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How Walgreens Designed the Corner Store of Tomorrow

Wrapping up construction on the first net-zero-energy retail store in the country, Walgreens hopes to set an important precedent for nationwide retailers

By Matt Alderton

PROJECT

Location Evanston, IL
Size 14,000 ft²
Completed 2013 (expected)
Program Retail

TEAM

Client Walgreens
Architect Camburas & Theodore
General Contractor Osman Construction Corporation
HVAC Trane, Green & Cool
Lighting Acuity, Cooper, CREE, GE
Geothermal Geothermal International
Energy SoCore Energy, Wing Power
Masonry CalStar Products

When they pop into the Walgreens store at the intersection of Chicago Avenue and Keeney Street in Evanston, Illinois, consumers probably will be buying milk, refilling their prescription, or printing photos from their summer vacations. When they exit, however, they'll leave with more than groceries and photos—they'll have experienced the first net-zero-energy retail store in the United States, which will be open to the public by the end of 2013.

"As they're walking around inside the store, people will be able to read little bits of information on signs that tell them what the store is doing, how its system works, why it's important, and how it minimizes its impact on the environment," says Jamie Meyers, Walgreens' manager of sustainability. "Also, there will be a kiosk at the front of the store that will tell people how the store is doing—how much energy it's producing, how much energy it's saving, what its environmental impact is—so that they can actually watch us as we trend toward being net-zero energy."

Building a net-zero-energy retail store is an ambitious goal, even for a company the size of Walgreens, which operates more than 8,000 stores across the country. Still, it's a challenge the retailer embraced with ingenuity and excitement in pursuit of

its brand promise. "We want to be 'at the corner of happy and healthy,' and part of that is minimizing our environmental impact," Meyers says. "Anything that we can do to save water, save energy, reduce pollution, and reduce [waste] fits right in with our brand."

Although it's always had "green" in its name, the 112-year-old retailer only recently learned the word "sustainability." "We've always built our stores economically with an eye toward low maintenance and life-cycle costs because it makes good business sense, but the concept of sustainability—in particular, the triple bottom line [of people, planet, profits]—is relatively new inside of Walgreens," Meyers says, who assumed his present position in 2010, prior to which he spent 11 years as a store architect.

The company has learned the pillars of sustainability quickly. Prior to building this net-zero-energy store, Walgreens had 150 stores with solar installations, one with a wind turbine, one with geothermal technology, three with all-LED lighting, and several more with various levels of LEED certification. In 2011, it began wondering what would happen if all those technologies were combined under one roof, in a single store. "We realized that we'd be very close to creating a building that generated more energy than it consumed," Meyers recalls. "We presented this to our executive management, tied it into our brand, and they gave us the OK to pursue it."



The company chose Evanston as the site of the new store, which is seeking LEED Platinum certification, because it's just 30 minutes from Walgreens' corporate headquarters in Deerfield, Illinois, and because the Chicago suburb has a long history of supporting green-building projects.

Construction commenced in March 2013 following a rigorous design process that required a delicate balancing act between energy creation and consumption. "A typical Chicago store uses about 425,000 kilowatt-hours per year of energy, and we were only able to produce about 256,000 kilowatt-hours of renewable energy [because of the site's limited size]," Meyers says. "So our real challenge was dropping our energy usage [by nearly 50 percent] from 425,000 kilowatt-hours down to 200,000 to 225,000 kilowatt-hours and still keeping the store operating like a normal Walgreens."

Indeed, operating like a normal Walgreens—complete with all the energy-intensive features of a typical drugstore, such as refrigerated coolers, cash registers, pharmacy robotics, ATM and Redbox machines, and lighted product displays—was one of the store's primary goals. To achieve it without jeopardizing its energy objectives, Walgreens integrated proven technologies with brand new ones. For example, the store features more than 800 rooftop solar panels, two wind turbines, a geothermal energy system, daylight harvesting, and LED lighting, inside and out, all of which had been previously tested at other Walgreens stores.

GREEN

Certification LEED Platinum (expected)
Water Storm-water collection, low-flow plumbing fixtures
Energy Solar panels, wind turbines, LED lighting, daylight harvesting, geothermal, carbon dioxide refrigerant
Landscaping Native plants
Materials Low-VOC finishes, concrete parking lot

"Walgreens sought out and incorporated Cooper Lighting's most energy-efficient exterior LED lighting solutions, including several Lumark brand Navion parking lot and Crosstour wall-mount LED luminaires, that produce a warm white light and provide even illumination to enhance customer safety," says Jill Underwood, the sales manager for national accounts at Cooper Lighting. "The Lumark Navion luminaire provides an energy savings of up to 70 percent compared to standard HID product solutions while the Crosstour wall pack can provide savings of up to 85 percent."

Alongside tried-and-true technologies like LED lighting, Walgreens incorporated some new innovations. Namely, an integrated heating, cooling, and refrigeration system that uses a geothermal carbon dioxide heat pump from Swedish company Green & Cool to capture heat generated by the store's

refrigeration systems. The system then uses the hot air for heating the store and heating water. "All of the refrigerant on the project is carbon dioxide ... because it allows us to be more energy efficient and has a very, very low global-warming potential," Meyers says.

In order to maintain their competitive advantage, many companies elect to keep their sustainability metrics private. In pursuit of maximum impact, however, Walgreens has opted for full transparency. In addition to the aforementioned in-store signs and kiosk, it established a Walgreens Net Zero Community Facebook page to communicate goals and progress during the store's construction and is openly collaborating with corporations and academics that want to learn best practices. In so doing, Walgreens hopes its success eventually can be replicated not only at the rest of its 8,000 stores but also at those of other retailers, multiplying the environmental benefits exponentially.

"When you start to look at stores like us ... we represent a very large portion of the commercial building footprint in the United States," Meyers says. "We can collectively have a rather large impact on reducing our energy usage and minimizing our environmental impact. At Walgreens, we have 125 million square feet that we can apply some of these concepts to, so whatever we can do within our footprint I know will have a positive impact on the environment."

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