

**For a Demo,
Contact These
Participating Dealers:**

CHAMPION GREENS

Keith Kaat

Phone/fax 920-894-4857 • ballmart@excel.net
N.Illinois, Upper Michigan, Wisconsin

(860) 485-0219

(860) 485-9946 fax

www.turfchamps.com

Connecticut, Vermont,

Massachusetts,

Rhode Island, New Hampshire



COLORADO GOLF & TURF

Equipment for Golf Course & Turf Professionals
Colorado and Wyoming

Tyler Dickey
11757 S. Wadsworth Blvd.
Littleton, CO 80134
303-761-3332
Fax 303-781-3372
Cell 303-915-5621



Eckert Golf Sales, Inc.

Telephone: 407-629-7968 • Toll Free: 1-866-629-7968
www.eckertgolf.com • egsturf@aol.com
Florida

Jim Gates & Company Inc.

Jim Gates

973-670-2157 • 973-383-0671 fax
Jimg973@netscape.net

Delaware, New Jersey, New York (except Long Island), Maryland and Pennsylvania

Krigger & Company, Inc.
800-252-TURF (8873)
www.krigger.com
sales@krigger.com
Western Pennsylvania, West Virginia



www.midlandimplement.com
402 Daniel ST. • BOX 30358 • BILLINGS, MT 59107
PH. (406) 248-7771 • FAX (406) 252-5772
Montana & Wyoming



Revels Tractor Co. Inc.

Larry Adcock, Sales Manager

800-849-5469 • fax 919-652-9321
jdturfman@mindspring.com • www.revelstractor.com
North Carolina, Eastern South Carolina, Virginia and southern West Virginia



Roy Spielmann

864-617-8204 • fax 864-287-7147

mspielman@bellsouth.net

www.liveturf.com

S.Carolina, N.Carolina, Georgia,
Alabama, Tennessee, Kentucky

Turf Equipment Source

John Jensen

602-739-6697 • fax 602-278-8267

turfequipments@aol.com • www.turfequipmentsource.com

Arizona, New Mexico and Nevada, Southern California and Utah

Best of Both Worlds

www.sisis.com

natural turf or synthetic-

sisis®

SISIS INC.

PO Box 537, Sandy Springs, SC 29677 • Phone: 864-843-5972 • Fax: 864-843-5974

Email: sisisinc@bellsouth.net

Fill in 121 on reader service form or visit www.oners.ims.ca/5906-121

For Other Locations, Contact Sisis.

Restoring synthetic surfaces after floods

By Jeffrey L. Bruce, FASLA, LEED, ASIC, and Graham E. Hayes II

In "After the Flood," in the November 2005 issue, I focused on restoration of natural grass surfaces. The lack of information on restoring artificial surfaces has made this follow-up article challenging to write. While there is some good information concerning the restoration of the first generation nylon surfaces, there is almost no tech-

nical information on the restoration of the new in-filled synthetic surfaces. The information, although fragmented and inconsistent, may help shape a process to restore a synthetic surface that has been heavily damaged by a flood event.

The process of assessing the damage of a synthetic surface begins with the same basic steps as outlined in the first article

including documentation for insurance purposes, sampling for environmental contamination and controlling access to the site. Once the assessment is completed, the process for restoring synthetic turf departs quickly from that for natural grass.

Natural grass surfaces can be milled to remove the contamination and adding new growing media to match the existing.



Collected fibers



High traffic area



Low traffic area

Portland, OR is home to one of the oldest outdoor FieldTurf installations in the world, **Strasser Field**. Debbie Kneeshaw maintains Strasser Field and the East Delta Sports Complex for City of Portland Parks and Recreation, and says the field was installed in October 1997. "After 5 years the field fibers began to break down from play, age, and maintenance. The fiber is intended to 'fibrillate' and we have experienced a 3/4-inch loss of fiber length in the goal-mouths from over-fibrillation," she told an audience of STMA Conference attendees.



Fibers in collection tray



Fibers in dumpster

Unrealized Adhesive Suffering

Architects, Specifiers, Buyers and Installers: **BEWARE**



Preamble - Progress and technology have turned some old work practices and/or products from both acceptable and necessary years ago to *suffering* for those that still continue to use them. There are those that resist progress and change, with an attitude of "If it ain't broke, don't fix it." even though modernizing is often better. For example, an 80 year old car that isn't broken will still get you from Boston to San Diego but so too will a fully equipped, modern car. Which one will get you there faster and with less suffering?

Resisting progress to falsely "save money" can also cause *suffering*, plus inadvertently increase cost and lower profits. Using a pager instead of a cell phone; digging a trench by hand vs. a power shovel; a typewriter vs. word processing; are examples.

".... they just erode profits and cause suffering."

What prompted this preamble as a lead-in to this article about adhesives is the suffering by some who still use "stone age" and "cheap" adhesives for installing sport and recreational surfaces. Some architects and specifiers pay great attention to the surfaces they specify but not much to the adhesives used to install them.

Facts - As a manufacturer of specialty adhesives for both outdoor and indoor sport and recreational surfaces, it is obvious to us that the best surface, subsurface, and installers are of little value without a good adhesive. For outdoors, the adhesive must be applied under variable and adverse weather conditions, plus have excellent long term durability. The problem is that the specifier and/or buyer and/or installer often does not know or test those properties. Instead, low price adhesives and easy credit are more important to them without realizing the suffering and lost profits they cause.

Opinion - Not everyone will agree, but what follows is our opinion of four adhesive types that cause suffering and reduce profits when used outdoors.

1) **Two-Part Urethane or Epoxies:** Indoors or outdoors, there are labor intensive adhesives, plus there are extra pails to ship and discard. Each component by itself is *not* a good adhesive. Hence, if they are not thoroughly and accurately mixed in the field, they can have poor durability which shows up after aging. Additionally, they often become expensive waste if they harden in the pail after mixing and before that are completely used. When used on very hot days, they can have a short pot life and a short time outdoor working window; whereas oppositely on cold days, they become very thick and hard to mix, plus they cure slowly, if at all. Another installation hardship is: hot or cold, they are "oily and slippery" with no green strength (no grab) to hold the joined surfaces in place until the adhesive cures.

2) **"Oily/slippery" One-Part Urethanes as Opposed to High Grab Ones:** They have little or no grab and green strength, plus they often foam excessively in high humidity. They often proceed quickly from a long slippery "no grab" time to a "snap cure" with little time for bonding between "no grab" and "snap cure". That's a variable weather nightmare.

3) **Private Label Adhesives:** Our translation is that another company is making it for the buyer who can change it "at will" for low price or other purposes without the customer or specifier

knowing. That's one reason why we put our label and not another company's private label on our outdoor adhesives. If it's not our label, it isn't ours.

4) **Hot Melt Adhesives:** They require special equipment that can be used under variable outdoor weather conditions. They may set too quickly when cold and too slowly when hot.

In summary, for the "If it ain't broke, don't fix it." people, none of the above adhesives are broken. Instead, they just erode profits and cause suffering.

by Norris Legue, Synthetic Surfaces Inc.

University of Adhesives

Avoid Suffering:
use
NORDOT®
High Grab
Adhesives

More profits result by using NORDOT® High Green Strength Urethane Adhesives because they cut installation time; decrease labor costs; avoid adhesive "time bombs", and reduce "call backs".

- **Several One-Part NORDOT® Adhesives** - liquid or light gel forms. No two-part mixing or premature gel waste.
- **High Green Strength (Grab)** - Prevent creep, curling and other unwanted movement during installation. No sandbags.
- **Wide "Working Window"** - Long open time for bonding indoors and outdoors (both hot and cold weather).
- **Hostile Weather** - apply in wind, cold, hot, damp or dry weather conditions. Withstands sudden unexpected rain.
- **Durable after Installation** - Long history of successful worldwide, outdoor use.

The above benefits more than offset the adhesive's initial cost/gallon or cost/pound because they result in more profits.

WANT THE FACTS? - Write, Call or Visit our Website:

**SYNTHETIC
SURFACES
INC**

P.O. Box 241
Scotch Plains, NJ 07076 U.S.A.
Tel: (908) 233-6803
Fax: (908) 233-6844
E-mail: info@nordot.com
Web: www.nordot.com

Synthetic surfaces must have the contamination completely removed without damaging the carpet fiber, backing or infill materials. This represents a significant challenge that should only be attempted by experienced and qualified professionals. Although manufacturers indicate they can restore infilled systems, we were unable to find anyone who had ever attempted such a restoration.

The rubber and sand infill act as a filter removing silt and sediment as floodwater travels vertically down through the surface, allowing the sediment to accumulate vertically through the infill profile. The sediment will not penetrate very deep as long as the floodwater is calm and not turbulent. The problem we anticipate is that rubber infill can float. Moving floodwater can easily scour and relocate material, especially small rubber particles. If heavy scouring occurs, silt and sediment can be mixed throughout the entire profile all the way to the carpet backing making restoration virtually impossible. Initial assessments should determine to what depth sediment has contaminated the infill materials, and subsequently, if restoration is even possible.

Removing sediment

Sediment removal is likely a two step process. The first step is removing as much of the sediment as possible from the surface. The second step involves removing the sediment contamination from the infill materials. It is critical that sediment removal is carefully managed so that no additional contamination occurs as a result of the restoration process. Silt and sediment in the profile will degrade drainage performance and ultimately shorten the life of the system.

Selection of equipment for removal from the field surface will depend on the depth of the sediment accumulated on the athletic surface. Depths of an inch or more can be managed the same as snow removal by using a rubber tipped blade. A single pass with the snow blade should remove as much silt from the surface as possible. To reduce further contamination of the surface is to use equipment with low impact flotation tires.

After the carpet fiber is exposed and you have an understanding of the depth of con-

tamination, removal of sediment from the infill can begin. If the silt has not penetrated deeply in the profile, a power sweeper (Laymor for example) or similar equipment can be used to sweep the contaminated infill from between the fibers to the required depth. Before attempting to complete this process over the entire field, the operator should experiment by sweeping small areas with varying moisture levels. A surface that is too wet or dry may allow the sediment to fall deeper into the profile further

Warranty conditions will typically demand manufacturer approved maintenance protocols. Although in reality, under these conditions most manufacturer warranties may be void.

damaging the infill. Some of the earlier Polyethylene carpet fibers may not tolerate repeated brushing of the surface required to remove the contamination. Exceptional care should be taken so that the carpet fiber is not damaged during this process.

Deeper contamination may require total removal of the infill. This is best accomplished by entrusting this task to a specialized company. These specialists have access to vacuum cleaners using for street cleaning operations that can remove the infill materials without damaging the carpet fiber.

The question is how much sediment is required to degrade long-term system drainage and field performance. Residual impurities will impact performance by providing a media for biological activity and reducing water movement through the profile and backing. The ability of the system to drain vertically can be greatly impacted by silt. In the marketplace drainage through the carpet backing is accomplished one of two ways, either by punching 1/4-inch perforations into the backing or by having a permeable backing. A permeable backing will act as a filter trapping sediment and causing blinding of the drainage capability. It may only take a small film of sediment to drastically impair drainage performance in permeable backing systems, rendering them useless. Permeable backing systems should protect the base material from contamination, since silt is trapped above the carpet and does not travel into the granular base. This allows the carpet to be removed and a new surface to be installed without base reconstruction or modification.

The systems that use perforations in the backing are much more tolerant of contamination because the larger perforations are not clogged by silt. However, it is difficult to know if this enhanced permeability will simply relocate the silt to the base aggregate creating problems below the carpet. Field bases constructed with fine finished stone layers (#9, #10, or #11 stone gradients) are going to more readily trap silt possibly impairing drainage performance. Until more definitive testing is completed, it is speculation as to what level of contamination will impact drainage performance requiring carpet replacement. Periodic infiltrations tests on the surface before and after restoration will allow the turf manager to monitor the change in system performance.

Cleaning, disinfecting and sterilizing

It is important to consult with manufacturers regarding cleaning and surface restoration procedures. Warranty conditions will typically demand manufacturer approved maintenance protocols. Although in reality, under these conditions most manufacturer warranties may be void.

Flood impurities intermingle with infill materials, detracting from its playability,



**Synthetic Turf Groomer
with GreensSlicer®
Spring Tine Rake.**

**Fast, Efficient Grooming
of all filled synthetic
sports fields!**

FEATURES and BENEFITS

- Synthetic Sports Turf Groomer works with all fill material currently used, in both wet and dry conditions.
- Patented brush design lifts turf fibers leaving them in a plush, upright position. Brushes move fill to low spots or depressions left after play.
- Synthetic Super Duty Blue Brushes retain their original shape, resist wear, and will not rot.
- GreensSlicer Spring Tine Rake consists of 3 rows of 28 tines spaced 7/8 inch apart for thorough coverage.
- Each row of tines may be adjusted to the desired level of aggressiveness.
- The GreensSlicer combs through the fill material, relieving compaction and assuring a soft, level playing surface.

**Call for additional information
on our line of
Synthetic Turf, Natural Turf,
and Clay surface Groomers**

**888-298-8852 Fax 317-298-8852
www.greensgroomer.com**

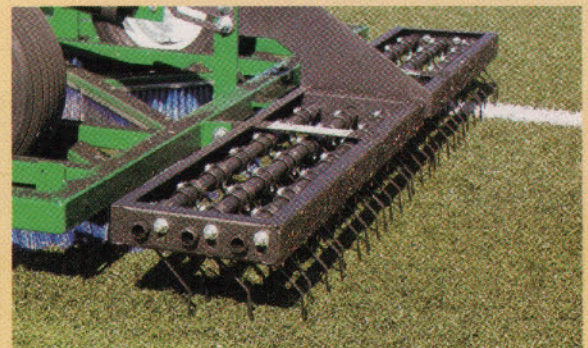
GreensGroomer WorldWide, Inc., Indianapolis, IN

Copyright © 2005 GreensGroomer WorldWide, Inc. All rights reserved.

U.S. Patents 5833013, 6655469. Other Patents Pending.



Synthetic Super Duty Blue Brushes
Resist wear and will not deteriorate from moisture.



GreensSlicer Spring Tine Rake
3 rows of 28 tines.



Experts on the Field. Partners in the Game.

FACILITY & OPERATIONS

creating exposure to bio-contaminants and causing inconsistent and hard spots in the playing surface. Depending on the type of bio-contaminants complete removal of the infill materials may be necessary in order to effectively clean or disinfect the carpet fiber. A few specialized companies have machines that use rotating nozzles and variable pressure jetted water to drive the dirt particles from the surface while picking up the dirty water using a vacuum cleaner (vortex process). Other types of special equipment (such as a sweeper-vacuum fitted with two contra-rotating brushes) are available to carry out the required in-depth suction cleaning of the surface. Conventional unmodified road-sweepers and sweepers designed for large areas are seldom suitable because of their high surface load and because they usually lack the tolerances necessary for cleaning synthetic surfaces.

Cleaning is the removal of debris reducing the amount of organic matter that could contribute to the proliferation of bacteria and diseases. Natural grass surfaces have a microbial activity that is self-cleaning. Synthetic fields promote conditions of warmth and moisture that can foster bacterial growth, while lacking the ability to self clean. The more debris that is removed at the cleaning stage, the more effective the disinfectants are. Cleaning is best done with hot, soapy water and rinsing with clean water to flush contamination from the surface. Completely rinse out all soap residues as some ingredients may interfere with the work of the disinfectant. Soap residual can also leave the playing surface slippery.

Almost any good liquid soap can be used for cleaning. Simple Green™ and regular dish-washing soap both work. Always dilute products such as Simple Green according to man-

ufacturer's directions. Antibacterial soaps are generally ineffective. They are not disinfectants and should not be used in place of a proper disinfectant.

Disinfecting is the removal of organisms present on the surface that can cause infection or disease. Disinfecting is useful against a number of bacterial and viral microorganisms. Sterilization is the killing or removal of all disease causing organisms. Often the same products may be used to disinfect and to sterilize. The difference is in the strength of the solution and/or the amount of time the solution is left in contact with the surface.

According to the International Hockey Federation in their Handbook for the Care and Maintenance of Synthetic Turf Pitches, "The agent of choice is a quaternary ammonium chloride, which is marketed by the firm Bayer under the name "DIMANIN." In addition to its purely algacidal action, the quaternary salt is

Pioneer
"The Striping People"

(800) 877-1500
www.pioneerathletics.com

Member
SportsTurf
MANAGERS ASSOCIATION



Synthetic Turf Paints

- America's 1st Choice in Synthetic Turf Paints Specially Formulated for Exceptional Brightness and Durability
- Quick and Easy Removable Paint System for any Event
- Custom Stencils for Special Events or Playoff Games



Natural Grass Paints

- Premium Paint Formulas for all Levels of Athletic Events
- Highest Quality Bulk and Aerosol Blends
- Advanced Field Striping Equipment Technology

"When Your Game is on the Line"

Pioneer has you covered with a full line of paint products for synthetic and natural turf

Fill in 124 on reader service form or visit www.oners.ims.ca/5906-124



PERK

ORGANIC IRON

GREEN WITHOUT GROWTH



More than simply a traditional fertilizer, Perk is a true turf revitalizer. Our proprietary slow release organic iron combines iron humate with potash, nitrogen and magnesium to produce the only organic granular controlled-released iron source available. Perk provides deep, long-lasting greening and increased resistance to wear, drought and disease without stimulating excessive growth. Plus, the 15% magnesium in Perk even promotes the production of chlorophyll. You'll find Perk perfect for greening up fields or fairways. For more information, please visit www.LebanonTurf.com. Or, for the name of your nearest distributor, call 1-800-233-0628. *And give your turf a little perk-me-up.*

*Not just green...
Perk green!*

LebanonTurf

1-800-233-0628 • www.LebanonTurf.com

FACILITY & OPERATIONS

Striping Made Easy



Eco-Liner II

...With Newstripe Eco-Liners

- Easiest cleaning machines on the market
- Pump paint directly from 5 gallon pails
 - Gas or Battery powered units
 - Bi-Directional spray heads
 - Continuous Paint Agitation
 - Will not damage turf or roots



NewRider 2000

...NewRiders

- 30 & 55 gallon models
- Built in purge systems
- Bi-Directional spray heads
- 5 speed & hydrostatic drives



Dirt Doctor

- Nail Drags
- Drag Mats
- ProLine Field Layout System
- Dirt Doctor Infield Groomer 4' & 6' Models 3 pt. Hitch or Tow

NEWSTRIPE

1700 Jasper St., #F
Aurora, CO 80011

www.newstripe.com

1 800-624-6706

Fill in 140 on reader service form or visit
www.oners.ims.ca/5906-140

also absorbed onto the pile fibers significantly extending its long term action and also reduces electrostatic charge build-up." As with all controlled chemicals, strictly observe the safety guidelines specified by the manufacturer when working with the undiluted liquids.

Disposing carpet and infill materials

A problem to contend with after the carpet has been replaced entirety or portions of the SBR infill materials have been removed, is the disposal of the carpet and infill materials. Manufacturers claim that the rubber infill can be reclaimed and reused, but cost considerations will likely preclude

Some states allow for rubber tires to be used in an energy recovery plant. Rubber tires have a very high BTU content which makes them a good source of fuel for cogeneration (the joint production of useful heat and electricity) incinerator facilities or other industries that require incinerators, such as paper mills or cement kilns. It is uncertain if infill materials contaminated with sediment would qualify for incineration. Disposal of carpet and infill materials will require some research of state statutes to determine the proper handling of these materials.

When it comes to restoring a flood damaged synthetic field, you

Often the same products may be used to disinfect and to sterilize. The difference is in the strength of the solution and/or the amount of time the solution is left in contact with the surface.

this from happening. New rubber infill costs about \$0.12 per pound. Picking up 125 tons of infill material from the carpet fiber and cleaning it for less than \$0.12 a pound is not economically. It is important to remember that manufacturers are in the business of selling new fields not saving old fields.

The SBR rubber used in the infill is made from recycled tire scraps ground into small particles. SBR rubber can contain toxic heavy metals such as lead, zinc, chromium, mercury and barium. As a result, many state statutes define tires (either whole or in pieces) as a "special waste" that requires special handling in a landfill. Eleven states no longer permit the landfilling of waste tires at all, and 17 states allow waste tires to be disposed of only in "monofills."

are basically on your own. The manufacturers and industry professionals have limited knowledge and experience to guide you along the way. The process is going to require careful planning and experimentation to determine the best course of action. Realize you are in uncharted territory, take it slow and be deliberate in your efforts.

Jeffrey L. Bruce is owner of Jeffrey L. Bruce & Company, a national landscape architectural firm in Kansas City that plans, designs and restores athletic and recreational facilities. Graham E. Hayes II is a partner of Dedicated Operational Contracting a national artificial turf installation firm that specializes in repair and maintenance of athletic surfaces. ■

New Products!



1. Concentrate paint

1. Fastliner super concentrate paint can stay in suspension for up to 14 days. This means you can leave it in the application tank until you need to use it again; and when you do, simply agitate and resume painting. Sold in 3-gal. containers for easy handling, Fastliner can be combined with color additives.

Broyhill/800-553-1184

For information, circle 063 or

see <http://www.oners.ims.ca/5906-063>



2. Artificial turf edging

2. XPotential Products Inc. manufactures artificial turf edging made from recycled cars and post consumer plastics. The notched turf edging comes in 8-ft. lengths and eliminates the need for concrete curbing and nailer boards. Products will not twist, splinter, rot or decay.

XPotential Products Inc.

For information, circle 062 or

see <http://www.oners.ims.ca/5906-062>

www.sportsturfmanager.org

AERA-VATOR™



NEW for 2006!
AERA-VATOR HAS
50% MORE TINES

Jim Puhalla
SportScape
International
Boardman, OH



Sportscape originally purchased an Aera-Vator for solid tine aerating but quickly found many other uses for this versatile machine. We actually use it more than any other attachment in our arsenal of sports field construction and maintenance equipment.

f First Products
INNOVATIVE TURF EQUIPMENT

164 OAKRIDGE RD TIFTON GA 31794

CALL FOR A FREE VIDEO TODAY

800-363-8780

SALES@1STPRODUCTS.COM

WWW.1STPRODUCTS.COM

Fill in 127 on reader service form or visit www.oners.ims.ca/5906-127

FASTER, STRONGER, EASIER

and, best of all, AFFORDABLE!

The Kombi Line Marking Machine



SUPERIOR PAINT
even on poor surface conditions

Call us at
1.800.553.1184
Or visit us on the web at
www.fleetbroyhill.com

Fleet Broyhill
PERFECTING LINE MARKING • LLC

Fill in 126 on reader service form or visit www.oners.ims.ca/5906-126

What drives you nuts?

We asked some readers via email, "After hosting an event at one of your facilities, what is the one issue with the public (athletes/coaches/officials) that just drives you nuts?"

Respect for the field is an important perception in my mind. Most of the public lack respect for the field and many athletes/coaches/officials only respect the field when it is convenient for them. Turfgrass is much like a human being. It is able to put up with an extraordinary amount of abuse; however both can be so fragile depending on the timing. What drives me nuts? People want the best but are unwilling to recognize and take action on what they can do to contribute to that goal. Spectators don't need to enter the field or bench areas for any reason. Coaches, please move the drills around and keep the bench well back from the out of bounds line. Athletes, use the field to perform but please avoid digging holes purposefully, move your drills and avoid unscheduled use. Officials/AD's, field safety applies to future games not just the current game or practice you would like to get in.

Everyone: please don't drive or park on the field; for that matter walk around the field to get to the other side. The field is intended for specific sport practice and play; if you are not a player/coach/official or responsible for the fields care then stay off please. You are adding unnecessary wear and stress that will contribute to an unsafe playing field.

- Martin from the Southeast

Trash in parking areas!
- Bill from the Northwest

Compliments come from the visiting teams, complaints from the home team.

- Ted from Midwest

I would have to say that as the years go on, there seems to be more people that leave personal items in the stands, e.g., cell phones, coats, etc. and when they come back later they expect that item to have been turned into lost and found. And then get angry with me or one of my crew for not finding the item they lost.

- Mike from Rocky Mountain region

TRASH! It drives me crazy to provide a quality facility to a sports organization and see the dugouts, bench areas and spectator seating areas littered with cups, candy wrappers, and other debris when there are empty trash cans just feet away.

- Phil from Southeast

My biggest issue is the disrespect people have towards your facility. Some, not all, think because they bought a ticket they can do whatever, and go wherever they please. There are reasons they may not be allowed in a restricted area, i.e. safety and security. The things such as trash, and wear and tear on normal items is part of the game, and those things don't bother me, it's the same people I have to tell over and over to basically grow up.

- Chris from the West Coast

