



California Based McDonald's



Beginning as manager trainee and crewperson, respectively, Tom and Candace Spiel have risen within the ranks of the McDonald's system to own and operate nine restaurants in southern California. In 2010, they rebuilt their first McDonald's, which originally opened in 1966. They chose to rebuild it to LEED Gold standards incorporating eco-friendly and energy-efficient features.

The Challenge

The restaurant located at 2242 University Avenue in Riverside, CA is the first McDonald's restaurant west of the Mississippi and the fourth in the U.S. to seek LEED Gold certification. This McDonald's restaurant highlights the green focus of Riverside: California's first Emerald City.

LEED, which stands for Leadership in Energy and Environmental Design, is the U.S. Green Building Council's rating system for designing and constructing the world's greenest, most energy efficient and high performing buildings. LEED is a point-based system where building projects earn LEED points for satisfying specific green building criteria. The five categories include sustainable sites, water efficiency, energy and

atmosphere, materials and resources, and indoor environmental quality.

The Solution

By standardizing on LonWorks control networking technology, the Spiel's were able to leverage a single platform among multiple applications in the kitchen and building, all of which aim to lower energy consumption and increase operational efficiency. The overall solution makes use of LonWorks powerline technology (for kitchen equipment) and Free Topology wiring (for building systems) as well as LonMark standard profiles. LonMark International has the responsibility of managing profiles for McDonald's. The organization's experience creating and managing interoperability standards made it an ideal choice to administer this program.

The Franke Energy Management System (EMS), developed by Engenuity Systems, Inc., was selected as the main platform for the solution because it is open, interoperable and uses the same infrastructure and hardware needed to operate both the building and kitchen applications (FTT and powerline). This mixed-media approach allows restaurant equipment to be moved in the kitchen and still provide reliable communications by simply plugging into any power outlet.

The system is an off-the-shelf solution using components from various LonWorks vendors including: Echelon Corporation, Continental Controls, Honeywell and METZ Connect. It provides HVAC control for all zones, on/off control for all exterior lighting, daylight harvesting for the interior pendant lighting in the dining room and metering/monitoring of the electrical mains and solar hot water system. All of these functions are displayed and controlled with an easy-to-use, browser-based touchscreen dashboard in the manager's office.

The system optimizes energy efficiency by adjusting HVAC and lighting performance based on prescribed set points, constant commissioning, and scheduling based on operating hours and sunrise/sunset (astronomical clock).

The Spiels expressed that the overall ease of use—including the simplicity of the dashboard to control systems and monitor the energy efficiency—was also a key deciding factor for their selection.

In the future this platform will be able to provide a number of significant benefits for the typical use cases of owners with single or multiple locations, including:

- Improved inventory management and reduced food waste by monitoring food production and equipment performance based on real-time information provided by the equipment.
- Reduced equipment downtime through usage-based preventative maintenance rather than fixed schedules. Automatic notification messages are transmitted to suppliers when equipment problems emerge, resulting in improved first-time-fix percentage.
- Better food safety reporting by automating reporting of food and freezer temperatures and cataloging temperature data into standard reporting formats.
- Track equipment assets in the store or between stores.

The Result

The restaurant was one of the first to adopt McDonald's new "networked" kitchen concept that uses a LonWorks control network for connecting equipment together over the existing power wiring.

It also features an interactive touch screen display in the lobby for visitors to learn about the building, environmental sustainability, and how individuals can reduce their carbon footprint.

Other "green" features at the restaurant include:

- A large photovoltaic solar array that doubles as covered parking
- A variety of recycled materials, such as denim insulation made from old jeans and a glass countertop made from bottles and baby food jars
- The parking lot permeable pavers allows for 100% reduction of storm water run-off
- Light colored hardscape to reduce heat emissions from the site
- All lighting, both interior and exterior of the building, is done with LED fixtures and bulbs

The restaurant reopened on October 14, 2010, much more sustainable and energy-efficient. With the installation of the "green" features, the restaurant in part has achieved the following water and energy-savings:

- The restaurant's solar array has generated electrical energy, which saves approximately 8,950 kWh per month of utility usage. This is equal to the power usage of 13 average Riverside homes for one month. Increased efficiencies such as low-E glass windows and LED lighting helped realize an additional energy savings of 2,870 kWh per month, which is equal to an additional four Riverside homes.
- The restaurant has saved approximately 250,000 gallons of water, which is equal to the water of eight 20 ft x 40 ft swimming pools.
- Due to permeable pavers, about 283,000 gallons of rainfall water was diverted from the storm water system in the first year, which is equal to the water of nine 20 ft x 40 ft swimming pools.

On January 12, 2012, the Spiels announced they had achieved LEED Gold certification for their restaurant, the first McDonald's west of the Mississippi to do so. The other LEED-certified McDonald's restaurants are located in Cary, N.C., Savannah, Ga. and Chicago.

"We are so proud of this restaurant and its possibilities to encourage and educate our customers and community on the importance of environmental sustainability," said Candace Spiel, McDonald's owner/operator. "LonMark and its partner companies made it easier to rebuild our restaurant with the green features that meet the requirements of the LEED certification."

Contact:

LonMark International
Marketing@lonmark.org



550 Meridian Avenue
San Jose, CA 95126, USA
Tel: +1 408-938-5266
www.lonmark.org