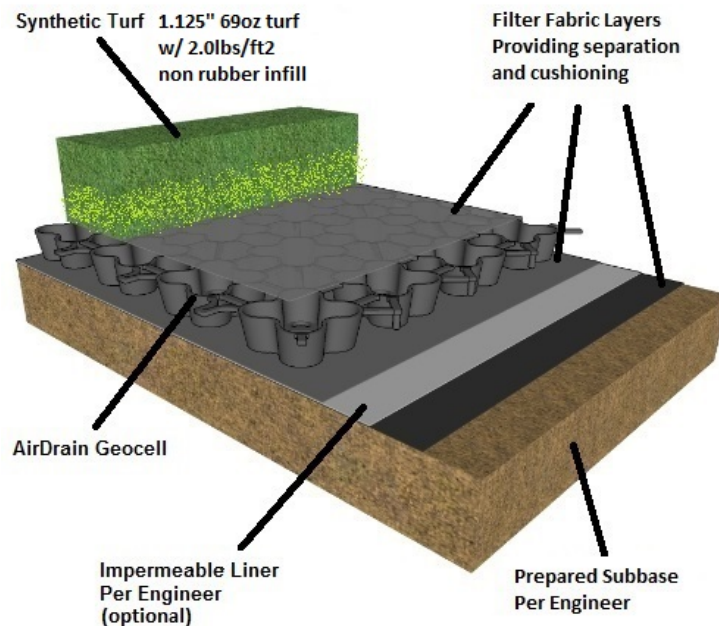


AirDrain – What drains better than Air?

For Synthetic Turf No Rubber Infill Solution

The consistent **Gmax** and Shock Attenuation properties of the **AirDrain** system are major contributors to the safety of players and the reduction of concussions. Unlike traditional shock pads or e-layers, **AirDrain** is 1" high, has 92% air void and 100% vertical drainage. **AirDrain's** performance cannot be matched by any other product in the industry.

A **No Rubber Infill Solution** provided for Sports Fields, Play Areas and general purpose use reduces maintenance, upkeep and cleaning the surrounding area of rubber pieces that tend to find their way off the field.

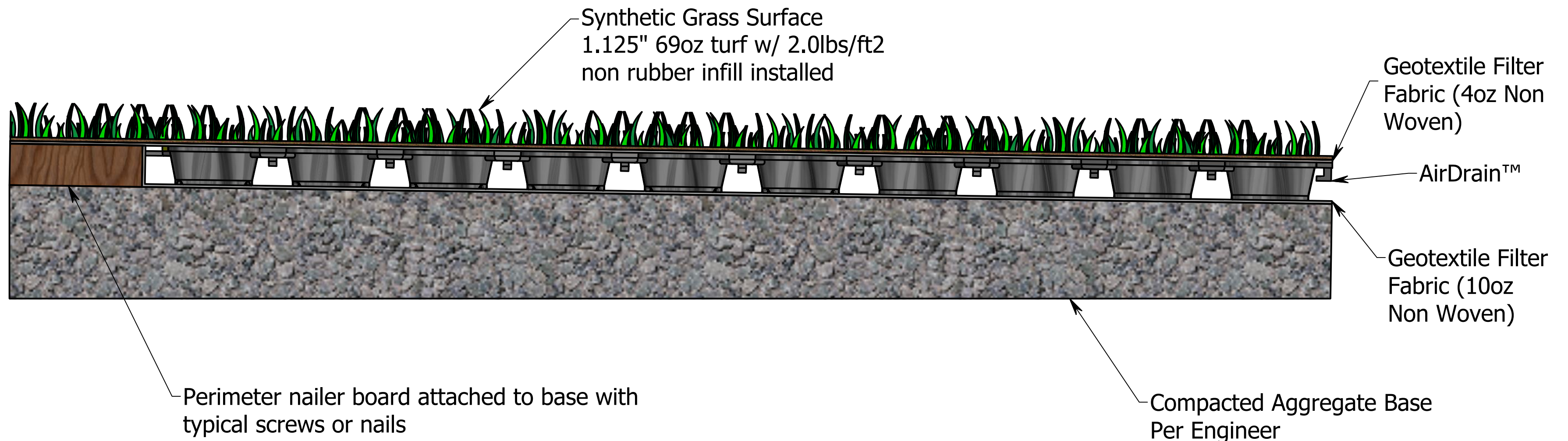


Some of the Benefits of an AirField Synthetic Turf Drainage System include:

- AirDrain creates and helps maintain a constant **Gmax** for Synthetic Turf
- ASTM testing proves AirDrain's shock absorption properties reduces **Gmax**
- AirDrain creates a 1" air void allowing for 100% vertical drainage over the whole installation
- Patented expansion and contraction built into every part which keeps the grid from buckling
- AirDrain is only limited by the drainage capacities of the profile above and the exit drains below
- AirDrain can be reused when the synthetic turf must be replaced

*This drawing, specifications and the information contained herein is for general presentation purposes only. All final drawings and layouts should be determined by a licensed engineer(s). HIC & Gmax testing are measured in a lab setting and are not site specific.

Synthetic Turf No Rubber Infill Detail



AirDrain™ Unit Panel Specifications:

Size: 32" x 32" x 1"
 Weight: 3.1 lb
 Strength: 233 psi (unfilled)

Resin: 100% Recycled (PIR)
 Copolymer with Impact Modifier
 "No Break" Polymer Material

Color: Black
 (3% carbon black added for UV Protection)

Airfield Systems
 8028 N. May Ave., Suite 201
 Oklahoma City, OK 73120
 (405) 359-3775
www.airfieldsystems.com

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DRAWN Gary	1/13/2013	Airfield Systems	
CHECKED			
QA		TITLE Synthetic Turf No Rubber Infill	
MFG		SIZE C	DWG NO Concrete_SP_REV_001
APPROVED		SCALE	REV 1
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TEST REPORT

CLIENT:

Company:	Airfield Systems	Report Number:	66090
Address:	8028 North May Avenue, Suite 201	Lab Test Number:	2781-6357
	Oklahoma City, OK 73120	Test Completion Date:	1/15/2016
		Report Date:	1/15/2016
Requested By:	Michael Bean	Page:	1 of 1

TEST MATERIAL:

Material Type:	Synthetic Turf over Pad System				Date Received:	1/4/2016	
Material Condition:	EXCELLENT:	XXX	GOOD:		POOR:		REJECTED:
Turf and Infill ID:	MSP 69 with 2.0 lbs/ft ² Envirofill installed						(TOP)
Fabric ID:	4 oz Non-Woven Filter Fabric						↑
Grid ID:	AirDrain						
Fabric ID:	10 oz Non-Woven Filter Fabric						↑
Base ID:	2" #7 & #81 Rock (bottom) + 1" Compacted Fines Layer (top)						

TESTING METHODS REQUESTED:

<i>Testing Services Inc. was instructed by the client to test for the following...</i>			
Standard:	ASTM F355a	Test Method:	Standard Test Method for Impact Attenuation of Playing Surface Systems and Materials

SAMPLING PLAN:

Sampling Date:	1/14/2016
<ul style="list-style-type: none"> Specimen sampling is performed in the sampling department at TSI. The sampling size of specimens is determined by the test method requirements. In the event a specific sampling size is not called for, a determination will be made based on previous testing experience, and approved for use by an authorized manager. All samples are subjected to the outside environmental conditions of temperature and relative humidity. Sample requiring pre-determined exposure to specified environmental conditions based on a specific test method, take place in the departments in which they are tested 	

DEVIATION FROM TEST METHOD:

State reason for any Deviation from, Additions to, or Exclusions From Test Method.
None

TEST SUMMARY:

TEST METHOD	TEST DESCRIPTION	TEST RESULT
ASTM F355-10a	Impact Attenuation (Gmax)	126
Test Conditions: 63°F, 29% RH Drop 1: 107 Drop 2: 128 Drop 3: 123 Drop Height: 24"	Test Equipment: Clearview Bumper II Missile Weight: 9.1 kg (20 lbs) Missile Velocity: 3.4 meters/second	Pile Ht: 28 mm

Uncertainty:

We undertake all assignments for our clients on a best effort basis. Our findings and judgments are based on the information to us using the latest test methods available. TSI can only ensure the test results for the specific items tested. Unless otherwise noted in the deviations sections of this report, all tests performed are in compliance with stated test method.

Test Report Approval:

Erle Miles, Jr. VP, Testing Services Inc

TSI Accreditation: Our laboratory is accredited by the US Dept of Commerce, National Institute of Standards and Technology: ISO/IEC 17025:2005. Our code # is: NVLAP 100108-0. TSi is a certified independent testing laboratory by the Synthetic Turf Council

Form:	Rev:	Revision Date:	Page 1 of 1
Release Date:	Control Type: Electronic – Expires 24 hours after this date: Jan. 15, 16 Printed copies are uncontrolled		

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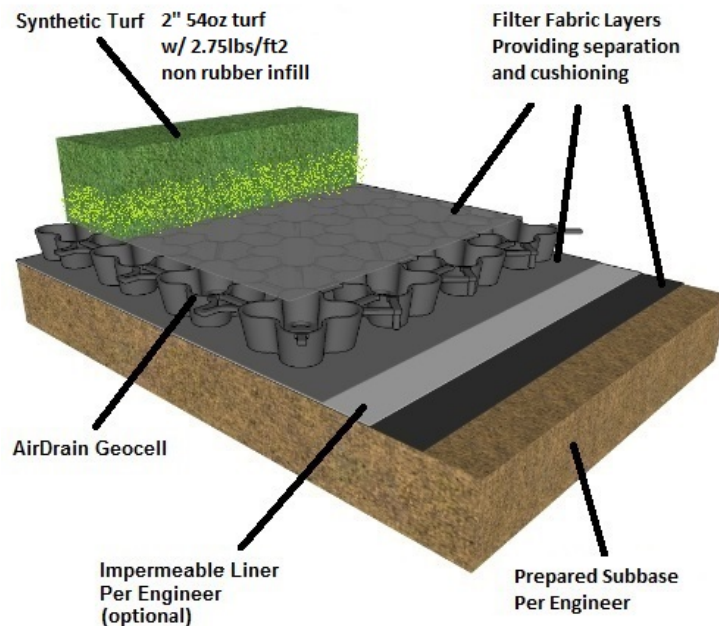
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AirDrain – What drains better than Air?

For Synthetic Turf No Rubber Infill Solution

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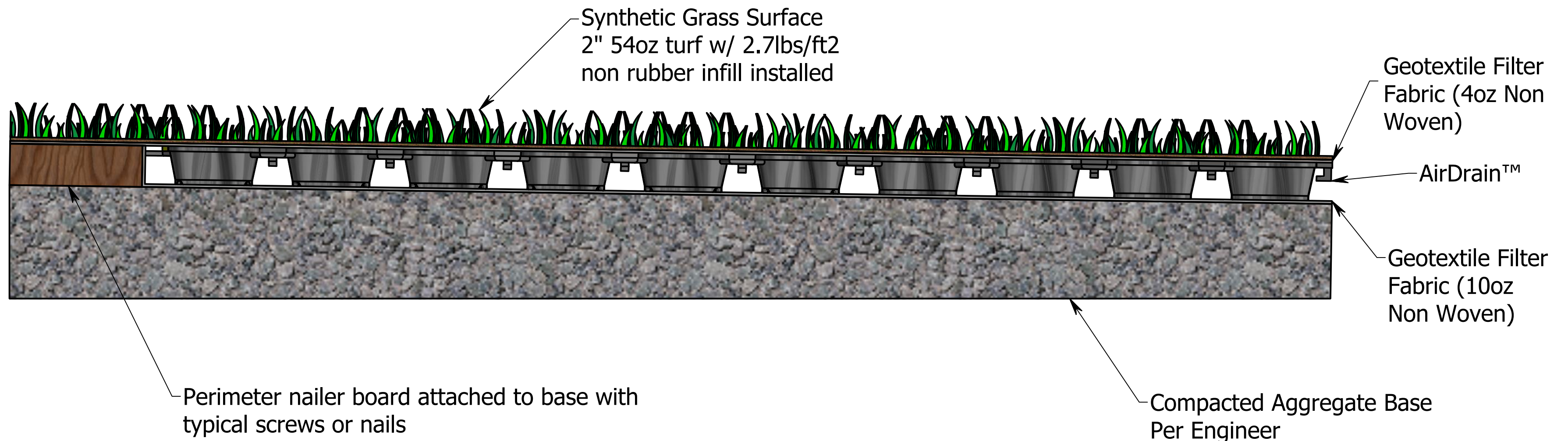


Some of the Benefits of an AirField Synthetic Turf Drainage System include:

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- AirDrain can be reused when the synthetic turf must be replaced

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Synthetic Turf No Rubber Infill Detail



AirDrain™ Unit Panel Specifications:

Size: 32" x 32" x 1"
 Weight: 3.1 lb
 Strength: 233 psi (unfilled)

Resin: 100% Recycled (PIR)
 Copolymer with Impact Modifier
 "No Break" Polymer Material

Color: Black
 (3% carbon black added for UV Protection)

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 8028 N. May Ave., Suite 201
 Oklahoma City, OK 73120
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DRAWN Gary	1/13/2013	Airfield Systems	
CHECKED			
QA		TITLE Synthetic Turf No Rubber Infill	
MFG		SIZE C	DWG NO Concrete_SP_REV_001
APPROVED		SCALE	REV 1
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TEST REPORT

CLIENT:

Company:	Airfield Systems	Report Number:	66141
Address:	8028 North May Avenue, Suite 201	Lab Test Number:	2782-6398R
	Oklahoma City, OK 73120	Test Completion Date:	1/20/2016
		Report Date:	1/21/2016
Requested By:	Michael Bean	Page:	1 of 1

TEST MATERIAL:

Material Type:	Synthetic Turf over Pad System				Date Received:	1/19/2016
Material Condition:	EXCELLENT:	XXX	GOOD:		POOR:	REJECTED:
Turf and Infill ID:	Sport Pro Plus 54MF with 2.75 lbs/ft ² Envirofill installed					(TOP)
Fabric ID:	4 oz Non-Woven Filter Fabric					↑
Grid ID:	AirDrain					
Fabric ID:	10 oz Non-Woven Filter Fabric					(GROUND)
Base ID:	2" #7 & #81 Rock (bottom) + 1" Compacted Fines Layer (top)					

TESTING METHODS REQUESTED:

<i>Testing Services Inc. was instructed by the client to test for the following...</i>			
Standard:	ASTM F355a	Test Method:	Standard Test Method for Impact Attenuation of Playing Surface Systems and Materials

SAMPLING PLAN:

Sampling Date:	1/19/2016
<ul style="list-style-type: none"> Specimen sampling is performed in the sampling department at TSI. The sampling size of specimens is determined by the test method requirements. In the event a specific sampling size is not called for, a determination will be made based on previous testing experience, and approved for use by an authorized manager. All samples are subjected to the outside environmental conditions of temperature and relative humidity. Sample requiring pre-determined exposure to specified environmental conditions based on a specific test method, take place in the departments in which they are tested 	

DEVIATION FROM TEST METHOD:

State reason for any Deviation from, Additions to, or Exclusions From Test Method.
None

TEST SUMMARY:

TEST METHOD	TEST DESCRIPTION	TEST RESULT
ASTM F355-10a	Impact Attenuation (Gmax)	128
Test Conditions: 61°F, 12% RH Drop 1: 98 Drop 2: 128 Drop 3: 128 Drop Height: 24"	Test Equipment: Clearview Bumper II Missile Weight: 9.1 kg (20 lbs) Missile Velocity: 3.4 meters/second	Pile Ht: 45 mm

Uncertainty:

We undertake all assignments for our clients on a best effort basis. Our findings and judgments are based on the information to us using the latest test methods available. TSI can only ensure the test results for the specific items tested. Unless otherwise noted in the deviations sections of this report, all tests performed are in compliance with stated test method.

Test Report Approval:

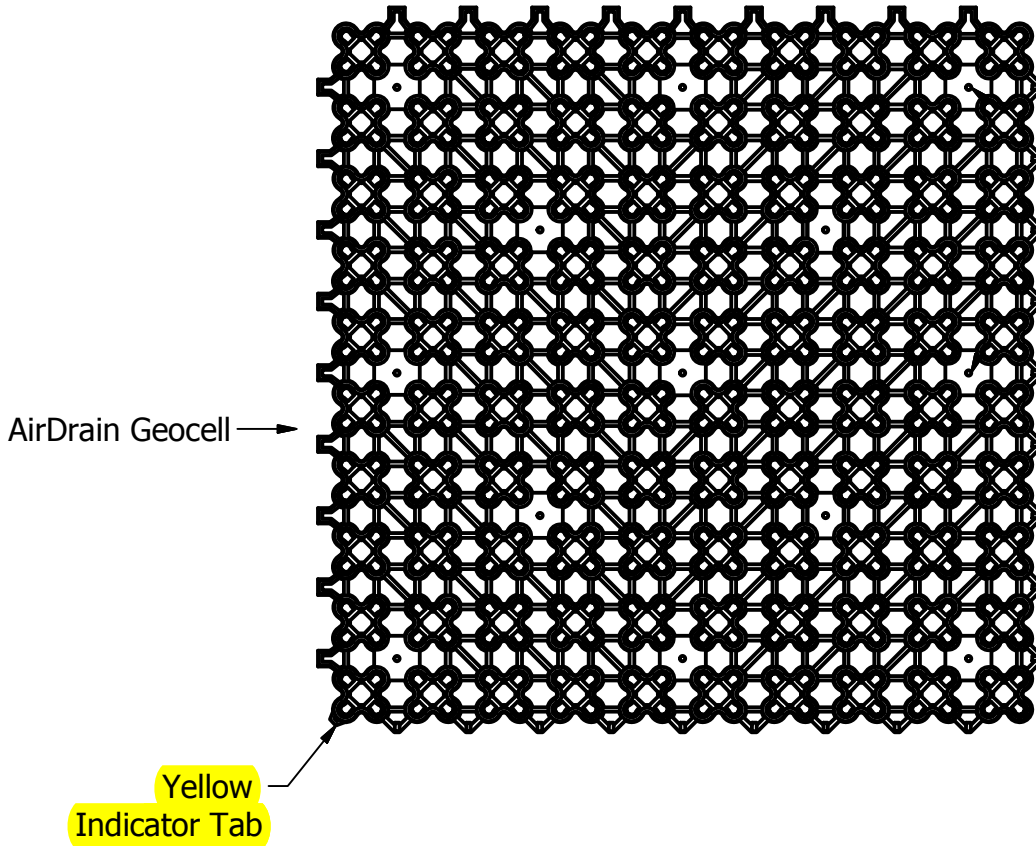
Erle Miles, Jr. VP, Testing Services Inc

TSI Accreditation: Our laboratory is accredited by the US Dept of Commerce, National Institute of Standards and Technology: ISO/IEC 17025:2005. Our code # is: NVLAP 100108-0. TSi is a certified independent testing laboratory by the Synthetic Turf Council

Form:	Rev:	Revision Date:	Page 1 of 1
Release Date:	Control Type: Electronic – Expires 24 hours after this date: Jan. 21, 16 Printed copies are uncontrolled		

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Unit Panel Specifications:

- Size: 32" x 32" x 1"
- Weight: 3.1 lb
- Volume: 8% material, 92% air void
- Strength: 233 psi (unfilled)
- Resin: 100% Recycled (PIR)
Copolymer with Impact Modifier
"No Break" Polymer Material
- Color: Black (3% carbon black added for UV Protection)

AirDrain Cross Section

Scale 0.12:1

Typical

For AirDrain Grass Systems



Airfield Systems, LLC
8028 N May Ave, Suite 201
Oklahoma City, OK 73120
(405) 359-3375

www.airfieldsystems.com

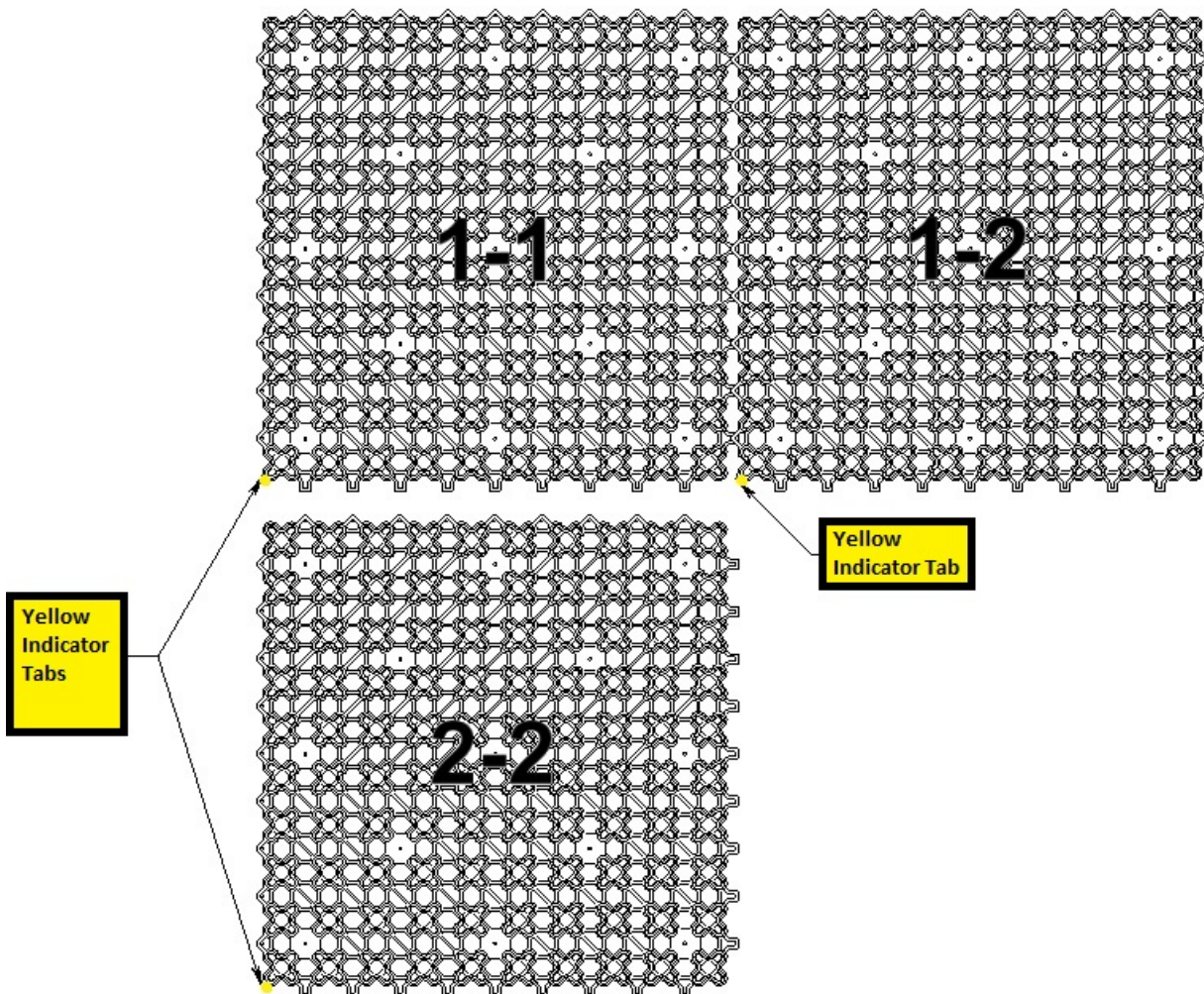
Drawing No. ADCS002.dwg

Proper Sequencing and Orientation of AirDrain GeoCell Panels for Rapid Installation

Pallet Staging: AirDrain pallets cover approximately 798sqft. per pallet and should be staged accordingly within the installation area so that you minimize the amount of time to stage the AirDrain grid along the install lines across the project. Typically placing the AirDrain every 65 feet across and 15-20 feet back from each other. (Call AirField with questions that you might have about proper staging and installation.)

All Installations must start in the Top Left Corner of the Field and work Left to Right to be installed properly.

1. Orientate the AirDrain GeoCell materials with the integral indicator tab to the panel's bottom left corner (painted yellow). **Install the AirDrain units by placing units with the connectors and platforms up creating a flat surface for the profile above. If the male connectors do not fall or drop into the female connectors then the orientation is incorrect, please call AirField Systems Immediately at 405-359-3775.**



2. Install the AirDrain panels across the field in a rowed pattern. Staggering of rows will allow for multiple row completion by a multi-manned crew.
3. Once the first row has progressed across the project, start with a second row. Have a person staging the panels in groups of three snapped together along the row. The crew can then install the left side of the panel while elevating slightly the top portion (so the male and female connectors don't touch each other). Once the left side has been snapped with a pull along the row direction, the top portion should fall into place and with a bottom vertical pull holding the inside of parts 1 & 3 snap all three parts in place.



4. AirDrain panels can be shaped to individual field areas as needed with appropriate cutting device. If a typical field is installed correctly there should only be two sides that would need to be trimmed.
 - A. If only a few parts need to be trimmed, use tin snips.
 - B. If many parts require trimming, set up a table and use a circular saw with a no melt, plastic cutting saw blade.

Visit [AirField Systems Flickr page](#) to watch a video of a 74,000 sq ft project for Chesapeake Energy illustrating a 3 man crew installation.

DISCLAIMER: The preceding and following drawings and/or general installation guidelines are provided only to show a concept design for installation and are not instructions for any particular installation. These drawings and general instructions are not complete and are provided only to assist a licensed Geo-Technical Engineer, a Landscape Architect and/or Civil Engineer in preparing actual construction and installation plans. These drawings and instructions must be reviewed by a licensed Geo-Technical Engineer, a Landscape Architect and/or Civil Engineer and adapted to the condition of a particular installation site and to comply with all state and local requirements for each installation site. THESE DRAWINGS AND/OR GENERAL INSTRUCTIONS DO NOT MODIFY OR SUPPLEMENT ANY EXPRESS OR IMPLIED WARRANTIES INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IF APPLICABLE RELATING TO THE PRODUCT.

General Information			
General			
Construction	Injection Molded Copolymer		
Composition	Copolymer Polypropylene Using an Impact Modifier		
Dimensions	31.784" x 31.880" x 1.000" (7.03 sq ft.)		
Unit Weight	3.1 lbs.		
Material	Resin Pellets		
Shipping			
Parts Per Pallet	114		
Pallet Dimensions	33" x 33" x 48"		
Pallet Weight	390 lbs.		
Area Coverage Per Pallet	798 sq. ft.		
Pallets Per Trailer	114 (3 wide x 2 tall x 19 deep)		
Area Covered Per Trailer	90,972 sq. ft.		
ASTM and ISO Properties ¹			
Physical	Nominal Value	Test Method	
Specific Gravity	0.940	ASTM D792	
Melt Mass-Flow Rate (230°C/2.16 kg)	20 g/10 min	ASTM D1238	
Mechanical	Nominal Value	Test Method	
Density	57.490 lb/ft ³	ASTM D1505	
Tensile Strength (Yield, 73°F)	2,145 psi	ASTM D638	
Tensile Elongation (Yield, 73°F)	16%	ASTM D638	
Flexural Modulus (73°F)	100,175 psi	ASTM D790	
Compression Strength (73°F)	233 psi unfilled	ASTM D6254	
Impact	Nominal Value	Test Method	
Notched Izod Impact (73°F, 0.125 in)		ASTM D256	
Thermal	Nominal Value	Test Method	
Deflection Temperature Under Load 264 psi, Unannealed	160°F	ASTM D648	
Expansion/Contraction Index ¹			
Temperature	Humidity	Length	Width
100°F	98%	31.881"	31.817"
-5°F	0%	31.765"	31.713"
Change		.116"	.104"
Joint Expansion/Contraction Capacity		.420"	.572"
Safety Factor		362%	550%
Examples of Usage			
Application	Required Strength	Safety Factor	
Auto	40 psi	x 168	
Truck	110 psi	x 61	

¹ Independent laboratory testing conducted by TRI/Environmental, Inc., TSI/Testing Services, Inc. and Wassenaar.

100% Post Manufactured Content



Recycled

The **AirDrain** GeoGrid is made of 100% post-manufactured material, you can feel good about helping the planet [while adding valuable LEED Points](#) to your project! We also add an impact modifier for incredible strength and superior performance in extreme heat and cold - on top of the already durable **AirDrain** design.

AirDrain Co-Polymer with an Impact Modifier Performance and Temperature Durability

Attached you will find the specification of the resin used to produce both the 32 x 32 and the 32 x 18 Geo cells. This material is a co-polymer polypropylene that is 100% recycled resin. In order to be able to produce a consistent recycled resin a PIR (post industrial resin) is used for the base resin. This is the only way to produce a consistent material as opposed to a PCR (post consumer resin) which is dependent on the consumer to supply a consistent material. Using the PIR as a base resin 3% carbon black is added to insure good UV stabilization and metallocene (an ethylene base material) is used as an impact modifier.

Impact Modifier

The impact modifier is added in an amount to achieve a 10.0 Notched Izod Impact which comfortably qualifies this material as a NO BREAK material (4.0 and greater are normally considered no break material). The **AirDrain** resin offers an advantage over many ethylene and HDPE products since the **AirDrain** resin is often superior when it comes to pliability, warping and internal stress related issues. Referring to the attached specification sheet you will notice that all testing is done to specific ASTM Standards.

Resin Blends

AirDrain's blend of resins gives it the ability to perform in extreme temperatures. **AirDrain** does not need a temperature above 50 degrees Fahrenheit to be installed or warmed in the sun to be pliable on site for install. In addition, **AirDrain's** unique resin blend also helps prevent breakage and cracking in extreme temperatures, thus giving it the ability to withstand repeated freeze thaw cycles.

Airfield posts its resin content and performance values with ASTM test methods and guide lines to measure the properties of our grid.