

Going Green – More Than Just Energy Savings

Recently, in Chicago, the United States Green Building Council (USGBC) held its largest GreenBuild Conference to date. McCormick Place was teaming with an estimated 22,000 attendees: owners, contractors, designers, or those in some way interested in building in a more sustainable manner. The size and interest generated by this event suggests that the green building movement has moved beyond its visionary grass roots and has become a driving force in the market place spawning new products, services and thinking.

At the “LEED for Schools” breakout session, one of the presenters indicated that, in addition to energy savings, more and more school districts were citing the health and welfare of their school’s occupants as the primary reason for going green.

Numerous studies have focused on the indoor environments effect on test taking, retail sales and worker productivity, etc. These studies confirm what common sense has known all along: better illuminated, quieter places with a connection to the natural environment have positive impact on occupants. In addition the EPA estimates that the levels of indoor pollutants may be two to five times or higher than outdoor levels. These levels can cause negative impacts on the estimated 60,000,000 asthma and allergy sufferers.

Indoor environmental quality is so important that the new USGBC rating system “LEED for Schools” has added the prerequisites “Minimum Acoustical Performance” and an “Environmentally Contamination Free Site” to their already robust rating system. In addition, they have added two more points, “Mold Prevention,” and the use of “Low Impact Cleaning and Maintenance Equipment” as possible ways to improve the indoor air quality.

The Harm A. Weber Academic Center (HWAC) project is an 88,000 square foot combination library and classroom complex BCA recently completed at Judson University in Elgin Illinois. Designed by BCA in conjunction with Alan Short and Associates, a U.K. firm, one of the goals of this project was to create an improved indoor environment for the faculty, staff and students at the University.



One of the many methods used to improve the indoor environmental quality was to stress daylighting. Going beyond simply adding windows, daylighting is the strategic placement of glazing to allow optimum light to enter, while limiting direct sunlight which can cause unwanted heat gain and glare. Most of the daylighting windows at the HWAC are placed high in the wall and set inside of the 4 foot recesses created by the ventilation shafts. These recesses are individually engineered to allow the maximum penetration of sunlight in the winter when the solar gain is used to warm the concrete thermal mass to help passively heat the building, while eliminating the direct sunlight in the summer to prevent the solar gain from over heating the rooms.

Another goal to increase the environmental quality was to have a high performance ventilation system. Frequent air changes are desirable to introduce fresh filtered air while ventilating stale contaminated air.

Permanent Carbon Dioxide monitors were installed to determine the correct amount of outdoor air ventilation rates and to optimize the air quality without over-ventilating the building by introducing excessive amounts of outdoor air.

Throughout the building process, special attention was paid to reduce the amount of airborne contaminants introduced into the building that could remain after occupancy. Well before the ground breaking, a plan was in place to manage the indoor air quality during the construction process. The construction schedule was staged to prevent the build up of chemicals from construction activities. Materials such as adhesives, paints and carpets were selected because of their low VOC (Volatile Organic Compound) content. Even furniture was chosen based on environmental concerns and a minimum of off-gassing of hazardous substances.

These approaches, and others, have helped provide an optimum indoor environment for the occupants of the Harm A. Weber Academic Center. While this building is projected to be LEED certified at the gold level, these are strategies that any building, school or otherwise, can use to make their occupants more comfortable, enhance their learning experience and increase their productivity.

For more information see:

Capital E Report “Greening America’s Schools: Costs and Benefits” by Gregory Kats

www.buildinggreeschools.org
Building Design+Construction’s “Green Building Research White Paper”

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