

Resorting to Reverse Osmosis

Firm designs reverse osmosis systems for two Anguilla resorts

BY AMY MCINTOSH

The island of Anguilla in the British West Indies is one of the northernmost Leeward Islands in the Atlantic Ocean. Like many Caribbean islands, tourism is its main industry, with more than 100,000 visitors each year.

In order to meet the needs of the island's permanent population as well as tourists, Anguilla's government controls distribution of freshwater on the island. Water is also available for purchase through private entities, a pricier option for those who require more water than the government can offer.

This system means demand for water is typically greater than supply, so private residences often implement rainwater harvesting. This strategy, while beneficial for homeowners, is not enough to supply large resorts with the amount of water they need for daily tasks such as irrigation, laundry and guest room water usage. Efficient landscaping techniques that are often employed in projects both large and small—the use of native species, xeriscaping and minimal irrigation—are not enough to reduce the amount of water these resorts need on a daily basis.

Desalinating the Resorts

To help tackle the water supply problem, Lee H. Skolnick Architecture + Design Partnership (LHSA+DP) coordinated specifications for two resort projects in Anguilla that include reverse osmosis (RO) desalination systems. The RO membranes will remove salt from seawater and create a water supply that is safe and plentiful. Because of the initial design and installation costs, these systems are typically only employed at larger facilities.

"As you can imagine, a five-star resort has a lot of water needs," said Robert Gross, project manager for LHSA+DP. "They don't want to be dependent on an expensive, limited supply of water. A resort like that can't be limited by what the government can reasonably supply."

The first project, Shoal Bay Resort and Villas, will be located on 10 acres on the island's north shore. The final design calls for 12 villas, luxury condos, a holistic spa and a fitness center. The

Shoal Bay Resort and Villas plans to implement RO to ensure it has an adequate water supply.



project, which has been in development since 2007, has an estimated 30-month construction schedule, according to Gross, which will begin when financing is finalized.

The second project, for a boutique hotel client, will be connected to an existing property. Site work has begun, with completion expected in 2016.

The goal of both projects is to eliminate each resort's reliance on the government for freshwater.

"Their plan is to not only be independent, but to have a surplus of water that they can either sell back to the municipality or offer private, supplemental water to sell to homeowners on the island," Gross said. "They can do that because if they have their own appropriately sized RO system, then they can control how much they can produce."

Living With the System

Green technology can double as an effective marketing tool for large resorts. They often choose to display technologies such as solar panels or wind farms around the property for guests to see. Some technology, however, is hidden. At these two resorts, the RO systems will be housed on a separate campus, away from guest areas.

"It's in the resort's best interest to display the green strategies it employs, but the RO system is really a back-of-house operation," Gross said.

"People are paying top dollar, and they want views of the ocean and the golf course." Secluding the technology also will ensure that operators can run the system properly without guests interfering.

Although RO systems can be expensive to install, the long-term cost savings will eventually make up for the startup costs.

"These systems are not inexpensive to implement, but they will definitely pay for themselves because of the cost of buying water on the island," Gross said. "Like a lot of innovative design technologies, there's an initial investment, and you hope that the payback horizon is relatively short. I think in this case, because of the cost of energy and water on these Caribbean islands, the payback horizons are very short."

Because of the municipal water regulations and cost of purchasing water from outside suppliers, RO systems are becoming the norm on Caribbean islands, according to Gross. "We didn't have to sell the client on the environmental responsibility or the financial responsibility aspect of [the RO system]," Gross said. "It was the obvious choice." **CW**

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