Is LEED the Holy Grail of Sustainable Design?

By Jason F. McLennan and Peter Rumsey, PE, CEM

The Leadership in Energy and Environmental Design (LEED™) rating system has been perhaps the most significant development in the transition towards more sustainable design. By helping define "green" for a long-confused market, it immediately boosted demand for green buildings. It has grown 100 percent to 200 percent annually and captured 6 percent of the U.S. commercial buildings market within just a few years. Projects compete for higher scores as if it was the Olympics. A growing number of government bodies are mandating or rewarding LEED. Certification simply makes buildings better by fostering highly professional design, construction and commissioning, and increasing operational efficiency. LEED's palette promotes cost-effectiveness and innovation.

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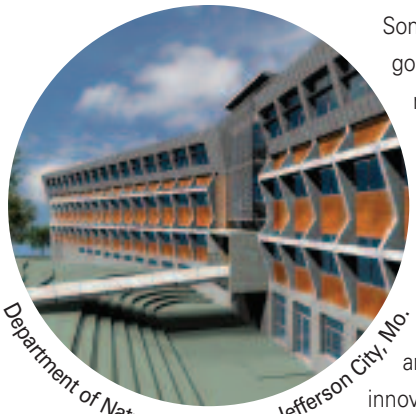

Department of Natural Resources, Jefferson City, Mo.

Some critics argue that LEED doesn't go far enough in reducing environmental impacts, and only "makes bad activity less bad" without reversing damage with a restorative approach. But LEED is evolving, and has accomplished much already. It consolidated the experience of pioneering thinkers and early adopters, and moved many innovations to mainstream. Its rapid adoption has been remarkable, even in an industry already governed by voluntary standards.

LEED has made environmentally-preferable materials more widely accepted and available, while simultaneously lowering their costs. For example, one of our clients sought concrete made with recycled glass for a LEED recycled-content point. We worked with a supplier to produce it within a 500-mile radius (towards a regional materials point). That was made easier as LEED had increased both demand for the material and supplier experience with it. We think LEED has boosted commissioning, and anecdotally we see increased competition for commissioning bids.

Challenges remain for LEED, and there have been growing pains. Obstacles to adoption often stem from the two primary constraints on building projects: budget and schedule. The market suffers from first-cost myopia, fueled by a focus on lowest-bids. You often get what you pay for. It can be difficult to convince builders that a modest increase in initial effort and cost pays off over the life of the building.

Yet experience shows that LEED buildings are healthier, more productive environments, and typically have 20 to 50 percent lower utility costs at little or no added initial cost. The excellent new "Building Green Momentum" report (see www.usgbc.org) says LEED buildings come in at an average 2 to 7 percent extra first cost. U.S. Green Building Council (USGBC) members report that Certified buildings have 0 to 5 percent higher cost, and Silver buildings 0 to 11 percent. (These figures don't include operating cost reductions.) The Council concludes that the primary variable in this cost range is the skill and attention of the design team.

Some design firms give LEED lip service because they believe their clients want it, but these firms have little or no experience in sustainable design and aren't committed to its principles. Others remain wary and don't invest in learning about new techniques and materials. Designers tend to be conservative, especially mechanical engineers who often do things "the way they've always been done," as well as architects and structural engineers concerned by the risk of human harm from failure.

One drawback to any scoring system is a tendency among applicants to go for the least expensive points first, regardless of the relative benefits to the design or the environment. In one of our projects, the client considered adding electric vehicle (EV) charging stations to earn an alternative transportation credit point—but neither the firm nor any of its employees drove, or planned to drive, an EV, nor does LEED require them to. (Indeed, battery-powered EVs are withdrawing from the market as they are overtaken by gas-electric hybrids.) Onerous LEED documentation costs have also drawn complaints. USGBC has responded by streamlining the process and requirements. However, further progress is still needed.

We've noticed that some municipalities and the Federal agencies set overly ambitious goals and got out ahead of the industry's ability to deliver. A few cities that mandated LEED Silver for public buildings are now quietly backing off of that goal as they get into project details, and the local construction community hasn't bought in or can't meet the requirements on time and under budget.

Education is an ongoing challenge. One of our municipal clients wanted 50 percent-fly-ash cement for a LEED project, and we provided the design team with data from others in region who'd had good experiences with the mix. But the construction managers rejected it because they mistakenly thought that the extra curing time would add two weeks to the schedule, when in fact it would only add 8 hours. Our lesson learned: educate more project participants about new materials earlier in the process, supported by data and concrete examples (no pun intended).

We encourage USGBC to continue to refine the tools. For example, LEED does not yet take into account differences between regions. Varied climates affect building's relative environmental performance; water conservation is worth more in dry arid climates than in cooler high-precipitation regions, and perhaps the scoring could recognize that. USGBC has struggled with the challenges of the relative weighting of credits, and has done well overall to balance flexibility and simplicity, despite differences in environmental leverage among the many options. Innovation in design credits allow projects some latitude, but it seems unlikely that any one project would get many of these credits at one time.

We support the Council's work to tailor LEED for varied building types, such as existing buildings (LEED-EB) and commercial interiors (LEED-CI). As LEED variants and tools proliferate, the Council needs to do a good job of communicating and clarifying the benefits of more application-specific versions without confusing the market.

A primary challenge for LEED implementation is broadening its appeal among commercial builders. The largest share of LEED projects belong to governmental or institutional clients. This is not surprising as they are more likely than corporations to have a longer-term vision as owner/operators, and to give more weight to non-financial design objectives. Roughly half of the more than 50 certified projects are private sector buildings, but corporate facilities and commercial residential developments make up about 25 percent of the roughly 750 registered projects on the USGBC Web site. (Not all registered projects are listed there, so perhaps the true ratio differs somewhat.) This challenge is not for USGBC alone, but the Council can expand its efforts to help LEED advocates make the business case for certification.

Is LEED the Holy Grail of green design? No, but it is a great leap forward, and for many it makes a good starting point on the long journey to a sustainable future. LEED has already achieved significant improvements, and the potential leverage is dramatic. The USGBC should continue to raise the bar in subsequent versions. We have a long way to go to live in balance with the environment. To paraphrase Winston Churchill, "LEED is not the beginning of the end of this transformation, but it is perhaps the end of the beginning."

Jason F. McLennan (JMclennan@bnim.com) is a nationally recognized leader in the Sustainable Design Movement and is the founder and Director of Elements, the sustainable consulting division of BNIM Architects based in Kansas City (http://elements.bnim.com).

Peter Rumsey, PE, CEM (prumsey@rumseyengineers.com) is an emerging leader in engineering design for sustainable buildings whose work has earned national recognition. He is founder and President of Rumsey Engineers, Inc. in Oakland, Calif., (www.rumseyengineers.com).