



Bunker Management – Human Resources

Introduction

Bunkers are a fundamental part of the game of golf. In the early days of links golf they were formed by sheep scraping the sand and burrowing into banks to get shelter which were then gradually eroded by the wind and grew into larger open-sand areas. They then became more formalised in shape and the edges were managed to prevent further erosion and so they could be easily identified as a golfing hazard. They are now an integral part of any strategic golf course design.

But just as the type, layout, length, landscape and the natural surroundings of each golf course varies, the number, positioning and design type of bunkers varies also, giving golf its uniqueness amongst other sports.

Some small courses such as at Carradale Golf Club on the Kintyre peninsula in Argyll, and the Isle of Seil Golf Club have no bunkers at all while many others have over a hundred. There are 957 on Whistling Straits in Chicago, the 8th hole having 102 bunkers alone!

Where a bunker is positioned on the course is no longer down to nature. Golf course architects will place them accordingly to give both visual and strategic impact. Bunkers should provide a penalty to golfers who land in them defining the difficulty of the hole and where they are sited affects different handicap players. They can also serve as a useful visual marker, providing strategic playing interest if designed and sited cleverly. In recent times, as technological advances are being seen in golf equipment many golf clubs are feeling the need to move, alter or add more bunkers in the constant battle against course length.

Traditionally in Scotland bunkers are relatively small, however there was a trend in the 70s – 90s for larger bunker designs which originated in the USA, particularly punishing to the higher handicapper although the trend appears to have moved towards the smaller bunker design again. Design styles commonly seen across Scotland include deep and shallow pot bunkers, shallow reinforced edge bunkers, with a variety of face designs, revetted, sand splash faced, rolling edged or hybrids of all of those.

The challenge

Of all the routine duties of a green keeper, bunker maintenance, repairs and rebuilding appears to take up a substantial amount of staff time.

Regular routine maintenance tasks of sand raking and replacement, bunker face and edge maintenance and turf edge strimming, and weed removal, along with the annual programme of repair, renovation, drainage and rebuilding of bunkers can take up a considerable amount of the course management human resources and materials budget.

During current times of increased rounds of golf being played, longer playing seasons, increased member expectations of presentation standards, pace of play and economic challenges, there is added pressure on a golf club's human and material resources. Combined with the changing climate impacts resulting in sand often being washed or blown out of bunkers, many golf clubs find bunker management is having a disproportionate amount of their maintenance budget.

Revetted Bunkers

On links courses and often imitated inland there are often steep faced revetted bunkers. This is where the bunker wall is made up with layer upon layer of turf giving them a distinctive lined appearance. Revetting is useful on sandy links land soil to help stabilise the face against wind erosion. Some bunkers will have steep sand faces whereas others will have a turf lip rolling down to the sand. They often have very steep sides and can sometimes be double the height of the golfer unfortunate enough to land in them.

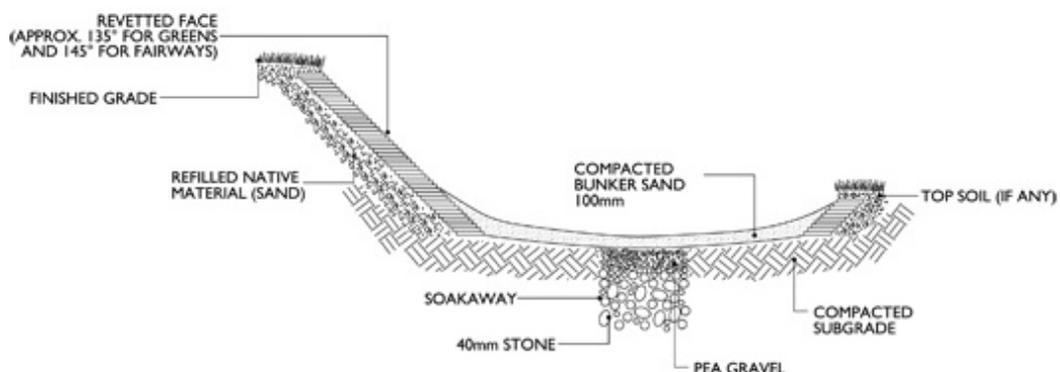


Image: European Golf Design



Revetted bunker during renovation

Maintenance activities include, brushing, weeding and spot repairing of faces, strimming of surface edge turf layer and sand raking and replacement.

When the bunker faces and edges are eroded and damaged, repair/rebuild activities include removal of turf, excavation, reshaping and stabilising of soil, replacing with new slabs of turf, drainage works, bunker floor levelling and replacement of sand.

Depending on the amount of golfer use these types of bunkers will need repaired every 3-5 years, with some in practice areas prone to damage requiring on-going repair and annual rebuilding.

Turf, soil and sand are bought in by the club or grown / excavated themselves. There are a variety of drainage materials and liners that are used in bunkers.

Roll in bunkers

Roll in bunkers have similar shapes and sizes to revetted bunkers, and are often used as a quicker and cheaper method of reinstatement.

Maintenance activities also include sand raking and replacement, and turf face and edge management. Rebuilding involves cut back and lifting the turf, reshaping, grading and stabilising the soil faces, reshaping, and rolling in the turf.



Roll in style bunkers

They don't have the durability of traditional revetted bunkers but as they use less materials and labour during rebuilding they are often a more economic bunker type.

'Wild edged' Bunkers



Some inland / heathland courses have adopted a 'wild edge' type bunker design. Edges are less uniform in shape and the grass is left to grow more naturally allowing the bunkers to blend into the surrounding landscape more than revetted or roll in bunkers. Often there is a mix of grass and heather species and they can contribute to linkage of rough grassland habitats on the course.

Maintenance activities include sand raking and replacement and periodic edge management and weeding. There is less of a requirement for repair and rebuilding apart from redistribution of sand and drainage works.

Recycled bunkers

As the amount of rounds of golf increase and our climate changes, bunker faces and edges have a longstanding problem of damage and erosion. To address this problem www.ecobunker.co.uk and www.durabunker.com have designed a re-construction technique using recycled artificial turf in place of traditional turf revetted techniques. The aim is to provide a durable, erosion resistant bunker face that will reduce maintenance and rebuild labour and material costs. Under licence, clubs can reuse waste astro-turf from local sources such as sports pitches and create deep and shallow pot bunkers, shallow reinforced edge and hybrid designs, sand splash face and rolling edge bunkers to suit the location. Clubs that have trialled the technique have been impressed with the durability and visual appearance of the bunker faces and on-going maintenance will be reduced.



Bunker using recycled materials during installation at St Andrews Links Trust

Summary cost comparisons

A variety of green keepers of different types of golf courses were surveyed to investigate the amount of staff time that was spent, costs and wider sustainability benefits of the management of different types of bunker.

Bunker Management activities

A comparison was made between courses for staff hours spent managing each bunker per week during the playing season. The playing season was taken as 6 months or 24 weeks.

Parkland and heathland courses surveyed had between 45 and 112 bunkers across 18 holes and they spent between 0.2 and 0.8 hours per bunker per week of the playing season on maintenance duties. This was an average of 0.6 hours or 36 minutes per bunker per week. This accounted for between 3 and 37% of total staff resource time.

Links courses surveyed had between 29 and 90 bunkers across 18 holes and they spent between 0.6 and 0.7 hours per bunker per week during the playing season on maintenance duties, averaging 0.65 hours or 39 minutes per bunker per week. This accounted for between 4 and 8 % of total staff resource time.

Materials used for general maintenance work is minimal as mostly physical labour with hand tools such as rakes, brushes and shovels.

Bunker repair, renovation and rebuilding activities

Courses surveyed with purely revetted bunkers spent approx. 11% - 35% of their winter programme repairing and rebuilding their bunkers.

Courses with roll over turf design bunkers or wild edged bunkers spent 5-10% of their winter programme repairing and rebuilding their bunkers.

Materials used in repair and renovation are more substantial such as turf, backfill material, replacement sand and will differ substantially between bunkers and courses. Some surveyed clubs spent up to £500-600 per bunker for full renovation every 3-5 years.

Conclusions

At a time when human and material resources are being stretched in many golf clubs, cost-saving decisions have to be made. Bunker maintenance and rebuilding is in many cases a large proportion of the course management budget and staff time resource. Some clubs have considered removing or reducing the size of bunkers to ease the pressure and many are looking at different types of design as part of their long term course management policy.

