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BUNKER DESIGN CHANGES

Last month, I vented about the trend toward perfect playing conditions in sand hazards. Regardless of my opinion, it's a trend that's here to stay. So, providing consistent bunkers is one of any good superintendent's biggest concerns.

There's little doubt the recent downturn in golf, combined with golfers' expectations of bunker consistency (perfect lies and easy and predictable playing characteristics every day, even after heavy rains) and white sand use is causing golf course architects, builders, superintendents and suppliers to seek new bunker construction technologies.

It's really a continuation of a long-standing trend of technology affecting design. It happens in all design professions. In building architecture, for example, steel beams allowed for taller skyscrapers. In golf course design, technology changed almost every era whenever advances in earthmoving, irrigation and drainage were incorporated into cost-efficient designs.

When scrapers and bulldozers replaced horses for earthmoving, architects initially just completed work more quickly. Eventually, they used increased earthmoving capacity for new design concepts, often enlarging the scale of golf greens and tees and adding more features such as fairway mounding and large lakes, which stored enough water to allow larger irrigation systems, which contributed to advances in automatic irrigation.

With drainage, technological advances in plastic drain pipe during the 1980s reduced costs, which allowed architects to experiment with creative earthmoving, rather than accepting nature's contours.

Similarly, recent technological advances in bunker liners have changed the way bunkers are built and maintained. To facilitate desired conditions, bunkers have evolved into complex construction projects with standard construction that includes liners, fully tamped subsoils, carefully selected sand and full herringbone tile with cleanout boxes. Some have experimented with other techniques, including gravel sublayers.

After decades of trying to create better bunkers by replacing superintendents, most green committees now realize superintendents can't provide perfect conditions with imperfectly constructed bunkers. Bunker consistency is important enough to them to justify spending money to build or rebuild bunkers correctly.

But there's no correct technique for creating perpetually perfect bunkers – and one single method might not exist. For starters, golfers can't agree on what constitutes a good bunker. Typically, good players, who often have more pull at a club, like them firmer than average ones. Inevitably, some golfers aren't happy with bunker conditions, despite spending more on construction and maintenance.

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As a result, the combination of greater costs, a desire for consistency and better maintenance (sometimes on tight budgets) affects the way golf course architects design bunkers. Design responses to current conditions include:

Reducing the number of bunkers. During the 1990s, golf course architects probably used too many bunkers for visual drama and design "signatures." Their justification was they looked good. Recently, I've consulted with several course managers, including those who manage some courses that I designed earlier in my career, who wish to remove bunkers that are marginally necessary. With new course design or complete renovations, I'm replacing their hazard value with features such as fairway slopes, chipping areas, grass bunkers, mounds and steep banks. My budget plug-in number for bunkers used to be 100,000 square feet; now it's half that. It's a design challenge, but using different hazards allows each hole to be more unique. Aren't there already too many greens with bunkers on either side?

Reducing bunker size. Before liners, maintenance-friendly bunkers had large (16 to 20 feet in diameter) sand lobes to accommodate the turning radius of mechanical bunker rakes. The result was large bunkers. Bunker liners require hand-raking, unless you opt for careful mechanical raking with only leaf-rake attachments. Smaller bunkers that require less time to rake, in concert with quicker travel time because of utility vehicles, help balance the total labor requirement for bunker raking. Smaller bunkers often look much better, so design challenges are nil.

Reducing bunker shape. Many designers still use extravagant cape and bay shapes and rugged bunker edges. At lower-budget courses, fancy bunker shapes might soon give way to simpler ones closely tuned to the mowing radii of bank mowers.

Reducing bunker-face slope. Maximum practical bunker-face slope varies with local rainfall, sand quality and bunker drainage. Sharp angular sands hold well on slopes. Many courses import sand with these characteristics rather than using local sand, figuring that labor savings eventually offset higher initial cost.

For any sand, flatter bunker slopes generally reduce washing. Reducing maximum slope from 25 to 30 percent to 15 percent or less reduces hand-shoveling. The challenge with flatter bunkers is making the sand visible. Visibility usually requires a simple front edge, no little mounds in front that block views, a 3- to 5-percent base slope throughout the bunker to reduce steeper slopes near the top, and sometimes, giving bunkers more length along the line of play to achieve visibility. **GCI**