

MIT finds a new cleaning solution

Water charged with electricity on site replaces chemicals at conference center

By Lindsey Hoshaw
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MIT's Endicott House has replaced the hundreds of gallons of chemical products it uses annually with one cleaner it hopes will be less toxic and more economical — water.

The water is charged with an electrical current, creating two chemical-free and nearly odorless cleaning solutions.

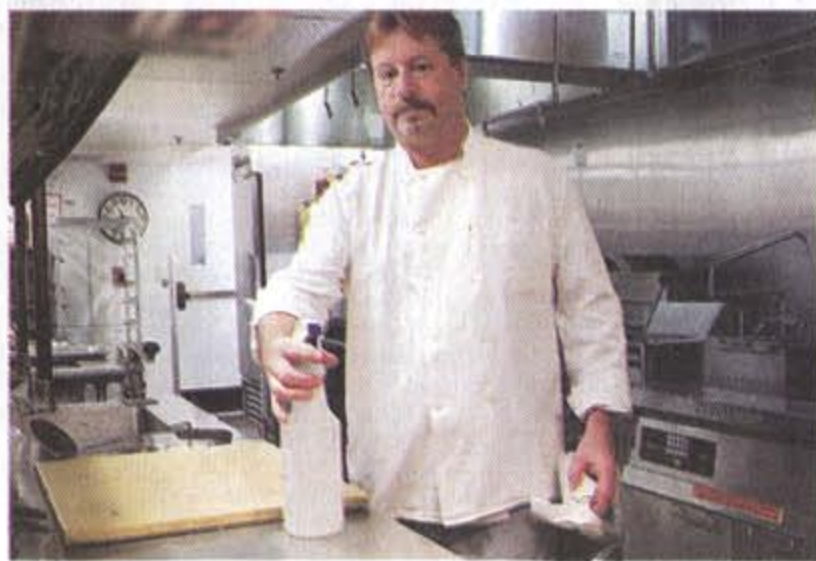
Instead of using Windex, Ajax, and Spic 'n Span — which can be harmful in large doses, according to the Environmental Working Group, a nonprofit that specializes in toxic chemical research — the Endicott House now uses two forms of electrolyzed

water: hypochlorous acid and sodium hydroxide.

The electrolyzed water device is expected to save the Massachusetts Institute of Technology's conference center thousands of dollars in overhead, shipping, and waste management costs because the solutions can be produced on-site, according to the Endicott's general manager, Michael Fitzgerald.

It is one environmental endeavor among many at the house, a 1934 French-style mansion in Dedham converted into a conference center and guesthouse, which recycles, composts, and grows its own produce.

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JOANNE RATHE/GLOBE STAFF

Executive chef Eddie Cerrato uses the electrolyzed water as a sanitizer.

At MIT center, a new cleaning solution

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"We've always looked at opportunities in green initiatives," Fitzgerald said. "I thought this product would bring us to a new level."

The process works by passing a low-voltage electrical current through salt water, which separates the water's sodium and chloride ions. The sodium ions are then exposed to a negative electrical charge, which creates sodium hydroxide, commonly known as lye. The chloride ions are exposed to a positive electrical charge, which turns chloride into hypochlorous acid — the active sanitizing ingredient in bleach.

The solutions are then stored in two 55-gallon tanks where employees can fill up spray bottles without having to worry about mixing or spilling the product, Fitzgerald said.

In the past six months, Massachusetts-based Lynnfield Green Technologies has sold 10 devices, which have been shipped to schools and companies that use the solutions to clean everything from cafeterias to semi-trailer trucks, according to the company's cofounder, Patrick Lucci.

Lucci helped enhance the technology while working at Electrolyzer Corp., a Woburn-based start-up, in 2006.

In 2009, Ecolab Inc. purchased Electrolyzer Corp. without bringing the technology to market. Lucci, eager to keep the idea alive, started Lynnfield and partnered with PathoSans, a subsidiary of Spraying Systems, a global manufacturer of industrial spray products, to sell PathoSans's version of the device.

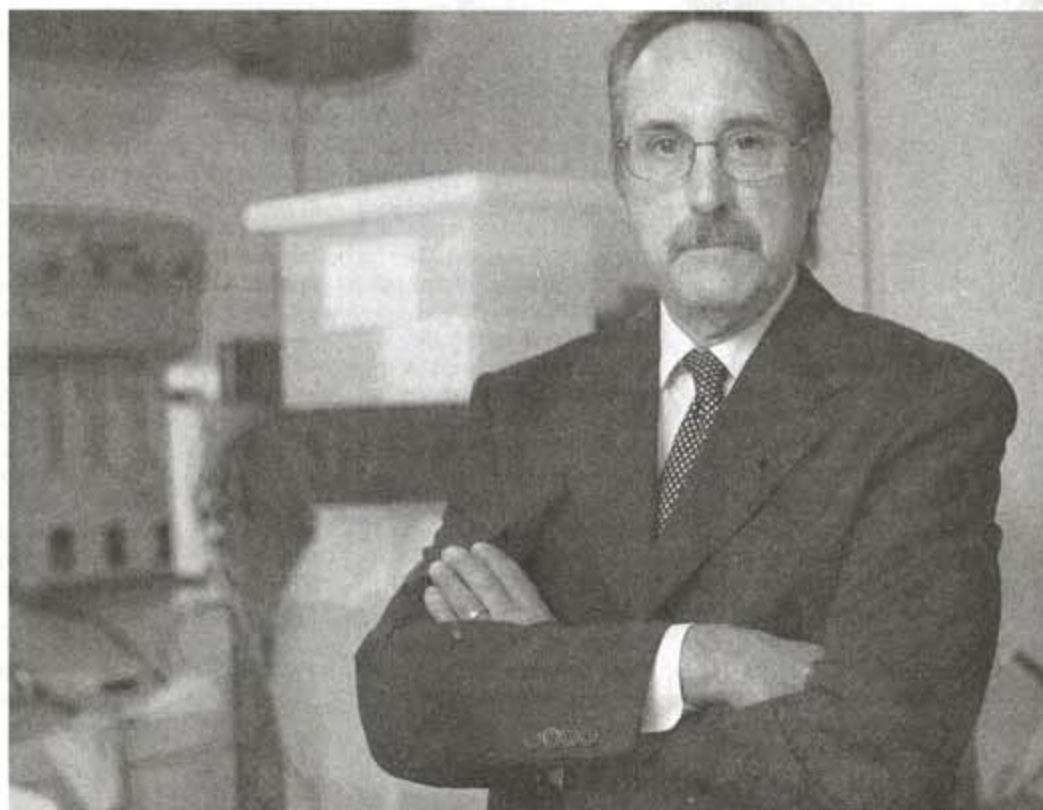
The solutions are being used throughout the Endicott House, in guestrooms, conference rooms, and the kitchen.

Executive chef Eddie Cerrato, one of 50 staff members at the conference center, said he uses the hypochlorous acid cleaner to sanitize everything from meat thermometers to Endicott's freight elevator.

"Bleach used to be the disinfectant in every kitchen but it eats into plastic," Cerrato said. "This solution is idiot-proof."

He said rashes and skin problems from working with chemicals have since disappeared.

Yen-Con Hung, who studies electrolyzed water's effect on



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Patrick Lucci, cofounder of Lynnfield Green Technologies, said electrolyzed water is an economical alternative to toxic chemicals. The firm has sold 10 devices in the past six months.



food safety at the University of Georgia's Department of Food Science and Technology, said the water "has a good cleaning effect," if it is used according to the direction.

"For cutting boards, sodium hydroxide is effective in removing fat and protein," Hung said.

But Rebecca Sutton, a senior scientist at the Environmental Working Group, said many consumers expect green cleaning products to be evaluated and approved by certification companies such as EcoLogo or Green Seal.

"When the first green prod-

ucts were coming on the market, people bought into a product and found it wasn't effective," Sutton said. "The big question really is: 'Will it work?'"

Lucci maintains that it does and during a recent visit to the Endicott House he sprayed disinfectant on a dark black carpet stain that looked like ink and the stain was gone in about 10 seconds.

Lucci wants to sell electrolyzed water devices nationwide and sees hotels as the perfect market.

"We're targeting the hospital-ity industry because it's really

low-hanging fruit," Lucci said. "The operating costs for using chemical cleaners or disinfectants is 20 to 25 cents per room per day but you can virtually eliminate those costs by purchasing a \$15,000 device, and your carbon footprint gets smaller."

Patrick Maher, a green consultant for the American Hotel & Lodging Association, said because the device is in its infancy, it is unclear whether it will catch on. "I haven't seen any major hotel chains pick it up," Maher said. "Maybe this will revolutionize the hotel industry. It's too new to know."

A potential drawback is the price tag.

The device Endicott installed retails for \$10,000. Fitzgerald said the conference center will not see a return on investment for another year at least. For hotels that have smaller budgets, it may be cost-prohibitive.

Asked why he is so invested in this system, Lucci said electrolyzed water benefits all parties.

"We over-rely on processed chemicals," Lucci said. "Here you're doing good for people and the environment. It's a win-win."

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