## **Facility&Operations** By Chad Price

# Field design Challen Challes mirror use demands

#### A common problem

we see is a drainage system [with] beautiful pipe and stone layout that is covered with 6 inches of topsoil; **the surface water never reaches the pipe.** 



VER THE PAST 20 YEARS of increasingly complex design challenges and the growing, high-use demands on athletic fields, sports field design and construction has emerged as a uniquely specialized craft, requiring not only years of experience to be able to meet and master these challenges but also a substantial investment in the development of the highly specialized work force and

custom-designed equipment it takes to perform this work properly, as envisioned and designed. And to do it on time and on the money.

In short, today's athletic field to which in these severe economic times must be designed and built to stand both the test of time and high usage, is simply no place for on the job training of untested designers and contractors. Unfortunately, that is precise-

ly what is happening time and time again as owners turn to landscaping, grading and civil contractors with little or no experience in the field for their sports field construction needs, often tacking an athletic field project onto a larger campus construction project.

"After all," they reason, "anyone can grade a field and grow grass. Right?" Repeatedly, the answer to that question has been "no." All too often it is a time-wasting, budget-busting cry of "Oh, no!" And a private institution certainly wants to use "friends" of the church or school to keep costs down. Many times however the end product is a field that has long-term problems at a price that exceeds the cost if doing it right the first time.

The bottom line: when it comes to sports field design and construction, the "anyone can do it" believers are turning to contractors who not only lack expertise and experience in the field, but who also don't even know what they don't know. This article is my advice to help you in your quest to know what you have to know by asking the right questions and getting the answers—when planning your athletic field project. Here are some considerations for making your field project a success.

#### Why a sports field contractor?

As with any "new" trade, sports field contractors (SFC) have borrowed equipment, techniques, and technical information from other industries, primarily the grading industry. It is tempting to pull in a local contractor that builds roads or buildings, thinking that the principles of grading and drainage apply equally to sports fields. One major difference is that in road and building construction you are controlling subsurface or underground water at a foundation or under a highway. In athletic fields you are controlling water at the surface, for footing, safety, and playability.

A common problem we see is a drainage system installed by a grading contractor that has beautiful pipe and stone layout, but is covered with 6 inched of topsoil and the surface water never reaches the pipe. This makes sense with road construction, but not with athletic fields. Even a 1 inch clay sod layer can fail a drainage system.

Grading techniques are also an important factor. With the introduction of automatic laser controlled grading systems, tolerances are lower and expectations are greater. Even though a grading contractor may use laser guided equipment, they most likely don't have the custom built equipment of the weight and size to get within the tolerances expected for athletic fields (standard is <sup>1</sup>/<sub>4</sub> in. over 50 ft.).

Equally as important is that the field be designed with the proper grade and layout, so that surface water moves consistently off the field or into the drainage system by the shortest means possible.





The most successful sports field projects consistently involve a qualified field designer and field contractor. This holds true for synthetic turf as well as natural turf projects.

#### The all-important "p" word

Planning can make or break any project and sports field construction and renovations are no exception. Start by identifying field design firms and sport field contractors (some contractors do both). Pre-qualify these firms based on experience and references. Anyone can claim to be proficient, but the clients usually speak best to capabilities. Field builders and designers can be found through organizations such as the Sports Turf Managers Association the American Field Builders Association. Discuss your project with prospective designers and builders to get ideas concerning your project.

The next step in effective planning is a site evaluation. At a minimum this should include evaluation of grading and land use issues, site drainage, soil conditions, neighbors, lighting, pedestrian flow and parking, available space, traffic flow, truck and maintenance equipment access, water sources, and current and potential use needs. Continue to consult with a sports field contractor and designer as you go though the planning process, asking for informal quotes for "ballpark" pricing. Developing a budget and understanding maintenance capabilities should be part of the planning process as well. Meeting with the end users (coaches and turf managers) will help to understand what the expectations will be for field performance and level of use.

#### Field design

The design phase is when interviewing of design or designbuild firms should begin. Many firms may be well qualified to design an entire site or facility, but lack the knowledge or expertise to design and write specifications for sports fields. This can be an opportunity to use a "friend" of the school or church to help with erosion control and grading design, as long as you have a qualified sports field contractor advising the design.

Oftentimes the decision to hire a design firm is driven by the procurement process. We usually see three types: design-build, design-build, or Request for Proposals (RFP).

In the design-build scenario, it is wise to interview sports field contractors and sports field design firms. Again, some sports field builders have in-house CAD capabilities, and can turn-key the design-build project.

In the design-bid-build scenario, very detailed specifications and field contractor qualifications should be included in the project bid documents. You may want to consider pre-qualification of field contractors: experience & references, percent of work selfperformed, financial stability, bonding capability, insurance program, Certified Sports Field Manager (CSFM) and agronomist on staff, owned equipment list, length of time in business, etc.

The pre-qualification process becomes more valuable in a RFP scenario. The benefit of an RFP process is the wealth of knowledge gained from the interview/presentation process. The challenge is trying to compare proposals as you would be able to in an "apples to apples" bid situation.

How and when you sign a contract with the field builder varies, but generally the sooner the better. Make sure you include a detailed schedule, warranties, guarantees, project management meetings, and any specific requirements concerning work hours and facility access in the contract documents.

One of the biggest mistakes we see in the design process is the drainage system, if included at all. As referenced above, this is not a place to use a utility or grading contractor. There are many systems advertised and in the ground that do not work, or do not work for long. Always seek references and visit sites to inspect the performance of the drainage system you are considering. Again, this applies to both natural and synthetic turf.

#### Permitting

Once design is complete, the permitting process begins. The length of time to make this happen can be surprising. This process is often started in the design stage, and this is an area in which having a good local connection definitely helps expedite the process. Requirements vary depending on state and local laws, but you may have from three to ten departments to seek approval. Depending on the scope of the project, this process could take from 1 to 4 months and may involve reevaluation of parking, access, noise, dust, stormwater, and other departments you never knew existed. So allow for some time. Cost outside of the field such as water sources should also be considered.

The best case scenario is to have the field contractor already on board to help you work through the process. Submittals detailing all materials used in the project and any testing before construction can be provided by the contractor now so that there are no questions or discrepancies once construction begins.

#### Construction

If all of the above has gone well, then you should be working with a good design, capable sports field contractor, quality materials, and ready to break ground. The construction should be the easy part, other than dealing with weather. As with any project, worry with things you can control by making the best preparations prior to construction, then deal with things you can not control, such as weather, as it comes. Have an assigned owner's representative between the owner and contractor. It is often the facility director or board member, or maybe a third party hired manager. Many times in private schools and churches, the money comes from donations or gifts, and the "gifters" want a say in the day to day construction process and can misdirect the contractor, leading to a big mess. If the contractor communicates and takes direction from one person, the potential for confusion can be greatly reduced.

If at any time during the construction process you don't feel right about something, certainly ask the question. One of the benefits of a design firm is they can assist with quality control, inspecting installation and materials in relation to design and specifications. At the conclusion of the project, make sure the contractor is required to provide as-built drawings, especially helpful when irrigation systems are installed.

Chad Price is president of Carolina Green Corp., Charlotte, NC. Chad is a Certified Sports Field Manager, and active on the Board of Sports Turf Managers Association. In business since 1989, Carolina Green has designed, built, renovated, or maintained more than 400 sports fields throughout the southeastern US. Chad welcomes follow-up questions to this article at 866-753-1707 or cprice@cgcfields.com.



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## Facility&Operations By Norris Legue



## Selecting synthetic turf adhesives

HE TOTAL COST for a sound base for synthetic turf, the synthetic turf itself, and labor for a successful installation is very high compared to the cost of the adhesive used to hold the installation together and/or down. However, it's the adhesive that often determines the success of an installation; the amount of profit after the job is completed and how much profit is retained later by avoiding expensive callbacks due to adhesive "time bombs."

Tremendous amounts of money have been wasted by intelligent, educated, and experienced turf people and architects who have no technical knowledge of adhesives or adhesive chemistry. They buy or specify a synthetic turf adhesive based on its high strength after it cures and/or its low price. Both reasons are costly and unimportant because the adhesive strength needed for an adequate bond is one that is stronger than

#### >> Left: Spray

the bond between the turf's primary and secondary backing, both initially and after weathering.

Higher adhesive strength will not give a better bond. Some adhesives that have high initial strength deteriorate and become time bombs after weathering. Regarding price, it's the finished job profit that counts and not the initial cost of the adhesive. With unpredictable day to day weather, why jeopardize finished job profits by trying to "save money" on an adhesive that is weather sensitive during installation?

If the adhesive slows down or temporarily prevents an installation because its "outdoor working window" is narrow (too hot, too cold, too damp, too dry, too windy, it's going to rain, etc.), and/or the adhesive requires more labor to use, the job becomes more expensive and less profitable. Even on the same day, an installation is different at 7 AM vs. 10 AM vs. 1 PM, etc., as the sun rises and sets. Also, after installation, the adhesive must be durable enough to withstand several years of weathering.

Let's outline negative followed by positive adhesive properties that are necessary for a successful and profitable installation.

#### **Negatives**

Don't purchase or specify a synthetic turf adhesive based on price and/or indoor laboratory tests of cured films at room temperature. Such indoor tests do not reveal "fair weather adhesives" with installation problems due to: the adhesive becoming too thick to spread when cold; or snap curing too fast when hot; or with a narrow weather working window during installation; or requiring sand bags, brinks or other weights to hold the turf in place while the adhesive cures, especially if the turf has a curl or if it is windy; or if the adhesive will be damaged by rain when it occurs almost immediately after application.

#### Positives

Factors and properties that indicate a good outdoor adhesive are: it can be left outside on the jobsite in unopened pails without fear of it becoming too thick to spread when cold; or when hot, not snap curing with little or no working time; it is practical to use in variable weather, unexpected rain or surface expansion and contraction on sunny days from passing clouds or moving shadows; plus it has a high green strength.

Green strength is the ability to hold two surfaces together when first contacted and before (still green) the adhesive develops its ultimate bonding properties when fully cured. High green strength adhesives are vital to outdoor installations because they help overcome the tendency of surfaces like synthetic turf to separate, curl, bubble, lift, creep, slip and wrinkle during installation without resorting to excessive rolling or sand-bagging.

High green strength or "high grab" adhesives are essential for profitable installations because they don't have limits like oily, slippery adhesives have, regardless of their strength after curing. There will always be delays if the installer can not use the adhesive when it's below 40 degrees or above 90 degrees or if it is likely to rain. Incidentally, don't mistakenly think that because an adhesive is thick or a paste that it has green strength; grease, toothpaste, mud pies are thick but they don't have grab.

#### **Adhesive types**

There is no such thing as a "one size fits all" synthetic turf adhesive. Most adhesives used today for installing synthetic turf are one-part urethane; but the term "urethane," like the word "metal," is generic. Just like there is an enormous difference between metals like gold, tin, lead or copper, not all "urethane adhesives" are the same or remotely similar.

**Newtonian liquids** pour and flow like syrup, water and most common liquids.

Thixotropic liquids which resist flow when

## Pay now or pay later

There is much more to selecting a synthetic turf adhesive than its price and a high initial strength. More importantly is obtaining an adequate bond, not just initially, but after years of weathering. It is also essential that the adhesive be easily usable and reliable when applied under a wide variety of variable outdoor weather conditions. Profits disappear if the adhesive slows down installation, increases labor costs, or later becomes a "time bomb."

>> Below: Glue Box



SportsTurf 27



at rest but temporarily thin down for easy spreading when subjected to shear such as stirring, shaking, troweling, or when applied from a glue box. However, when the shear is stopped they once again return to resisting flow. Thixotropic adhesives that have a light mayonnaise-type consistency at rest are easy to spread while their thixotropy also enables them to hold trowel ridges and not flow off the sides of seam tape nor to messily leak out of the bottom of glue boxes when not applying adhesive.

**Spraying** adhesives must be handled carefully. It is essential when spraying that the adhesive has negligible overspray and minimal airborne adhesive mist even when breezy. This is a safety issue, and a cleanliness issue. Not inhaling an aerosol mist of sticky, durable adhesives is a good idea.

Hot melt adhesives go from liquid to solid when they cool. However, they require special equipment to melt them for use.

**Two-part** adhesives are liquid until cured. Keep in mind that each component by itself is not an adhesive so that if not completely and accurately mixed at the jobsite, durability problems can arise later.

**Silicone (silane)** adhesives are light pastes that after application need contact with water in order to hydrolyze and then begin to cure.

Water-based (latex) adhesives are environmentally friendly but they depend on water evaporating to dry. Hence, sensitive to humidity and/or rain during installations.

#### When and where to use

Newtonian liquids are used because they are supplied in containers with pour spouts and can be easily applied with a squeegee, trowel, or sprayed. They flow and level after application.

Thixotropic adhesives are preferred for glue boxes and troweling where maintaining trowel ridges instead of leveling is important. This includes when applying to vertical surfaces.

Spraying is usually for total glue downs of turf and/or shock absorbent underlayments in large installations like synthetic turf athletic fields. Also, for fast application to long runs of seaming tape.

Hot melt adhesives bond fast when they cool. Handling can sometimes be tricky. Their performance is better in cool weather than hot weather because even thought they don't completely remelt when hot, some re-soften in hot desert or tropical climates. The re-softening sometimes allows turf seams to "creep open."

Two-part adhesives also usually bond well. They are more labor intensive because of the mixing and lack of green strength.

Silicone adhesives give adequate bond but the usual installation problems associated with negligible green strength.

Water-based adhesives are like going to Las Vegas to gamble on what the weather will be on future installation days. Sometimes you win, sometimes you lose.



Norris Legue, "The Guru of Glue" is president of Synthetic Surfaces, Inc., Scotch Plains, NJ, www.nordot.com.



Editor's note: Justin Fowler has managed or worked on hundreds of synthetic turf installations since 2000 and personally trained more than 20 installation crews.

#### Using sheep shears to accurately put in field markings is like using a chainsaw to accurately cut crown molding.

**SportsTurf:** How long have you been installing synthetic surfaces?

Fowler: Nine years.

ST: How many have you done?

**Fowler:** More than 160, as well as being a part of just as many. I have trained many crews on various aspects of installation and also assisted crews with installations that were running behind so I don't have an exact figure

on how many [but] it's a lot.

ST: How did you get started?

**Fowler:** I worked for a major airline as a maintenance engineer until shortly after 9/11 when I was laid off. I knew various people that were just starting to install new age synthetic turf fields. Two things I really enjoy are sports and aviation. Since aviation jobs were nowhere to be found, I decided I wanted to be a part of this new sports field technology.

**ST:** What is the most important part of the installation process in your opinion?

**Fowler:** There are so many. Assuming the base is hard and draining properly and assuming a good quality turf is being used there are three main parts to a typical field installation:

1. Accurately measuring and laying out the field with an understanding of the rules of the game and what each line represents.

2. Applying the proper amount of infill evenly across the play-

ing surface. Many companies have cut back on the amount of infill to lower costs. This reduced infill level causes more wear to the fibers making for a much shorter life span.

3. The most important step—SEAMING. Seams are the biggest problem on turf fields nationwide. Many companies will sell the idea that sewing is stronger than gluing. Unfortunately this is simply not correct. The material being sewn is actually the



carpet salvage. Salvage is the outside scrim of the carpet. Salvage is the weakest part of the carpet. It should be cut off and thrown in the trash. Turf companies call it a "sewing flap" and use this excess garbage to hold everything together. In reality they sew because thread costs much less than adhesive.

A properly glued field will outperform a sewn field every time. If sewing was stronger than gluing NASA would sew the space shuttle together. Instead they use multi-part adhesives

that are designed for specific products. Synthetic turf should be installed with an adhesive designed specifically for synthetic turf. Carpets are designed to be cut and glued in place. Synthetic turf is no different and using the proper adhesive is a must. Some companies will try and sell the customer on the concept of shearing and hot melting to "avoid" seams and cuts in the carpet. This process is used because the hot melt or tar is cheaper not because it is better. It would be hard to sell a field if a company said the reason they sew and hot melt is because it is cheap, the lines will be crooked, your in-lays/seams will be elevated, and it will all be held together with roofing tar.

Telling the customer that sewing and hot melting is stronger has a better ring to it. Using sheep shears to accurately put in field markings is like using a chainsaw to accurately cut crown molding. Sheep shears should be used on sheep, carpet knives should be used on carpet. Roofing tar should be used on roofs; synthetic turf adhesive should be used on synthetic turf.

**ST:** What do you think installers do incorrectly most often?

**Fowler:** Measure incorrectly and use installation processes which adversely affect field symmetry.

**ST:** What aspect gives you the most trouble as installer?

Fowler: Without a doubt dealing with

engineers. It seems like every project we go to there is always a new engineer on site who has done a couple of fields but somehow has all the answers. Schools have much better luck when they do design build projects. It saves money and leaves the fields in the hands of the people who build them everyday.

**ST:** How important is the adhesive choice and installation? I've heard that's a typical problem.

**Fowler:** This is very important. Twocomponent adhesives are recommended for strength and durability. In the early days turf companies would use whatever inexpensive glue they could get their hands on to install their fields. This caused seam failures and gave gluing a bad reputation. The gluing procedure was not the problem. The improper adhesive products were the problem.

**ST:** Have you used anything but crumb rubber as infill?

Fowler: We have installed fields with

recycled rubber, EPDM rubber, sand, coated sand, and various organic infills.

**ST:** What about the new organic infill? What do you think is the best infill material or is that not a concern of installer?

**Fowler:** Rubber is the best infill. When these fields first started everyone said how great they were for the environment by recycling tires and building new sports facilities. Ten years later everyone is concerned that their kids are playing on old ground up tires and the effects from the dust particles. There are more airborne rubber dust particles on every road in America than there are on any synthetic turf athletic field. EPDM rubber is considered cleaner and safer but it comes at a much higher price.

Justin Fowler is president of Sports Turf Direct, which supplies seaming materials (including STA-1000) and installs athletic fields for most major turf companies as well as lower cost private field projects.



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# Tips for painting synthetic turf fields

TECHNIQUES for painting synthetic turf fields are very similar to painting natural grass but there are a few important points to always keep in mind. By using the following four rules, application and removal of synthetic turf paint will be much easier:

#### **1. Groom the field**

It is important that you groom your field and remove excess debris before painting. This includes removing any remaining old paint. This will provide the new paint with the best surface so it can properly adhere to the turf blades. Grooming makes the individual fibers stand tall. This allows the entire blade to be painted. If the blades are matted down, only one side will be painted and it will affect the "pop" the paint gives spectators.

## 2. Avoid painting the field when it is wet

It is important that the surface of your field has had the opportunity to properly air out after a morning dew or rain storm. If necessary, dry the field with a backpack blower or fans. Wet artificial turf poses a problem because it will not allow the paint to properly cure. The bond between the paint and the blade will be weak and will not hold up well to game day use. The optimum condition for painting synthetic turf is warm and dry.

## **3. Paint infill systems** with an airless sprayer

The goal of painting synthetic turf systems is to use as little paint as necessary and to keep the paint out of any infill material. Airless machines set below 1100 psi atomize the paint at the tip, allowing the striper to paint the fibers rather than the infill. Low pressure machines tend to spray a stream of paint that can run down the blades and get into the sand or rubber. CO2 machines should be avoided as the gas can react with some paints designed for synthetic turf and ruin the paint.

## 4. If possible, do not dilute the paint

If the paint is too thin, it will run down the fibers. The result will be a weak line. Diluted paint will also likely color your infill material, leaving "ghosting," even after you have removed all of the paint from the blades.

Doug Schattinger is president & CEO of Pioneer Athletics, www.pioneer athletics.com.



# Diamond Nation complex all synthetic



**PANNING 65 ACRES**, the Diamond Nation complex in Flemington, NJ consists of six new A-Turf synthetic fields, creating the largest baseball and softball complex on the East Coast, according to synthetic surface provider A-Turf.

Four fields are 90 feet and two are 60 or 70-feet fields. Each of the larger fields is designed so that they can be converted into two Little League-sized fields, each with its own backstop, dugout and bullpens. This feature gives the complex the ability to host up to 12 games simultaneously and the versatility to have both baseball and softball games.

Diamond Nation will play home to the Jack Cust Baseball Academy, as well as the new Jennie Finch Softball Academy. Cust, the Oakland Athletics designated hitter, is from Flemington; he, along with his two brothers and father have operated one of the largest youth baseball facilities on the East Coast since 1997. Diamond Nation is across the street from the original facility, which features three AstroTurf fields along with indoor batting cages and a health and fitness center. In the winter, a dome is put over all three fields. The entire academy and complex is now more than 700,000 square feet and attracts some of the most talented teams and players in both youth and college and high school showcase tournaments.

"Diamond Nation is the start of a new era of baseball. Serious athletes looking to take their game to the next level now have a state-of-the-art facility, delivering a playing experience like no other," said Cust. From the new A-Turf fields to the indoor training facility, Diamond Nation will cater to competitive tournaments for athletes of all ages, as well as offering one-on-one training with top coaches and instructors.

Installation took place (and continued) during one of the wettest springs and summers for New Jersey. The project included more than 80 trucks worth of material, making pre-planning for shipping and staging crucial to a successful outcome.

Each A-Turf field is engineered specifically for the unique demands of baseball and softball and are designed with a slight reduction in fiber pile height and a modest increase in the weight of sand in the rubber and sand infill to match the ball roll and bounce of natural grass, says the company.

"Having a hand in creating a truly unique baseball and softball experience is what A-Turf is all about," said Jim Dobmeier, A-Turf



founder and president. "As a baseball player, a coach, and most importantly as the company behind the Diamond Nation fields, my days are spent raising the level of play and giving athletes the opportunity to succeed.

"We are definitely seeing growth in the number of synthetic baseball and softball fields being installed," Dobmeier said. "Traditionally, the athletic field business has been oriented more toward oval or rectangular-type fields for football, soccer, lacrosse and field hockey. But over the years, we have seen an increase in demand for synthetic grass fields for baseball or softball. In some cases, the design is for a larger, multi-sport field, which includes baseball or softball. In other cases, we are building stand-alone fields, specifically designed for that sport.



# <image>

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## Facility&Operations By Murray Cook

## Baseball World Cup in Europe challenges US turf managers

IN SEPTEMBER Europe hosted the 2009 Baseball World Cup. Twenty teams traveled to seven countries to compete in 22 stadiums and the finals were played outside of Rome. To say the tournament was a success is an understatement, but the logistics of managing the fields, teams, equipment etc., was intensely challenging.

The magnitude of this event was daunting but at the same time no athlete was injured from poor field conditions (not to mention Team USA brought home the Gold Medal!). Each field required specific improvements and upgrades before and during the events. In the summer of 2008 I made the first round of venue evaluations for this tournament that created controversy among the federations. Some initial sites were removed and new sites added. It was important to set the field of play standards high for this tournament due to the fact MLB level players would be participating.

The primary objective was to provide a safe playing field for the athlete. To ensure safety Chad Olsen and I assembled a group of US sports turf managers to assist with the renovations and game day operations. The logistics to transport the turf management team between Sweden, Germany, Croatia, Spain, Italy, Holland and Czech Republic was challenging to say the least. To reflect on the event we asked each of the sports turf managers that had a part in the renovations a few questions related to the overall experience. We held several phone conferences and shared reports of each venue to ensure each individual had the best knowledge related to the conditions of the playing field they were headed to. Their answers provide a compelling story as it relates to sports field maintenance.

# What did you learn from your experience working in another country?

Rick Newville, sportsturf manager for the Amateur Softball Association, Oklahoma City: From all my experiences of working in other countries (Greece, Cuba, Italy), I have learned to appreciate the luxuries of the equipment we use here in the USA. Forget about the high dollar power equipment most of us use. Many venues I have had the pleasure to provide assistance lack the basic hand tools that we take for granted: shovels, rakes, string lines, etc. I have seen many crews who lack an edger, use garden hoes around the entire skin and warning tracks to edge the field. Once a crew in Athens actually used pocket knives to edge the field until a power edger finally arrived.

Tom Nielsen, director of sportsturf

Some common hand tools and products that we can [easily] purchase are not available so you have to adjust your way of doing things and even learn from the local groundskeepers.

**operations, Louisville Bats:** I learned from my experience in Rotterdam that I really have it good in Louisville. For example, when I need a piece of equipment, I can order it or rent it and have it delivered to the stadium. Also, I learned that the Rotterdam city employees face the same challenges as city employees in the US. They are not able to key on one field because they have 150 fields [to manage].

Jeff Nancarrow, sports turf manager, Daytona Beach Cubs: I did three stops in Italy: Parma, Reggio-Emilia and Bologna. At each venue, the people were very accommodating and helpful, but they just did not grasp the magnitude of the event. It seemed they were treating the task at hand as just another local event. From a learning standpoint, I learned to be more assertive in accomplishing what needed to be done.

**Dennis Klein, turf manager, Texas Rangers:** Working in another country is always a challenge with the language barrier. This was one of many times that I have assisted the Brickman sportsturf team, but the first time to be at a venue by myself. It was more difficult in Croatia to communicate because not as many people speak English as they do in other countries

**Eric Ogden, turf manager, Daytona Beach Cubs:** Learning to think on my feet and to adapt to the tools and techniques would have been the major lesson learned. Being able to make tools when needed or just using the tools they have to make things work. That was a lesson I will take with me throughout the duration of my career.

Joseph Skrabak, sports turf manager, Staten Island Yankees: Baseball in Spain/Italy is heavily influenced by local politics. Having the crews and managers focus on field safety and playability was my most difficult task.

Kevin Moses, sports turf manager, Camden River Sharks: We should be thankful for the industry and resources we have in the United States. Working overseas you have to think outside of the box at times to get things done. Some common hand tools and products that we can drive down the street and purchase are not available so you have to adjust your own way of doing things and even learn from the local groundskeepers.

Budgie Clark, former sportsturf manager, Washington Nationals: Get a lot of sleep. You are a one-man show when it comes to field maintenance. Communication is a factor as well. The concept of field maintenance is very limited.

Brandon Putman, sports turf manager, York (PA) Revolution: I learned that it would benefit most to search for available tools and equipment before engaging in difficult projects because what is available will determine what can be accomplished. Determining resources before the event would also be helpful.

## What was the most challenging thing(s) you had to deal with? How did you overcome them?

**Newville:** I think the most challenging thing is the language barrier. It always helps to have a good interpreter, but many times there isn't one available. Sometimes you have to be a pretty good mime to get your point across.

Skrabak: Moving tons of material from off the field to the areas

where they were needed. I made quick friends with the construction supervisor to bring needed material with a loader when it was possible. Working without good hand tools. Just make do with what you have.

**Nielsen:** The most challenging thing I had to deal with was adapting to the equipment. They did not have the same tools that I am used to using. Also, the equipment is not as accessible as it is here in the US.

**Klein:** The most challenging thing was the lack of clay in the infield skin mix. It was a sandy soil that was very difficult to keep wet and together. The field condition was very good. All the teams were shocked that Croatia had such a place.

**Ogden:** The most challenging thing by far that would standout mostly for me would have to be the language barrier. Being able to establish main words to get the task at hand accomplished made the job easier as each day passed. With time overcoming that makes such an event as this, become as successful as it was.

**Nancarrow:** Language barriers. Translators were available at each place, but not on a consistent basis. Each place was operating on volunteers, so English speaking people came and went depending on their own schedules. Luckily, the Italian language is somewhat similar to the Spanish language. I have a good "work" vocabulary in Spanish. I was just able to get my points across using a combination of Spanish, English and Italian.

**Moses:** The biggest obstacle, which relates to all of the fields, was the infield skin. The red infield material that is used did not compact very well and needed to be completely hydrated in order to hold together. If it dried out the skin became way too loose which resulted in large divots. Most irrigation systems I encountered had a 360 rotor behind the mound that covered the infield grass and skin and that was their usual means of watering the skin. It was a challenge to get across the importance of watering the infield and to get the local groundskeepers to get the hose out and spend the time watering the skin multiple times a day, even in the pre-game routine. The language barrier was also a big obstacle as a lot of the times the interpreter was not around very much and I had to communicate with the local groundskeeper with neither of us speaking the same language. Using the little bit of English and Italian we had both learned or picked up and by pointing and making hand gestures we managed to get the job done.

**Clark:** Not having the proper equipment and supplies to work on the field. No way to overcome the problem. Use what is available.

**Putman:** The most challenging aspect was the volunteer staff. A lot of the Italian staff had normal work schedules that were priority for them, which is understandable. I was able to figure out the times they could be at the field and planned tasks accordingly. However, there were times when I was by myself working on the field.

## What was your opinion of the field condition at the venue you worked on? Before and after?

**Newville:** The overall field condition before my arrival was very poor. It was still in poor condition when I left the venue. I am sure it was in much better condition by the time a game was played at that venue. I only spent 2 days at each venue, and really only had time to address the mound, plate, and bullpen areas. These areas were drastical-

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ly better upon my departure. During my stay, I also addressed other safety issues at each venue with the grounds personnel. They assured me the issues would be resolved by the time a game was played.

**Skrabak:** Give field c minus. Not much difference before and after. The natural turf would not take many games.

**Nielsen:** When I arrived in Rotterdam, I was surprised at how good of shape the field was in. When I left, I felt like I had made some good changes on the field. I think that the people maintaining the field learned some useful tips from me that will be implemented in maintaining the field and should raise the quality of the playing surface.

**Klein:** I do feel that all of the countries I have been to over the years could use training on field maintenance. The people are very eager and take great pride in their complexes.

**Ogden:** The venue itself showed great potential upon arrival. Major details were taken care of but it was the absences of the "little things" that groundskeepers at our level take pride in. Teaching the local grounds



crews those aspects of a field is what really brought such great response to those who saw the field before.

**Nancarrow:** I will choose Bologna, as I was there the longest. Turf was terribly poor, 95% crabgrass. I actually like the infield material they use. It can take a lot of weather and be playable with a little effort. Mounds and plate obviously lacked the clay we use in the states. The "Reggio" clay provided a better surface, but it was terribly difficult to work with. Almost like concrete in a dry form. Very sticky when moistened.

**Moses:** In Regensburg, Germany, at Armin-Wolf Arena the playing field was in very good condition. They had done a lot of renovation work before hosting the World Cup and it really showed. The main work was in rebuilding the bullpens and adjusting the slope on the game mound. With a proper turf maintenance program the field can really improve (topdressing to help smooth the outfield and stop the infield from bowing out, weed control, overseeding, etc). Hosting the World Cup definitely improved the playing surface and hopefully they will continue to build on the knowledge and experience they learned to continually improve the facility.

**Clark:** The fields would not have been playable if we were not able to be part of the World Cup Tournament.

**Putman:** In Florence, the biggest issue was the clay areas and turf. Even though the rain held off while I was there, the mounds were left uncovered during the rain before my arrival. All the clay areas had to be rebuilt. The mound clay used had high silt content, which makes it tacky and difficult to work with. The turf was unlevel with some deep low spots that I had to fill with infield material. They did not have a mower

onsite, so for the first game with USA the turf was 3 inches long. The next day we were able to get it cut with a contracted service.

#### Would you do it again if asked and if so what would you do to make it a better experience for you and the field you worked on?

**Newville:** I would definitely do it again as it was a very valuable experience for me. I not only enjoyed working with each field crew in preparing their fields, but educating them on proper maintenance. Each crew was very appreciative of us being there to assist them.

**Skrabak:** Undecided, but probably yes. I'm 61 next year. Bring or ship hand tools and have all transportation issues worked out before-hand. Turf always taken care of by municipality or contract, have no control over mowing. Took 8 hours to mow field in Chieti.

**Nielsen:** Yes, I would absolutely do it again. Next time, I would try to bring more of my own hand tools. It would have been nice to have one day, maybe the day before returning to the US to have time to do a little sightseeing. A standardized groundskeeping manual with photos of fields, mowing patterns, equipment and instruction in the language of each particular country would be enormously helpful. I brought my own manual that I have created and made copies for the field workers in Rotterdam.

**Klein:** I always enjoy working with Murray and Chad. The projects are always well thought out and organized. It truly makes me thankful for what I have at my stadium after I go on these types of jobs.

**Ogden:** I would return in a heartbeat to work internationally. The one thing that would make the renovation of these fields easier would be implementing the tools we use here in the states to the fields we work on abroad. A simple gift package of the necessities would turn those fields into venues people ache to play on.

**Nancarrow:** I would absolutely do it again. For a better experience, I would ensure that materials and products were on hand prior to my arrival. At all 3 venues, we lost at least a day due to lack of product. The first two didn't have clay on hand. The last one had clay, but no pitching rubbers or home plates.

**Moses:** Yes, I would do it again and I would try to incorporate more of a teaching aspect into the experience. With the limited time we had on the fields and with the communication barrier it was sometimes difficult to get the reasons behind what I was doing across to the local crews. I would also bring some tools with me such as a square 8x8 tamp and a 3 foot steel rake to make the job a lot easier.

**Clark:** Yes, I would love to be more involved with international baseball and to be able to take their field maintenance to a higher level with the proper equipment and supplies to work on the field.

**Putman:** Of course, I love the international work. I feel that a document in the local language that outlined procedures and necessary equipment, tools and materials would lessen confusion. It would also give us a basis on how to identify items in the native language, i.e. how to say rake in Italian. If the document were sent ahead of arrival, it would give the administrators of that facility time to acquire the necessary items for the tournament.