

Joining the **green movement**

LEED certification helps companies achieve energy efficiency

THE BEVERAGE INDUSTRY ALONE CONSUMED 76 TRILLION BRITISH THERMAL units (BTUs) of energy in 2010, according to the most recent data from the U.S. Energy Information Administration. This includes nearly 7.5 billion kilowatts of electricity, 33 billion cubic feet of natural gas, and 5 trillion BTUs of other energy sources but does not take into account the energy consumed by related industries including the paper, plastic, glass, aluminum, printing, electronics and transportation equipment industries, among others, it reports.

Although production cannot commence without some form of energy, the U.S. Green Building Council (USGBC) challenges commercial and manufacturing facilities, neighborhoods and even individual homes to use their energy resources more efficiently. These energy efficiency efforts are recognized by the USGBC through its Leadership in Energy and Environmental Design (LEED) certification.

“LEED certification can provide a great opportunity to evaluate and design a facility to be energy efficient, water optimized and healthy for your employees,” says Lloyd Snyder, senior vice president of Woodard & Curran, Portland, Maine. This global benchmark of achievement in green building uses a points system that assesses energy consumption, indoor air quality, use of local building materials, location and transportation, and even factors like use of pesticides and “green cleaning” equipment and materials, among other facets of building operation, to evaluate a building’s ecological efficiency. Based on total points, a building can achieve Certified, Silver, Gold or Platinum levels of certification.

In total, more than 2.9 billion square feet of space have been LEED-certified worldwide, 596.8 million square feet of which was achieved through 4,642 projects in 2013. Another 37,000 projects are in the pipeline for future certification, according to the USGBC. McGraw-Hill Construction estimates that the green building industry could be worth \$248 billion by 2016, it says.

Last December, the USGBC issued its 20,000th LEED certification for a commercial project when it certified the offices and staff services space in the Green Mountain Coffee Roasters Inc. plant in Knoxville, Tenn., under LEED for Commercial Interiors. This also marked the seventh LEED-certified facility for the Waterbury, Vt.-based company now known as Keurig Green Mountain. Features of the new LEED-certified facility include a high-efficiency heating, ventilation and air conditioning (HVAC) system; water-efficient plumbing fixtures that reduce water use by 32 percent; high-efficiency light fixtures; and daylighting and lighting controls.

In addition to energy savings, LEED-certified buildings often realize cost savings as a result of their improvements, according to the USGBC. Because LEED-certified buildings require less energy, they cost less to operate, realizing as much as 40 percent savings on their energy and water bills, it says. In addition, LEED-certified buildings could qualify for tax rebates and zoning allowances, and they typically retain higher property values, it adds.

EFFICIENT CHOICES

When considering applying for LEED certification, building owners should evaluate their businesses to determine which aspects of LEED make sense for their business model, advises Jack Holleran, president of HDA Architects, Gilbert, Ariz. When counseling a company through the LEED certification process, HDA Architects goes through a LEED checklist that considers architecture, electrical and mechanical systems, operating costs and energy consumption in determining improvements that fit return on investment (ROI) and sustainability models, he says. “Some of those things [on the list] are more chasing points, but our [clients] are more interested in ROI, so they’d be looking at mechanical systems [and] things that are going to save them money and not just gain points.”

Holleran says that the most important green factors for the beverage industry to focus on are mechanical systems and HVAC requirements, electrical systems and architecture, in that order. He estimates that improvements to mechanical systems and energy consumption can save \$100,000 or more in annual operating expenses, and most buildings that upgrade to energy-efficient systems see an ROI in three to five years.

Another important factor to consider is co-generation and reusing waste products, which can improve operational efficiency and drive down operating expenses, says Brad Pease, director of building science practice at Paladino and Co., Seattle.

For beverage companies, it’s practical to turn this co-generation focus on water efficiency, Woodard & Curran’s Snyder points out. “For example, if you can find technology to reuse wastewater when your city water costs are very high or wastewater disposal costs are high, this might improve your production ROI.”

Paladino’s Pease adds that it’s important to consider water efficiency early in the LEED design process. “When worked into the design process early, energy and water balance studies help process equipment engineers think outside the box and connect waste heat and [waste]water from one process to another that can use it,” he says. “The resulting efficiency can earn LEED points, but it also provides quick payback, as utility operating expenses can be massive.”

However, because some of these energy efficiency and ROI achievements are possible without going through the LEED certification process. HDA Architects’ Jack Holleran notes that some



▲ At its new, LEED-Platinum-certified headquarters, Hilmar Cheese Co. makes use of natural lighting and local plants for ambiance as well as recycled and sustainable materials in its wall coverings and furnishings to reduce its carbon footprint. (Image courtesy of Hilmar Cheese Co.)

of his clients choose not to pursue certification. "Many of our buildings could be LEED certified, they just haven't gone through the process, and they haven't really wanted to ... because it's an additional cost."

"It's pretty rigorous in terms of documentation and committal, and it could add a couple hundred thousand dollars to our typical project to ... go through LEED certification," he continues. "It also makes the contractor do a number of things in construction that he has to document that are part of the application process."

According to Woodard & Curran's Snyder, the typical LEED process takes about three to six months of additional review time and documentation to achieve certification. Once achieved, new construction certification lasts five years, but after that, buildings need to be recertified through the LEED for Existing Buildings Operations and Maintenance (LEED-EB: OM) rating system, Paladin's Pease says. "If owners follow their own values in creating their approach to initial certification, the use of LEED-EB: OM becomes an easy transition, because it ensures strategies that were invested in during design and construction remain effective throughout the life of the facility," he says.

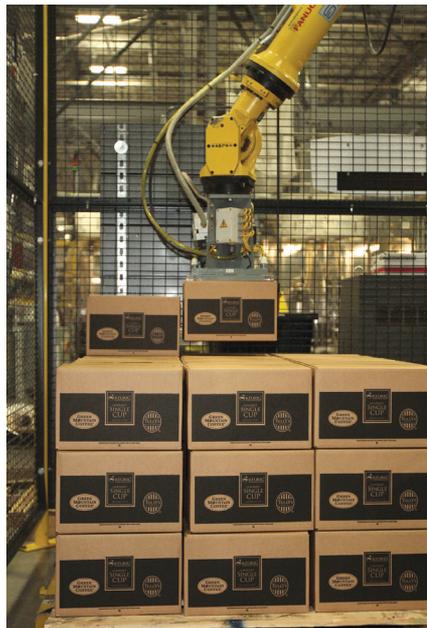
BUILDING GREEN

When building its new headquarters and innovation center, Hilmar, Calif.-based Hilmar Cheese Co. Inc., parent company of Hilmar Ingredients, used LEED to demonstrate its commitment to a sustainable future.

"Setting out to build our new headquarters and innovation center, we saw it as an opportunity to do something more than just construct a building," says President and Chief Executive Officer John Jeter. "There have been tremendous improvements in technology, and we have made investments to continually improve our ability to conserve, reclaim and recycle."

For companies interested in LEED certification, it tends to be more economically feasible to build a LEED building from scratch than to tear apart parts of a facility to renovate and replace with new, green materials, Woodard & Curran's Snyder says. For example, it can be expensive to retrofit HVAC and lighting systems in renovated facilities, and achieving energy efficiency can be more difficult in renovations, he says.

For Hilmar Cheese, the goal of LEED certification was at the forefront of its efforts. "The goal of LEED certification



▲ Keurig Green Mountain's LEED-certified plant in Knoxville, Tenn., uses renewable power sources to generate more than 50 percent of its power requirements. (Image courtesy of Keurig Green Mountain)

was incorporated into the building design from initial concept through to the last ceiling tile," Jeter says. "By planning from the ground up, we were able to find unique opportunities to include sustainable choices. For example, we took advantage of the headquarters' location adjacent to our California processing facility and engineered a heating and air conditioning system that has a closed-loop cooling system utilizing one of the facility's water reclamation ponds. This allows the system to dissipate heat naturally and save energy."

The company spent one year constructing the new facility and celebrated its receipt of LEED Platinum certification, the highest level of LEED certification, about six months later on April 8, Jeter says. "The final submission process for LEED certification was complex, but our team had done the due diligence necessary to understand the standards and maintain proper documentation required by the USGBC," he says.

To help reach the Platinum level, the company keyed in on maximizing the power of nature by using natural light to illuminate building interiors; installing solar panels to harvest energy, which now contribute about 25 percent of overall building energy demand; and using local plants in its landscaping. It also uses reclaimed water from food processing for landscape irrigation, and it installed light fixtures that self-adjust based on daylight and occupant sensors. **BI**



Green Design



Standard Sales Company
Odessa, Texas

Some Of The Benefits On This Project

- Energy efficient Thermomass Concrete Tilt-Wall.
- White TPO Roofing System reduces heat gain.
- Roof and wall insulation are continuous, eliminating gaps and thermal breaks.
- Insulated reflective glass allows large window areas with minimal energy impact.
- Air cooled chiller for CEW design allows for better efficiency than conventional air cooled condensing unit.

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