

Fabricators and LEED

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Whether they realize it or not, steel fabricators can play a role in the sustainability of their projects.

BY NOW, THOUSANDS OF ARTICLES exist that address sustainable design and LEED. The body of written material covers subjects from brownfield development to urban heat island effect to embodied energy reduction. I'd like to take a different path and address these two questions:

- Does LEED Certification affect steel fabricators?
- Do steel fabricators affect LEED Certification?

In short, the answer to both of these questions is “yes.” The obvious follow-up question, then, becomes How? In order to answer this question, we need to start with the same basic understanding of LEED and how materials and processes affect it or are affected by it.

LEED (Leadership in Energy and Environmental Design) is the only third-party green building certification program with national acceptance. LEED is produced and managed by the United States Green Building Council (USGBC). (For a crash course in LEED or detailed descriptions of topics and credits, please visit USGBC's website at www.usgbc.org.) The areas that LEED addresses fall into the following categories:

- Sustainable Sites (SS)
- Water Efficiency (WE)
- Energy and Atmosphere (EA)
- Materials and Resources (MR)
- Environment Quality (EQ)
- Innovation in Design (ID)

The most common areas where fabricators are involved in the LEED Certification process on a project are usually out of the control of the fabricator and fall under the Materials and Resources category:

- Recycled Content (LEED Credit MR 4.1 and 4.2)
- Regional Materials (LEED Credit MR 5.1 and 5.2)

Fabricators do not generally specify the materials or control the project location, so usually the involvement of fabricators in this part of the process will be limited to documentation of decisions made by someone else on the project team. Because of the high recycled content in steel building materials (93.3%, according to AISC), this

involvement should be assumed on each LEED project. Fabricators who are looking for advantages over their competitors have begun to make the paperwork process and data collection for these credits easier. But they should go a step further and advertise their willingness and ability to provide the required information.

In the case of steel framed buildings, the steel comprises a large enough percentage of the total material value to allow project teams to pursue LEED Innovation Credits for “Exemplary Performance.” The Exemplary Performance compliance path for Innovation Credits is essentially exceeding the credit requirement by the next incremental percentage. For example, if the credit requirement for one point is 10% and two points for 20%, you can achieve a third point for exceeding 30% in that category. On the majority of LEED projects that I have participated in, we have achieved four points for the Materials and Resources credits—as well as achieved two Innovation Credits. For these projects, six points were achieved by the project team primarily by selecting steel as the structural material.

As LEED evolves, opportunities for steel fabricators to affect certification will increase. The best example of this will be the inclusion of Life Cycle Analysis (LCA) in the near future. A good working definition for LCA is:

“Life Cycle Assessment (or Analysis) is an objective process to evaluate the environmental burdens associated with a product, process, or activity by identifying energy and materials used and wastes released to the environment, and to evaluate and implement opportunities to affect environmental improvements.” (SETAC, 1990)

Steel as a building material will have a good LCA, in most cases, due, again, to the high percentage of recycled content in its make-up. The lower embodied energy required to use reuse materials versus extracting new materials from the earth accounts for the large portion of the credit given to steel in its LCA.

Although recycled content and LCA advantages will be the primary focus of how steel and steel fabricators will participate in LEED projects, there are some other sustainable impacts that steel fabricators can have if they are focused on improving both environmental impact and their bottom line:

- Operational Efficiency
- Waste Stream Management
- Energy Reduction Strategies

Each of these categories represents significant opportunities for fabricators and manufacturers to reduce their “environmental footprint” as well as improve on their profitabil-



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ity. In an industry where outside sources challenge the financial success of every steel fabricator, doing everything that is in the control of a company is of paramount importance.

With cutting and welding technologies becoming increasingly automated, powder coating becoming increasingly in demand from fabricators, and specialty brazing, chipping, and heat treatments all seeing increased use, the challenges for steel fabricators are many. However, they can improve their business by focusing on increased efficiency, reducing energy consumption, and managing all of the waste streams from the fabrication process. Examples of these can be natural lighting systems, dust collection, and electronic air cleaning systems.

Although LEED does not currently address processes like steel fabrication, fabricators can reduce their environmental footprint by adopting corporate goals for sustainability that address their individual incoming materials, material handling, by-products, and waste streams. And again, they should make these efforts known. As an initiative that addresses the life cycle of a building, there's no reason LEED shouldn't recognize all of the companies that work to make buildings come together, and that includes fabricators. MSC