

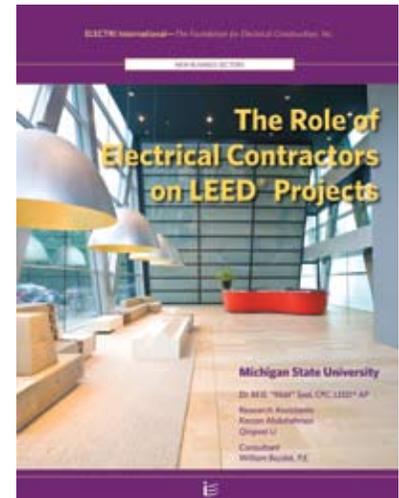
The Role of Electrical Contractors on LEED® Projects

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Abstract

The green building movement is growing at a fast pace, and still more growth is expected in the years to come. In early 2009, there are more than 17,000 LEED® registered projects and over 1,700 certified projects in progress. This emerging market brings many challenges and opportunities, and educating all the stakeholders in the construction industry about the impact of LEED projects is a timely need.

This research examined the roles and responsibilities of electrical contractors on LEED projects. All the applicable LEED-NC credits were examined for relevance to electrical contractors' work. The credits were grouped into two categories: *Site Practices* and *Products*. *Site Practices* includes one prerequisite (SSp1) and three credits (SSc5.1, MRc2, and EQc3). *Products* includes one prerequisite (EAp2) and ten credits (SSc4.3, SSc8, EAc1, EAc2, EAc5,

EQc1, EQc4.1, EQc4.2, EQc6.1, and EQc8.1). In addition commissioning, which is regarded as a main area of interest for electrical contractors on LEED projects, was studied in detail as a value-added opportunity credit.

The research utilized the LEED-NC reference guide, other literature, and case studies to identify the role of electrical contractors on LEED projects. The case studies included interviews with industry professionals, site visits, and a review of project documents. Some of the visits and interviews were conducted early in the research to better understand the issues related to LEED and electrical contractors' work. After the preliminary output of the research was produced, several case studies were utilized to verify and refine the research. The outcomes of this research will assist electrical contractors in becoming value-added partners on LEED projects.

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See reverse side for an excerpt from *The Role of Electrical Contractors on LEED® Projects*.

Role of Electrical Contractors on LEED® Projects

Overview

In this chapter, the impact of LEED®-NC credits on the electrical contractor (EC) has been summarized based on a review of the LEED-NC reference guide, other literature, and case studies. It presents a systematic overview of the EC's participation in LEED projects as easy-to-understand slides and tables.

LEED® and the Electrical Contractor

An electrical contractor participates in a typical new building construction project by procuring and installing power distribution and lighting systems, and all or parts of the communication and security systems. The EC may also provide power for other building systems, such as environmental control and energy management.

LEED projects usually pursue a level of certification that ranges from basic through silver, gold and platinum. For any level of certification, different sets of credits may be pursued on various projects. Some credits provide more than one point; the higher the points pursued, the greater the effect on the EC. Optimize Energy Performance (EA Credit 1) and Construction Waste Management (MR Credit 2) are examples for such credits. EA Credit 1 accounts for a total of ten points. If a project is seeking high points in this credit, more energy efficient electrical equipment and systems will be included. As a minimum, all projects should complete requirements of prerequisites mandatory for certification (LEED 2007). The prerequisites related to the EC's work may include:

- Construction activity pollution prevention
- Fundamental commissioning, and
- Minimum energy performance

In this report, the impact of LEED credits on ECs is divided into three categories as illustrated in **Figures 2.1A** and **2.1B**.

- **Site Practices:** This category includes prerequisites and credits that impact site practices. For example, the EC should follow the erosion and sedimentation control plan created for the prerequisite “construction activity pollution prevention”.
- **Products:** Although LEED does not certify prod-

ucts, its requirements may encourage the use of a number of products that are more identified with green buildings. Examples of such products are energy efficient equipment, lighting controls etc. It is important for ECs to be knowledgeable about procurement, alternatives, costing, and installing such products. Installing and wiring may become more sophisticated due to the existence of extra controls and connections (CS1 2008). The EC should also inform vendors about LEED requirements. During submittals, the EC should ensure that the product complies with the project specifications. Some products may also have long lead-times, and the EC should ensure that these products will be available when needed. In general, fewer product choices may be offered on LEED projects (CS1 2008). These buildings also tend to have more controls and integrated systems such as building management systems. In the case of design/build projects, this category becomes very important since the electrical firm may be responsible for specifying the products.

- **Value Added Opportunity:** This category includes two areas—“Commissioning” and “Innovation in Design” credits provide an opportunity for the EC to become a value-added partner of the project team.

Figures 2.1A and **2.1B** identify and categorize the LEED credits that have some impact on ECs. As the next steps, these LEED prerequisites and credits are analyzed for their specific impact. This analysis was performed for two major stages of construction:

- **Pre-Construction:** Impact on estimation, scheduling, contracts, construction documents, and product selection.
- **During Construction:** Impact on job supervision and as coordination with GC/CM, other trades, and suppliers.

This analysis typically follows the format illustrated in **Figure 2.2** below and is summarized in the slides and tables presented on next several pages.