

Certification
LEED Platinum



Fostering Regional Development, Design & Construction

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project profile

Green for industry

Platinum chips

History is made in Massillon, along with snackfoods, as Shearer's opens its LEED Platinum facility

BY NIKI SWANK

This spring, Massillon became the home of the Millennium Manufacturing Facility, Shearer's Foods' new offering as the first platinum LEED-certified snack-food manufacturing facility in the world. The facility is on 34 acres in NEO Com Industrial Park.

The idea began five years ago when co-founder, chairman and CEO Bob Shearer heard GE CEO Jeffrey Immelt speak on sustainability and determined to make it part of the Shearer way of doing business. He began by enlisting the firm in the Energy Star Partnership Program.

Construction of the first phase began in July 2009 and consists of a 47,000-sf, \$10 million pre-engineered building for the production of Shapers and Tangos. Construction on the second phase began in June 2010 and is scheduled to be completed in April 2011. The 64,000-sf, \$12 million building will expand the new sustainable kettle and continuous chip lines along with logistics support. The equipment cost for both phases is \$40 million. The future third phase consists of corporate offices at the same location estimated to begin in 2012 and finish in 2013.

The design team

Shearer selected John Patrick Picard Architects to design the complex, based on its experience with green building design, and Schumacher Construction as the construction manager, based on its 35-year working relationship. Shearer says it was his decision to work toward a gold LEED-certified building at the start of planning, but he later decided to pursue platinum certification during the construction process. John Picard says, "The building design was a result of the manufacturing needs/function, and



Shearer's looks like a modern manufacturing facility from the Massillon roadside.

ALL PHOTOS COURTESY OF SHEARER'S



Corn soaking tanks. This facility made breakthrough progress on water saving strategies.

the Shearer's desire to construct the first platinum LEED-certified facility in the world."

Weekly meetings were held during the decision-making process with a design team including the owner's representatives and their consultants, as well as the construction manager. "This was an ongoing process, with input welcome from all members of the team," says Kim Schumacher of Schumacher Construction. Priorities discussed during the planning process were plant operations, raw material flow and finished product flow. Additionally, master planning for future expansion was considered, along with LEED considerations.

This was Schumacher's first LEED build-

ing, but he sees green really taking hold. He recently earned a LEED AP based on his experience.

Green how-to

Picard says building orientation, daylight harvesting, and selection and treatment of material ensuring minimal impact on our environment were also important. "The development of an extreme green facility requires breaking away from industry standards/traditions and practices. All parties needed to keep an open mind and think green at all times in order to not jeopardize our certification," he says.

"The biggest challenge was establishing the baseline for energy reduction to obtain LEED certification," says Shearer. He explains

there was no database available that documented the firm's current energy use, so it had to create a baseline first. "We established goals and worked with equipment suppliers to get to that point."

The design stage lasted a year and a half, and LEED platinum certification was confirmed in June 2010. The building design features 22% recycled content, 92% recycled waste streams and nearly 92% locally harvested and manufactured materials. The energy savings captured by the facility allow it to reduce greenhouse gas emissions by more than 1,066 metric tons annually.

The architect designed the building's hard surfaces to have a solar reflective index to prevent heat island generation, and 100% of all wood products are Forestry Stewardship Council-certified. Fifty percent of the site has been restored to native vegetation, and the facility uses over 75% of wind-generated electricity purchased through renewable energy certificates from wind farms.

Green manufacturing

The building exceeds USGBC LEED energy design requirements by more than double, achieving total energy reductions of 30% over current best industry practices. This is an especial challenge in manufacturing, and especially in food preparation, with its high demands for heating and water use, with production taking more than 80% of all energy used onsite. Shearer's success was made possible by utilizing extensive daylight harvesting, insulating and building shell technologies, as well as developing the industry's first truly sustainable high efficiency infrared tortilla chip manufacturing line. The equipment is



The tortilla line. Food processing demands extra effort with its heating and water use needs.

innovative, and results in energy savings of almost \$300,000 each year in Phase One.

The process of cooking and soaking corn for the manufacture of tortilla chips was redefined to reduce water consumption and recycle latent thermal energy. The result is a nearly 16% reduc-

“ The building design was a result of the manufacturing needs/function, and the Shearer’s desire to construct the first platinum LEED certified facility in the world. ”

– *John Picard, of John Patrick Picard Architects*

tion in the energy needed to cook the corn, as well as a rainwater harvesting system that collects and reuses 17,000 gallons of water each month, saving 21% over previous use. A new oven was created to use infrared burners and an enclosed cavity design, resulting in a natural gas reduction of nearly 47%. This innovation is currently patent pending, and possesses a nearly perfect side-to-side heat distribution resulting in the highest product quality.

Shearer’s and PSI Engineering of Fremont co-developed a liquid chimney design that recycles the oven and fryer stack waste energy back into the building. This energy supplies nearly all of the building’s HVAC system and pre-heats the corn cook water and hot water for sanitation cleaning. Resultant savings are over 22% of energy normally used for these processes.

And that is with a production of more than 9 million lbs. of product, with a capacity of almost four times that within three years.

When complete, the building will have a new low rate anaerobic digestion system that treats the process water to reduce the impact on municipal water treatment resources and provides a stream of methane generation, which can generate electric for use at the plant.

Green ops

The company maintains a Zero Landfill Program, which targets less than one percent of total waste removal to landfills, while all other materials are conserved and recycled, including cardboard, aluminum, plastic, banding and film. Finished product waste is minimized and recycled as animal feed.

The building also provides a sustainable manufacturing environment, keeping the health of associates in mind by implementing extensive use of windows and skylights to assure a bright and productive work space; installing outside air monitoring and controls to exceed ASHRAE standards by over 30%; providing ample air changes; installing an on-line software control system to

guarantee employee comfort; providing access to local public transportation; providing reserved parking to alternative fuel, car pool and low emission vehicles and providing access to bicycle lockers for associates along with lockers and showers for commuting associates.

The company also offers new wellness programs to promote healthy habits through team walking programs, rebates using customized activities, sustainability training for all associates and is working to prepare similar modules that can be shared with local grade school children.

Smooth process

Shearer explains that the construction was a



A rainwater harvesting system collects and reuses 17,000 gallons of water each month, saving 21% over previous use.

smooth process even through the project is being built in different phases. According to Schumacher, the construction process focuses on quality control, coordination, scheduling and LEED requirements. Initially, to maintain the fast-paced schedule, items with long delivery leads were ordered even prior to the design completion. A key milestone was installing the equipment during the construction process. With this kind of construction process, "it's difficult, if not impossible, to correct an error or oversight after it occurs," says Schumacher.

Coordinating a group of contractors into team members who needed to reach a common goal, while educating personnel of LEED requirements was a challenge, says Schumacher. "There were weather delays and times when multiple contractors needed the same work space. Through cooperative efforts and re-evaluation of the schedule's critical path, we were able to gain time as well to stay on schedule," he says.

He is most proud of the management team throughout the design and construction process. "Our project manager and project superintendent were involved throughout the design and

construction, and our office staff kept the documentation accurate and current to keep the schedule moving at an aggressive pace," he says.

The team created a seamless delivery of the facility, on time, in budget and greener than they hoped for, adds Picard. "The Shearer's Massillon facility excites this region with hope of renewed prosperity through its development, when most other industries are stagnant," he says.

But, says Melissa Shearer, vice president of company communications, this building is only the first step in a new sustainable business model, with Shearer's moving on to seek LEED certification at the rest of its facilities in Oregon, Pennsylvania, Texas and Virginia. The Texas facility recently was honored for its Energy Star Challenge for Industry participation, cutting consumption by 15% within a year. "This is another compliment to our company," she adds, in the wake of visits to Massillon from notables such as Gov. Ted Strickland, Rep. John Boccieri and U.S. Energy Secretary Steven Chu. **BXM**

Niki Swank is a BX researcher.

Project Specs

Millennium Manufacturing Facility

Owner: Shearer Foods, Inc.

Architect: John Patrick Picard Architects

GC: Schumacher Construction

Size: 47,000-sf (first phase)

Cost: \$10 million (first phase)

Vendors:

- Hilscher-Clarke Electric, electrical work
- Beaver Excavating, site grading
- Wenger Excavating, underground utilities
- RP Construction, foundations
- RG Smith Construction, concrete flatwork
- GMR Masonry, masonry
- Varco-Pruden Buildings, steel building system
- Selinsky-Force, steel erection
- Parker Fabricating, miscellaneous metals
- Advanced Industrial Roofing, roofing and sheet metal
- Stark Glass, glass, glazing and aluminum
- Tomarios Painting, painting
- Whisler Plumbing and Heating, plumbing and heating
- Professional Supply Inc., mechanical equipment
- SA Communale, fire protection



Shearer's Foods Inc.
www.shearers.com