## Building sand bunkers

By Don Wright Superintendent, Carmago Club, Cincinnati

Contrary to popular belief, the primary purpose of a sand bunker is not to trap the golfer's ball. And secondly, it is not placed in a location to penalize the player.

It is there to: (1) show the player the way the golf course architect wanted the hole to be played; (2) help define dog-legs; (3) give a perspective of the fairway in relation to the bunker; (4) frame out greens and give them depth, and (5) add to the aesthetics of the course.

With these five points in mind, let's construct a sand bunker.

To begin with, locate it so it can be seen from the tee shot or the fairway shot that is being played to the green. Secondly, don't treat a sand bunker as if it were just a hole in the ground with sand in it! A well-designed bunker has both surface and subsurface drainage as well as a shape pleasing to the eye.

By having the floor of the bunker at least 12 inches above the fairway grade at its lowest point and the remainder of the floor at an elevation of 1 foot to 5 feet to 1 foot to 10 feet above the lowest point of the bunker surface, drainage is possible. This is called facing the bunker and allows it to be seen from the hitting area. Another reason for surface drainage is that when it rains very hard in a short period of time the subsurface drainage doesn't take all the rain away.

Subsurface drainage is the key to good bunker drainage and will greatly improve playing conditions if done properly. First, shape the floor of the bunker to drain towards the lowest elevation of the bunker. Then dig a ditch 8 inches by 12 inches at the highest part of the lowest elevation of the bunker. Run the ditch so that it falls all the way towards the area

you want the bunker to drain.

Fill the bottom of the ditch 4 inches deep with gravel (one-fourth-inch to 1 inch size). The gravel should be top grade. Then place PVC tile or drain tile in bed of rock, making sure that there are 2 inches on each side of tile. Place gravel on top and each side of tile up to the floor of the bunker and to the ground elevation outside the bunker.

Do not cover with any kind of soil. Seed or sod the ditch and let it cover by itself. It is then ready for loose sand at a minimum depth of 8 inches. Finally, when placing sand in the bunker, be careful not to run a truck over the tile.

## The professional

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At a total of \$71,880,000 in golf clothing, apparel designed for golfing must be reckoned as a major factor in the clothing business as must professional shop retailers who sell it.

Footwear for golfers represented 7 per cent of pro shop sales to the tune of \$20,126,400. For each pro shop this means an additional \$2,684 in volume, on the average.

Golf gloves must be viewed as a retailing phenomenon and one of the relatively strong points in sales in the pro shop. An item of so relatively modest price accounts for an amazing total of \$14,376,000 in sales. This means on the average, \$1,917 in sales of gloves, which contribute 5 per cent to total pro shop volume.

Novelties and gadgets in many instances figure as a plus for the pro. They may take the form of living room putters or novelty tie clips. They do, however, account for 2 per cent of shop volume which means \$767 additional dollars per shop and \$5,750,400 in countrywide revenue.

The ''other'' category in GOLF-DOM's survey was an unspecified 7 per cent, including golf bags and hats. For the average pro shop this amounted to \$2,684 in sales. Nationally, this resulted in aggregate sales of \$20,126,400 annually.



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