SYNTHETIC TURF WORKSHOP

Introduction and Preview of
LTI 621 – Synthetic Turf – What You Need To Know
LTI 622 – Field Safety

SYNTHETIC TURF WORKSHOP

LTI 621 - DESIGN AND CONSTRUCTION
COMPONENTS OF SYNTHETIC

LTI 622 - FIELD SAFETY

Presented by
Mark Nicholls

in association with
SYNHETIC TURF WORKSHOP

Introduction and Preview of

LTI 621 – Synthetic Turf – What You Need To Know
LTI 622 – Field Safety
Mark Nicholls – President and Founder of TURFindustry
UBU Sports – CEO and President

Over 27 years of direct experience
In the synthetic turf industry

Started as an installer and has personally completed 100’s of successful projects
Built one of the top brand in North America

Created installation training university

Established world class R&D Center

Built largest independent manufacturing facility in North America
SYNTHETIC TURF WORKSHOP

Introduction and Preview of
LTI 621 – Synthetic Turf – What You Need To Know
LTI 622 – Field Safety

HOUSEKEEPING:

“ALL”
W-Workbook
P-Presentation
M-Maintenance
F-Fiber Study
$-Financial
H-Heat Index
B-Best Practices
S-Specifications

Questions?
The Goal

Arm interested individuals with general knowledge regarding field safety and playing surface performance. Provide detailed instruction of how select a playing surface and test sports fields for safety.

Inspire discussion on performance and safety.

Engage professionals in the debate regarding player safety and playing surface performance.
Design and Construction Components of Synthetic Fields

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Mark Nicholls

in association with

TURFSCAPE.
THE GREEN ALTERNATIVE

UBU
ground gear for athletes
DESIGN: Turf System - Introduction
DESIGN: Turf System - Construction
### Design and Construction Components of Synthetic Fields

#### Concept

<table>
<thead>
<tr>
<th>Concept</th>
<th>Design</th>
<th>Construction</th>
<th>Completion</th>
<th>Maintenance</th>
<th>Lifecycle Planning</th>
</tr>
</thead>
</table>

#### Design: Turf System - Fiber

**SLIT FILM**

- Fibrillation: YES
- Structural Integrity: STRONG
- Tuftbind: GOOD
- Infill Encapsulation: GOOD
- Fiber Loss: LOW

**MONO FILAMENT**

- Fibrillation: NO
- Structural Integrity: WEAK
- Tuftbind: POOR
- Infill Encapsulation: POOR
- Fiber Loss: HIGH

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DESIGN: Turf System - Construction
DESIGN: Turf System - Backing

Foundation of the entire system

Secure Top Shield
Durable Foundation
Proven Dimensional Stability
Improved Fiber Retention
Enhanced Seaming Properties
DESIGN: Turf System - Infill

Infill options – (No Magic Potions!!)

- 100% Rubber
- Rubber and Sand mixture
- Rubber and Sand layered

Note: No durability, performance, or safety issue between ambient ground rubber and cryogenic rubber.
DESIGN: Turf System - Seaming

Seams do make a difference,…

- Chemical Seam
- Sewn Seam
- Hybrid Seam

- Adhered Seam
- Lap Seam
- Flat Seam
- Flat Weld

…and understanding your options is important!
Design and Construction Components of Synthetic Fields

DESIGN: Turf System – Lines & Markings

LINE TYPES

Inlaid Lines

Painted Lines

Routed Lines

Warning: Routed Lines Should Never Be Utilized
DESIGN: Details - Equipment

Football Goal Posts and Sleeves
Football Game Equipment (Markers, Dial A Down, etc)
Soccer Goals
Soccer Game Equipment (Corner Flags, etc.)
Baseball Bases and Anchors
Pitchers Mound
Baseball Foul Poles
Paint Application Equipment
Templates and Stencils
Benches
Lighting
Fencing
Utility Vehicles
## DESIGN: Evaluation Criteria

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base and Drainage Construction</td>
<td>20</td>
</tr>
<tr>
<td>Synthetic Turf System</td>
<td>20</td>
</tr>
<tr>
<td>Bid Documentation &amp; Overall Submission</td>
<td>20</td>
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<tr>
<td>Site Visits</td>
<td>15</td>
</tr>
<tr>
<td>Warranty and Insurance</td>
<td>10</td>
</tr>
<tr>
<td>Mandatory Drawing Requirements</td>
<td>10</td>
</tr>
<tr>
<td>Installation References</td>
<td>5</td>
</tr>
</tbody>
</table>

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**BIDDER’s SCORE**

**BIDDER’s PRICE / 1,000,000**

Vendors BVRS
DESIGN: Vendor Selection

Installation is Everything!

An Experienced, Professionally Trained, and Certified Installation Crew is critical to the successful completion of the project!

The synthetic turf industry has been built on the backs “and knees” of passionate professionals that take pride in every field they install!
DESIGN: Submittal - Documentation

Grading Plan
Drainage Plan
Edge Details
Shop Drawings
Synthetic Turf Product Data Sheet
Synthetic Turf Specification Sheet
Mandatory Testing Requirements
Lead and Heavy Metal Testing
Installation References
Maintenance Manual
Health and Safety Policy
Environmental Policy
Recycling Policy
Warranty Document
Insured Warranty
Acord Certificates
Insurance Documentation
Insurance Carrier Rating
Installation Standards
Bonding Requirements
Quality Assurance
Anti Trust Statement
License and Registrations
Indemnification Letter
Proposed Schedule
DESIGN: Submittal - Samples

12” by 12” sample of turf material (actual color) – without infill
One (1) sample of material with infill in standard container
12” by 12” sample of tufted line – without infill
12” by 12” sample inlaid line - without infill
12” by 12” sample of proposed seaming method
12” by 12” sample edge showing backing layers
Fiber bone of each color fiber to be utilized
Five (5) pounds of proposed infill material
Five (5) pounds of base course stone material
Five (5) pounds of fine course stone material
12” by 12” of base liner material
One (1) foot sample of drainage pipe
DESIGN: Mandatory Testing

Testing is, ...

REQUED

Infilled Synthetic Turf Products:

1. Ball Bounce - Soccer & Baseball - ASTM F1551
2. Face Weight - ASTM D5848
3. Gmax - ASTM F355
4. Grab Tear Strength Length & Width - ASTM D5034
5. Infiltration Rate - BS 7741
6. Machine Gauge / Stitch Rate - ASTM D5793
7. Pile Height - ASTM D5023
8. Pill Burn - ASTM D2869
9. Primary Backing Weight - ASTM D5848
10. Relative Abrasiveness - ASTM F1015
11. Seam Strength Sewn & Glued - ASTM D5034
12. Secondary Backing Weight - ASTM D5848
13. Shoe Traction Football & Soccer - ASTM F1551
14. Total Weight - ASTM D5848
15. Tuft Bind - ASTM D1335
16. Wheel Chair Accessibility - ASTM F1951
17. Yarn Break Strength & Elongation - ASTM D2256
18. Yarn Linear Density - ASTM D1577
19. Yarn Melт Point - ASTM D789
20. Yarn Specific Gravity - ASTM D792
21. Yarn Thickness & Width - ASTM D3218
DESIGN: Insured Warranty

An INSURED WARRANTY, …
…is “REQUIRED PROTECTION”.

VENDORS WARRANTY: The Document that explains exactly what is covered and what is not covered by the warranty.

ACCORD CERTIFICATE: Outlines who is covered and during what period. It is crucial to be a named insured on this document.

INSURANCE POLICY: Outlines the insurance coverage that protects the vendor warranty and under what circumstances the coverage applies.
MAINTENANCE: Equipment
LIFECYCLE PLANNING: Introduction

Lifecycle and Recycling

- Cannot Plan For Field To Last Beyond The Warranty Period
- The Field Will Need To Be Replaced Eventually
- Financial Planning For The Eventual Replacement Is Required
- Financial Planning For The Eventual Disposal Is Required

From the day you purchase a synthetic turf system, you will need to plan for its eventual replacement and the associated disposal costs of the existing field.
CONCLUSION:

Base decisions on fact,… not marketing!

Get involved in the process, don’t rely on others!

Appreciate that this is a sophisticated purchase!

Educate yourself accordingly!
FIELD SAFETY

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FIELD SAFETY: Performance

Definition:
The surfaces appropriateness to perform for a specific sports use. The shoe surface interface, the ball interaction by sport, and the surfaces ability to optimize the athletes performance.

Measurement:
Friction, Torsion Resistance, Ball Bounce, Ball Speed, Shoe Traction, Coefficient of Restitution.
FIELD SAFETY: Safety

**Definition:**
The sports field being maintained in a professional manner to maximize player safety. The surfaces hardness upon impact, the air temperature during the players use of the surface, are critical safety aspects.

**Measurement:**
Gmax, Temperature, Infill Depth, Infill Deviation, HIC, Lead Content.
TESTING: Safety
FIELD SAFETY: What Has Changed
FIELD SAFETY: Your Role

- Shoulder pad
- Chest protector
- Arm guard
- Rib pad
- Hip pad
- Lumbar pad
FIELD SAFETY: Your Responsibility
FIELD SAFETY: Conducting A Field Assessment
FIELD SAFETY: Risk Mitigation

Knowledge
Education
Planning
Prevention
Documentation
FIELD SAFETY: Documentation

- Maintenance Certificate
- Maintenance Log
- Game Day Manual
- Industry Standards
- Enhanced Reporting
- Gmax Assessment
- Infill Depth Assessment
- Visual Inspection
Performance requirements vary by sport.
TESTING: Gmax Math

- 115 New Orleans Saints (Indoor)
- 105 Tampa Bay Buc's
- 125 Louisiana Superdome
- 166 NFL Max

ACCEPTABLE RANGE

- Pristine Grass: 90 - 115
- Too Soft
- GMAX Rating
TESTING: Gmax Math

Example Readings

60 – Muddy Grass
80 – Minimum acceptable Gmax
105 – NFLPA – TBB Field
115 – NFL Indoor
125 – NFL Stadium
150 – Acceptable Max – Most Vendors
166 – NFL – Max Professional Football
175 – Acceptable Max – Certain Vendors
180 – Packed Clay
200 – OSHA – “Will Cause Death”
225 – Frozen Grass
FIELD SAFETY

TESTING: Gmax

Equipment & Operations
**FIELD SAFETY**

**TESTING:** Enhanced Reporting Systems

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**TESTING:** Enhanced Reporting Systems

<table>
<thead>
<tr>
<th>Date and Time of Testing:</th>
<th>Name of Tester:</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 24, 2011</td>
<td>ABK</td>
</tr>
</tbody>
</table>

**Field Name/Location:**

**General Weather Conditions:**

**Notes:**

- This is a Test

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**Directions:**

To use the **TEXT TOOL**, click on the text box and drag it to the required text spots marked with a numbered yellow dot and your random spots marked with an 'X' then click next to the marks and type in the results of the tested targets. Also use the text tool to fill in required information fields. Hit Enter when done typing.

- Use the **MARKERS** to draw an 'X' to mark the spot where the random test spots are located.

- To erase a mistake you can use the **ERASER TOOL**. Click and drag the eraser to the spot and rub the area to erase.

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**Diagram:**

Field layout with numbered spots for testing locations.
TESTING: Summary

Safety - Acknowledging the importance and understanding your role
Performance – Sports specific requirements and needs
Gmax Math – The relevance of the numbers
Gmax Equipment And Operations – Options and efficiency
Enhanced Reporting Systems – Document retention
NATURAL GRASS: Introduction
NATURAL GRASS: RP1 Hardness - Gmax

FIELD SAFETY TESTING NATURAL GRASS SYNTHETIC TURF BEST PRACTICE ACCREDITATION
NATURAL GRASS: RP2 Planarity
Worn Areas - Divots

10 Required Points
10 Random Points

Sports Specific
Required Points

- 10 Foot String Line
- ½” deviation is considered unacceptable
SYNTHETIC TURF: RP2 Planarity

Infill Depth

Infill Depth and Evenness is critical to player safety

Infill Displacement due to previous play needs to be monitored and remediated to ensure surface consistency and planarity
BEST PRACTICES: Introduction

Risk Management
List Of Equipment
Maintenance Remediation
Game Day
Field Markings
Heat
Cold
MRSA / STAPH
Lifecycle Planning
FIELD SAFETY: Summary
CONCLUSION:

Field Safety is critical,… requires more than words!

Get educated, take responsibility for player safety!

It is paramount to INSPECT,…

What you EXPECT from your sports fields!

Nothing is more important than safety!
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THANK-YOU

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