



**THE PERMANENT  
METHOD FOR  
BUNKER  
CONSTRUCTION**



[permaedgebunker.com](http://permaedgebunker.com)



## THE PERMAEDGE BUNKER CONSTRUCTION

The PermaEdge Bunker System is a solution for stabilizing bunker edges and faces for all bunker styles, from old-school pot bunkers and steep revetted faces to modern flashed bunkers and small reveal edges. Developed around re-purposed synthetic turf, the PermaEdge Bunker System enables course professionals to re-imagine bunker design possibilities while establishing bulletproof, long-term integrity for simplified bunker maintenance.

By avoiding the pitfalls of maintenance and frequent rebuilding of traditional natural turf revetment, the PermaEdge Bunker System is a patented construction method that gives facilities maintenance assurance. By detaching from maintenance hassles, professionals can imagine and implement bunker styles previously hazardous to facility budgets.

The PermaEdge Bunker System enables facilities to capture the striking aesthetic of natural, stacked turf bunker construction while relying upon synthetic assembly materials and re-engineered techniques for an anticipated longevity of 20+ years.

## THE INVENTION EXPLAINED

The PermaEdge Bunker System is essentially a retaining wall build from synthetic turf. Unlike gravity structures, however, the PermaEdge Bunker system expands on the “cantilevered” method for retaining wall construction.

The system is a combination of materials and methods for constructing the retaining wall, which results in a very long-lasting solution. Historically, natural, stacked sod has been used as a construction technique, commonly referred to as a “links” style bunker. This traditional method decays over time and requires frequent rebuilding.

The PermaEdge Bunker System relies on the same notion of stacking turf, but does it with synthetic turf re-manufactured to specific dimensions, quality, infill, and fiber lengths.

In addition to the synthetic turf spec, defined methods and materials are used to build the wall, insuring stability and durability while delivering unmatched realism and aesthetics. When assembling the PermaEdge wall, the edge of the turf is exposed. This gives bunkers an extremely natural look while the synthetic materials prevent decomposition.

Defining this method, the system relies upon alternating “tiles” in two different dimensions that tie into specially formulated, compacted backfill. These components form the system, which is structurally more efficient, while delivering a far stronger structure than gravity only structures.



## DURABILITY & SUSTAINABILITY

The premise of the PermaEdge Bunker System is based on long-term, structural integrity. This system delivers two to three times greater strength than conventional structures while being more efficient to install.

When constructing and building with this system, important guidelines and methods need to be followed, which insure proper strength and stability. It's an additional benefit that we can deliver this durability in an aesthetic result. At the same time, it is a sustainable solution, using re-purposed synthetic turf.

Prior to this invention, facilities would often remove natural revetted bunkering and grass in the bunker faces. The PermaEdge Bunker System is adaptable to many different bunker styles and delivers a “Build it Right, Built it Once” solution.

## PROVEN METHOD

This patented solution has been proven on nearly 125 golf courses, in 16 countries over the last six years. It has been implemented on large, high-end courses and on smaller, community facilities across the US. We have built dramatic, tall revetted faces and low/zero reveal implementations with great success.

More importantly, the PermaEdge Bunker System projects that have been faced with catastrophic weather events have survived. From floods to hurricanes, these structures survive when surrounding features are destroyed.





## EXPANDED DESIGN POSSIBILITIES

The great advantage to the PermaEdge Bunker System is that a facility can now rethink how it can use revetted bunkers. Yet it's not just about deep "pot bunkers" or tall bunker faces. Facilities can use this solution to restyle many different bunkers to capture the essence of the traditional aesthetic with small, slight reveals.

With this new, long-term method, it is now possible to incorporate design ideas previously avoided due to maintenance and replacement concerns. It also gives golf course professionals the ability to address maintenance and renovation objectives by putting their capital improvement plan to work over a significantly longer life.

## FLEXIBLE CONSTRUCTION OPTIONS

The PermaEdge Bunker System can be facilitated by external contractors or by in-house staff. Depending on how a facility may implement its capital improvements, we've found many courses will tackle such a project internally and break it into a multi-year plan.

For in-house projects, the planners can stretch the approved investment over a longer term and avoid course-wide shutdowns. It also allows facilities the ability to address problem bunkers or create new, featured bunkers that add strategic or design elements to older courses. We train the internal team in all the special skills for creating a high-quality result.

When contractors are utilized, we regularly train multiple teams so that they can achieve economies of scale and keep larger projects on schedule. For these contractor-led projects, training also focuses on efficiencies in project staging and materials preparation so a maximization of labor can be achieved.



## INVESTING IN BUNKERS

Low maintenance bunkers don't have to be elusive. With a well-researched plan and the best product solutions, facilities can, in fact, have bulletproof bunkers. Additionally, this objective doesn't have to kill your budget or force your improvement schedule into chaos.

Twenty years ago, we launched Sandtrapper in what was an industry void of a Bunker Management category. We've seen companies come and go since then. We've seen all manner of solutions. In the end, it is about providing products that work and doing so at the right price-point. When it matters, it is about reliability in product, service, and logistics — from a trusted industry partner.

When it comes to investing in your facility, capital improvements that have a rapid return-on-investment and significantly reduce maintenance labor and repairs cannot be ignored. Over the last 20 years, IVI-GOLF has helped deliver these savings. We know and understand the challenges and have a reliable product line-up that delivers results.

## WHO IS IVI-GOLF?

IVI-GOLF (a division of Indian Valley Industries, Inc.) has commonly been synonymous with Sandtrapper. We continually apply the same synergies of product, service and support to the Golf Division as we've used company-wide since 1940.

Indian Valley is vertically integrated supplier to a wide range of industries, including environmental protection products and supplies to the heavy construction industry.



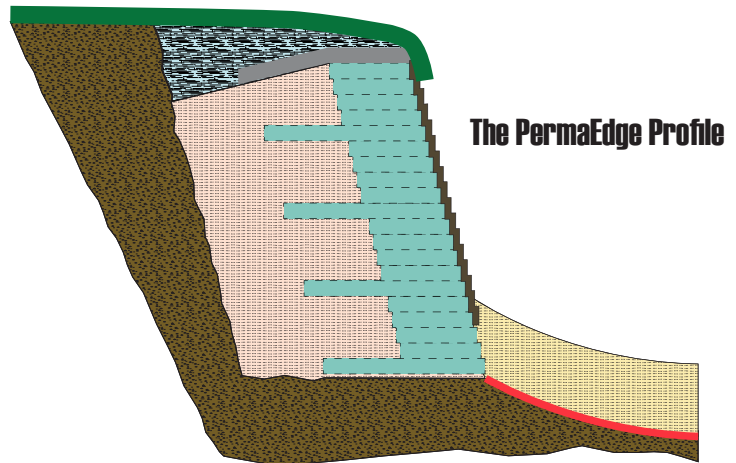


# THE PERMAEDGE PROCESS

## INTELLECTUAL PROPERTY

The PermaEdge Bunker System has been developed to be a new tool for golf course design, construction, and maintenance. The patents that protect this product are structured as a system which includes the excavation and substrate preparation, conversion and preparation of recycled synthetic turf, the specifications for assembly materials, and the construction methods and designs.

We license this system to our customers for their use and benefit. Prior to any project we work closely with our customers, architects, contractors, and other personnel to develop the best design, adaptations, and construction details that will deliver the optimal result.



## EXCAVATION & PREPARATION

Excavation and prep work will vary depending on the nature of the project. Prior to beginning a project, our technical team will review project specifics so that correct plans are established.

Typical prep involves stripping of bunker surrounds, excavation bunker faces/slopes to the target angle, preparation of the bunker base/drainage, and shaping/preparing the wall foundation. The bunker style will dictate how this process is performed.

## ON-SITE TRAINING & SUPPORT

Projects begin with a full review of the detailed specification and on-site training of facility staff and/or contractor personnel to achieve the best possible structural and aesthetic result. As simple as the solution may be to understand in concept, technical support and training delivers faster, more efficient results to the staff and facility.

We provide a technical associate to provide training, supervision and support at the startup of installation. The technician's role typically involves building the first 2-3 bunkers, depending upon size, and set the high quality benchmark for the remainder.



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