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Modular's Advantages in LEED System

The Modular Building Institute recently commissioned me to provide a report that specifically aligned the modular building industry with the Prerequisite and Credit requirements imbedded in the United States Green Building Council's (USGBC's) Leadership in Energy and Environmental Design (LEED) building rating system. The report, *Modular Building and the USGBC's LEED Version 3.0 2009 Building Rating System*, looks at LEED for New Construction and Major Renovations, applied to commercial construction, and LEED for Schools.

In this article, I will summarize the report's overall conclusions concerning modular construction and sustainability as it relates to the LEED prerequisite and credit categories, as well as the new category for LEED 2009, Regional Priority.

Sustainable Sites

Proper siting or placement of modular units can contribute to improved daylighting, natural ventilation, better storm water management, more efficient site lighting and a host of other sustainable design and development improvements that contribute to a more energy-, material- and resource-efficient project. This category also rewards construction techniques that limit site disturbance and keep disturbed areas to within the areas immediately adjacent to the building footprint.

Water Efficiency

Water conservation and the LEED Water Efficiency credits are gaining in priority and application as the awareness of the importance of water and, in some cases, growing shortages emerge. Water conservation is one of the hallmarks of high performance green buildings and one area where modular building can enjoy the same benefits as conventional construction.

Energy and Atmosphere

Increasing energy costs and growing concern about energy availability and security are sure to keep the interest in energy conservation and renewable or alternative energy sources in the forefront of the high performance green building movement. Modular building has a number of potential advantages — it uses structural insulated panels (SIPS) that can produce relatively high R-values, steel and aluminum stud frame construction can produce energy-efficient units and high-performance windows contribute to the pursuit of high-performance building envelopes.

Materials and Resources

Modular building by nature is material and resource efficient. One of the great economies of modular building is the ability to assemble repetitive units in controlled conditions. Another is to minimize material waste associated with conventional construction due to weather intrusion and construction site theft. Whole modular units — largely finished prior to arriving at the construction site — can significantly limit construction waste generated at the site and contribute directly to construction site waste management.

IEQ

Superior indoor environmental quality (IEQ) is one of the most desirable and important attributes of high performance. At this time, the modular industry can provide both environmentally conscious buildings and eco-friendly building materials because it has control over both. This is evidenced by the creative and inspirational responses produced by manufacturers who have participated in green building design challenges.

Innovation and Design Process

Perhaps the best feature of the LEED building rating system is the invitation to be innovative. Modular building capitalizes on the ability to move product in controlled manufacturing conditions, tight inventory control and project schedules. It is inherently waste conscious and can have minimum site impact if delivered carefully and strategically with respect to site constraints. Modular units purchased within 500 miles of the construction site offer other LEED point opportunities.

Regional Priority

The Regional Priority Credits category is new to LEED 2009. The Regional Bonus Credit Category contains four possible Regional Specific Environmental Priority credits. A database of the credits is available on the USGBC Website, www.usgbc.org. It is recognized that modular building components and finished modular building units can be a part of any LEED design and construction effort, and as such, regional priority credits can also be obtained.

The evolution of LEED is a reflection of the changing market forces. There is every opportunity for the modular building industry to identify with and achieve the value added in energy, material and resource efficient qualities and attributes of high performance buildings. At the same time the modular building industry offers the best strategies for construction waste management, material efficiencies and superior air quality. SPM

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