

Eco-Friendly Practices

Amid California's Drought, Hoteliers Supply a Stream of Innovative, Water-Saving Solutions

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Ms. Ruble-Dotts

California's unprecedented drought led to government mandates in 2015 requiring water agencies to cut residential and business water usage by 25 percent. For hotels, the mandates also include specific rules about irrigation, serving water only

upon request, and encouraging reuse of guests' towels and linens. While the mandates represent a starting point for water conservation, many California hotels are already ahead of the game: finding ways to reduce water consumption without compromising the guests' experience. They have produced a steady stream of water-saving ideas for hotel bathrooms, laundry, landscaping, and kitchens--all of which are transferable to hotels almost anywhere.

Set against a backdrop of parched mountains in Palm Desert, California, the sprawling, 450-acre JW Marriott Desert Springs Resort & Spa is a palm-fringed oasis. The resort boasts 884 guest rooms, five pools, several lakes, two golf courses, grass tennis courts, and a multitude of restaurants and bars. Yet for all of the millions of gallons of water the resort gulps down each year, it's become an unexpected beacon for conservation.

In 2015, the resort saved nearly five million gallons of water over the previous year through a myriad of water-wise solutions ranging from landscaping changes to low-flow showerheads. While the savings were significant, the resort's water bills still rose by \$50,000 due to increases in local water rates. General Manager for the resort, Ralph Scatena, was pragmatic. "Had we not made the changes we made, we would be paying a lot more," said Scatena.

According to the U.S. Environmental Protection Agency (EPA), hotels and other lodging accommodations account for approximately 15 percent of the total commercial water usage in the United States. Over the last decade, the cost of water and wastewater services across the country has been climbing due in part to the expense of replacing aging water systems. Growth in population

and infrastructure is also increasing the demand for freshwater resources. In California, the extended drought and water scarcity in some regions have compounded the problem. But California is not alone in feeling the pressure. A government report issued last year found that water managers in 40 of 50 states expect to experience water shortages in portions of their states within the next 10 years.

Now entering its fifth year, California's unprecedented drought led to government mandates in 2015 requiring water agencies to cut residential and business water usage by 25 percent. For hotels, the mandates also include specific rules about irrigation, not serving water to guests unless requested, and providing guests with the option to forego having linens and towels laundered daily.

While the mandates represent a starting point for water conservation, many California hotels are already ahead of the game. "We were exceeding expectations even before the mandates," said Robert Lipinski, Director of Engineering for Loews Santa Monica Beach Hotel.

Hired in June 2014 with an extensive background in energy audits, Lipinski hit the ground running. He took advantage of free sub meters supplied by the Metropolitan Water District to identify areas of the hotel using the most water--laundry, bathrooms, and kitchens--and began involving staff, researching solutions, and implementing changes to produce measurable savings. "There's opportunity everywhere," said Lipinski.

According to the EPA, hotel bathrooms are typically the biggest drain, comprising about 30 percent of the total water usage. Landscaping and laundry soak up about 16 percent each, followed by kitchens at 14 percent, heating and cooling at 12 percent, and pools and other uses for the remainder.

For California hoteliers, the goal has been finding ways to reduce water consumption in all areas without compromising the guests' experience. The efforts have produced a steady stream of ideas, all of which are transferable to hotels almost anywhere.

Hotel Bathrooms

Water consumption in hotel bathrooms represents the biggest percentage of water usage, but it is also the most difficult to control. After all, how can hoteliers ask a guest who has just plunked down hundreds of dollars for the night not to soak in the tub or take a long shower? In-room cards can encourage guests to reuse linens and towels. Hotels can promote their conservation efforts and awards through signage



and television monitors in an attempt to persuade guests to change their own behaviors regarding water usage. But the greatest efficacy can be achieved by replacing guest room toilets, faucets, and showerheads with low-flow fixtures.

California's emergency drought order last year resulted in new minimum efficiency standards for toilets and faucets. As of January 2016, toilets sold in California cannot use more than 1.28 gallons per flush (GPF), while residential faucets cannot exceed a 1.2 gallons-per-minute (GPM) flow rate. Current federal standards are 1.6 GPF for toilets and 2.2 GPM for faucets.

A number of California hotels are well ahead of the curve. The 300-room Asilomar Conference Grounds on the Monterey Peninsula upgraded all of its toilets to 1.28 GPF six years ago. The cost to replace their old 3.5 GPF toilets was about \$80,000, but they have since saved \$10,000 annually in water bills. Installation of low-flow showerheads and faucets combined with other upgrades to their laundry and the kitchen departments have helped to reduce Asilomar's overall water consumption by 14.5 percent since 2009.

In August 2015, JW Marriott Desert Springs Resort & Spa completed replacing 3.5 GPF toilets in all 884 of their guest rooms with 0.8 GPF toilets. The cost was \$100,000 after rebates. For the first month of the resort's high season, which begins in January, the hotel saved 400,000 gallons of water and \$4,000 off their water bill compared with January of the previous year. In 2013, the resort installed low-flow showerheads and faucet aerators, resulting in water savings of about half a gallon per minute.

By the end of May 2016, Loews Santa Monica Beach Hotel will have replaced all 347 of its toilets with new dual flush toilets which use 0.5 GPF for liquids and 0.95 GPF for solids. The new toilets are replacing older turbo flush models that received numerous guest complaints for the loud whooshing sound that could be heard in neighboring guest rooms. The new toilets will still work with a combination of pressurized air and water to discharge waste, but with a much quieter flush. Along with the toilets, the hotel has also been replacing its showerheads with 0.175 GPM fixtures; they have yet to receive a single guest complaint about the water pressure. Lipinski estimates the new toilets and showerheads will result in an additional water savings of 30 percent for the hotel.

The Hotel Nikko San Francisco partnered with the San Francisco Public Utility Company (SFPUC) to conduct a water audit in 2014. As a result, the SFPUC provided the hotel 1,200 free aerators for its showers and faucets. The faucet flows were reduced from 2.2 to 1.0 GPM and the showerheads were reduced from 2.2 to 1.5 GPM. In December 2016, the hotel is closing for three months for extensive renovations, including upgrading all toilets in the hotel's 533 guest rooms and public restrooms with one-gallon, gravity-flush toilets. Russell Palacio, Director of Engineering for the hotel, is also planning to install meters to better gauge guest room water usage and help identify and develop further water-savings initiatives.

Laundry

An analysis of the Loews Santa Monica Beach Hotel's water usage found that the biggest culprit was not its bathrooms, but rather the laundry department. After researching several possibilities, Lipinski opted for installing an AquaRecycle system in January 2015. The system filters and disinfects laundry water,

enabling the hotel to recycle at least 70 percent of the water used for washing linens. The system also holds the temperature of the water as it circulates through the filters, eliminating the need to reheat it for the next wash cycle, thus saving energy. The hotel has saved over 4.4 million gallons of water within the first year, totaling over \$67,800 in water and energy savings. The cost of the system was nearly \$96,000 after rebates, but the hotel is on track to see a return on investment just 17 months after the installation.

The laundry department at the Hotel Nikko San Francisco has long utilized a re-use system whereby the second and third rinse cycles are saved, filtered, and used for the first wash cycle of the next load, saving thousands of gallons of water each day. In 2015, the hotel took a step further and began using Ecolab's Aquanomic laundry program to save more water and energy. The program relies on environmentally-friendly, low-temperature chemistry and operational changes to maximize efficiency. In one month, the program saved the hotel an estimated 151,674 gallons of water, resulting in water and energy savings of over \$2,500.

The Hilton Los Angeles/Universal City and Stanford Park Hotel in the Silicon Valley have both installed Xeros commercial laundry systems within the last two years. The system combines reusable polymer beads with proprietary, low-temperature detergents. During the wash and rinse cycles, the beads take on the role of a solvent, attracting and absorbing soils. The system uses 80 percent less water, and the water it does use is cooler in temperature, thereby saving energy. Annual water savings at the Hilton Los Angeles is estimated at 845,837 gallons, while the Stanford Park Hotel is saving over one million gallons annually.

Landscaping

With 450 acres in the middle of the desert, reducing irrigation is essential to shrinking the JW Marriott Desert Springs Resort & Spa's water footprint. Starting with the property's perimeter and pools, the resort has been swapping out water-guzzling grasses and flowers for desert succulents and plants. They've begun using reclaimed water for the golf courses and waterways. They've installed drip irrigation systems in lieu of spray nozzles to reduce evaporation. They've ripped up entire event lawns and replaced them with synthetic turf. Of the latter, Scatena chuckled, "Five years ago, I would have said 'not on my watch,' but

the look of faux grasses has improved considerably and the benefits extend beyond saving water and labor."

In addition to not needing to be watered or mowed, Scatena said the synthetic turf wears better than traditional grass. It stays green even with heavy use, and there are no weeds or bare patches with which to contend. There's also no need to re-seed the lawn after an event or expend money and labor to fertilize it. Event planners find it easier to work on. And women wearing high heels needn't worry about their heels sinking and getting stuck the ground. The resort has completed roughly 10-15 percent of their planned landscape changes, with more to be completed in the coming year.

Loews Santa Monica Beach Hotel also replaced all of the sod surrounding the hotel with synthetic turf. "It's a beautiful match to grass," says Lipinski. "The guests love it, too; several have asked me for the manufacturer's information."

The InterContinental Los Angeles recently replaced their 5,000 square foot grass courtyard with synthetic turf. "The hotel hosts a number of weddings and events in the courtyard, and the new turf guarantees a perfectly green and manicured landscape that appeals to many of our guests," said spokesperson Lacy Hannah. The hotel also ripped out draping ivy plants-which required daily watering-from the balconies of all of its guest rooms and replaced the planters with drought-tolerant succulents. The hotel estimates the total water savings from the new turf and succulents will be around one million gallons per



year, equating to about \$6,000 in savings annually.

The nine-acre Four Seasons Hotel Westlake Village is using 100% reclaimed water from the Las Virgenes Municipal Water District for irrigation. The hotel retrofitted their sprinkler system to improve efficiency and added a weather station to help conserve water. The hotel has also replaced plants with drought-resistant varieties. As a result, the hotel has reduced their water usage for landscaping by 50 percent.

In the summer of 2015, Bacara Resort & Spa in Santa Barbara took the unusual step of draining its nine water fountains and replacing the water with succulents and hand-blown art glass. The resort estimates it's saving about 17,000 to 20,000 gallons of water a year. "We didn't launch this project to save money," said Anne Elcon, Director of Marketing & Communications for the resort. "We wanted to set an example on creative ways to be water wise... [and] get our community and resort guests talking about creative solutions for the drought."

Kitchens and the Back of the House

Loews Santa Monica Beach Hotel will soon be replacing its 26-year-old dish washing machine for a new model that will cut water usage by 50 percent and save on energy through the use of a heat exchanger which converts escaping heat and steam into energy to preheat the incoming water supply.

Many hotels have upgraded their kitchen's spray nozzles to more efficient, tamper-proof models. The Hotel Nikko San Francisco experimented with using compressed air to clean plates of compostable food waste rather than flushing it down the drain, but found that sweeping food waste into the compost bin with a simple brush worked better. Similarly, the hotel now uses a broom to sweep sidewalks instead of a pressure washer.

The Four Seasons Hotel Westlake Village is saving thousands of gallons every day by changing the way it defrosted frozen food. They now defrost foods in the refrigerator instead of under running water.

To keep from pouring unused ice water pitchers down the drain, the Hyatt Regency Sacramento purchased four large 33-gallon rain barrels, set them on large casters, and had their staff begin pouring the unused water into the barrels. The hotel collects about 400

gallons of water each week. The collected water is either rolled outside to water the lawn or gardens or wheeled to the back of the property, where it is pumped into the hotel's cooling tower.

The JW Marriott Desert Springs Resort & Spa recently installed brand new chillers in their cooling towers to conserve water and energy while providing more efficient air conditioning. Ecolab offers systems that manage water scaling and increase the amount of water that can be recirculated through a hotel's cooling towers before needing to be discharged.

Across the board, hoteliers emphasized the need for routine inspections of all plumbing systems to detect leaks. Repairing leaks can save hotels gallons upon gallons of unnecessary water loss.

Hoteliers also stressed the importance of educating employees about water conservation and ensuring they are involved in the development of water-saving initiatives. Doing so promotes a heightened sense of awareness, encourages greater investment in the effort to conserve resources, and promotes out-the-box thinking. "They love to be involved and be part of the team that's making this happen," said Lipinski. "When I came to California, it really opened my eyes. Everyone thinks that water is an unlimited resource, but it's not," said Lipinski. "Each year, I want to keep expanding what we're doing. I want to look back in five to six years and be using 40 to 50 percent less water than we're using now."

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