

Green construction

By Tim Govenor

Before you begin

Ask the participants what green building and sustainable building means to them. Have them tell you ways that this type of building will help the working environment and have them give examples.



Introduction

The terms green building and sustainable building are finding more use in construction activities, as well as the news media and trade journals. The terms have come from associations focused on the best use of resources to construct and maintain buildings for the future. The intent is to create and preserve a healthy and safe environment for a facility and its occupants during and after construction, as well as throughout the building's life.

The U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system provides a tiered level of achievement for buildings seeking LEED certification. Achievement levels are platinum, gold, silver and certified depending upon the number of green requirements the design and construction process meet. LEED designates buildings that exceed its posted requirements as sustainable.

To summarize, green construction seeks to:

- Lessen the impact on the local environment;
- Promote energy efficiency;
- Effectively use resources;
- Create a safe healthy environment for construction workers and building occupants.

Given this broad definition, what are practices that promote green or sustainable principles, which you can implement at the construction site? (If your company is working on a project seeking LEED certification, review the LEED specific-project activities with the architect and general contractor.)

Common sense responses may include the following:

- Recycling — Green construction provides opportunities for extensive reuse or recycling of building demolition and construction materials. Contractors may reuse some materials on site, and send other materials to recycling centers;
- Rainwater and gray water (used in the home, except water from toilets, is called gray water) — Dish, shower, sink, and laundry water comprise 50 percent to 80 percent of residential wastewater. Businesses may reuse this water for other purposes, especially landscape irrigation;

- Energy-efficient equipment — Energy star equipment for home or commercial use consumes less energy than non-rated equipment. Successful buildings can use up to 35 percent less energy than standard construction;
- Natural lighting — Optimal use of windows and skylights, as well as design features, such as atriums, can minimize the use of electrical lighting fixtures;
- Low emission adhesives and coatings — After application, these items, also called low volatile organic compounds emitting materials, do not release unpleasant odors or noxious fumes.

Newer green building technologies may also include the following features:

- Solar panels — You may use these panels to generate heated water or to generate electricity;
- Permeable paving — This pavement permits the passage of rain water, reducing the size and scope of storm-water systems and surface runoff to storm-water drainage systems;
- Reflective coatings — When applied to rooftops, they reflect the sun's rays and reduce the amount of heat absorbed on hot days. Window coatings allow visible light in, but they reflect infrared (heat) light;
- Enhanced ventilation features — This ventilation system provides fresh air to construction workers during construction and, upon completion, to building occupants. These features may include sensors and monitors that measure indoor air-quality pollutants and trigger the ventilation system to provide more fresh air to indoor spaces.

A recent study found that most construction workers perceived green construction sites to be safer than conventional construction.

Whether you are working on a green building project or not, odds are that you will be soon. Estimates predict there will be more than 5,000 registered green projects nationwide by the end of 2007. This is a 10-fold increase compared to 2003. In the light of global warming controversies, political issues and public relations, the growth toward green, LEED-certified construction expects to be exceptionally strong into the future.

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References

Publications

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United States Green Building Council, (2005b) *An Introduction to the U.S. Green Building Council and the LEED Green Building Rating System*, Washington D.C.

Web sites

U.S. Green Building Council: www.usgbc.org

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