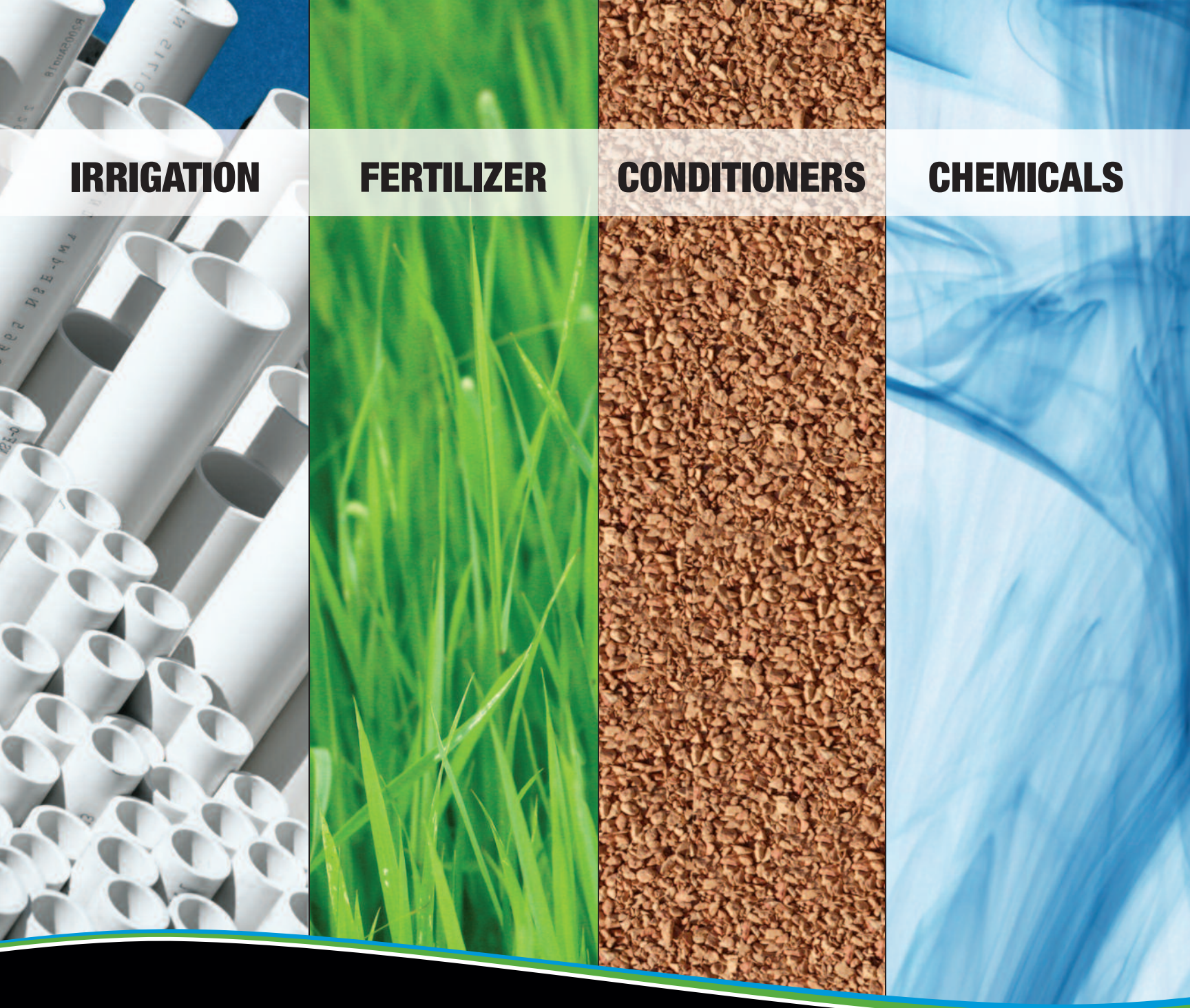

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 By Mary Helen Sprecher

What you need to know about modern running tracks

OKAY, you know a thing or two about tracks. They're oval in shape. They're 400 meters in distance. And it's been a long time since you saw one made out of cinders. But if that's the extent of your knowledge, consider this your introduction.

Today's track surfaces may look alike but they can vary greatly in terms of construction, surfacing, drainage, etc. Ultimately, factors such as site, budget and intended use influenced the selection decision. Here is an overview of the essentials, including the components of a track, how they come together, and the best strategies for maintaining the facility as a whole.

According to the American Sports Builders Association (ASBA)'s publication, *Running Tracks: A Construction and Maintenance Manual*, construction begins with site preparation: grading, compaction and drainage. Next comes the installation of a

Runner Illustration courtesy of istockphoto.com

>> **THE COATESVILLE AREA (PA) HIGH SCHOOL STADIUM** features a new synthetic turf surface, a renovated running track and new amenities to enhance its football facilities. ELA Sport of Lititz, PA acted as athletic facilities design consultant as well as project engineer. Photo courtesy of ELA Sport.

base of crushed aggregate (limestone or gravel), or of processed or recycled asphalt or concrete.

Paving commences once a base has been laid. Asphalt is the most frequently used paving material. Asphalt is a flexible pavement; it is able to "give" slightly to compensate for the ground's movement due to settling, to the action of water, and to freeze/thaw activity. However, as it gets older, asphalt shrinks and hardens and is prone to cracking. Asphalt used can be either regular highway asphalt, or permeable asphalt that allows water to drain down through the track.

The surface is installed over the pavement. Generally, track surfaces fall into two categories: permeable (or porous) meaning water drains through the surface, and impermeable (or non-porous), meaning water drains and/or evaporates off the surface. Which is right for you depends on the site, weather and geographic conditions and other factors.

A variety of products are used in the construction of a track surface. They include primers (latex primers and polyurethane primers), binders (SBR or Styrene-Butadiene-Rubber latex binder, acrylic-latex polyresin binders or polyurethane binder), and coatings (water-based coatings or various polyurethane coatings). Beyond these, the major product used in the construction of a track surface is rubber (black rubber particles, colored rubber particles and pre-manufactured rubber products are used.)

Generally, systems are divided into three categories, any of which may be suitable for a given installation:

Latex systems. These consist of rubber particles bound together by a water-based latex binder that can be broken down into black mat systems, colored binder systems, colored sandwich systems and full-depth color systems.

Polyurethane systems These can be broken down into polyurethane base mat surfacing systems-permeable, polyurethane base mat structural spray systems-permeable, polyurethane sealed base mat structural spray systems-impermeable, polyurethane base mat sandwich systems-impermeable and polyurethane full pour surfaces-impermeable.

Pre-manufactured tracks. These can be broken down into a pre-manufactured base mat with a seal and a polyurethane structural spray top coating, a pre-manufactured base mat with a seal and polyurethane coating applied to the base mat with embedded colored EPDM rubber granules, and a pre-manufactured, vulcanized rubber product that is installed in a single layer and does not require any further finishing for use.

While some uncoated asphalt tracks or unbound natural surface tracks such as cinder, clay, expanded shale or decomposed granite, are still in use, current guidelines and recommendations are no longer developed or issued for such surfaces.

Maintenance

Tracks, like your house, do not hold value without regular upkeep. Daily, weekly, monthly, seasonal and annual maintenance will help keep a track in good repair. (Yes, this includes all-weather surfaces; just because it has that nickname does not mean it can withstand season after season without regular checkups and care).

"Most track surfaces are maintenance-free, meaning that the owner cannot do any real maintenance other than washing the track during the dry season and touching up numbers and triangles when the paint is worn out," says Luca Reinaudo of Mondo USA. "But in our opinion the emphasis should be on preventive maintenance."

According to the professionals who design, build and supply materials for those facilities, scheduled maintenance and constant vigilance are the keys that year after year, result in a great experience for athletes and coaches alike when they step onto a track.

"It's the small maintenance items that turn into big headaches when neglected," says Sam Fisher of Fisher Tracks.

Problems with a track might be occurring underneath, but the first place you'll see them is the surface. Do a walk-through of the facility on a regular basis. Daily is best, but weekly should be the minimum, particularly when the track is in heavy use. Create a schematic showing the track, and make notes to yourself to document any irregularities, such as high or low spots, dings, damage and more. Carry a digital camera and take photos of any areas of concern, then e-mail them to the contractor who put in your track, who can give you a call, or come out to inspect the facility.

Keep the surface clean at all times, and free of grass clippings, dirt, gravel and other debris. (A leaf blower is a low-tech tool, but it works wonders in this case). Otherwise, once athletes begin working out on the track, the debris starts getting ground in, causing damage. Check gates to make sure they are not dragging on the surface and abrading it. Check, too, to see that gate latches are working properly.

The fence, including the perimeter fence, fence mazes and the fence separating the stands from the track, should be checked regularly. Check all rails for good connections, and look for any bulging, sagging or tears in the fence fabric. Have problems fixed immediately.

Ascertain that sprinklers for the field or for the surrounding landscaping are not spraying onto the track and overloading it with water. Clean out drains; keep them free of grass clippings, leaves, dirt, litter and other debris that can clog them and keep them from working effectively. If you see water ponding on the track, alert the contractor.

"A super-saturated subbase will rot the asphalt, creating a great deal of vapor pressure on the underside of the rubber surface and causing bubbling and delamination," says Fisher. "In addition, we have asphalt stripping. Lastly, there are the sheer cosmetics of the discoloration due to the hardness and mineral content of the water itself."

Another way of protecting the surface? Allow only foot traffic on it. Use boards or rubber matting to protect the surface. Additionally, signage around the track should indicate rules concerning footwear (soft spikes, etc.) The contractor who put in the surface will be able to provide more specific recommendations. Many times, those engaging in other sports will run across the track on their way to the field, not realizing how much damage they cause. Again, putting mats or boards at entrance and exit points can help save your surface.

Because many facilities are open for community use, more than runners and walkers will take advantage, often to the misfortune of the facility manager. Dog walkers may use the field, and parents with children in strollers (or older children on tricycles and bicycles) and others may want to use the track. All these undesirable uses will have a negative effect on the facility, and on the ability of athletes to use it for its intended purpose. Be vigilant about enforcing the rules.

"Seventy-five per cent of damages that we see on tracks are due to misuse of the facility, and could be avoided if appropriate signs were posted," says Reinaudo.

The best maintenance advice? Talk to managers and athletic directors who have facilities you're particularly impressed with and find out what they do. ■

≫ THIS SHOT IS OF MIDDLETON (WI) HIGH SCHOOL'S FACILITY that features a nine-lane track as well as a portion of the newly installed sports field. Photo courtesy of Rettler Corp., Stevens Point, WI.

Mary Helen Sprecher wrote this article on behalf of the the American Sports Builders Association (ASBA), a non-profit association helping designers, builders, owners, operators and users understand quality sports facility construction. ASBA has available at no charge publications aimed at assisting turf managers and others, as well as their Membership Directory. See www.sportsbuilders.org.

Advertisement

Q. What Makes NORDOT® Synthetic Turf Adhesives Superior?

A. Their High Green Strength (High Grab)

Outdoor Installations - There is much more to selecting an outdoor adhesive for installing synthetic turf than its price, strength and ability to stick. By far, the most important property is **high green strength (high grab)**, which in turn, is the major contributor to an outdoor adhesive's installation properties in variable weather. To our knowledge, the only synthetic turf adhesives that have this high grab property are NORDOT® Adhesives.

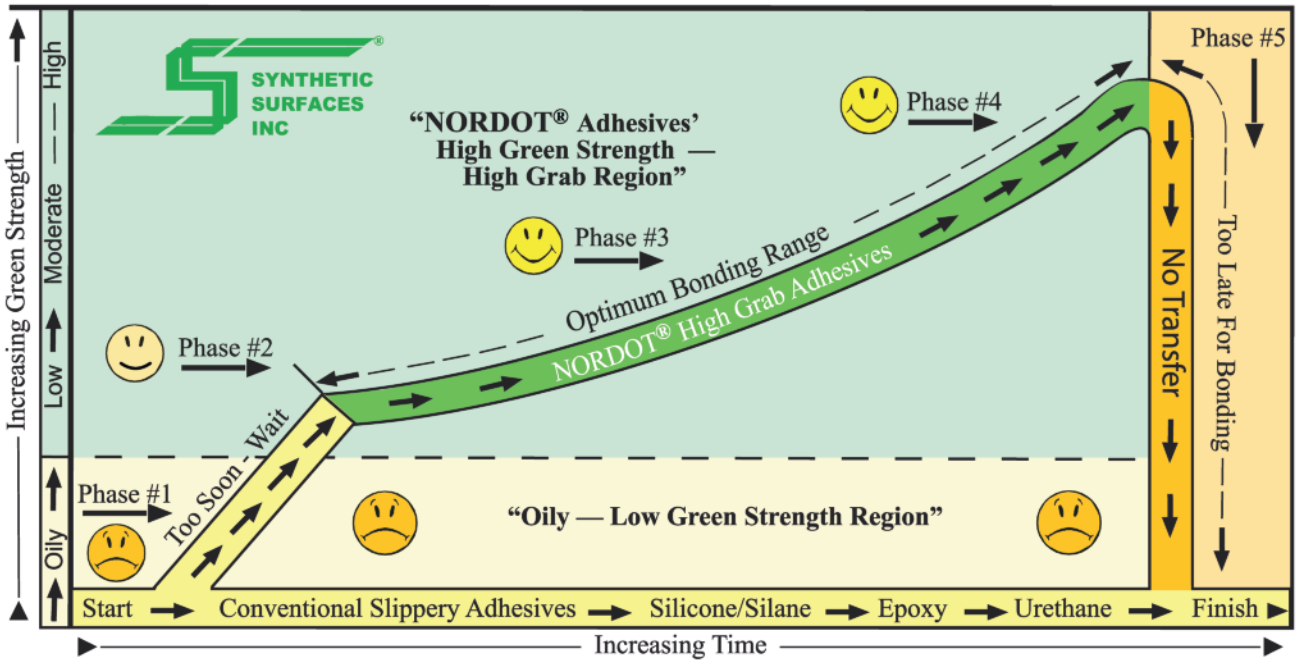
What is Green Strength (Grab/Tack as Opposed to Oily/Slippery)? - This property is the ability to hold two surfaces together when first contacted and before (still green) the adhesive develops its ultimate bonding properties when fully cured. High green strength adhesives are vital in outdoor installation 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 and/or "sand bagging". Furthermore, the degree of grab can be formulated into the adhesive so that it is strong enough to hold, yet weak enough if necessary, to permit corrective adjustments and repositioning of the bonded surfaces before the adhesive cures. ***Note** - do not assume that a "paste" adhesive has tack, green strength or grab because grease, mud pies, tooth paste and most paste adhesives are slippery.*

Handling Properties - It's high green strength adhesives that make outdoor installations practical to do under widely variable weather conditions. It is not only climate but also hourly changes in temperature, wind and other weather conditions that cause installation nightmares with most adhesives. Installers can't wait for ideal weather but instead need an adhesive that can be used when it is hot, cold, damp, dry, windy, high humidity, low humidity, etc. Using high green strength adhesives can cut hours and/or days off of installation time.

An adhesive's high grab is also vital in order to overcome the troublesome forces of "windlift"; edge curl; creep; wrinkling; surface buoyancy from unexpected rain; expansion and/or contraction due to surface temperature changes from sunlight, shadows, passing clouds, etc.

Time is Money - Using high green strength adhesives for outdoor installations of synthetic turf translates into more hours per day; more days per year; and more installations with less labor. The result is fewer headaches and more profit.

Why NORDOT® Adhesives? - For over one quarter century, NORDOT® High Green Strength Adhesives have been used successfully to install synthetic turf outdoors. To our knowledge, after all that time there are still no other outdoor adhesives that have the high green strength; superior outdoor handling properties and proven long term exterior durability of NORDOT® Adhesives. Perhaps that's why NORDOT® Adhesives are used worldwide more than any other adhesive for the outdoor installation of synthetic turf athletic fields, landscaping, sport and recreational surfaces.



NORDOT® high green strength adhesives pass through five phases of grab after application as shown on the above graph: Phase #1 "Too Soon-Wait"; Phase #2 shows their rapid increase in grab as the solvent evaporates; Phases #3 and #4 show the high green strength "Optimum Bonding Range" and Phase #5 is "Too Late For Bonding" (no adhesive transfer).

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By Mike Hebrard

LOGO AND OTHER FIELD PAINTING TIPS FROM A TOP PRO

WITH ALL OF THE PAINTING I HAVE DONE on athletic fields and for special events, I never had the opportunity or request to paint solid endzones on a football field. In fact I have discouraged several folks from doing so since most of the seating in high school football is not conducive to being seen from the low angle; I recommend placing them in the middle of the field where most of the seats are. I also recommend that we do a helmet as I have a helmet stencil and can usually freehand the team's logo inside of the 20-foot space. That way, after the game it always looks like a helmet rather than some messed up smear from playing on a wet field.

Also the money it costs to make a stencil is not in most schools' budget and if I freehand it on grass, it will only last a couple of weeks and the school usually doesn't have anyone to repaint. I have painted wolves in both endzones on a synthetic field, but just the letters. I laid out the letters by measuring the start and stops for the width of each letter and used strings on the top and bottom to set the height of the letter. But with the "O" and the "S" I had to use my ellipse formula to create the font. The S was actually made from two ellipses overlapping each other.

Last summer one of my largest accuonts asked me to layout two football fields end to end for a passing 7 on 7 tournament they were hosting. No big deal, I thought, as passing leagues are normally lines every 20 yards for a first down. But when they sent me a drawing of what they wanted 2 weeks before the event, it was basically two NFL fields end to end, so I had to create some needed skills and organizational planning.

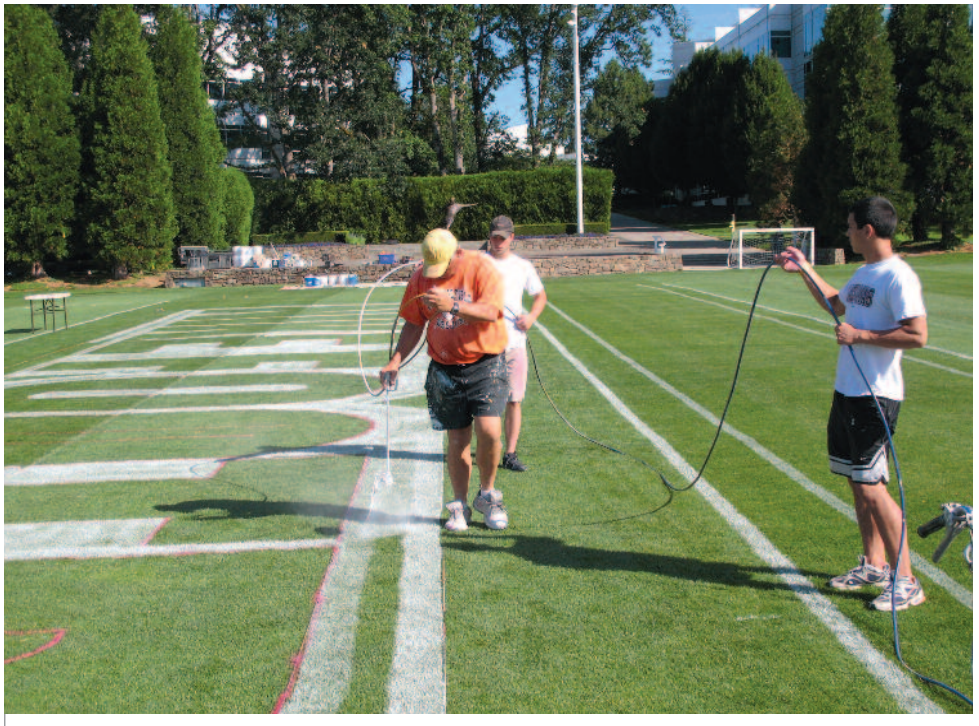
John Mascaro's Photo Quiz

John Mascaro is President of Turf-Tec International

Can you identify this sports turf problem?

Problem: Marks on turf
Turfgrass Area: 18th green
Location: New Berlin, Wisconsin
Grass Variety: Bentgrass / Poa Mixture

Answer to John Mascaro's Photo Quiz on Page 39



Since most NFL crews take about 2 days to achieve this task, I was given 2 1/2 days to complete the job; this didn't leave any time to have endzone or logo stencils so my objective was established. I was able to sneak out to the grass fields and mark and layout the field size and yard lines but it was a pretty tight time to paint as the fields are in use nearly every day.

I don't have any full time employees but I do have a great selection of my son Andy's former high school classmates. They love coming out to the plush, manicured ryegrass, sand-based turf. We started out by stringing the sidelines with a light coat of paint, (this is so that there will be less possibility of tracking paint when doing the yard lines) then starting at one endline and literally leap frogging to precisely measure cross string all the way down the both fields with 15 feet in between. I like painting along the side of the string instead of on it so the string isn't loaded with paint that can leave whip marks. Also, I like using the left side of the nozzle or shield as a guide as I can see it better, but you have to measure 2 inches off the yard lines and have a 4-inch spray to be accurate. The sidelines, end lines and goal lines are measured and painted to the inside.

Once all of the lines are painted the sideline strings are moved to the top of the Number plus the thickness of the stencil: 27 feet for high school, 60 feet for college and 18 feet, 9 inches for pro. The numbers should be at least 4 inches from the yard line to allow for double striping, but if your numbers aren't 4 x 6 feet a foot away would make them appear to be larger.

I use a PVC pipe stencil for the yard marks and usually paint the numbers and the side yard marks at the same time down the field. One person can move them, but having two people allows a set to always be ready while the other is being moved. It helps to have two sets of zeros and arrows as they will get loaded up with a lot of paint.

Once the numbers are painted on one side I move to the other side and repeat the process the other way. Try and start on the end that you will be cleaning or loading the stencils up afterwards. Once the numbers and outside yard marks are painted, move the string to the hash location and set accordingly to your stencils edges.

I like to use three helpers if possible; one on each end move a set of 15 yard stencils and the other moves the paint machine up another 5 yards. They keep leap frogging all the way down and switch to the other side. When double striping, I like to use both strings, because if you have a line a little off the col-

ored double strip really stands out. When I paint two to four fields every Thursday and Friday, the lines aren't always straight.

Next for the project was the layout of the end zones; they wanted the logo in each of the four endzones with the two different fields in contrasting colors, so one field would have a red background with black letters and the other black endzones with red letters.

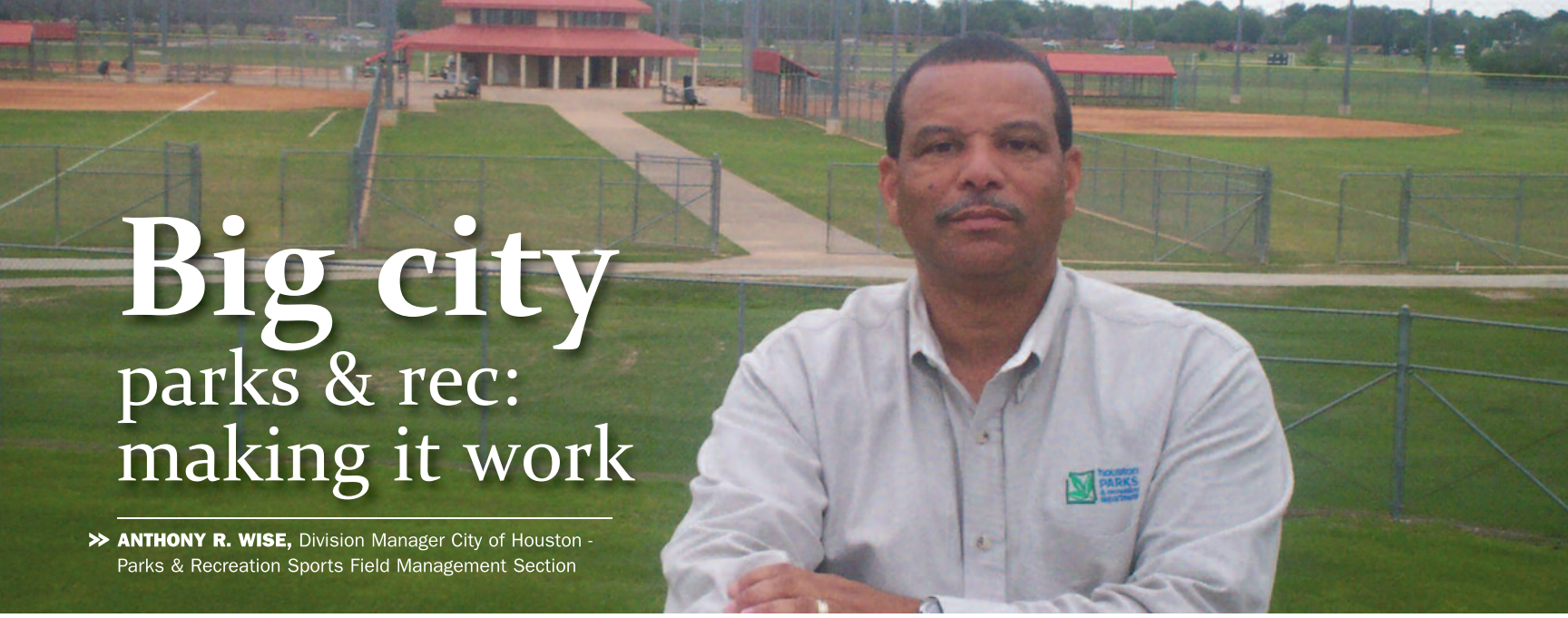
I started by laying the top and bottom strings at the proper height across the endzone, marked the center and set the tape at both the top and bottom. The font was pretty simple, so I marked the start and stop of each letter, and for the O's I had to radius the ends at half the width of the letter. I used a string all the way down and marked the letters accordingly and used the top and bottom string as a guide to complete the letter.

The best tool to use is the Trac-Cut product I sell to outline the letters; it attaches to the airless nozzle guard and the disc can be adjusted so the spray that you have barely makes contact with the rolling shield and gives a clean, sharp paint edge. Use a wide angle nozzle to fill in the letters and background, such as a 615 or special order 815. I outlined the letters in white and went the other direction to get a clean edge on both sides. The customer only needed a 3-foot white border instead of 6 feet, so I found it easier to repaint the sideline in the 4-inch line and paint the outside line in a 4-inch line and walk the entire perimeter about 5 times with a wide spray, with one person moving the machine, one holding the hose and me painting the border. That way I didn't have as much over-spray or streaks.

The center logos were another matter; I had to use my grid method to lay it out. First I printed the logo on a preprinted grid and laminated it. I simply mark the start and stop of the straight lines of the 7 and marked where the other lines intersected. Once the basic outline was marked, I filled in the logo and outlined it. The weather was great so the paint dried rather quickly and allowed me and the crew to get to the next step without any delay.

After the job was completed and the teams started playing, I was allowed to get on the roof with special permission to take pictures. What an impressive site! I was not aware of the magnitude of the event, which brought some of the top high school football players in from around the country. I was extremely proud to be involved and complete the project on time. By the way, the customer called me last month and want to know if I could do it in 1 ½ days this summer. I managed to get a ½ day back and will have to sneak out and get some references marked so I can get right on it. ■

Mike Hebrard is the owner of Athletic Field Design, Clackamas, OR, www.athleticfield.com.



Big city parks & rec: making it work

>> **ANTHONY R. WISE,** Division Manager City of Houston - Parks & Recreation Sports Field Management Section

Facility&Operations By Anthony Wise

HOW WOULD YOU LIKE TO MANAGE 75 BASEBALL FIELDS, 31 softball fields, 88 soccer fields, 28 football fields and 2 lacrosse fields in a city where there is a demand for field use 52 weeks a year? All this with a staff of 15 fulltime employees and 6 seasonal employees? That is what my staff and I face within the City of Houston's Parks and Recreation Department.

In January 2007, under the direction of department director Joe Turner and deputy director Abel Gonzales, the Sports Field Management Division was formed. The adopted mission is to develop and maintain quality sports fields and facilities that encourage and create recreation, fitness and social opportunities for residents of Houston. Over the past 2 years we have learned many lessons with regards to user demand and our challenge to provide and maintain safe playing surfaces under intense field use. I have found that there are several keys to successfully managing sports fields in a city the size of Houston:

- Establish operating procedures that clearly define maintenance standards
- Develop budget strategies that maximize available resources
- Promote programs that encourage community participation in maintaining the fields
- Effectively communicate the mission and vision for your maintenance operation

Every successful team has a game plan. Our game plan is our "Standard Operating Procedures" (SOP) manual. This is a formal document that outlines an overall maintenance system for sports field care, establishes a field classification system and address the administration and permitting of sports fields. The SOP sets the standard of performance for our staff and applies to all field user groups.

In 2008 our department permitted 224 sport fields. Each field is classified based on SOP standards. There are three field classifications: Competitive/Tournament Field; Recreation Field; and Practice Field. The Sports Field Management (SFM) staff maintains 23 Competitive/Tournament field and 28 Recreation fields. Competitive level fields are used by permit only. Practice is not allowed on these fields and they are closed unless permitted for a game or tournament. Recreational level fields are open for public use; practice is allowed and can be permitted for games or practice. Practice level fields have no restrictions.

Field maintenance standards

- Total hours permitted limited to 50 hours per week for Softball/Baseball and 32 hours per week for Soccer, Football and Lacrosse.
- 600 cumulative permitted hours will constitute the Softball/Baseball field being taken out of service for a "rest period" of 28 consecutive days and 400 cumulative permitted hours for Soccer, Football and Lacrosse fields.
- The "rest period" will commence on the Monday following the cumulative contact hour limit.
- Extended contact hours will result in an extended "rest period". Sports Field Management will decide on the extended period based on field inspection.
- Turf and playing surface rebuilding program would commence as soon as the field is out and be completed within the first four days. This includes aerating, overseeding, fertilizing, topdressing and scheduled maintenance.
- Fields will be closed for inclement weather as determined by SFM staff. Determining factors are: How much precipitation has occurred? Is there standing water on the field? Is the field safe to play on? What kind and how much damage could occur if field remains open?
- Competitive Level Field maintenance includes: weekly field inspections; daily litter removal; daily skinned area maintenance; mowing/trimming (2x/week in March through October, 1x/week November through February); daily field marking, when permitted, Monday through Friday; and warm-season turfgrass maintenance program.