LEEDing the Way

Food Manufacturing asked two building engineers to give us a little perspective on the state of green building in the industry. Matthew Strong is the President of Class One Solutions and has consulted on LEED projects for Frito-Lay and others. Mike Walters is a Sustainable Practice Leader with Affiliated Engineers and has worked with Kettle Foods to achieve LEED certification of their newest facility in Beloit, Wisconsin.

Food Manufacturing: Are there any challenges unique to the food processing industry when attempting to achieve LEED certification?

Matthew Strong: The current LEED certification systems are designed primarily for the commercial office market and do not cater to the Food manufacturing industry. C1S has been successful at adapting the LEED Existing Building (EB) system to meet the specific characteristics of the food manufacturing industry. In particular, we developed an energy modeling program acceptable to the U.S. Green Building Council (USGBC) for indication of Energy Use Reduction. Many large manufacturers are already doing a terrific job in reducing the environmental impact of their operations — energy, water, waste. Our job is to take their operations as they stand to today and overlay the LEED EB certification program to highlight the area of success and adjust areas where improvement is needed. To date we have been able to see three Frito-Lay manufacturing sites through the LEED certification process achieving GOLD level certification at Casa Grande, Az; Topeka, Kansas; and Perry, Georgia.

Mike Walters: The food processing industry is indeed energy-intensive, and also programmatically extremely varied. Any challenge revolving around energy or other resource consumption is an opportunity for improved efficiency and a correspondingly varied range of sustainable strategies and technologies. For instance, Kettle Chips' processes involve large quantities of water. We immediately look at that as a resource with potential for through-put repurposing. The sustainable opportunities unique to the food processing industry are identified from a big-picture perspective, considering the facility itself and the processes contained within it as a whole.

FM: What is the first step a company should take if they're considering retrofitting an existing building for LEED certification? What if they're building a new construction?

MS: The first step is to get a preliminary LEED audit performed. Our audit process looks at every LEED EB prerequisite and credit to determine the likelihood of achievement. We focus on Energy Use Reduction analysis in the audit since it can be a deal-breaker or -maker in many cases. We also assist in budgeting the LEED upgrade projects so that facilities can make intelligent financial decisions. Every corporation has project hurdle rates that must be met with relative certainty prior to moving forward with capital projects. We take the same approach with the overall LEED EB certification and work with our clients to make LEED certification show the required returns. No company should go broke trying to be green — LEED without the ROI is just not sustainable!

MW: Naturally, a retrofit lacks the full flexibility of a conventional new construction project. However, using existing construction — and the embodied energy therein — is a great first step to optimizing the life cycle impacts of the overall facility. An important first step for any project pursuing certification in the food processing industry is to assess the likelihood of meeting the prerequisites of LEED and the continuously evolving hurdles for energy performance. Projects should execute an energy-planning process, projecting energy use based on program and facility assumptions, and refined through "triple bottom line" prioritization. The use of "triple bottom line" considerations will enable prioritization based on corporate values and will likely result in strategies being implemented as part of the project that would be outside the realm of approved approaches if conventional economic analysis is applied. Many of our clients now find that placing a dollar value on carbon emissions is an appropriate risk management strategy to potential federal legislation.

FM: What are some innovative processes or efficiencies you have seen food manufacturing facilities incorporate into their buildings in order to meet LEED standards?

MS: We have seen the gambit, from day lighting office and warehouse areas, heat recovery and reclaim systems, onsite water treatment and land application systems, solar fields to produce steam, white roofs, etc. It is really all over the board. Many manufacturing facilities are adopting the philosophy that a well-run building will ultimately lead to a well-made product. Frito-Lay, for instance, has

adopted a Zero-landfill program that has targeted a goal of 0% waste to the landfill. This is already in place at many sites and gains four credit points with little extra effort.

MW: Consumption of “waste” streams is usually the area where food processing facilities can push the envelope of innovation. For Kettle Foods, we were able to reuse potato wash water in a variety of other ways throughout the facility. Waste oil from the frying processes is eventually converted to fuel for vehicles. Finally, energy recovery of the heat energy contained in the exhaust air that is removed from the plant can represent a large savings in terms of energy and avoided costs.

FM: Is there anything else you'd like to say to food processors considering LEED certification?

MS: First — LEED certification is attainable. C1S has proved this and will continue to provide more success stories. LEED certification is a significant undertaking and must have support at all levels. In looking the tremendous amount of resources that are required day in and day out, the LEED certification program gives the food manufacturing industry a scorecard to judge how well they are reducing the impact on the world we live in. LEED EB certification improves the Triple Bottom Line — profits, people, planet.

MW: These are functionally driven spaces with few opportunities to modify the physical requirements of the overall space. The energy and resource consumption is in the processes themselves. As such, optimizing the production through process engineering focused on sustainability outcomes and product goals is essential.

Class One Solutions (C1S) is a turn-key construction and engineering consulting firm specializing in energy efficiency, sustainable design, green operations and green construction. Their primary focus is to assist clients in gaining LEED certification for their existing buildings. C1S strives to allow our clients to focus on their business operations while the firm provides a streamlined path to achieve LEED certification.

Affiliated Engineers, Inc. is a technical consulting, design and engineering firm providing innovative solutions for complex, large scale, energy-intensive projects worldwide, supporting the sustainable functioning of a diverse clientele. Their philosophical and professional position defines sustainable project goals in terms of absolutes — energy consumed, per square foot, per year — rather than relative to potentially lax performance precedents.

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