

Keep water use in line

By Rita Kueber

On Top of the World uses drip irrigation to conserve water and keep landscaping green.



Photos: On Top of the World

An amenity-rich retirement community might not be the first place you'd think about when it comes to being responsible about water use. But On Top of the World in Ocala, Florida, took a progressive approach to using drip irrigation to be smart about water use.

OTOW, an active 55+ adult retirement community, has an entitlement for 30,000 single family homes with 9,000 built so far, all for independent living. Alongside residences, the community has a 30-acre commercial/commons area, three golf courses, four gardens, four dog parks, more than 15 miles of walking trails, a softball field, 10 tennis courts, plus miles of roads and medians. From lawns to annuals, native cultivars to Florida-friendly trees and shrubs, it all adds up to an enormous amount of landscaping that has to look its best at all times.

In order to do that, natural rainfall has to be supplemented, and with its commitment to quality building and sustainability, OTOW opted for a system of drip irrigation throughout its community. Leading the charge is Phillip Hisey, OTOW's director of landscape operations.

Hisey has been with OTOW since 2005. "When I started, we had a low-volume system with microjets and products from Rain Bird," he says. "We used testing to see how low we could get with our water use. Even with our commercial area in 2008 we went with 100% drip irrigation. It's in our common areas landscape and annual beds. Once I got familiar with it, drip irrigation opened my eyes to how much healthier the plants can be. Indian Hawthorn is a good example. With drip the water goes right to the root ball."

As the community continues to grow and expand there's opportunity to install less costly, traditional irrigation, but that's a non-starter for Hisey. "The decision was made to go low volume before me," he says. "We came to drip irrigation with the intent of being sustainable. Water is such a commodity; it needs to be protected."

Planning for drip

Earthscapes Unlimited is the primary landscape and irrigation contractor for OTOW. Based in Coleman, it provide services for several counties in North Central Florida. President/owner David Gruber oversees a staff of 80 or so, split between grading, irrigation, landscape and maintenance divisions. A Florida native, Gruber spent time in California gaining insight into drip irrigation methods, as water conservation has been a hot topic out West for many years.

"Drip is a lot of what we do. When I design/build, I use drip 100%, if the water allows," he says. "Sometimes it's too expensive to put in a filter or there's a power situation, but when we build a big commercial project, we use drip every time. A lot of people think it's too expensive," he adds. "But it's just the opposite if you dive into it."

"The way drip has come along, you can use it with almost any type of water, although I tend to stay away from ponds and lakes," Gruber adds, referring to filtering issues. He describes how some larger drip irrigation systems need big, self-cleaning filters the size of a compact car, placed on a pad and costing \$15,000 to \$20,000. "A system may call for 4-inch pipe, but if the system is big enough, you may be able to switch over to drip irrigation and downsize to a 2-inch pipe, which pays for the filter."

North Central Florida gets its potable water from ground wells, which draw from the Floridan aquifer. The water and wastewater provider for Ocala's Marion County, including OTOW, is the Bay Laurel Center Community Development District, a governmental entity. Some irrigation at OTOW is done with reclaimed water. Hisey indicates Bay Laurel Center CDD makes sure they are getting clean reuse, nearly potable, except for the pervasive chlorine, which doesn't affect the plants.

Water from the aquifer is pumped toward the surface. Earthscapes Unlimited uses a 10-horsepower variable flow submersible pump that ramps power up and down, depending on the demand. "A static pump wastes water and power," Gruber says. "You start blowing things apart when irrigation goes on at a rate of 30 gallons a minute, and you need 30 gallons an hour. You need to provide for different parameters."



OTOW works regularly with two firms, Tillman & Associates Engineering LLC in Ocala and Heartland Designs in Lake Placid, Florida, that assist with land planning, landscape architecture and environmental engineering. As is typical in the design/build process, plans are initiated then refined over time.

Earthscapes Unlimited has installed miles of drip and customized Hisey's specifications, using products first from Rain Bird and now from Hunter Industries. Both Hisey and Gruber are adept at customizing the use of plug-in drippers, inline drip tubing, microsprays, sprays and valve assemblies to meet the needs of various zones or a particular configuration.

The right tool for the job

There are two types of drip irrigation: grid and point source. With grid irrigation, a lattice of tech lines is laid out. The hose that's installed has a hole, or emitter, every 12 or 18 inches. Different spacing allows for different amounts of gallons, such as two, four or five gallons per hour. The grid system saturates an entire bed, and while efficient, the Bay Laurel Center CDD will not permit this method at OTOW due to the water usage. Basically, too much water would be lavished on a single bed.

Point source irrigation lays out hose lines directly so the water is emitted right onto the root ball. The line has to be as direct as possible to save costs but it has to snake through a bed to work around the plants. An enormous amount of hose is needed as some zones, along a median for example, can be a half-mile long. The key here is design. “You don’t want to wait five minutes for the water to show up once you’ve started the irrigation process,” Gruber says. “The system has to be laid out like a tree — even spacing for even distribution. The quicker it comes on, the quicker it turns off.”

He also cautions lines need to pop up in the middle of a bed or zone. In a 150-foot bed, the flow should be in the middle and run 75 feet in each direction, not pop up at one end and try to flow the length of the 150-foot bed. Once the lines are in place, they are stapled down or weighted and covered with mulch, or both.



The flow of water needs not only to be controlled but be balanced against natural rainfall. At OTOW, Gruber and Hisey have installed Hunter controllers, which are Wi-Fi-connected, preprogrammable and adjustable monitors that are linked to the closest local weather stations. “All of [Hisey’s] systems have flow sensors because in Florida, one street can get an inch of rain and the next street, nothing. New beds are especially vulnerable to weather,” Gruber says. While nothing beats human observation, constant information from sensors in the field helps OTOW make adjustments, as well as flag any leaks or breaks.

Hisey acknowledges installation costs are higher for drip irrigation, but the system is then easy to maintain. “Plants can pinch the line as the roots grow, or the line is open to the sun and there’s degradation that causes the line to split, but this is a 10-year problem — something you won’t see for years,” Hisey says. “Occasionally an emitter breaks, but we have in our maintenance vendor contracts a requirement to check the irrigation systems monthly; turn them on and walk them to be sure there are no leaks. Drip tells on itself easily — it will shoot out a stream if it’s leaking. You can see it and hear it. And also the residents know how to get ahold of us. If they see a leak in the field, we hear about it quickly.”

For anyone leaning toward a drip system, even a smaller setup for a house or apartment building, Gruber is adamant in one recommendation: a filter. “Get a filter system, and get the correct filter and a pressure regulator,” he says. “The pressure and cleanliness of the water is what will keep your system going. Check the system for clogs at least once a year and depending on the water source, more often like every two to three months.”

At the end of the day drip irrigation is really about water savings, Hisey says. “We get 52 inches of rain each year, and there are a lot of good ways to save and not have 70% of every water bill used on an irrigation system due to inefficiency,” he says. “Our biggest success is using less water.”

Rita Kueber is a freelance writer in Cleveland, Ohio, and can be reached at ritakueber@gmail.com.