advantage. Sustainable Forestry Initiative (SFI)-certified wood isn't recognized by LEED, whereas Forest Stewardship Council (FSC)-labeled wood is. A generic definition would make both products available.
- LEED v4 addresses formerly ignored land use and site ecology. However, no points are deducted for destroying ecology or for failing to maintain consistent standards for different project types. LEED v4 excludes LEED for Homes from land use and site ecology, a significant omission.
- LEED makes no discrimination for location. LEED creates cookie-cutter green projects that can be placed in any climate, instead of creating a green project that reflects the neighborhood and region in which it is built. Points accrued for measures to mitigate cold climates count equally well for projects in warm climates.
- LEED does not deduct points for ignoring walkability, making walkability optional. Again Kaid Benfield, "Why should a building be considered green if its location is brown? Or, at the

very least, why should a building qualify for the highest, Platinum rating – signifying the greenest of all green buildings – if it is completely dependent on long automobile trips that will collectively emit more carbon than the building’s efficient heating and cooling systems will save?”

- LEED is silent on the number of people served. Buildings with no green technology, if programmed for efficient use by the maximum number of people are greener per person than the best scoring LEED buildings, which are sparsely populated. The exceptional degree of transparency of Norman Foster’s highly acclaimed Edward P. Evans Hall at Yale reveals very low usage of people per square footage, drawing into question the efficiency of the building’s LEED Gold certification.
- Finally, although LEED includes points for public education and awareness, it does not specifically target actual inhabitants and users of LEED buildings. Since misuse of available conservation systems is the reason most cited to explain poor performance of LEED buildings, LEED should promote programs that train users how to engage their own building systems responsibly. Properly educated users are more likely to conserve energy use, and live more environmentally aware lifestyles.

LEAN and LEED

Lean systems are efficient systems where the clear priority is cost-effective and common sense achievement of practical objectives. Though LEED systems launched from practical objectives initiated in 1993, today they are complex and expensive, causing all but the most elite users to bypass them. Awarded LEED plaques do little more than win rent-seeking prizes: huge tax credits, improved green ranking for colleges that lure applications away from competition, and proof of responsible governing in the face of growing voter awareness.

Many colleges augment applications with improved “green ratings” by adding transit systems, even though the transit systems do not replace automobile usage. Since most students do not have cars, the transit systems replace walking, depositing a net gain of energy usage and carbon emissions, not to mention of contributing to obesity.

The fact that well-healed institutions and government agencies buy in to, and spend so much time and treasure on, a system with such questionable performance makes Benfield’s claim of “embarrassing” seem mild. If an early lean proponent, Senator William Proxmire (d. 2005), were alive today, LEED and its users might stand out as candidates for his most un-lean Golden Fleece Award.

LEAN Recommendations for LEED

Based on performance, LEED projects demonstrate neither leadership in energy and environmental design nor utility within reach of most of those who may wish to engage the system. The practical objectives of environmental stewardship have lost their way amongst methodologies, which are conspicuously burdened with counterproductive and costly practices, the quintessential antithesis of the tenets of lean. Rather than continue series of versions to tweak a system, which has never had verified performance, it would seem that the 20 years lapsed since LEED’s inception might offer a good milestone from which to step back and reappraise the whole system to understand what’s gone wrong.

The lean perspective articulated in this book would offer the following recommendations (some sourced from independent recommendations, such as Eco Brooklyn, Inc., Chatham Journal, Henry Gifford, etc.):

1. Gaming. LEED should critically examine its own system, especially in terms of how it invites “gaming” by those for whom award points gain self-serving benefits rather than incentivize the hard work required for measurable and lasting benefit to the environment. Which are the options most used by applicants and which are the options least used (see start on this analysis by USA Today in Appendix at bottom) and why. Then determine a more desirable hierarchy of options that yield superior environmental consequences. Refigure scoring to incentivize the most desirable options and diminish the value of the least helpful options. For example, contractors are more likely to take advantage of cheaper options. Remediating brownfields creates many positive externalities that reduce health problems in the neighboring community and support plant and animal life. But positive externalities are often not internalized within the costs of the building. Therefore points must be increased for this option to the level where they beg consideration of costly but highly beneficial positive externalities.
2. Current users. LEED should critically examine the project performance of their most prolific current users, such as the tax-credited projects, the publicly funded projects and the higher education projects cited above. These are highly visible projects and LEED should explore ways to engineer the point system to steer best practices toward repairing deficiencies of the program that reward rent-seeking practices and toward true leadership in energy and environmental design. Nurture leadership the less well-healed masses can follow.

Gizmo green. In particular, leadership projects should not be all about costly gizmo, razzle-dazzle, which attracts attention, but is un-

substantiated for beneficial results, and beyond the reach of most builders and building owners. Such “wow” projects are more appropriate in a beta-testing category, which certainly would be a desirable side undertaking to encourage innovation in green building.

3. **Non-users.** Using a pyramid diagram, LEED users would currently fill only the very small top. If moving the entire industry and the planet toward environmental responsibility is the principal objective, as stated in the literature, then LEED needs to start focusing on the lower pyramid where the untapped broader market resides. LEED processes should become less complex, time consuming and expensive. LEED v4 improves ease of use, but does not go far enough to embrace the enormous base of average users for average projects. Such a broad user-friendly policy accepts that applicants will be more likely to adopt green measures if they perceive certification to be well within their reach. Otherwise, most won't bother and the top of the pyramid will never achieve more than extremely limited environmental benefit.

University of Michigan Prof. Douglas Kelbaugh, FAIA and Philadelphia SmartCode writer Sandy Sorlien, CNU-A propose considering LEED for Small Buildings, in which certification costs are dropped to \$1,000 or less, requirements are reduced to 7-10 simple criteria, and the process is self-administered.

4. **Car-dependent sprawl.** LEED needs to rethink all standards that lead to increased dependence on automobiles. For example, LEED should critically examine their ever-widening diversity in project types, unique systems within project types, and unique products within systems to consider the opposite: how diversity might integrate with one another. It's less important to distinguish uniqueness than it is to ensure that all projects are equal in meeting environmental standards.

By comparison, conventional zoning separates a multitude of uses into unique definitions. The siloed effect separates uses to the extent that zoning is the largest contributor to car-dependent sprawl. LEED's impulse to place such importance on unique project types, unique systems and unique products creates the same silo effect, which falls prey to the same tendency to generate car-dependent sprawl. In no way does car-dependency lead to environmental responsibility.

By the same token, LEED's long-term goal of net-zero may also unwittingly hinder dense urbanism. Just as Colorado civil engineer Paul Crabtree, PE documented how land-hungry on-site water retention rules lead to car-dependent sprawl, focusing too much attention on each and every lot becoming completely self-sufficient may require too much land to allow dense develop-

ment. As the net-zero program becomes refined, considerations should be given to the greater economies for energy plants at the neighborhood, district, city, or regional scales, which also promote denser walkable communities less dependent on automobiles.

5. **Collateral impacts.** LEED needs to become more pro-active with collateral impacts, such as for socio-cultural (lifestyle) aspects, for function, and for project user training on maintenance and operation, and even for deducting points for irresponsible actions, such as those for land use and ecology or ignoring walkability. The practicality of a project's climate zone, of the bad and the good aspects of existing sites a project may displace or ignore, of ongoing functions' collateral dependence on fossil fuels, and of training in the regimens required for proper maintenance and operation are all critical features, which, though secondary to project construction, are no less significant impacts to energy and environment, and should be key elements to all LEED certification.
6. **Energy/person.** LEED should rate energy use according to the number of people served within projects. Projects that achieve efficiencies in use such that they maximize lowest energy/person should rank higher than those, which merely rank energy/project.
7. **Transect.** LEED should create different standards for different projects according to their locations on the rural to urban transect. For example, water treatment and energy use should consider collective mechanized solutions in thickly settled parts of the rural to urban transect, and disparate single user percolating solutions in thinly settled parts of the rural to urban transect.
8. **Low-tech.** LEED should accommodate young and under-capitalized users. Many of these users are likely to be the most enthusiastic embracers of an environmental agenda, yet they find current LEED standards either absurd, ineffectual or out of reach. Consider higher points for low tech less expensive solutions such as stoves, fans, curtains, cross ventilation, compact building envelopes, orientation, more or less fenestration depending on climate. There should be additional bonus points for those who reach each level of LEED entirely through low-tech means. Perhaps there should be an annual prize for the project, which receives the highest certification using the most practical methods and for the least expense.

Consider incorporating “**Original Green**” solutions proposed in other parts of this book. “Original Green” solutions are common sense solutions that are easily achievable using locally available cost-effective materials and

methods, which also are century-tested with proven achievements that equal or surpass performance of the most highly technical and expensive alternatives. Original Green should be incorporated into LEED.

for projects where users actually change the dynamics of a site by demonstrating measurable reductions in car-dependence.

Summary

- 9. Weigh credits to level of difficulty. Each LEED credit should be weighted in regard to its environmental impact, alleviation of climate change, difficulty, and resource conservation, including the resource of appropriate human habitat conservation. Each credit should not be given simply 1 point, but rather different numbers of points to provide incentives for contractors and architects to tackle the more difficult, yet rewarding options; higher points for tougher options. Water usage should be all about conservation, and not about unproven highly technical and expensive methods to capture, store, treat, and pump at the building scale. Generally, Andrés Duany, FAIA recommends that products should be approved by description, not by brands requiring certification, such as “double-pane windows.”
- 10. Beyond Z. LEED should consider rating standards to reward projects that actually produce energy from renewable sources, individually or in groups, and feed it back into the grid, and

LEED offers an excellent opportunity to raise awareness for environmental issues, and to apply raised awareness to the field where lasting benefits will lead to measurable performance enhancements. LEED has established unmatched credibility, which apparently not even scathing reports can unseat. But unsubstantiated success cannot last forever. If the progenitors of LEED want the program to trickle down from its current rent-seeking use by the elites and the scurrilous to functional and popular use, the program procedures need to become vastly simplified and completely re-written, starting from desirable and achievable end-results and working backward toward effective means and methods to achieve the end-results. Only by crafting a system aimed toward avid users who share the same aspirations for environmental improvements, e.g. the type of leadership originally envisioned by the founders, can LEED develop and build momentum with higher likelihood of infecting the rest: the wide, uninformed and often unsympathetic population of users.

Appendix

The top 10 most popular LEED options based on examination of 7,100 LEED buildings by USA Today reporter Thomas Frank and database editor Chris Schnaars.

Leed Credit	Usage	Description From LEED User Guide
Hire LEED accredited professional	99.7%	“you can easily earn this point.”
Use low-emitting paints and coatings	93.3%	“an easy, no-cost credit.”
Boost energy performance 10.5%	92.2%	“the most important credit in LEED”
Use low-emitting adhesives and sealants	91.5%	“it shouldn’t cost you anything to earn this credit”
Use recycled materials in construction	90.9%	“easy to achieve”
Reduce water use by 20%	90.6%	“it’s very doable”
Use low-emitting carpet	89.7%	“a pretty easy credit, with minimal additional cost”
Divert half of construction waste from landfill	89.6%	“the ease or difficulty of this credit depends on project-specific and regional conditions”
Boost energy performance 14%	89%	“the most important credit in LEED”
Water-efficient landscaping	86.9%	“can be either simple or complex”

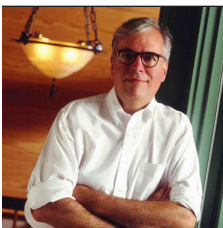
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The top 10 least popular LEED options in same study.

Leed Credit	Usage	Description From LEED User Guide
10% of materials such as beams and doors are reused or salvaged	4.7%	“only works for the right kind of project”
Reuse existing building elements	5.6%	“can be labor-intensive”
Use on-site renewable energy	6.6%	“technologies to capture this energy aren’t cheap”
Use rapidly renewable materials such as bamboo	7.2%	“can be very easy to achieve”
5% of materials such as beams and doors are reused or salvaged	7.3%	“only works for the right kind of project”
Reuse 95% of a building exterior	8%	“intensive calculations”
Use on-site renewable energy	9.9%	“technologies to capture this energy aren’t cheap”
Boost energy performance 42%	9.9%	“the most important credit in LEED”
Reduce use of potable water in wastewater	12.5%	“can require waterless urinals or on-site waste treatment”
Reuse 75% of a building exterior	13.2%	“intensive calculations”

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