

LESSONS LEARNED:

ENVIRONMENTAL SERVICES

OBSERVATIONS AND LESSONS FROM THE SCHOOL OF EXPERIENCE

LEED: Sustainable Design & Construction

The influence of the built environment on the consumption of energy and other natural resources necessitates action to reduce its impact. Green design and construction practices can reduce these adverse environmental impacts. "Sustainability" is the balancing of environmental, social and economic needs of the built and natural environments for present and future generations. Sustainable design and construction practices can reduce operating costs, increase worker productivity, as well as improve the marketability of a building to an energy and environment conscious public.

The U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) certification system for green buildings is currently the sustainable design system of choice for new construction in a variety of project applications ranging from residential to commercial, and education to healthcare. In addition to demand from owners and end users for LEED certified buildings, federal, state, and local governments are either recommending or requiring their projects to be certified LEED. In some cases, local governments are requiring or providing incentives for the construction of LEED certified buildings in their jurisdictions.

As mentioned in recent press releases, the USGBC has issued the newest version of the LEED process, designated as v3 for 2009. There are opportunities for points within the various credits for designing sustainable sites, efficient use of water inside and outside of buildings, efficient use of energy, use of environmentally sustainable materials or recycled/reused materials, reducing the amount of contaminants inside the building, and addressing issues that are priorities to the various regions of the country. The new rating system is based on a total of 110 available points within the various categories of LEED v3. Basic Certification requires 40 to 49 points, Silver 50 to 59 points, Gold 60 to 79 points, and Platinum at 80 or more points. The ability to accumulate enough points is based on selecting an integrated design team that is experienced with LEED and understands the interrelated nature of LEED amongst the design disciplines.

The development of an environmentally contaminated (Brownfield) site will reduce pressure on undeveloped land. Sustainable Sites Credit 3 can be earned by the redevelopment of a Brownfield site. In order to establish a baseline, an ASTM E1903-97 Phase II ESA will then be required to determine the type and extent of contamination. The successful remediation of a Brownfield site will earn a point towards certification, while resulting in a cleaner environment.

The comfort and well being of building occupants by reducing indoor air quality problems is the intent of EQ Credits 3.1 and 3.2. These credits are related to Construction IAQ Management Plan during Construction and Construction IAQ Management Plan Before Occupancy. Indoor Air Quality (IAQ) testing may be conducted during construction operations for the health and safety of the construction workers and establish baseline quality of the indoor air for post construction occupancy. Rather than flush the entire building with a constant flow of fresh air prior to occupancy, which can be expensive and time consuming, IAQ testing can be performed using the protocols consistent with the "US EPA Compendium of Methods for the Determination of Air Pollutants in Indoor Air" as detailed in the [LEED v3 Reference Guide](#).

The intent of Energy and Atmosphere Credit 1 is to increase energy performance and reduce the environmental and economic impacts of excessive energy use. Geothermal energy using ground source heat pumps is promoted in order to reduce the environmental and economic impacts associated with fossil fuel energy use. Geothermal energy is a non-polluting renewable energy source that can be used for a variety of commercial and residential structures. Knowledge of the geologic setting of the project, as well as determination of the site specific thermal coefficient and well yields is necessary to evaluate the feasibility of open or closed loop systems, and provide design recommendations related to the ground source components.

ECS is committed to sustainable design. We can provide support for obtaining the credits discussed above as well as others. In fact, we have 18 LEED Accredited Professionals (AP) among the ranks of our engineers and scientists practicing in the fields of Geotechnical, Environmental, Construction Materials, and Facilities Engineering. Having LEED AP's on staff allows us to understand and contribute to the entire sustainable design and construction process.

We hope this "Lessons Learned" will be helpful to you for future projects. This is the second in a series of discussions related to LEED. Expect additional information in the coming months.

Respectfully,

ECS CORPORATE SERVICES, LLC

© 2009 ECS, Ltd. All Rights Reserved