

Get Up to Speed on LEED

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How site prep contractors can aid jobsites seeking environmental certification.

Increasingly, architects are eager to find general contractors and subcontractors who understand the unique requirements of LEED-certified projects. Leadership in Energy and Environmental Design, or LEED, is a green building rating system developed by the nonprofit U.S. Green Building Council (USGBC). If you're not familiar with LEED, it's time to get up to speed.

The LEED System

While there are other environmental rating systems, right now LEED is arguably the most recognized national benchmark. The LEED program has two types of sections: prerequisites and credit categories. If a building project cannot meet the prerequisites, the project cannot gain LEED certification regardless of how many points it might get otherwise. The points toward certification are gained in the credit categories. In brief, that's how the rating system works.

The original and first LEED system, introduced in 1999 for the United States, covered New Construction (LEED-NC). Since then, additional LEED systems have been introduced (and more are expected) that address specific building types. These include commercial interiors (tenant build-outs), core and shell ("spec" buildings), existing buildings, schools, homes, retail, laboratories, campuses and neighborhoods. LEED-NC requires a minimum of 26 points for a building project to gain the council's basic certification with Silver, Gold and Platinum levels available for achieving higher point levels.

LEED certification is becoming so important that some architectural firms find it necessary to require the general contractor to provide LEED education to their subs. In fact, it's quite possible for only one untrained subcontractor, unaware of the requirements of LEED, to be responsible for one or more point deductions on the green building scorecard. On these projects, where so much effort is



A 330,000-square-foot Class A office space project in Waltham, Massachusetts, is under consideration for LEED Gold and innovation credits. The project called for careful coordination between the developer/owner, Hobbs Brook Management, the architect, **Margulies Perruzzi Architects**, and the contractor, Columbia Construction Company. All photos courtesy of Columbia Construction Company.

expended to attain each and every single point, the building owner and the rest of the project team will be less than happy when those points are lost due to lack of LEED preparation.



The existing concrete building was demolished with large excavators.

So how can a site preparation contractor prepare his company for the next LEED project? Learn more about LEED requirements between projects and before bidding the next project. Research how contractors are working on other green building projects in your region. Join the local chapter of the USGBC to improve your knowledge and understanding of LEED, and take advantage of member discounts on training courses and

other resources.

Prior to bidding on a green project, there are several pre-construction steps that site professionals can take to better understand costs and to improve their chances of winning the contract. Because more and more government and municipal regulators are requiring LEED certifications for projects funded with tax dollars, it is prudent for contractors to know the sustainable attributes of the products they are installing and learn their responsibilities once selected for a LEED project. Being able to identify green language in bid packages will go a long way toward responding with a competitive, yet responsible, bid. The following summary highlights areas of LEED certification that are likely to be of concern for the site prep contractor.

LEED Credits Related to Sitework

The point-gathering LEED credit categories for more sustainable building sites mostly deal with the location of the property to public transportation and other local amenities. There is a LEED point available for redevelopment of damaged or contaminated land, for example, so contractors with work experience on brownfields have an advantage in this area. But the Sustainable Site (SS) section of LEED has several more categories of interest to subcontractors.

In order for a building project to even attempt certification, everyone on the building team must follow the requirements outlined in SS Prerequisite 1: Construction Activity Pollution Prevention. As part of this prerequisite, the design team and the general contractor have to develop an Erosion and Sedimentation Control (ESC) Plan that conforms to the requirements of the 2003 EPA Construction General Permit or a more stringent local standard and code.

The LEED system encourages site development to protect or restore habitat for the local animal species, so it is vital that boundaries for excavating are clearly marked on a LEED jobsite. In SS

Credit 5.1, the contractor is required to leave the land untouched within 40 feet of the building, or during a major renovation on an existing building site, half of the site is to be left for the addition of native plants where critters like to live. Preferred plantings survive without irrigation and maintenance. The area for excavating could be adjusted upward if the project team opts to install a garden roof, which would add to the amount of vegetation on the site.

In Credit 5.2 under site development, the contractor is tasked with executing plans to maximize open space. The intent is to promote biodiversity by exceeding the local zoning requirements for open space by 25%. In cases without zoning, the green space must equal the building footprint. If there is zoning but no open space requirement, the vegetative area must equal 20% of the overall project site. There are provisions in LEED for highly built up areas, plus garden roofs can count toward compliance. Wetlands count, too, if their average slope is less than a 1:4 (vertical:horizontal) grade.



Of the 65,000 tons of material that comprised the actual weight of the demolished building, 61,000 tons of concrete and masonry block were crushed on site and used as structural fill.

The site preparation contractor is asked to address the stormwater design in SS Credit 6.1 for quantity control. The building team has to come up with a stormwater plan that protects streams from excessive erosion in both cases of a site being less than or greater than 50% impervious. The excavation must maintain normal stormwater flows by promoting infiltration. Knowledge of how to create bioswales would be a plus for a contractor hired to complete this work. Pervious paving and vegetative roofs can offset what cannot be accomplished on the land. The less irrigation, lavatory effluent and wash water, the better chance of gaining a point here. Technologies such as stormwater harvesting can also play a role in reducing the amount of rainwater entering traditional infrastructure-heavy stormwater abatement..

On the flip side, improving the quality of the stormwater discharge can lead to points toward certification. In SS Credit 6.2, the site preparation professional is required to comply with the strategy the project team creates to win this LEED point. The more sustainable site treatments for Credit 6.2 will be able to remove 80% of the average annual post development total suspended solids. Any approach to make the site more impervious and promote infiltration of stormwater is better. Some strategies include constructed wetlands, vegetated filters and open channels to treat runoff. An alert contractor might point out to the design team that many of the approaches for gaining these points can be less expensive than installing and operating drainage infrastructure—and especially a treatment plant.

The right landscape can help reduce localized warming of hardscapes in city centers for a possible LEED point in SS Credit 7.1 Heat Island Effect: Non-Roof. Developing the site for parking under the building or planting shade trees in the parking lots are among the tactics for gaining this credit.

In addition to the Sustainable Sites category, contractors can prove invaluable in executing a LEED project's construction waste management plan and assembling the appropriate reporting protocols, among others. The storage and collection of recycled materials is a prerequisite within the Materials and Resources credit category. The site preparation contractor must pay attention to the waste generated and place it in the designated area on the site. Usually, it is the general contractor's responsibility to designate the collection area on the site and communicate how this area is to be utilized to the subs. Marked dumpsters for sorting materials typically seen on jobsites are kept in this area.



Granite curbing and asphalt were stockpiled to be crushed and reused.

Recordkeeping for LEED

A contractor working on a green building must also have the knowledge to assemble and maintain the documentation necessary for compliance with LEED. While the documentation can be as simple as taking photographs, it might require more specific recordkeeping such as retaining product labels. Documents and photographs should be gathered and turned in for submittals. The first time is the hardest, but some architects make the process easier by identifying the LEED points for which the contractor will be responsible and providing simple tracking forms.

On LEED projects, the general contractor is required to maintain spreadsheets, usually provided by the architect or LEED project administrator, in various categories. For the sitework subcontractor, this typically amounts to providing an itemization of the costs and weights of materials used on the job. If enough products with recycled content are used, then LEED quantifies the recycled content of the entire project. These equations typically require the total cost or weight of the materials to determine if a point will be awarded.

Tradesmen are also responsible for providing the general contractor with information that relates to how far certain products traveled from the point of manufacture to the jobsite, as well as where the raw materials for the product originated. This is necessary for calculating the Regional Materials credit. The Regional Materials credit applies to the raw material extraction for products, where they were made and the building project site. All activities have to be within 500 miles.

In all, general contractors on LEED qualifying projects are potentially responsible for up to 30 submittals, so they will seek out subcontractors willing and able to keep reliable records for the project team. Those submittals eventually go to the USGBC for a LEED Certification Review to determine the building's sustainable performance. Good recordkeeping by the contractors can ultimately streamline the documentation procedure, serve as a template for the submittals, provide a good reference for a cost-per-credit analysis prior to construction and reduce the time needed for the close-out phase.

LEEDing the Way

It is not too late to embark on the green path now while it remains a competitive advantage. Contractors who are confident and capable of their role in achieving compliance with the LEED rating system will be better positioned to bid on more projects and charge more for their expertise. Imagine the advantage of a site prep contractor who understands the purpose of the various LEED credits and can capably assist the project team to develop a green building plan that fits within a reasonable time frame and provides cost-effective sitework to the owner. LEED expertise is a way to add value to sitework and to differentiate a company from the pack.

SIDEBAR: LEED: Here to Stay

All indications are that LEED will not go away. While this rating began as a voluntary system, there are currently efforts to incorporate LEED into local building codes. Educate yourself and your company about the LEED program to avoid obsolescence.

SIDEBAR: Contractors Come to the Table Earlier for Integrated Design

An environmentally conscientious contractor needs to have a thorough knowledge of green building products to truly participate in the integrated-design approach needed to build green facilities. During integrated design projects, a green contractor can identify the LEED credits that it believes are achievable from the beginning, and then help define the project team's responsibilities for gaining those points. Sometimes a contractor is tasked with contacting manufacturers and their suppliers in order to obtain information about where the raw materials were produced or extracted and the amount of recycled content used in their products. This can range from recycled plastic in a silt fence or retaining wall to recycled fly ash in a concrete foundation, all of which can assist with the requirements in this credit category.