

FEATURES

Synthetic Turf*by Steve Trusty***Selection and installation***Photos courtesy of Hellas Construction.*

A player's cleats in contact with the synthetic surface.

The first step in any field construction situation is determining needs. The sports field manager should be a key member of the team from the beginning of the process. Issues to address include: the type of sports to be played on the field; the time of year those sports activities will take place; the estimated number of players for each sport; the estimated number of field use hours for each sport; other potential uses for the field; the anticipated on-field hours required for such use; and the anticipated impact of it. The second step is assessing the relative costs of the type of field, or fields, that will meet these needs.

Analysis of these factors will determine the type of field that will best satisfy the identified needs within the available resources. If a synthetic field system is chosen, there are multiple options to consider.

Portable synthetic surfaces

Portable synthetic infill surfaces may be a viable answer for multiuse, indoor facilities, and perhaps for retractable roof stadiums. These facilities may not want a permanently installed synthetic field, yet do want the option of hosting football, soccer and other sports typically played on a rectangular natural grass or synthetic turf surface.

One such option is the FieldTurf Convertible System. It's a proprietary, moveable "tray"

system. (Similar tray-type systems are used for natural grass surfaces, such as that of the Houston Texans.)

The FieldTurf Convertible System is used at various sites, including the Rogers Centre, home of MLB's Toronto Blue Jays and the CFL's (Canadian Football League) Toronto Argonauts; B.C. Place, home of CFL's B.C. Lions; and the Dome of Round Valley High School in Arizona.

Gaining the most press notice in late 2008 was the selection of a three-field portable synthetic system from Hellas Construction of Austin, Texas, for the new Dallas Cowboys' Stadium. The retractable roof stadium was designed by HKS Architects with multiple state-of-the-art attributes, including a center-hung, high-definition video scoreboard and end zone plazas with retractable doors. In terms of multiuse, it's rumored the new stadium will serve as the Cowboys' home field, hosting numerous college and high school football games, the Big 12 football championship games in 2009 and 2010, the 2010 Cotton Bowl, the 2011 Super Bowl and the NBA All-Star Game in 2010.

The SoftTop Synthetic Turf System that will be used for these fields features removable "roll-up strips." The system was first installed in the Alamodome in 2003. Since then, it's been successful in providing flexibility to other sites as well, including the 26-strip system installed at the J. Lawrence Walkup Skydome of Northern Arizona University in Flagstaff.

The Cowboys' system will feature the company's Matrix synthetic turf, which uses a monofilament yarn in two sizes and, for the green turf areas, in two colors to better capture the coloration of real grass.

One of the fields will feature the NFL football field layout, with all the markings and logos and Cowboys-specific end zones, the second will be designed with the standard NCAA football markings and the third with the markings for soccer.



Personnel monitor to ensure the process is moving forward correctly.

According to Hellas Construction's technical expert, Bruce V. Layman, all of the field configurations will be permanent. Some of the features will be integrated into the design as the computerized program feeds out the fibers, similar to design development in standard carpet, and then tufted in. Other smaller features will be cut in and adhered. With traditional interior carpet naps, the shorter the pile height, the easier to work it into a complex design.

Layman notes the NCAA football field will have two sets of green panels for each end zone for the staff to customize field painting for specific events while achieving the fast turnaround needed for back-to-back games.

The Matrix synthetic turf typically has a blade height between 2 and 2.25 inches, with 1.5 to 1.75 inches of infill. Layman says, "For this installation, we're planning a blade height of 2 inches and the infill level at 1.5 inches. There will be 41 strips in all, for the three fields, with each rolled-up strip weighing between 7,000 and 8,000 pounds."

The strips fit together with a superior-quality Velcro. The system's loop (fuzzy) side is always on the ground because it's easier to clean, and the hook side is on the top level. There have been no wear issues with the Velcro.

The turf is designed so that one section of the fibers folds over and locks the infill in place to reduce migration. Layman says, "As the strip is rolled up for removal, only a very small amount of the infill escapes at the outer edge of the roll. When the strip is reinstalled, we spot-restore infill along the seam and rake it in."

Specialized equipment and a trained staff are necessary for the installation and removal processes. Layman says, "Removal begins by hand. Staff members start at one end of a strip, positioning it evenly on a core that is 12 inches in diameter. They roll the strip onto the core keeping it straight in alignment and moving between 5 and 8 feet into the strip. At that point, weight becomes a factor. A device is fed through the hollow center of the core and attached at both sides to the hopper at the front of the removal/installation machine. The machine powers the rolling process from that point to the end of the roll. Staff members monitor the process, making sure the strip continues to roll straight onto the core. At the end of the row, when the entire strip is rolled onto the core, the roll is encircled by three straps. The staff uses a forklift and a rug stinger that picks up the roll from the end of the row and takes it to the storage site."

A specially designed cradle rack holds each roll. It's suspended within the cradle by the rod that extends through the hollow core. Layman says, "A hook on each side of the cradle secures the rod in place. The bottom of the roll does not touch the ground or the bottom of the cradle. The top of the roll and the sides don't touch the cradle either. The roll hangs free, with no weight or pressure put on it."

The cradle rack system protects the integrity of the synthetic fibers from any impact during storage.

Layman acknowledges the process isn't easy, but notes it's very "doable." He says, "We'll be able to convert the surface from one field to another within 24 hours. If the timeline is shorter than that, say an 18-hour turnaround, we'd use two machines and more people. When installing the field in that scenario, we start in the middle and work out. We wouldn't want to take the chance of starting at both ends and not having an exact fit."



The high school synthetic field installation by Hellas Construction is the home of the Van Alstyne (Texas) Panthers.

The installation/removal equipment costs are part of the initial purchase package. The Hellas Construction staff handles the initial installation and trains the facility's crew on the removal and installation process. Layman says, "Most facilities have staffs that have handled surface conversions such as setting up a gym floor or an ice rink, so the concept isn't new to them, but the process is different. Some facilities do hire our staff to tackle the conversions; others do it themselves."

Inquiries about the portable system are coming from larger stadiums looking at maximizing use by being able to switch from a football game to a monster truck event,

a concert or a basketball game and back to football in a short time span without affecting the integrity of the synthetic surface. Layman says, "The portable system is not inexpensive, but the initial costs will be balanced out over time because of the additional revenues that can be generated."

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