

Nature Calls

Going green? Consider eco-friendly composting toilets.

BY BOB VAVREK

The Rules of Golf address the issue of providing players relief from immovable obstructions, such as cart paths or sprinkler heads. However, they don't address the kind of relief players need on the third or fourth hole after several cups of clubhouse coffee. When nature calls, the call must be answered, so comfort stations need to be available at convenient locations throughout a golf course.

Several types of comfort facilities are available for golf courses. They range from renting a basic portable toilet to the construction of a permanent restroom facility complete with indoor plumbing for toilets and sinks.

Most golfers are more than a little apprehensive about using a portable toilet, especially one sitting in the hot sun all day. There's the smell caused by a lack of ventilation and questionable sanitation. Then there is the problem of locating the unit in an area where it can be conveniently serviced by a waste disposal truck, instead of concealing it in a site where it is truly needed. Then again, a port-a-john is still better than nothing.

On the other end of the spectrum are the opulent thrones for the royal membership. No expense is spared for a tastefully designed structure that includes indoor plumbing with potable water, electricity, ventilation, and, if the climate dictates, air conditioning. The style may complement the clubhouse,



The modern composting toilet is a considerable upgrade from the smelly, dark pit-latrines we recall from childhood camping trips. Exteriors can be customized to suit tastes that range from elegant to utilitarian.

costs can skyrocket. Equally difficult and expensive is the process of procuring permits for holding tanks and septic or mound systems, not to mention the additional cost of performing percolation tests, inspections, etc. Any way you look at it, a basic structure, with plumbing, can easily cost \$50,000 or much more, with the sky the limit if you want the facilities in a remote area of the course.

A waterless composting toilet system can be an alternative to traditional golf course restroom facilities. They are particularly well suited for comfort facilities in inaccessible areas of the course where plumbing and waste management

are either unavailable or cost prohibitive.

complete with cedar shake shingles and a slate roof. Obviously, this is not an option for budget-minded facilities when you consider the high price of extending water lines to a remote area of the course. Add the labor costs of winterizing the lines and plumbing every season at northern courses. Granted, you may be able to reduce costs by tapping into the irrigation system for non-potable water, but the facility still needs to be addressed.

Tapping into an extended sewer line is one option for human waste management. However, securing the permits to extend a sewer line may require an act of Congress in some municipalities, and let's hope the existing line is located on or near golf course property, or the

are either unavailable or cost prohibitive.

Mention a composting toilet to someone in the United States and it usually conjures up an image of a crude pit latrine they were forced to use as a child during a family camping trip. The iconic rural outhouses are indeed the ancestors of present-day composting toilets. Necessity is the mother of invention, and there was definitely a need for an outhouse to evolve.

Composting toilet systems were developed in Sweden during the 1930s, and the first commercial model of the Clivus Multrum (Swedish for "sloping chamber") was available in 1964. This technology reached the United States in the early 1970s, and the design has been modified and

improved several times since then. Modern versions of the Clivus Multrum designed for outdoor, commercial use can be found at a number of parks and a few golf courses scattered around the country.

The Clivus technology spawned many other types of composting toilet designs for home, recreation, and commercial uses. However, all perform the same basic action of converting a great deal of human sewage into a very small amount of compost within an enclosed system. They also share the same challenges of controlling odor and providing the best possible conditions for rapid composting.

In general, all units depend on some type of negative ventilation to constantly draw air down through the toilet, into the compost chamber and out through a vent to manage odor. Dependable, low-maintenance fans are available and use very little power, and most structures can be modified easily to use solar panels. In fact, a solar-powered composting toilet just may provide the ultimate eco-friendly restroom.

Composting toilets are sized according to the anticipated usage. Toilets at remote areas of golf courses are generally used far less than restrooms in the clubhouse, so most courses only need a small unit, which produces less compost. Less compost is a good thing because, eventually, someone will need to remove the compost from the unit.

The removal and disposal of compost derived from human waste may be subject to state, county, or municipal regulations, and a good place to initiate inquiries is your local county sanitation department. On a positive note, these systems generate minute amounts of compost and may only need to be serviced for disposal once every few years or longer, depending on usage. It's a small price to pay for reducing the load on your waste stream.

Some units may require a limited amount of maintenance, including small additions of bulking agents, such as sawdust or wood chips, at infrequent intervals. Other units designed to evaporate liquid waste may require a little water to be added to the compost

to maintain consistent levels of microbial activity.

Sunnehanna Country Club, a classic Tillinghast layout in Johnstown, Pennsylvania, has had no regrets installing a composting toilet system in a remote area of the course 12 years ago. According to Gary Weaver, CGCS, the unit requires only a few hours of annual maintenance, has no odor, requires no water, and produces no raw sewage or liquid waste.

Explore the various options for composting toilets; the long-term benefits may far outweigh the initial cost of installation. Any of the popular manufacturers can provide ample references from golf courses using their systems.

Several useful links to composting toilet information:

<http://oikos.com/library/compostingtoilet/>

http://www.nsf.org/business/search_site/search.asp

http://www.clivusmultrum.com/products_trailhead_design.shtml

<http://www.best-composting-toilet.com/>

<http://www.sun-mar.com/>

<http://www.comparethebrands.com/compare/134>

BOB VAVREK is a senior agronomist in the USGA Green Section North Central Region.



Interiors can be designed to rival the features found in your bathroom at home (images courtesy of Clivus Multrum).