

The Boston Globe

November 30, 2009

The energy-efficient supermarket

Cash registers, exit signs, even the soda machines - they all glow at the renovated Star Market in Chestnut Hill, but without using a lot of energy.

All the illumination at the supermarket comes from light-emitting diodes, or LEDs, director of engineering Holly Angell told a group of local environmentalists, business people, and others touring it recently. "We use half as many light bulbs" than with conventional lighting, Angell said, because LEDs shine brighter than incandescent bulbs. "They expect them to last more than 10 years."

The supermarket, which reopened at the end of October, is parent company Supervalu's test lab for energy-efficient technologies it hopes to use next in California. A few stores in the Supervalu chain, which includes Shaw's supermarkets, already use some but not all of the technologies.

Energy efficiency could mean huge savings for the company, which estimates its annual electric bill for more than 200 Shaw's and Star Market stores at nearly \$35 million.

Supermarkets nationwide are incorporating such technology to cut costs and save energy, reduce the risk of more government regulation on energy consumption, and satisfy environmentally conscious customers and employees, said Jeanne von Zastrow, senior director of industry relations and sustainability at the Food Marketing Institute.

The trade group represents 1,500 retail and wholesale food companies around the world.

"Sustainability needs to be embedded in every single part of a company and in every single part of a person's job responsibility," von Zastrow said. The challenge, she added, is "how to get the message from the CEO down to the bagger."

At the Chestnut Hill Star Market, the LEDs are most obvious in the track lights, hanging 14 feet above the floor and in the parking lot lamps.

"We want to focus on what's within our four walls," von Zastrow said.

The store also uses a fuel cell that strips hydrogen out of natural gas, causing a chemical reaction and producing energy to power lights, keep the store toasty warm, and run the refrigerators.

Automated pull-down shades cover the deli and produce cases at night to conserve energy. In addition, an environmentally friendly refrigeration system uses a mixture of water and food-grade propylene glycol - also used in antifreeze, cosmetics, and other products - to chill food, and liquid carbon dioxide for frozen products.

“This store sets a new standard for environmental responsibility for others in the industry to work to match,” said Drusilla Hufford, director of the federal Environmental Protection Agency’s stratospheric protection division, which recently recognized the Chestnut Hill Star Market for its innovations.

The store, which has 35,000 square feet of shopping space, replaces a smaller market dating from 1950. Architects designed the new supermarket to give shoppers a storewide view from the produce area at the front into the prepared foods section, the meat and seafood department, grocery aisles, bakery, and deli.

Ken Mahtesian, senior project manager for the Chestnut Hill market, said the company approached the project with a “let’s come up with something out of the box, something crazy” attitude.

“There’s technology here we’ve never seen, never constructed,” Mahtesian said.

Store representatives went to Osram Sylvania in Danvers to design all new LED lighting fixtures based on products still in the development stage.

“We started, really, from scratch,” said Dwight Kitchen, a vice president at Osram, who said he and several other company officials convened with store representatives and other partners for a “roundtable innovation day” to figure out “what can we deliver from an LED, solid-state lighting standpoint.”

Standing amid displays of apples, turnips, tomatoes, and butternut squash at the Chestnut Hill store, Angell pointed out the lights to her tour group. Supermarkets like to feature colorful produce, she said, so the company raised the fixtures higher than in other stores and used brighter bulbs.

That way, she said, the fruits and vegetables are spotlighted, but the gear is unobtrusive. “We want it to stand out to a customer,” she said. “We didn’t want people looking at light fixtures.”