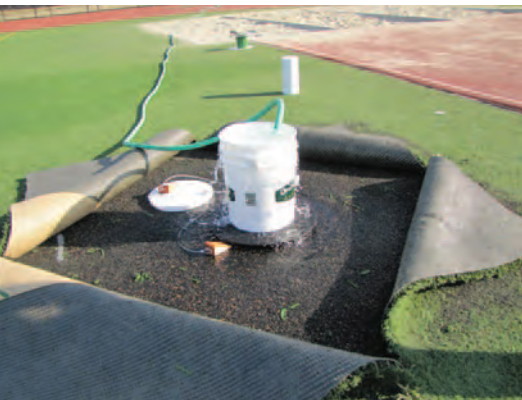


CONSIDERATIONS when replacing synthetic turf fields



» Above: Field assessment and evaluation

» Left: Field permeability test Right: Turf removal and salvage

IN THE UNITED STATES there are easily more than 5,000 synthetic turf fields used by youth and adults of varying ages and competition levels. Each field has a different level of use, climate, installation quality, and maintenance practices that dictate how it will wear after its initial date of installation and ribbon cutting ceremony. Each field's owner also has slightly different expectation of how their field will wear and criteria for replacing an existing field. For some of you, it could be largely a perception of visual quality, not necessarily playability. For some, the concern is safety and wear levels. And for even others, it could be that the field that has just not performed like they expected or hoped it would and they want to move on to a new and different product.

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With the many possible conditions of a playing field, it is important to assess where your specific field is in the overall state of its life cycle and assess the reasons why it is in its current condition now. This determination requires evalu-

ating how the field was constructed—including its base and drainage systems and the turf product used—then completing an on-site field evaluation which would include a review of the type and number of events held on the field. This evaluation can be relatively straight forward and simple to complete. Our experience has shown that the assessment should include the following test criteria:

- The planarity of the field and observed surface imperfections.
- G-max/HIC test data during the lifespan of the field.
- Seam and inlay integrity of the turf product, including at all transitions from turf to the adjacent surfaces.
- The quality of any past turf repairs.
- The level and quality of the existing infill materials compared to the initial installation and design specifications.
- General visual condition of the turf, including fiber evaluation (i.e., are fibers showing complete splitting, “hair splitting” or fracturing?)
 - Average length of fiber loss to date due to wear and tear. Field traffic, grooming or other action may affect the fibers over a period of time. Compare the current measured pile heights versus pile height when the product was new. The projected length of fiber remaining at the end of the warranty period is based on a projection of the average annual wear.
 - Drainage issues: Identify known or observed signs of drainage issues such as areas that pond or that are known to be slow in draining

after a rain event. Staff with knowledge of the field should be interviewed to understand the history of the field’s drainage efficiency.

- Field permeability.
- Environmental testing of turf materials.

We recommend that the warranty for the turf product be reviewed to see if it is still in effect and, if so, what level of coverage may currently exist. An analysis of the recommended care of that turf company’s product should be compared to the level of on-going maintenance, including equipment used and frequency of those maintenance practices. It is important to understand what steps the owner is taking in maintaining the field, and if those steps are positively or adversely affecting the quality of the current condition of the turf.

For most turf fields we have evaluated, turf managers are concerned that the typically have is that there are issues with the field surface that are not necessarily due to the physical makeup of the turf product: the fiber, infill, or backing material. Rather, some of the field’s inlays may be coming apart; there may be a hole in the turf due to wear issues and insufficient turf care or proactive repair; or the field’s base may not be draining properly or may have settled.

In our experience, base issues and turf installation quality are typically the primary factors for a turf field to be considered in a poor state, not the product itself. This is not to say that the field’s fibers may not be matted down, frayed, split or fractured, and that



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>> TURF IMPACTS by other uses

the infill levels aren't uneven, as many fields can show some of these characteristics. It is just that compared to a new turf field with improved fiber technology, they appear "old, tired, and used up."

It is inevitable that you will have to replace your existing synthetic field at some point in the future. Unless the replacement is covered under an in-effect warranty with the turf company, you will need to contract for the removal and disposal (or ideally, recycling) of the old turf and purchasing and installing a new turf product. If there is a condition with the field that may be covered by the warranty, you should directly contact the turf company for an investigation of the issues identified and potential solutions. Many warranties will not fully fund replacement by the turf manufacturer. The amount of wear and tear will naturally be of consideration. The older the field the less cost discount will be offered by the manufacturer on new turf.

When replacing an existing turf field, take the opportunity to evaluate the quality of the overall facility. In a general sense, did the field and the overall space meet your expectations, exceed them or fall short? Were the activities on the field those that were initially identified or were there additional activities and events that impacted the field? If there were, can modifications be made to the field's base or areas around the field to accommodate the change in activities? Should a turf product with modified specifications to the one being replaced be considered? This consideration could be important if there has been change in the field's use. For example, a field used for field hockey has different field requirements than one for football.

Another item to evaluate whether the existing dimensions of the synthetic turf still meet your and user groups' needs and goals, as well as conforming to changes in sport rules and regulations. For example, if you have a lighted facility and two softball fields replaced natural grass with synthetic turf, leaving the existing skinned infields. After several years of use, the user groups and turf professional both agreed that the decision to keep skinned infields was a mistake, as it minimized the amount of area for soccer fields in the shared turf area, and it also reduced the amount of days the fields could be used for softball due to inclement weather. So when the field's synthetic turf was recently replaced, you installed new synthetic turf throughout the field, eliminating all the skinned surfaces. This decision reduced the amount of maintenance the infields required, increased the number of days the fields could be used, and allowed the field area to have two full-size soccer fields that could be used concurrently.

Field markings are also a key consideration when looking at replacing a field. It is not uncommon for a new field to receive permanent field striping for new field layouts not on the existing turf field. In other situations, the client decided to eliminate permanent field lines altogether due to changing needs, frequent rules modifications, the need for field flexibility so that no specific use is perceived as the dominant sport.

We also think an important item to evaluate is the infrastructure and utilities that service the turf area and the immediate surrounding areas. At a recent field replacement, the original design had irrigation quick couplers and drainage cleanout boxes that were

When replacing an existing turf field, take the opportunity to evaluate the quality of the overall facility. In a general sense, did the field and the overall space meet your expectations, exceed them or fall short?

exposed at the field surface and were less than one foot from the playing field—certainly not an ideal situation from either a playability or safety standpoint. So when it was time to replace the turf, the quick connect water couplings and boxes were moved to the outer edge of the turf, well beyond the playing field, and all cleanout boxes were lowered beneath the playing field surface. In addition, there may not have been infrastructure installed during the initial field construction projects that are now desirable or necessary.

Other considerations that should be included in the assessment of the existing turf field are whether the field requires a shock pad or if any new permanent embedments are needed in the turf (i.e., sleeved goals, mounting standards for track cameras, sleeved netting systems, etc.). Making all upgrades before installation of new turf, not after, is the best practice due to the complexity of cutting the turf and completing base modifications without creating long-term issues with the base or associated turf product.

If you are in tune with the field's regular use and maintenance practices, you can develop a sense of how the field has performed and what the perception of the field is by the user groups. This knowledge is the most important information in making decisions for the turf replacement process. A design professional who has completed many field replacement projects can be a valuable resource to guide you in the process of how to remove the old turf, complete any modifications or repairs to the base or adjacent areas surrounding the



>> **FIELD GRAND OPENING**

field (such as needed infrastructure improvements), and assist in developing technical documents for the new field installation. By combining the determination of your needs with the knowledge and experience of a professional, you can achieve a smooth transition between the old and new—synthetic turf, that is. ■

Devin Conway, PE, is principal, Verde Design, Inc., Santa Clara CA.



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Photos courtesy of Bernie Clasing



Growing interest in lacrosse coming soon to a field near you

THEY DIDN'T HAVE HELMETS OR GOGGLES. They didn't have mouth guards or cleated shoes. But the original Native Americans, who invented the game of lacrosse, had perhaps the most important thing of all: abundant open space to play in.

These days, our lacrosse fields have to be built to precise specifications concerning size and slope. But the game remains with us, and it certainly does continue to grow. According to the National Federation of State High School Associations (NFHS), more than 170,000 boys and girls played lacrosse competitively last year. In fact, among the girls, the sport vaulted into the top 10 most popular during the 2010-2011 school year.

Reflecting this interest, an increased number of lacrosse camps and clinics are being offered, as are more travel teams

and opportunities for athletes. What does that mean for a field manager? Better get ready for the invasion.

THE BASICS

Lacrosse requires a large amount of space to be played ac-

ording to the rules. High school boys' lacrosse fields must be 330 feet (minimum) in length, and 160 feet in width. NCAA men's lacrosse fields are 330 feet minimum length and 180 feet standard width. For both high school and NCAA

girls/women's lacrosse, the dimensions are length 300 feet minimum/360 feet maximum, and width of 180 feet minimum/210 feet maximum. Outside of the field itself, there are specifications governing the size of the coaches' area, and specific clearances around the field are recommended for athlete and spectator safety.

Beyond those basics, there are requirements (as there are for all sports fields) concerning slope and drainage. These requirements will vary according to whether the field is natural grass or artificial turf (and if natural grass, whether or not it has



>> HARVARD SOCCER FIELD. Photo courtesy of Stantec, Boston, MA

High school boys' lacrosse fields

Length - 330 feet (minimum)
Width - 160 feet

NCAA men's lacrosse fields

Length - 330 feet (minimum)
Width - 180 feet

High school and NCAA girls/women's lacrosse fields

Length - 300 feet (minimum)
- 360 feet (maximum)
Width - 180 feet (minimum)
- 210 feet (maximum)

subsurface drainage, whether or not it is crowned, etc.)

Many field builders note they are seeing a preponderance of synthetic fields being installed, and being designated for lacrosse. They also note that lighting is being added to many existing fields; lighting extends the playing hours and allows one field to host more activities, thereby making it a more cost-efficient investment.

THE MARKINGS

“We definitely see an increase in the sport of lacrosse,” notes Dan Wright, whose company, Sports Turf Company, Inc. in Whitesburg, GA serves the Atlanta area. “More and more synthetic fields installed are requiring the markings for lacrosse.”

In such cases, he adds, men’s lacrosse lines are inlaid and women’s lacrosse is “tick-marked” for painting.

Field builders note that if a facility will accommodate multiple sports, such as soccer, football, field hockey and lacrosse, care

should be taken in lining it. Multiple sets of lines in varying colors can leave the field with what has been called a “playground” or “gymnasium floor” look.

Instead, say the pros, field managers need first to decide which sport the field will host the most often (or perhaps which is most important to the owner, such as the high school or college whose property it is). That sport, then, is designated the “primary” sport, and those playing lines should be marked in the brightest color. The primary field colors are typically white and yellow if there are two sports on the field.

Don’t be surprised if lacrosse is one of those primary sports. And don’t be surprised when you see what isn’t.

“We are seeing a large increase in men’s and women’s lacrosse around here,” says Lance Rosenberger of Medallion Athletic Products in Mooresville, NC. “Almost every university we did last year included lacrosse lines as part of their soccer field. In Geor-

gia, we did three fields with football and men’s lacrosse, but no soccer.”

Additionally, he notes, “a few universities are planning on upgrading their lacrosse programs from a club sport to an NCAA program.”

Once the primary sport(s) have been determined and marked in the brightest and most visible colors, the secondary sports can take more muted line colors such as blue or brown. Another option is to provide limited field markings (hash marks or tick marks) that are inlaid into the turf, allowing for temporary markings to be placed.

THE EQUIPMENT

While players will carry around plenty of their own sports equipment, including sticks, balls and personal items such as uniforms, gloves, helmets, goggles and so on (plus the added protective equipment carried by goalies), the equipment necessary to the sport itself is rather light. It may include goals, backstops, targets and rebound nets



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(used in practice) and so on. The equipment itself, being light and portable, is often brought to the field or stored nearby. Storage cages or sheds may be necessary if multiple teams will be using the field.

Because games move quickly, spectators enjoy lacrosse. And while folding chairs and picnic blankets are a time-honored tradition, your players' families and friends will enjoy the experience more if there are bleachers available. (In this respect, lacrosse is no different from any other spectator

sport, where the wish list includes concessions, rest rooms and shaded picnic areas as well).

"An item we feel would be particularly useful would be high nets beyond the end of the field to catch those balls that are overshot," notes Jeff Shyk of K&W Engineers in Harrisburg, PA.

FIELD MAINTENANCE

As with all sports, lacrosse causes wear in specific areas of the field.

"Care should be concentrated in the goal crease area," says Wright. "The goal crease area is where the majority of concentrated play occurs. For synthetic turf fields, this area requires additional grooming to keep the infill material depth consistent. This is where the most damage will occur on a natural turf field. Re-sodding and/or re-seeding may be required to bring these areas back to a condition suitable for other sports."

Part of the reason for the wear and tear is the pace and positioning of the game, says Lee Naroanick of American Athletic Courts in Vincentown, NJ.

"There can be 50 shots on goal in most games. Shortly after the season begins, the goal areas on grass fields lose their grass and by the end of the season, it can be treacherous during a rainy game. Most synthetic turf fields hold up well, but the area still gets the most wear."

Besides, Naroanick notes, he has a unique perspective. "I know a lot about the goal area because my daughter took up the illustrious job of being a lacrosse goalie. Go figure."

As with all athletic fields, regular maintenance is needed to keep the field in good condition generally. Natural grass needs mowing and irrigation as well as seasonal fertilizer and repair of worn areas. Synthetic turf should be groomed, cleaned and checked on a regular basis. In all cases, good drainage will be tied to the performance of the field throughout its useful life.

A shortcoming all field managers have to deal with is the constant use of facilities. Whereas the Native Americans who invented lacrosse could simply move on to another area when their field became denuded of grass or looked a bit worn, many of today's facility managers are land-locked. But for those who are in the enviable position of being able to redistribute play among different fields, the pros urge taking full advantage of that ability.

"If I could give any extra tip, it would be to have more maintenance, and to rest the field and let it recover from usage," says Dan Wright.

"The more rest a grass field gets, the better it will perform," says Naroanick. "So rotate, rotate, rotate."

>> **BOSTON COLLEGE.** Photos courtesy of Stantec, Boston, MA



No matter what other sports take place, there's one you should nip in the bud: prohibit local dog owners from using the facility as a place to play fetch or get some exercise (a euphemism for activities that result in unpleasant playing conditions for athletes).

Keep a close eye on the field. Clean off litter and debris, and keep a lookout for problems like pests, weeds, drainage issues and other problems. If you see trouble brewing, address it immediately. It is easier to prevent an injury than it is to deal with the aftermath.

Oh, and one more thing, say field pros. No matter what other sports take place, there's one you should nip in the bud: prohibit local dog owners from using the facility as a place to play fetch or get some exercise (a euphemism for activities that result in unpleasant playing conditions for athletes).

Mary Helen Sprecher wrote this article on behalf of the American Sports Builders Association. Available at no charge is a listing of all publications offered by the ASBA, as well as their Membership Directory. For info, 866-501-2722 or www.sportsbuilders.org.



>> **VERT TRACK SOCCER LACROSSE STADIUM.** Photo courtesy of Medallion Athletic Products, Inc., Mooresville, NC



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By Dawn Shoemaker



Slip and fall issues always sticking around

IN DECEMBER 2005, Bill Williams sued a well-known US chain of gyms because he fell in the sauna at one of their locations. Apparently he slipped on the floor, fell on a bench and now, according to court documents, experiences “persistent neck and head pain and associated intermittent tingling feelings” in his hands.

Williams sued the gym claiming negligence and alleged that several members of the gym had warned gym managers about hazards in the sauna, indicating it was a “problem waiting to happen.” At trial, the court agreed with Williams and awarded him \$15,000 for medical costs, pain, and suffering. However, in what was considered an unexpected turn of events, an appeals court reversed the decision, stating that Williams as well as all gym members had signed a contract “expressly releasing gym management from liability due to improper maintenance.” [*Editor’s note: The names have been changed here, this is an actual occurrence and involved a Gold’s Gym.]

Although the appeals court sympathized with Williams and did believe gym management was negligent, the signed

contract by gym members superseded any compassion for the victim. Though the gym’s management may have ultimately won this case, it still cost several thousand dollars in legal fees, plus a lot of negative feelings and press that impacted the gym’s member base and the local community where the accident occurred.

And, this is just one example of a slip and fall accident. Although the statistics can vary, the number of slip and fall accidents in the US is staggering. For example, it is estimated there are about eight million slip, trip, and fall accidents each year. They occur in homes, offices, gyms, and other public facilities. Of these, about half a million people require some sort of hospitalization and more than 16,000 result in death. In fact, slip and fall accidents are considered one of the leading causes of death in the workplace. However, just as with the unfortunate case discussed earlier, many of these accidents can be prevented through preventive strategies, proper floor care, cleaning, and maintenance.

RISK FACTORS

Before venturing further, some clarifications are due. A slip is the result of too little friction or traction between footwear and the floor. Trips, on the other hand, occur when one or both feet strike or hit an object, causing loss of balance. Both slips and trips can affect your forward motion, causing your upper-body positioning to fall ahead of or behind your lower body—eventually, you lose your balance and a fall is often the result.

Slips, trips, and falls can occur just about anywhere in an office setting, school, factory, public building, and gym. A variety of

It is estimated there are about eight million slip, trip, and fall accidents each year. They occur in homes, offices, gyms, and other public facilities. Of these, about half a million people require some sort of hospitalization and more than 16,000 result in death.

what are termed risk factors or indoor hazards can trigger an accident. Some of the most common factors and hazards include:

- Wet or oily floor surfaces
- Inappropriate footwear
- Loose, unanchored carpets, rugs, mats, or floor tiles
- Obstructed views
- Poor lighting
- Clutter on the floor
- Wrinkled carpeting
- Cables or cords laid across walkways

Gym managers should be aware of these risk hazards and regularly take the time to walk through their gym and see if any of these exist in their facilities. Corrective measures now can help prevent a serious accident later.

One of the best ways any facility, including a gym, can take to prevent a slip, trip, or fall is to install high-performing matting systems. An effective matting system is designed to trap and hold moisture, soil, grease, dirt, and other contaminants before these are walked in the door.

According to Christopher Tricozzi, vice president of sales and marketing for Crown Mats and Matting, stopping moisture and soil before it enters the door is key. “Many managers will place matting systems inside doorways, but they should actually start outdoors by installing what are termed ‘scrapers’ mats at all building entries,” he says.

Tricozzi says that the scraper mat should be followed by a wiper/scrapper mat, directly inside a building. “Often, this is the entry vestibule area between two sets of doors. And, this is followed by a wiper mat, designed to capture and hold any remaining moisture and soil off shoe bottoms.”

“Gym managers need about 15 feet of matting outside and inside the building,” he adds. “We really can’t depend on people to properly wipe their feet so the 15 feet of matting [helps] ensure that as much as 80 percent of the moisture and contaminants are prevented from being walked in the gym.”

Also, as referenced earlier, Tricozzi adds that managers should select what are termed high-performance mats. These are mats that facilities typically purchase, rather than rent. Not only are these mats engineered to be more effective, they last much longer than a rental mat. “A high-performance mat may last two years or more, whereas a rental mat may only last a few months and end up in a landfill [shortly thereafter].”

FLOOR CARE AND MAINTENANCE

Next to eliminating risk factors and installing high-performance matting, proper floor care and maintenance is essential. Gym managers are advised to incorporate regularly scheduled strip, scrub, and refinish programs to keep floors as clean as possible. This should definitely include locker room and shower areas, where tile and grout floors are often installed. These cleaning regimens will help remove bacteria that may be developing in grout areas, which can cause a slip or fall.

Very often, the type of floor equipment used in floor care can help promote floor safety, says Daniel Frimml, a technical service representative with Tornado Industries, a manufacturer of floor care equipment. “Many facilities use rotary floor machines. While these can do an excellent job, for tile

and grout floors, a different technology, cylindrical floor machines, may prove to be more effective.”

Cylindrical floor machines use counter-rotating brushes and not pads, which are found on conventional machines. Rotating at more than 1,000 rotations per minute, the brushes penetrate the porous surfaces of a floor. These machines reach deep into grout areas to help remove embedded bacteria and soil, which also helps maintain the floor’s slip resistance. “Also, because the machine does a lot more of the work, less water and chemical are usually called for, making this technology Greener and more sustainable,” adds Frimml.

Additionally, as to daily care, Frimml advises that gym floors should be dust-mopped or vacuumed and damp-mopped daily and sometimes several times during the day. The mop heads and cleaning solution should be changed frequently in the cleaning process to help prevent the spread of germs and bacteria which have the potential of causing floors to be slippery.

And, Frimml has one final recommendation. All gyms should have in stock and use warning and safety cones. “Whenever and wherever floors are being cleaned or there is a suspected problem that could lead to an injury, use these [safety devices]. At the very least, it can limit your liability should there be an accident and at its best, the warning and safety cones can prevent [an incident] from happening at all.” ■

Dawn Shoemaker is a writer for the professional cleaning, building, hotel, and hospitality industries. She may be reached at info@alturasolutions.com

By Sandee Smith and Harrison Hill

ROLE REVERSAL: when children should talk to parents about money

AS BABY BOOMERS GROW OLDER and presumably wiser about economic matters, more are finding themselves in a position of caretaker for elderly parents. Raising the topic of money with parents can be difficult. But with the

right choice of words, timing, and tone, you can open the door to a meaningful conversation.

Select a Representative. An initial conversation about finances should be done one-on-one. Involving too many people can be

overwhelming and appear threatening. If you have siblings, select one—perhaps the oldest, most financially knowledgeable, or one with whom your parent(s) may feel most comfortable—to lead the way. Remember, this is about your parent's money, not about yours or your children's.

Be Sensitive. To some extent, our financial lives influence how we view ourselves as independent human beings. For many, old age is a time of coping with a series of physical and emotional losses: hearing, eyesight, mobility, memory, as well as friendships. With any conversation about money, be sensitive to the fears and concerns your parents may harbor about their possible loss of control or independence.

Break the Ice Skillfully. A subtle opening could involve an anecdotal story about a person you know in common, a news article found in the daily paper, or even about yourself.

- I need help with my will. Who did you use?
- How's Aunt Mary doing since Uncle Joe passed away?
- Have you seen the new Social Security statements?
- What was it like for your parents during the Great Depression?
- Did you watch that TV special on hospitals last week?

Start Slowly. Don't commence a dialogue during a crisis situation or try to resolve all details in one meeting. Raise questions that your parents can consider for a follow-up conversation. "I'll stop by

for coffee next week, and we can continue our talk. Maybe you'll have those papers by then?"

Your parents may actually enjoy the attention. After several informal conversations, you may want to consider the help of a financial professional. For more information, contact the National Council on Aging (www.ncoa.org) and AARP (www.aarp.org). ■

For More Information

If you would like to learn more, please contact Sandee Smith or Harrison Hill at 816-932-7800. You can also email sandra.j.smith@mssb.com or harrison.p.hill@mssb.com

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