

Technical Guidelines

BrockFILL™

Organic Infill for Synthetic Turf Fields

- Infill shall be an engineered wood particle comprised of virgin natural pine wood grown and manufactured in the USA.
- Infill shall be free of pesticides and heavy metals.
- Infill shall maintain a vertical drainage rate that exceeds that of the artificial turf when tested alone according to test method ASTM 1551.
- Infill shall not materially degrade as an infill defined as a minimum of 80% of the material will fall between sieve screens of .8mm-2mm when tested according to BS EN 933-1:2012.
- Infill shall be made from a species of tree that is sustainably harvested.
- Infill shall be domestically sourced – made in the USA only.
- Infill shall have a minimum of a 10-year warranty.
- Infill must be Cradle to Cradle Certified
- Infill must be hydrophilic and allow absorption of rain or condensation.
- Infill shall not require irrigation and the Owner shall not be required to perform moisture testing of the infill.
- Infill must have a minimum bulk density of 15 lbs / cu ft
- Infill must be installed in at least 100 full sized synthetic turf athletic fields (minimum of 60,000 ft² each) in the USA within the past 3 years

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PERFORMANCE BASED SPECIFICATION

PART 1 - GENERAL

1.1 DEFINITIONS

- A. Natural Infill: Synthetic grass surfacing system infill materials free of Styrene-Butadiene-Rubber (SBR), Crumb Rubber, Ethylene-Propylene-Diene Monomer Rubber (EPDM), Thermoplastic Elastomer (TPE), and metals of any kind.
- B. Synthetic Turf Testing Agency (Testing Agency): Agency to perform testing on the synthetic turf system. All testing shall be done by an independent 3rd party testing agency. Performance testing and on-site testing shall be performed by a qualified Testing Agency experienced in performing safety and performance testing with synthetic turf fields.
- C. Compatible Product: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - 1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 - 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - 3. Evidence that proposed product provides specified warranty.
 - 4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 - 5. Samples, if requested.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's general specifications, installation instructions, and maintenance requirements for all infill material products in the Synthetic Grass Surfacing System, including certifications and other data as may be required, to show compliance with the Contract Documents.
- B. Material Testing: Submit for approval test results for all material testing performed under "Quality Control Testing" herein. Provide copies of all Testing Agency reports. Testing shall be no more than 24 months old from date of submittal.
- C. Material Samples: Submit three (3) samples for approval for all materials under 2.1 Materials including, but not limited to, the following:
- D. Synthetic Grass Surfacing Performance Infill: One-pound sample
- E. Synthetic Grass Surfacing Stabilizing Infill: One-pound sample
- F. Warranties: Submit a draft copy of the warranties in Owner's name for all products furnished under this section.
- G. Post-Installation Submittals

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1. Material Testing: Submit for approval test results for all material testing performed under "Quality Control Testing, Post-Installation" herein.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Schedule delivery to minimize on-site storage. Segregate differing materials to prevent contamination between materials.
- B. Packing and Shipping: Deliver products in original unopened packaging with legible manufacturers' identification. All materials shall be stored in a dry place out of the direct sunlight.
 1. Performance in-fill
 - a. Shall arrive in large sacks or bags without tears and loose material.
 - b. Shall arrive dry and loose. No infill shall be accepted that is bulked or solid.
 - c. Shall be delivered and stored on a solid, level, and clean surface.
 - d. Cover all materials prior to any rain event.

1.4 QUALITY CONTROL TESTING

- A. All testing, unless otherwise noted, shall be completed by an independent (third-party) Testing Agency as approved by Landscape Architect/Architect/Engineer. Testing must be for current materials with current date from independent testing laboratory as described herein.
- B. Synthetic Grass Surfacing Performance Infill Material

ASTM F3188	PERFORMANCE INFILL SOLUBLE THRESHOLD LIMIT CONCENTRATION	PASS
EN 933	PERFORMANCE INFILL BULK DENSITY	>15 lbs./ cu. ft.
EN 14955	PERFORMANCE INFILL PARTICLE SIZE	< 1 SIEVE SIZE CHANGE COMPARED TO MANUFACTURER'S DECLARATION
EN 1097-3	PERFORMANCE INFILL PARTICLE SHAPE	SAME SHAPE
EN ISO 20105-A02	PERFORMANCE INFILL ARTIFICIAL COLOR FASTNESS (CHANGE) - ARTIFICIAL WEATHERING	> GREY SCALE 3, NO CHANGE IN SHAPE

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A. Post-Installation Testing

ASTM F3188	STABILIZING INFILL SOLUBLE THRESHOLD LIMIT CONCENTRATION	PASS
EN 933/ FIFA TEST METHOD 20	STABILIZING INFILL BULK DENSITY	WITHIN 95% COMPARED TO SUPPLIERS DECLARATION
EN 14955	STABILIZING INFILL PARTICLE SIZE	< 1 SIEVE SIZE CHANGE COMPARED TO MANUFACTURER'S DECLARATION
EN 1097-3	STABILIZING INFILL PARTICLE SHAPE	SAME SHAPE

1.5 WARRANTY

A. Synthetic Grass Infill Warranty

1. The Contractor shall provide a non-prorated Warranty/Guarantee (also referred to herein as the Warranty) for the synthetic grass infill materials and installation as specified herein, for a minimum of ten (10) years from the infill supplier/manufacturer to the Owner from the date of Certificate of Substantial Completion.
2. The warranty shall include the following:
 - a. Infill material shall be free of pesticides and heavy metals, and processed in a way that destroys all mold, mildew, bacteria, insects and fungus and naturally inhibits the growth of new mold, mildew, bacteria, insects and fungus on the surface
 - b. Infill Material shall maintain a vertical drainage rate that exceeds that of the artificial turf when tested alone according to test method ASTM 1551
 - c. Infill material shall not degrade as an infill such that a maximum of 20% of the material will pass through a .5 mm screen when tested according to BS EN 933-1:2012
 - d. The field will meet the performance parameters set forth in this document for Shock Absorption, Vertical Deformation, Head Injury Criteria, and Rotational Resistance (collectively the "Standard") at the time of installation. If the field fails to meet the Standard within 90 days of completion, the infill manufacturer shall guarantee to bring the field into compliance including materials and labor as required to do so.
 - e. The warranty shall not be conditional of the moisture content of the infill material and the Owner shall not be required to perform moisture testing or irrigation of the infill.

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PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.
 - 1. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 - 2. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 - 3. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
 - 4. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures:
 - 1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
 - a. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
 - 2. Product: Where Specification name performance requirements for product, provide product that complies with requirements.
 - a. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.

2.2 MATERIALS

- A. Synthetic Grass Surfacing Infill
 - 1. Shall consist of a mixture of a stabilizing infill and a performance infill as follows:
 - a. Stabilizing Infill: Silica sand material
 - b. Performance Infill: Natural infill material
 - 2. Performance infill shall consist of natural infill material meeting the following requirements:
 - a. Free of Styrene-Butadiene-Rubber (SBR), Crumb Rubber, Ethylene-Propylene-Diene Monomer Rubber (EPDM), Thermoplastic Elastomer (TPE), and metals of any kind.
 - b. Bulk density > (greater than) 15 lbs./ cu. ft.
 - c. Be hydrophilic and allow absorption of rain or condensation.
 - d. Be Cradle to Cradle Certified
 - e. Meet all requirements under Section 1.4 Quality Control Testing

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- f. Meet the requirements as specified under Section 1.5 WARRANTY
- g. Shall not require the monitoring of the materials moisture content under the terms of the warranty and/or maintenance obligations.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Synthetic Grass Surfacing Infill

- 1. Infill ratio and installation in lifts shall be based manufactures recommendation.
- 2. Installer shall allow for adequate time and proper machinery to properly groom infill material into the synthetic grass carpet fibers.
- 3. Infill Materials shall be uniformly filled to a depth which leaves no more than xx" of exposed pile after settlement and provides the system meets the performance and safety criteria set forth in this document.