SPECIFIED LIGHTING DESIGN

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Green Lighting in The Aisles

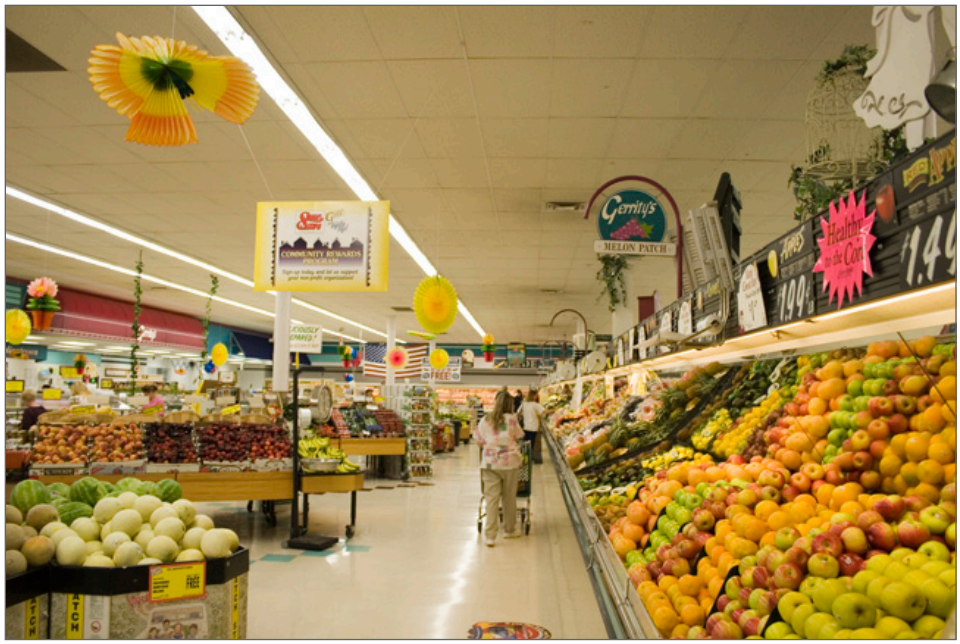
Eneref Institute examines how a reflective material in fluorescent lighting helped Pennsylvanian based Gerrity supermarkets cut energy costs and qualify for a tax credit write-off.

Gerrity's Supermarkets is a family-owned, nine-store chain in and around the Scranton area of northeastern Pennsylvania. Joe Fasula, Gerrity's vice president, was well aware that climbing energy costs were cutting into his profit margin. Bright, attractive lighting was necessary to properly display products in the chain's total of 400,000 sq. ft. of retail space. The effort became more difficult each year as the store's older, fluorescent lighting systems aged and lost reflectivity, causing light output to significantly decrease.

The solution came when a customer, a representative of EnvironmentalBuild, a Lackawanna County (PA)-based "green" building products company, suggested an energy-saving, alternative lighting solution that used Miro reflective aluminum. The material would reflect ambient light and direct it to where it was needed. The result would save the supermarket chain a projected $35,000/yr. in energy costs in each store, a total of more than $2 million in savings over the next ten years. In addition, the new lighting system would simplify and lower maintenance costs and also allow for a tax credit write-off, making it a "triple-dip"' according to Chris Griffing, spokesman for EnvironmentalBuild.

Gerrity's is among the first companies in the United States to use lighting made with Miro Micro Matt, an extremely reflective material developed by German manufacturer Alanod Aluminum (Flushing, NY). "Miro is one of the most highly reflective materials used in lighting; it will reflect as much as 98% of the light" said Griffing. "The bonus comes with its specularity-that's its ability to direct the light where it's needed, such as store shelves where the products are displayed. The optics of older systems diffuse the light, reflecting it arbitrarily where it's wasted-even onto the ceiling. Miro's specularity will allow Gerrity's to squeeze the most light out of every energy dollar they spend."

Six of the company's nine supermarkets were retrofitted with lighting using the reflective aluminum. Current fixtures included older four-lamp, T12 fluorescents with older model ballasts. They were replaced with energy-efficient two-lamp T8 fixtures using Micro Matt aluminum and fitted with instant-on electronic ballast. The entire system provides an even distribution 01 more than 100 footcandles using far less lumens/W. In the store aisles, the foot-candles generally improved by 20% and in the open areas, such as produce and frozen foods, the foot-candles increased by 10%. Yet even with the in-



Gerrity's is among the first companies in the United States to use Miro-Micro Matte reflective material to improve lighting and realize energy savings

creased light levels, energy consumption was reduced more than 50%.

EnvironmentalBuild designed the lighting systems to meet the needs of the stores. Local electrical contractors then simply retrofitted the new fixtures using the wiring from the existing systems. "The electrician didn't need to re·pipe the electrical, saving time and costs during the installation," said Grilling.

In addition to energy savings were savings from a new tax deduction. The Energy Policy Act of 2005 (EPAct 2005) was passed by Congress to reduce the nation's energy Consumption, benefit the environment and reduce the country's dependence on foreign fuel. The deduction allows as much as $0.60/sq. ft. for energy-efficient lighting upgrades to a facility, determined on a sliding scale and based on percent of energy efficiency attained above the American Society of Heating, Refrigeration, and Air-conditioning Engineers (ASHRAE) 90.1 standard.

According to Griffing, exceeding the standard is relatively easy to accomplish when replacing or retrofitting older lighting systems. Fasula was able to take an $8,000 EPAct tax deduction for one store alone. That's because Gerrity's improved its lighting efficiency by more than 25% above ASHRAE, resulting in an EPAct deduction of $0.30/sq. ft.

Customers immediately sensed that the stores appeared much brighter, even though the new fixtures have fewer fluorescent bulbs. According to Griffing, that is due to the specularity of the Miro as well as better placement of fixtures. Care was taken to place fixtures so there were no duplicated light or dark spots.

The new lighting design also specified the same size and wattage fluorescents throughout the stores. Griffing said, "There's no point in looking at just the cost of an inexpensive light fixture if the cost of maintenance and energy will make the initial savings moot. Now, Gerrity's needs just one size fluorescent lamp and one size ballast to stay well stocked. Maintenance will be a lot easier.'

The retrofit project took approximately one week. Done at night, there was no interruption to customer service. Fasula reported a $40,000 price tag for the installation and fixtures in one 45,000·sq.-ft facility.

"We're very excited about this project for so many reasons," said Fasula. "We get to save energy for the benefit of the environment and we get to save money for the benefit of our customers. This allows us to absorb more of these cost increases before we have to pass them along to our customers. The bonus was being able to take advantage of a federal tax credit that is available to all businesses that lower their energy usage."

This article is an excerpt of the future Eneref report which assesses the impediments to building zero-energy urban communities in the US. A companion film documentary, The Eneref Project, will seek to demonstrate to key decision-makers how zero-energy communities can be commercially viable.

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