

"The Cost of LEED" Report and Understanding the Cost of LEED Project Certification

What does LEED cost?

How much does LEED certification cost? Earning a LEED certification for a project involves several different types of costs, and you have to consider each separately to get an accurate picture.

Let's envision the cost of LEED as an inverted pyramid with five levels from bottom to top. The bottom level is both the smallest (in size and cost) and the top level is potentially the biggest, but also a place where you have a lot of leeway. We'll start at the bottom.

1. The fees

The most direct cost is also the smallest: [the fees you pay to the Green Building Certification Institute \(GBCI\)](#) to register and then to certify your project. These are roughly 3¢–5¢ per square foot for New Construction, depending on the size of the project and whether or not you get the USGBC member discount.

2. Cost of documentation time and effort

Next up the cost pyramid is the time and effort that someone has to put into compiling and submitting the LEED documentation and generally managing the compliance process.

This cost could be for an outside consultant hired just for that task, someone on the staff of the design firm, the contractor, or the owner. This is a big project for someone doing it for the first time, and not such a big deal for someone who has done it enough to have figured out the process and created or purchased effective tracking systems.

It helps if the team is experienced and each person doesn't need too much coaching to provide her pieces of the documentation. It also depends how many credits you're going after, and, to some extent, which ones. A few hundred hours to pull everything together for a big complicated project is not out of the ordinary; simple and small projects should take less time and effort.

3. Cost of extra research and design

At the third level, your baseline starts to become very relevant.

If your baseline is the cost to have a design team create a variant on their last few non-LEED projects, then designing to meet LEED standards will take some extra effort. But these added costs shouldn't be attributed just to LEED—they are the costs of getting a better building.

To realize any high-performing building the team has to develop a range of scenarios, run simulations to determine how they will perform and prepare cost estimates to price them out. They also have to investigate alternative products and materials and

explore the feasibility of new technologies. All these steps take time and effort—how much depends a lot on how experienced the team is and how aggressive the performance goals are for the project.

4. The cost of commissioning and modeling for compliance

LEED introduces a few requirements that add costs if they are not already part of the scope of the project. The most obvious of these is commissioning. At \$0.50-\$1.00 per square foot (or more for a complex building), commissioning may seem like a big investment, but it's cheap compared to the cost of call-backs, fixes, and inefficiencies that are likely if you don't do it. For this reason, many large owners, including the federal General Services Administration, require commissioning for all of their projects, so for them it is not an added cost.

Energy modeling is trickier. While energy modeling should be used to inform the design process for every building, they are most useful during early design phases. The models that have to be run for LEED documentation, on the other hand, are an added step, done late in the design process and often with different parameters. These models, or models like them, are also required by code in some places. If the models aren't code-required then the LEED-specific model does represent an added cost that starts at \$5,000-\$10,000 and goes up, depending on the complexity of the project. For small projects it is possible to earn a few LEED energy points using the prescriptive path without doing such a model.

WEp1: Water Use Reduction				
WEc3: Water Use Reduction				
Systems	Construction Cost (Relative Percentage)	Construction Cost (\$ per Fixture)	Annual Maintenance per Fixture	Raw Water Savings Contribution compared to standard fixture
Conventional				
High-Performance				
Water Closets				
A. Standard (1.6 GPF)	100%	\$700	\$0	0%
B. Low-flow (1.28 GPF)	103%-126%	\$800	\$0	20%
C. Manual dual flush (1.6/1.1 GPF)	103%-107%	\$735	\$0	21%
D. Sensor dual flush (1.6/1.1 GPF)	109%-134%	\$850	\$10	21%
E. Composting (0.0 GPF)	379%-464%	\$2,950		100%
Residential Lavatory Faucet (see notes)				
F. Standard (2.2 GPM)	100%	\$500	\$0	0%
G. Reduced flow (1.8 GPM)	102%	\$510	\$0	18%
Commercial Lavatory Faucet				
H. Low-flow (0.5 GPM)	100%	\$600	\$0	0%
I. Sensor low-flow (0.5 GPM)	104%-127%	\$690	\$10	0%
J. Sensor turbine low-flow (0.5 GPM)	111%-136%	\$740	\$0	0%
Urinals				
K. Standard (1.0 GPF)	100%	\$650	\$0	0%
L. Low-flow (0.5 GPF)	102%-107%	\$675	\$0	50%
M. Ultra low-flow (0.125GPF)	102%-113%	\$700	\$0	88%
N. Waterless*	90-110%	\$650	\$20	100%
Showers				
P. Standard (2.5 GPM)	100%	\$400	\$0	0%
Q. Low-flow (1.8 GPM)	101%	\$410	\$0	28%
R. Ultra low-flow (1.5 GPM)**	104%-127%	\$450		40%
Kitchen Sink				
S. Standard (2.2 GPM)	100%	\$500	\$0	0%
T. Low-flow (1.8 GPM)	102%	\$510	\$0	18%
Reclaimed stormwater/graywater				
U. 10,000 gal tank, filter and pump below lowest floor or outside below grade (= 65,450 gal/yr) with standard fixtures		\$40,000-\$60,000 for pump and filtration; tank can be above ground, below ground or integral with foundation		34%

Note: * For waterless urinals, a premium for the fixture and a deduction for deleting the water supply is included.
 **Assumes adequate water pressure.

Construction cost premiums

for LEED credits such as WEp1 Water Use Reduction are highly dependent on the

savings being attempted and which strategies are chosen to get there. This table from the Cost of LEED report lays out the options.

Another LEED-specific action—tied to an optional credit, [EAc5](#) in LEED-NC—is to create a measurement and verification (M&V) plan and install monitoring devices needed to track performance. If you wouldn't be doing this, then the monitoring equipment and writing and implementing the M&V plan require cost premiums, which are explored in the "[The Cost of LEED](#)" report. Like commissioning and energy modeling, M&V brings benefits—it's the only way to know if your high-performance building is really performing as designed.

5. Costs of construction

Finally, we get to the top of our inverted pyramid, and what might be the biggest part of the cost picture: the hard costs of construction.

If the design team is experienced and the goals aren't too aggressive, there may be no overall added cost because every cost premium has been offset with savings somewhere else. (For example, a smaller HVAC system resulting from a more efficient envelope.) We know this is possible because lots of projects achieve LEED certification on budgets that were set before LEED was introduced as a requirement. However, various studies have targeted a typical premium for LEED projects at 2%–15%, with the high end including a lot of on-site renewable energy generation for [LEED-NC EAc2](#).

Managing costs of construction

To manage those costs you have to know, at least roughly, the price of a range of specific measures. It helps to know the following for example:

- Demand-controlled ventilation adds about \$1/cfm to the cost of a standard ventilation system
- Bike racks will cost about \$5 per [full-time equivalent](#) (FTE)
- Showers and changing rooms will cost about \$400 per FTE.

These figures, and many more, come from "[The Cost of LEED](#)"—a new report from BuildingGreen.

The Cost of LEED report

Going credit-by-credit through LEED for New Construction v2009 (LEED-NC), "The Cost of LEED" itemizes all the common approaches to achieving the performance that the credit requires and offers the view of an experienced cost estimator on the cost implications of adopting those technologies or design solutions.

"The Cost of LEED" can't tell you what it might cost to locate your project near mass-transit for [SSc4.1: Alternative Transportation](#)—that's too location and project specific for even a rough guess. But it can suggest a figure to put into your budget for any one of hundreds of specific technologies, and it identifies the other credits that might also benefit from that measure (so you can consider the appropriate synergistic benefits).

["The Cost of LEED" is available for purchase as a PDF through the LEEDuser website for \\$49.](#)