

Synthetic Field Management

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Experts on the Field, Partners in the Game.




Synthetic Field Management

- Design Stage: Prepare for long-term performance
- Initial Year: Potential challenges
- Middle Years: Keeping your field performing at peak levels through the first 5 years
- Final years



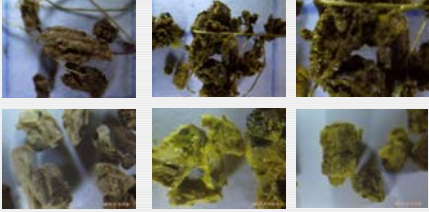
Design Stage

- **Water Supply & Drainage**
 - 1" water supply at various points around your field
 - Sanitary sewer
 - Especially if extraction is part of your strategy
 - Design for **great, long-term drainage** in any areas where painting and removing is part of your strategy.
 - **Good drainage is critical for long-term performance and success**




Design Stage

- Infill
 - Absorbent infills absorb all liquids – including paints
 - Coconut and Cork




Unpainted Painted Painted & Removed




Design Stage

- Infill
 - Absorbent infills absorb all liquids – including paints
 - Zeolite and Rubber



Unpainted Painted Painted & Removed



Design Stage

- Inlay versus paint
 - How many different lines are acceptable?
 - What lines do you need when the weather is at its worst?
 - Use inlaid tick marks and off field anchors to minimize field clutter and application times.

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Design Stage

- What types of inlays cause the most warranty problems?
 - Soccer free kick, lacrosse creases, corner kick, hash marks, intricate logos



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Warranty

- Get a copy of the warranty before you take over responsibility for the field
- If you cannot get one through your facility, contact the builder, architect or synthetic turf company
- Many warranties contain specific requirements
- Some warranties are easy to violate through inaction or using the wrong equipment
- Warranties are negotiable
 - Work with your architect or designer!

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New Field = New car syndrome




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Early Years 0-1

Arizona Stadium

- Field Turf Revolution (monofilament)
 - Installed 2013
- Cool Play infill
 - Upgraded to V3
- Hunter ST system
 - "BearDown" shadow logo



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Early Years 0-1

It gets hot!

- Highest measured temp is 171 degrees F
- Typically see +40-50 over air temp in sun
- Surface will be near air temp within 30 min of being in shade
- Not much difference between colors



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Early Years 0-1


- 1st year of life –
 - Infill not yet settled in
 - Field plays softer
 - Can cause painting challenges
 - Light, organic infills near the tips of the blades
- Painted infill is much more obvious in vertical stadium environments



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Early Years 0-1

- Spin Finish
 - Lubricant applied to fibers to reduce friction during the tufting process.
 - Traditional thought is that spin finish is largely removed during the installation process and through wear and UV exposure.
 - In general, this is mostly true.
 - Stearic Acid (saturated fatty acid), Castor Oil (vegetable oil), Lanolin (waxy substance from animals)
- We have found that spin finish levels **above 0.2% by weight** impact paint adhesion to the fibers.
 - Have seen levels above 0.9% by weight



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Early Years 0-1

Paint issues

Have had some adhesion issues with removable paint



- Spin finish tested high
- Colored fibers seem to be worse than green
- Initially thought low temp/moisture issue
- Have since moved temp logos to green area and have seen great improvement




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Early Years 0-1

Poor adhesion on White Fibers

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Early Years 0-1

Kick test




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Early Years 0-1

Now logos go on green fiber base





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Early Years 0-1


- Spin Finishes
 - Different cleaners are better on different spin finishes

Figure 2: FTIR overlay Spectrum of all samples from Submission 209007



Sample	% Surface Residue
Control	0.716%
Specialty solvent	0.609%
High pH cleaner	0.556%
Concentrated Orange oil cleaner	0.439%
Nano tech Cleaner	0.435%

FTIR – (Fourier Transform Infrared Spectroscopy)



Early Years 0-1

• Spin Finish

Lisport test




Cleaner A Cleaner B Control

Early Years 0-1

- Test paints, removers and cleaners before you need to use them!
 - If there are durability problems, test to see what cleaners work best to improve adhesion
 - Send clippings from your field to a lab
 - Minimum \$1,500
 - Ask your paint provider for guidance
- If possible, wait at least 30-45 days before painting
 - Let infill settle
 - Some spin finish degrades with exposure to UV, weather and wear.

Middle Years



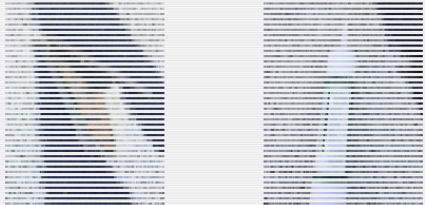
Middle Years

Lots of inlay = lots of seams to check



Middle Years


Fix problems while they are small



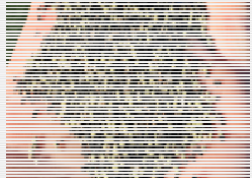
Middle Years

Infill management

V1 Cool Play



V3 Cool Play



Middle Years

Problems with V1

- Very light weight
- Prone to floating
- Prone to static cling
- Manage with water and fabric softener




Middle Years



Monsoon rains are particularly challenging





Middle Years

Cork is easily displaced

Middle Years

Static from grooming makes V1 cling to fibers





Middle Years

Before and After

After every groom, we water field to settle infill




Middle Years

Game Prep

Day before game:

- Sweep
- Groom
- Water
- Fabric softener

Day of Game:

- Logo lines
- Clegg




Middle Years
Magnet is always surprising!

The left image shows a maintenance roller with a 'GMAX' logo on a green field. The right image shows a person's hands using a hand tool to work on the turf surface.

Middle Years
Fabric Softener

Applied day before game

- Minimizes infill cling during play

The image shows a white maintenance vehicle with a red sprayer tank on a green field, likely used for applying fabric softener.

Middle Years
Shadow lines through logos

The left image shows a white logo with horizontal lines, and the right image shows a red and white logo with a similar shadow effect.

Middle Years
Fibers in good shape

Fibers less reflective Standing upright

The left image shows fibers that are less reflective, and the right image shows fibers standing upright with a hand for scale.

Middle Years

- How you maintain your field in years 1-5 will determine how your field will perform in years 6-10.
- Good infill management leads to proper drainage.
 - Poor drainage:
 - Dust and dirt gets trapped in field
 - Paint rinse water pools which leads to paint residue buildup
 - Potential GMAX problems
- Good maintenance practices lead to fiber that is in better condition
 - Looks and plays better
 - Can be painted more readily.

Later Years


The image shows a red car flying through the air, likely representing a high-quality field that can handle such impacts.

Later Years 

Worn Fibers
Fibers laying over look shiny

Fibers are worn, no longer upright




Later Years 

- Old, worn fibers do not have much surface area to paint.

Red Fiber

Green Fiber

Old New Old New



Later Years 

Fibers degrading



Later Years 

- Degraded fibers can stain as pigment gets trapped

New Degraded



Thank you!

Any questions?

