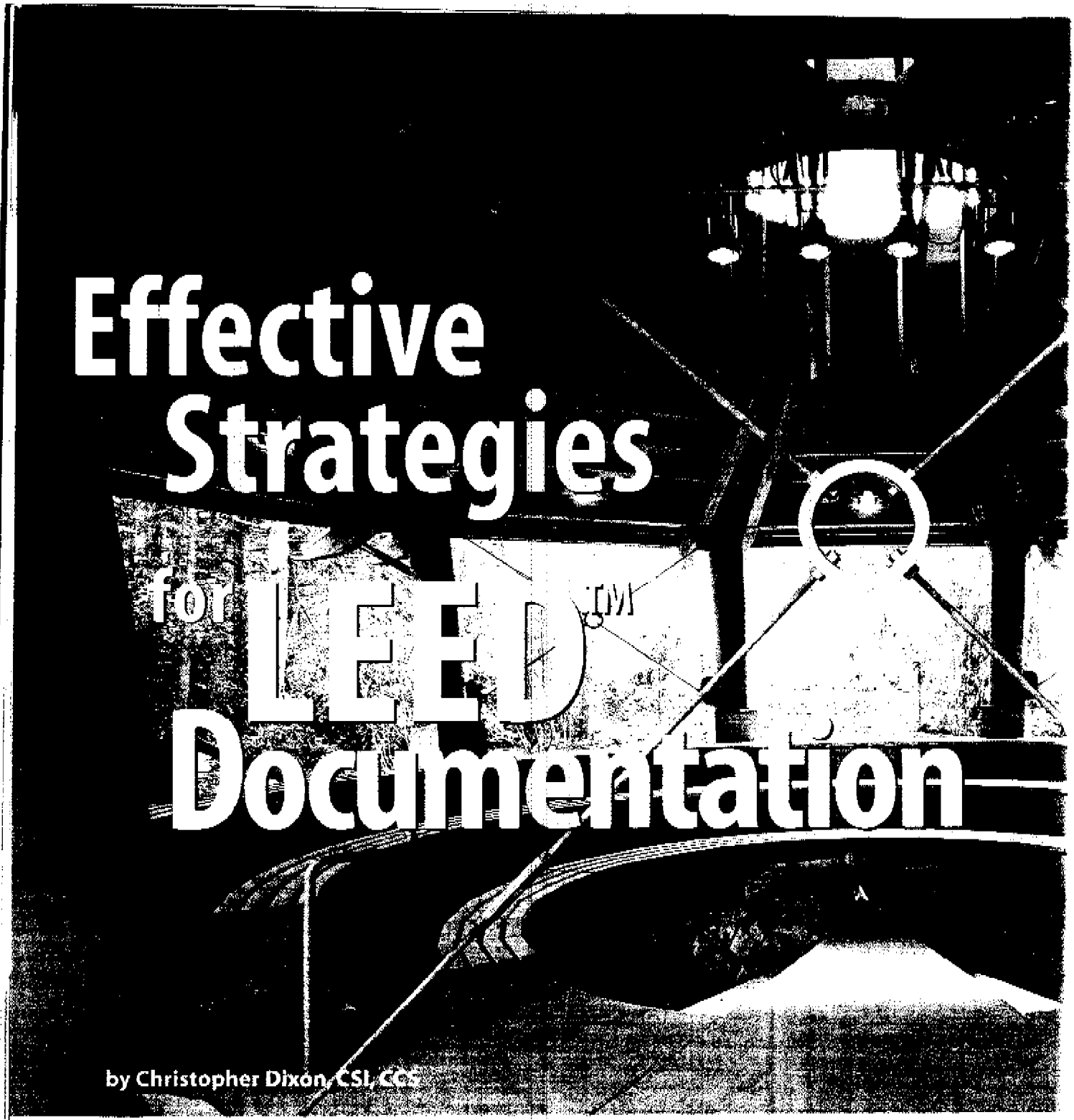


Effective Strategies for LEED Documentation

by Christopher Dixon, CSI, CCS

A small group of forward-thinking individuals got together about 10 years ago and formed the non-profit organization known today as the U.S. Green Building Council (USBGC) for the purpose of accelerating sustainability in buildings.

The first order of business for the fledgling organization was to develop a rating system for 'green' building, which they dubbed Leadership in Energy and Environmental Design™ (LEED), v1.0. A pilot was conducted using the rating system in the design and construction of several buildings. Afterwards, v1.0 was reevaluated and updated, emerging as v2.0—the version under which all projects are currently registered (minor changes have been made and exist as v2.1).

To say LEED has "taken off" is an understatement. The list of registered projects currently exceeds 600, and

Photo courtesy Milliken Photography

continues to grow despite a lagging economy. A mere 10 percent, however, have gone through the extensive documentation process to become LEED certified. Documentation requirements for certification can be complicated, time consuming, and financially draining. This has not escaped the notice of the USBGC, which has started taking steps to streamline the process, yet effort and cost remain substantial.

"How much effort?"

I have been involved in the preparation of LEED documentation for several registered projects, including IslandWood Environmental Learning Center on Bainbridge Island, Washington (recently awarded a LEED Gold rating), and can attest to the amount of effort required. The question most practitioners and owners want answered, though, is "How much effort?" It is difficult to answer this question quantifiably, but influential factors include team experience and the number and complexity of points being attempted.

It takes somewhere between 160–200 hours of my time (as the architect) to document a project for submittal. This estimate is based on the minimum certification level (26 points), and includes activities such as chasing down product data, performing calculations, filling out information in the provided templates, and managing consultants (some of which require more guidance than others).

Rating system guidelines

The learning curve is steep for a project team's first attempt at LEED certification, but the following simple guidelines should help first-time "LEEDers" flatten out that curve.

Nail the prerequisites first

Projects cannot be certified without first meeting all of the prerequisites. Ensure requirements for prerequisites will be satisfied before registering the project and attempting credits.

Read current Credit Interpretation Rulings

Many questions arising over the course of the design and construction process can be answered by reading credit rulings. Credit Interpretation Rulings are responses to questions posed by teams: they address difficulties applying a LEED prerequisite or credit to a specific project. At a minimum, read the rulings for all prerequisites and credits being attempted. It is also a good idea to read the rulings for credits not being attempted by your team; in so doing, credits appearing unattainable at first may suddenly seem achievable.

Provide no more than what is required

It does no good to overwhelm USGBC reviewers with unnecessary information. Stick to the stated requirements—and no more.

Photo courtesy Mithun. Photo © Roger Williams.

An example of this is Sustainable Sites, Credit 4.2–Alternative Transportation, which requires specifications, calculations, and drawings. For IslandWood, our team provided only a simple drawing along with a narrative establishing the number of storage spaces and occupants served, which proved adequate.

Use the provided templates

Whenever possible, use the templates, calculators, and other tools provided by USGBC for credits attempted; I do not recommend creating custom templates and calculators for those already provided. Ultimately, you may be asked to convey information using the provided tools.

Submit as many innovation in design (ID) points as possible

Although a maximum of four ID points are awarded for any given project, nothing prevents a team from submitting six, eight, or even 10 points for consideration. When four points are awarded from the six to 10 submitted, great! However, the success rate for the awarding of ID points tends to be less than 100 percent, and submitting only four may yield less than the maximum attainable.

Use common sense—provide less than stated requirements

Where multiple submittal requirements are listed in credit templates (*i.e.*, calculations, specifications, product data, MSDSs,[1] etc.), I do not provide everything I possibly could when I can demonstrate proof of compliance with less. Submittals are not penalized for providing less than stated requirements so long as what is provided clearly demonstrates compliance.

Study previously awarded ID points

The chance of having a new Innovation in Design point recognized is generally not as successful as aiming for those already awarded. Writing new ID points can be time consuming with no guarantee of acceptance. (Note: submittal of previously awarded ID points is not a sure thing, either.) The IslandWood team spent a considerable amount of time crafting two ID credits which were

ultimately denied. In hindsight, we should have attempted several previously awarded ID points, resulting in more credits and less effort.

Look to other LEED rating systems (Commercial Interiors, Shell and Core, Existing Buildings) for potential ID points
Each LEED rating system contains unique credits and prerequisites that could match up with something in the project being worked on. An example of this is Green Housekeeping—an ID credit we crafted for one project using the LEED for Existing Buildings™ (EB) Green Housekeeping credit as a starting point.

Be quick and dirty
It is unnecessary to spend a lot of time making every bit of the LEED application beautiful. Hand-drawn notes and sketches are perfectly acceptable. Liberal use of highlighters and big red markers accelerates the process greatly.

Submit more credits than necessary
Even the best-documented project typically loses a handful of points during the evaluation process. Attempting four to five more points than necessary allows for the loss of a few points without jeopardizing the targeted certification level.

LEED versions 2.0 and 2.1

LEED v2.1 was developed to correct minor problems with its predecessor, v2.0, and make clarifications where needed. While changes made to the rating system are minor, v2.1 introduces significant changes to the tools and process for documentation. In v2.0, teams were provided with Word templates and Excel calculators; v2.1 combines these two elements into one large Excel spreadsheet, reducing the amount of required documentation. While it is true some of the documentation has been eliminated, the new templates do not necessarily reduce the amount of effort required.

The reduced documentation brings with it a new twist: random auditing. When opting to use v2.1 templates (or v2.0 in combination with v2.1), teams are also subject to an audit: one-third of the total points being attempted flagged first for cause, then randomly for the remainder. Though many credits under v2.1 do not require documentation, experience suggests it is unwise not to have all documentation at the ready in anticipation of an audit. In the end, the effort remains the same for a conscientious project team not willing to jeopardize possible points and the client's anticipated LEED certification level.

Version 2.1 templates and calculators differ from v2.0 in the following ways:

- The v2.1 file is huge (over 2.5 MB) and formula intensive, taking an average of 90 seconds to open with a 1-G, Pentium III PC.
- The file is password protected and not designed to be broken up and sent to individual team members.
- The spreadsheet must be filled out in its entirety, including project team member information, basic project information, and a team responsibility matrix. Subsequent worksheets draw from this information for automatic data insertion into corresponding cells, credit to credit.
- Both hard copies *and* complete electronic versions of the submittal are required.
- Hard copies must be printed on letterheads of responsible parties accompanied with original signatures.

For many credits and prerequisites, I find the less sophisticated v2.0 templates and calculators simpler and easier to use. There is no requirement for letterheads or original signatures. Filling out project information is optional and not required to complete the information on the templates. Version 2.0 instructions actually encourage teams to modify spreadsheet calculators as necessary to fit project needs. This is especially useful for Materials and Resources (MR) credits, since most projects—if not all—

Table 1 LEED Points and Sections for the Project Manual

LEED Category	Credit/prerequisite	Suggested spec section(s)	Documentation requirement
Sustainable Sites	Prerequisite 1—Erosion and Sedimentation Control	01500—Temporary Facilities and Controls or 02370—Temporary Sedimentation Control	Erosion control plan, drawings illustrating measures implemented
	Credit 3—Brownfield Redevelopment	02130—Site Decontamination	Remediation efforts performed, No Further Action (NFA) letter from local jurisdiction
	Credit 4.2—Alternative Transportation (Bicycle Storage)	02870—Site Furnishings or 05500—Metal Fabrications	Bike storage/rack cut sheets
	Credit 7.2—Heat Islands (Roofs)	Division 7, Roofing	Technical data, cut sheets
Water Efficiency	Credit 1—Water Efficient Landscaping	02810—Irrigation Systems	Equipment cut sheets
	Credit 1—Water Use Reduction	15410—Plumbing Fixtures	Fixture cut sheets
Energy and Atmosphere	Prerequisite 1—Fundamental Building Systems Commissioning	Divisions 15 and 16	Commissioning requirements
	Prerequisite 3—CFC Reduction in HVAC&R Equipment	11400—Food Service Equipment Division 15	Equipment schedules and cut sheets
	Credit 2—Renewable Energy	13600—Solar and Wind Energy Equipment Division 15 and 16	Equipment schedules and cut sheets
	Credit 4—Ozone Depletion	11400—Food Service Equipment 13900—Fire Suppression Systems Division 15	Equipment schedules and cut sheets
	Credit 5—Measurement and Verification	Division 16	Cut sheets
Materials and Resources	Credit 2—Construction Waste Management	01738—Construction Waste Management	Waste management plan, recycling rate, waste calculations
	Credit 3—Resource Reuse	Divisions 2—14, various	Cut sheets, calculations
	Credit 4—Recycled Content	Divisions 2—14, various	Cut sheets, calculations
	Credit 5—Local/Regional Materials	Divisions 2—14, various	Cut sheets, calculations
	Credit 6—Rapidly Renewable Materials	Divisions 2—14, various	Cut sheets, calculations
	Credit 7—Certified Wood	Divisions 2—14, various	Cut sheets, calculations
Indoor Environmental Quality	Credit 1—CO2 Monitoring	Division 16	Cut sheets
	Credit 3—Construction IAQ Plan	01700—Execution Requirements	IAQ management plan, photographs, cut sheets
	Credit 4—Low-Emitting Materials	06400—Architectural Woodwork 07920—Sealants 08200—Wood Doors 09900—Paints and Coatings 09680—Carpet 14271—Custom Elevator Cabs (Cab Finishes)	Cut sheets, product data, manufacturer's certifications
	Credit 5—Indoor Chemical and Pollution Source Control	12480—Entry Grilles	Cut sheets
	Credit 6—Controllability of Systems	Division 16	Cut sheets
	Credit 7.2—Thermal Comfort (Monitoring System)	Division 16	Cut sheets
	Credit 8.1—Daylight and Views	08800—Glazing	Cut sheets

require dozens of rows to display each material (v2.1 provides only 15 rows for each of the MR credits, which cannot be modified).

The anxiety in deciding whether to use v2.1 or v2.0 was eliminated with a USGBC administrative ruling posted April 17, 2003. Prior to the ruling, USGBC staff had been advising teams to use either v2.0 or v2.1 templates and calculators, depending on a project's registration date. The April ruling corrects and clarifies, stating all projects are registered under v2, but it is completely acceptable to provide documentation using all available tools: v2.0, v2.1, or any combination of the two. This gives teams much more flexibility in choosing the most timely and cost-effective way to proceed. The ruling also makes it optional to send hard or electronic copies of the final documentation package.

Streamlining effort through specifications

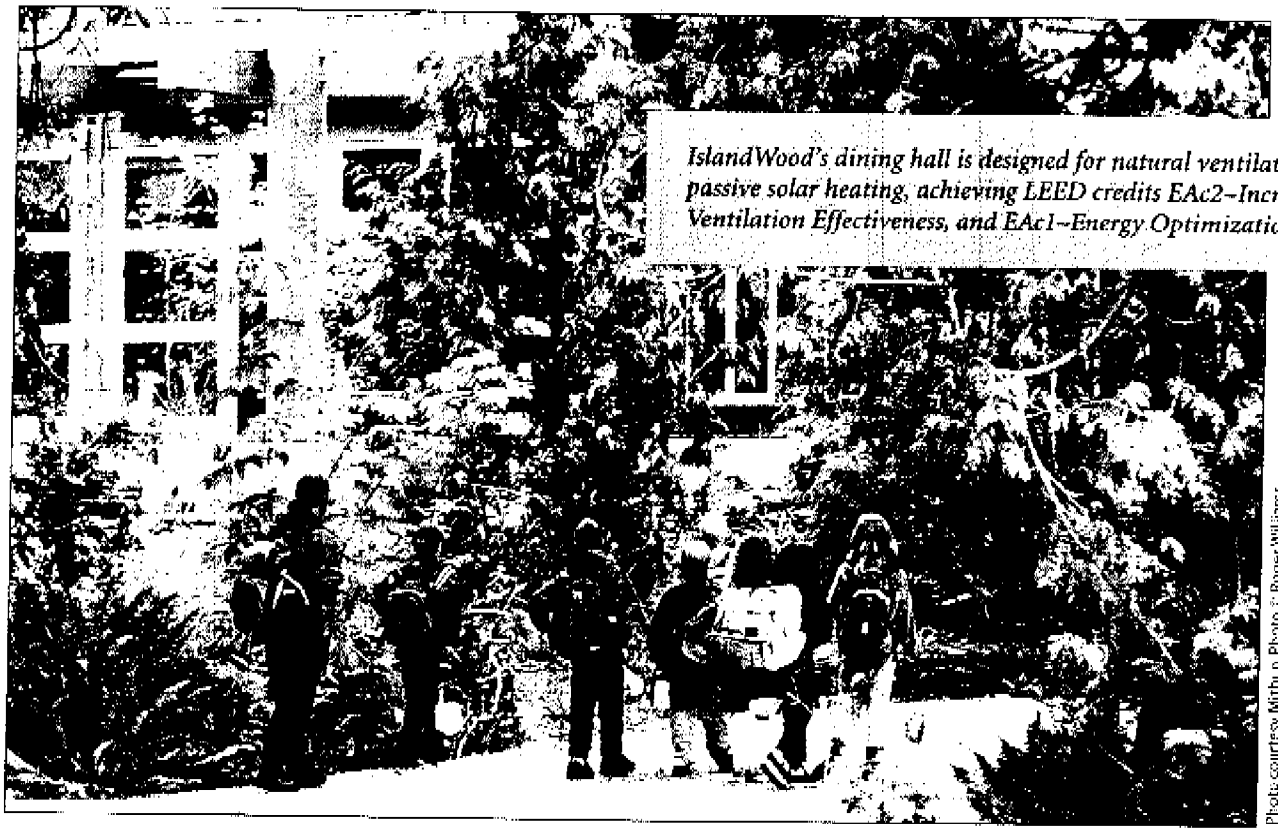
One of the best things a project team can do to reduce effort during the documentation process is to incorporate as many requirements as possible into the project manual. (Refer to Table 1 for credits and prerequisites that can be addressed in specification sections, and suggested sections for incorporation.)

Consultant management

The architect is commonly the prime consultant in building team hierarchies, and is often expected to assume the same role with regard to LEED documentation. When this is the case, it is important for him to act as the director of the process. Conducting regular meetings with all consultants from early design stages onward is an extremely effective way to keep everyone on track. The architect needs to know enough about each LEED point to be able to direct consultants and verify work is being done consistently with the requirements, and ensure documentation is adequate. Consultants shoulder a significant amount of the documentation responsibility for many credits.

It is important during consultant agreement negotiations to incorporate LEED documentation requirements. All too often, teams already well into a project are confronted with the realization no money exists for the effort required for documentation. Contractually requiring team members to provide this service solves the problem.

Another method of consultant management is through the acquisition of a third-party consultant retained solely for the purpose of documentation. A handful of firms across North America specialize in this field, typically charging from between $15,000–$25,000, depending on the degree of support and involvement offered or required.



IslandWood's dining hall is designed for natural ventilation and passive solar heating, achieving LEED credits EAc2–Increase Ventilation Effectiveness, and EAc1–Energy Optimization.

Photo courtesy Mithun. Photo © Roger Williams.

Certification process

The first step is registration, which costs anywhere from $750–3750, depending on the size of the project and whether the registering party is a USGBC member. Registration is done entirely on USGBC's Web site. A project should be registered as soon as client approval is obtained, as this keeps the momentum going and gives the team immediate access to all Credit Interpretation Rulings. Registration also entitles the project team to two Credit Interpretation Requests. The project requires no further commitment from the team or owner to continue the certification process, should that decision be made during project development.

Once all of the documentation is gathered and templates completed, the entire package is sent, in duplicate, along with another check anywhere from $1500–7500 (again, depending on the size of the project and membership status) to the USGBC and the consultant performing the evaluation. Only hard copies are required for those submitting under v2.0 or a v2.0/2.1 combination. For teams electing to submit entirely under v2.1, both hard and electronic copies are required.

Preliminary evaluation takes place within 30 days, after which the documentation is returned to the project team with a breakdown of awarded, pending, and rejected prerequisites and credits. The team has 30 days to respond

to the preliminary findings by making corrections and providing any required additional information. This is sent back to the evaluator, and a final evaluation—with the certification level achieved—is returned to the team within 30 days. At this point, the team has 60 days to appeal anything still in contention, at a cost of $250 per credit.

You can imagine the shock the IslandWood team experienced when the preliminary evaluation indicated the project had merely met the Certified level—13 points shy of the Gold level we had designed and worked toward. Several points were checked off as Pending, and a handful had been rejected. Our initial dismay, however, was steadily replaced with optimism as we realized we could move many of the Pending points into the Awarded column through simple corrections and clarifications. We were even successful at getting two of the rejected points into the Awarded column.

Was it worth the effort?

At the end of the day, the reward for all of the time and effort required to design, build, and certify a building under the LEED rating system is much more than just a certification plaque hanging on the wall. One of the biggest rewards was witnessing the transformation of a group of people, who before the experience, had little understanding of what it meant to create a green building.

I have worked with consultants who, in the beginning, were skeptical about sustainability, but by the end of the certification process were enthusiastic and eager participants. I worked with owners who knew little to nothing about green buildings at the outset, but now speak with knowledge and pride of their project's sustainable contribution to the world. I also worked with contractors who 'made comments' in the beginning about all the rumored additional money and time it takes to build green, but by the end of it all actually found better ways of making a project even more sustainable, and at reduced cost.

Entire teams become champions of sustainability because of LEED. On a grand scale, the rating system is changing the way we think about designing and constructing buildings, and the attitudes and behavior of the people occupying them. Further down the chain, the rating system is changing the way materials are manufactured. Despite the extra time, effort, and the system's own inherent shortcomings—it is worth every penny.♥

Notes

[1] I do not require material safety data sheet submittals due to the potential liability involved. Instead, I ask manufacturers to certify their products meet stated requirements. In acknowledgment of the problem, a recent Credit Interpretation Ruling allows teams to submit alternative documentation to stated MSDS requirements.

Additional Information

Author

Christopher Dixon, CSI, CCS, is the director of specifications and senior associate at Mithun Architects+Designers+Planners. He possesses 18 years of experience in design and construction, and speaks nationally on the subject of sustainability (most recently at Environ Design 7). A registered architect in Washington, D.C., Dixon is an active member of the Puget Sound Chapter of the Construction Specifications Institute (CSI), having served as the Technical Committee chair, director P1, and currently as the chapter's E-Communications chair. He can be reached via e-mail at chrisd@mithun.com.

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Abstract

The road to LEED certification is fraught with documentation, charts, consultants, attempted credits, and so forth. In this article, the author explains his project team's experiences as they attempted to Gold-certify their IslandWood project—a 6503-m² (70,000-sf) environmental education center on Bainbridge Island. He explains the nuances between differing versions of the LEED rating system, and the effort and money required to achieve certification.