

# Integrative Design Collaborative

## Buildings + Habitat + Community

### **The Cost of LEED Green Buildings**

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The data base is still limited. However, there are enough completed projects and experience to indicate cost trends in the realization of officially certified LEED projects.

The following qualifications need to be considered in any discussion of the “cost of green.”

1. The cost of green buildings can only be compared when using an internally consistent framework – LEED or any other rating system.
2. **The EARLY incorporation of *EFFECTIVE INTEGRATIVE DESIGN* with the WILLING participation of ALL the members of the design team is essential to realize cost effective, high performance, relatively sustainable, green buildings.**
  - a. The word EARLY means EARLY – Embrace green issues as a basic part of the project programming phase. If it is not part of the building program then include green issues before schematic design begins. Unless lucky, you will spend significantly more money achieving a LEED Certification when the project is in the design development or construction documents phase.
  - b. Effective integrated design means that the design team and client will explore all the possible program possibilities, design permutations, and optimization of the many technical and natural systems engaged in the building, site, and watershed.
  - c. A willing attitude from the members of the design team is essential for the highest performing projects. It is much more important than experience. After a couple of times, you’ll get the experience.
  - d. The word ALL means ALL – the most successful integrative design process includes the Owner and Contractor. ALL the participants in the design process should be willing to think outside the boundaries of conventional practice.

## Costs

1. It has been reported that LEED buildings cost 10% to 25% more than conventional construction. This may be true if the design team ignores the above points. The “studies” making these claims have literally added the cost of a variety of LEED credits without optimizing these issues as any good design team would do. Ignore these “statistics.”
2. There is no correlation of the cost of green buildings in relation to the levels of “greenness” achieved – whether Certified, Silver, Gold, or Platinum projects. The only statistically meaningful data is from the database being assembled by the USGBC of LEED Certified projects. There are Certified projects being constructed at higher than estimated conventional budget costs and there are Platinum projects coming in at conventional budget estimates . . . see above.
3. In general, at the current state of integrated design expertise, design teams are achieving LEED certifications at 0% to 2% higher than conventional, initial cost budgets. These percentages are based on real numbers from a variety of projects. Also, the ranges of possible credits achieved by projects vary making an apples-to-apples comparison difficult until more projects are certified. Of course, one can spend significantly more if the Credits being sought are not able to be optimized as a result of external conditions. These might be the cost of Photo Voltaic Systems or a Grey Water System in areas where water rates and incentives do not support this level of efficiency.
4. It is harder for large floor plate buildings to achieve “at budget” LEED Certification due to the difficulty of daylighting and cooling.
5. **The above comments relate only to the initial costs. The REAL FOCUS is a reduction in Operating Costs and higher Return on Investment – i.e., the Life Cycle Cost of a project. Unfortunately this is usually not considered as we make the transition from buildings that are budgeted using design practices that are “one step better than breaking the law” (Randy Croxton) to higher performing ones.**
6. The Design Costs for LEED projects are higher. They can be even higher for more inexperienced teams. However, these costs are very low in comparison to the Life Cycle Benefits. These costs are **general ranges** based on an average scope of work for a building of office type occupancy. There are no ‘rules’ for determining fees, nor should there be. Additional scope of work will be determined by the additional skills and effort needed to support the design team in realizing high performance design.
  - Integrated Design Coaching - \$10,000 to very high  
(For inexperienced teams)

- \*Energy Modeling - \$15 - 35 K  
(This is essential for any project. It should not be considered an extra cost. This is not “modeling” a building to justify intuitive or conventional decisions locked in from the Schematic Design Phase. This is part of an iterative design process that tests many different strategies early in the design.)
- Daylight Modeling - \$6 - 25 K  
(This is an optional process that’s use is dependent on the opportunities for natural light use in a building. If done with an analogue, ¾” scale model it can be inexpensive. If done with a computer simulation model, more expensive. If photo-realistic renderings are needed to evaluate veiling reflections and contrast difficulties, it can be even more expensive.)
- Moisture Flow Analysis - \$1 - 3 K  
(This is an optional process but one that is very inexpensive insurance to avoid mold related issues in the structure.)
- Simple Materials Research - \$0 - 5K  
(For inexperienced teams. This is basic to most design practices. Charging for this effort is fair if the client wishes to advance the state of the art. We also recommend that the client and the designer split the cost of this research when the design team is new to the greening process. It should be noted that some level of continuous research is required due to the transitional nature of the developing green marketplace.)
- Spec Editing – Green issues - \$2 - 7 K  
(For inexperienced teams)
- \*Commissioning - .3% - 1.5% Const Cost  
(This is essential for any project. It should not be considered an extra cost. Any building can benefit from the commissioning process. Period. The cost can vary depending on the complexity of the project and the level of testing already being performed by the Owner.)
- Construction Partnering - \$25 – 30 K  
(Recommended, bit not essential, for any project. This is about getting the trades people to understand why and how different technologies need to be realized in the field – essentially it’s all about reviewing the specifications before the subs begin the actual work)
- LEED documentation - \$8 - \$30 K  
(The earlier you start the documentation process, the less it will cost. The design consultants should consider the documentation part of their design process – it’s minimally different than they would have done anyway. It’s when they have to reverse engineer the work already designed that the costs increase.)

When the design activities are considered as a whole with the construction

activities – i.e., in an integrated fashion – the cost of the process can be significantly reduced because of a subtle but significant factor - people are talking with one another throughout the project. The design team is communicating in order to achieve these higher performance goals – the process is not business as usual. The US Navy, since incorporating an integrated design/build process to achieve green buildings has been experiencing a 90% reduction in change orders – more than enough to pay for any slight addition of high performance design features (even though these would have paid for themselves anyway).

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