A maintained hazard

SUPERINTENDENTS DEVOTE A LOT OF TIME, MONEY AND LABOR INTO MAKING BUNKERS LOOK AS NATURAL AS POSSIBLE

by DOUG SAUNDERS

When the game of golf began along the Scottish coastline, rolling sand mounds framed the route from the rudimentary teeing ground to the target hole. The mounds provided grazing sheep that burrowed into the hillocks shelter from the wind. These sandy holes created by the sheep were considered unsavory places for golfers to hit their ball, and the hazard known as the bunker was born.

As golf became more popular and designers began to create golf layouts on different types of terrain, sand bunkers became an important feature to defend the golf hole and added more strategy to the game. Players learned to avoid these hazards or develop the skill to play a shot out of them.

In the modern era, bunkers are much different than they were years ago. Bunkers have become road signs to guide players around a course and have become an integral part of the photogenic look of golf courses.

At the same time, the golfing public's perception has changed. Bunkers are the subject of as many complaints as any other feature on the golf course. While bunkers used to be considered a penalty zone, now players demand they are maintained like any other area of the course. Currently, golfers are concerned about sand type, compaction, drainage and consistency to a degree that was unimaginable 10 years ago.

Photo: Kyle Phillips Golf Course Design

Architect Kyle Phillips says sand might be the best medium on which to place bunker drain pipes.

The public sees PGA Tour players preferring a bunker lie to a rough lie and feels this is proper strategy. They also are concerned about the playability of bunkers.

"Sand bunkers and their care have become more intense as golfers now look upon them as playable features," says Paul B. Latshaw, certified golf course superintendent of Muirfield Village Golf Club in Dublin, Ohio. "Every superintendent must address bunkers with a new intensity."

Latshaw has seen this transformation while working with his father, Paul R. Latshaw, preparing for seven major championships at such venues as Augusta National Golf Club in Georgia, Congressional Golf Club in Bethesda, Md. and Oak Hill Golf Club in Rochester, N.Y.

What makes bunker care so challenging is the combination of variables – sand quality, the strata under the sand, the effect of irrigation water around bunkers, and shapes and angles of the faces and edges of bunkers. Added to that are golfers shifting the surface sand and displacing it with shots.

Sand type

The first priority for most superintendents is assessing the condition of the sand. Throughout time, bunker sand will deteriorate and become contaminated from rain, the intermingling with rocks and pebbles from the substrata, and the collection of debris in them. Most courses will see a need to add or replace sand every four or five years, but this expensive process dictates a careful plan to extend the life of additional sand.

First, it's important to consider proper sand to use. U.S. Golf Association standards for bunker sand set a range for particle sizes between 0.25 mm and 1 mm with 75 percent of the particles ranging in size between 0.25 and 0.50 mm. This size helps promote effective drainage by providing a percolation rate of 20 to 25 inches per hour. Angular particles are important because they cling together to create a consistent texture.

Next to consider are texture, color and cost. Because the USGA-specified sands are specialized, finding the right local suppliers is important because it can be difficult to find the required sand. Sand color varies from bright white to tans, browns and grays. Color choice can be driven by preference and cost.

"You could purchase good bunker sand 15 years ago for $18 to $22 a ton, and now it runs about $30 to $40 per ton," says John McDonald of Jessup, Md.-based McDonald & Sons Construction. "I have even seen some courses paying up to $60 to $65 per ton."

Bunker lining

Another aspect of bunkers is liners. Geotextile liners have improved bunkers. The fabric materials form a barrier between the bunker sand and the substrata that will control the migration of soil and rocks up into the bunker but will not impede drainage. Some of the newer fabrics come in a spun form similar to air filters for furnaces and vary in thickness. These materials also help hold sand better on steep-faced bunkers, which helps reduce repair time.

At the 36-hole, private Arrow Creek Golf Club in Reno, Nev., superintendent Mike Donahue had some concerns with a complete bunker renovation project last summer.

"Our first concern was dealing with a severe contamination problem by lining all of the bunkers," Donahue says. "I knew that this would be costly and time consuming, so rather than buying new sand, we recycled the original sand by screening it on site. We considered using a gunnite-sprayed bunker stabilizer to line the bunkers, but I felt the cost – almost 50 percent more than the fabric – was too steep. We rebuilt 130 bunkers on one course in a five-month period and never closed down the golf course."

Although fabric linings have shown to protect against migration of subsoil effectively, they have presented other problems. Throughout time, the fabrics can shift, loosen or be pulled up by thoughtless raking or mechanical rakes and appear around the edges of the bunkers.

Matt Shaffer, superintendent at Merion

Golf Club in Ardmore, Pa., which recently remodeled its bunkers, says the course prides itself on its traditional look but wanted to improve the bunker quality through the use of modern materials. Geotextile linings were installed in all bunkers, and Shaffer found some helpful ways to deal with some of the problems they create.

"I find that you should occasionally check the staples that secure the liners to the bunker walls to make sure there is a solid connection to the soil," Shaffer says. "You must be careful not to pull the fabric up and let sand start to work under it. I have found that using a propane torch to burn off any exposed edges of the fabric is much handier than trying cut away any fabric."

To maintain the distinctive, ragged-looking bunkers at Merion, Shaffer has let the fescues grow around and over the bunker edges and maintains them with pitchforks by working the edges of the grass to the sand on a regular basis.

Drainage

When rebuilding a bunker, drainage must be addressed. Because players want more consistency in bunkers and expect quicker recovery after heavy rains, it's necessary to use more piping. Usually this drain system is set in gravel, but there are other ideas about what material should be used.

Granite Bay, Calif.-based golf course architect Kyle Phillips, whose designs include the Kingsbarns Golf Links in St. Andrews, Scotland, says sand could be the best medium on which to place drain pipes in bunkers.

"An all-sand medium will naturally draw

Glen Arbor Golf Club in Bedford, N.Y., recently completed a major bunker renovation project.

Photo: Glen Arbor Golf Club

Photo: Muirfield Village Golf Club

Muirfield Village Golf Club superintendent Paul B. Latshaw says he cares for bunkers on his course with added intensity to please golfers.

Photo: Muirfield Village Golf Club

Mechanical rakes are fine for large bunkers or bunkers with multiple exit points, but smaller bunkers might need to be raked by hand.

water to the drain pipe, where gravel can trap the water, causing ponding in the bunker," Phillips says.

Raking

Adding sand, protecting against soil migration and improving drainage makes for a better bunker. Still, bunkers needs to be maintained on a regular basis to prolong the life of the sand and maintain satisfactory playing conditions.

Many private clubs and high-end daily-fee facilities have opted to hand-rake bunkers to provide consistency players demand. Mechanical rakes were introduced to quicken bunker preparation, but for many, using mechanical rakes has created problems. The mechanical rakes can help greatly in large bunkers and waste areas, but their use is limited in smaller greenside bunkers. The machines can turn on a dime, but in small bunkers there might only be one point of entry that, throughout time, will become an unsightly, compressed area. The machines can form piles of sand, leading to an inconsistent sand depth. Also, tongs on the machines can grab onto the geotextile linings, causing severe damage.

"I feel the best way to maintain bunkers is by hand-raking," Latshaw says. "You can get a more uniform look and texture to the bunkers by hand-raking. The mechanical rakes are helpful if we have heavy rain damage and need to move a lot of sand back into place. We use them in some fairway bunkers, but only where there are numerous entry points. It's a good idea to provide a lot of training to the operator of these machines to avoid causing any major damage."

Photo: Glen Arbor Golf Club

Workers at Glen Arbor Golf Club are trained how to hand-rake bunkers so they can notice situations that could be the first signs of problems.

Ken Benoit, certified golf course superintendent at Glen Arbor Golf Club in Bedford, N.Y., recently completed a major bunker renovation project and also feels hand-raking is the best way to give players what they want.

"Bunkers are a completely contained environment that demands care and observation," Benoit says. "I train all of my employees on how to rake them properly to give me more flexibility with my manpower. Through hand-raking, crew members develop a better feel for the depth of the sand and can notice situations that could be the first signs of problems."

All of the care for and work on bunkers is going toward one goal: providing the best sand surface for golfers to play and at the same time maintaining a natural look to the hazard. Latshaw describes the work as trying to create a look of benign neglect. Shaffer puts it another way.

"We spend so much time and money to make it look like we did nothing at all," Shaffer says. GCN

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