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## VELOCITYXP<sup>2</sup><sup>®</sup> - 40oz Synthetic Turf System Sample Specifications

### SECTION 321823 – INFILLED SYNTHETIC TURF

#### 1.0 GENERAL REQUIREMENTS

##### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this section.

##### 1.2 SCOPE OF WORK

Furnish all labor, materials, tools and equipment necessary to install, in place, all synthetic turf material as indicated on the plans and as specified herein. The installation of all new materials shall be performed in strict accordance with the manufacturer's written installation instruction, and in accordance with all approved shop drawings.

- A. Prior to order of materials, the Turf Contractor shall submit the following:
1. Product Data including Independent Test Lab Results
  2. Installation Details
  3. Sample Warranty
  4. Field layout and striping plans
  5. Details on construction, especially any details that may deviate from plans and specifications.
- B. Prior to the beginning of installation, the manufacturer/installer of the synthetic turf shall inspect the subbase and supply a Certificate of subbase Acceptance for the purpose of obtaining manufacturer's warranty for the finished synthetic playing surface.
- C. Prior to Final Acceptance, the Turf Contractor shall submit to the Owner three (3) copies of Maintenance Manuals, which will include necessary instructions for the proper care and preventative maintenance of the synthetic turf system, including painting and striping.

##### 1.3 SHOP DRAWINGS

- A. Shop drawings shall be prepared at the scale of the construction documents and contain all pertinent information regarding installation. These drawings shall be submitted to the Owner for approval prior to the manufacturing and shipment of materials.
- B. Submit drawings for:
1. Installation details; edge detail, goal post detail, other inserts and covers, etc.
  2. Striping plan; layouts showing any field lines, markings and boundaries, and field logos per project drawings.

##### 1.4 QUALITY ASSURANCE

A. Manufacturer/Installer's Experience:

The synthetic turf installer/manufacturer shall have the experience of at least twenty (20) acceptable installations of full-size football or soccer fields (minimum of 70,000 SF) in the United States within the past five (5) years of tufted, slit film fiber synthetic turf infilled with a layered system of pea gravel and rubber. Provide this listing with the bid.

The Turf Contractor shall employ only qualified, experienced supervisors and technicians skilled in the installation of the specified system.

B. Turf Contractor shall meet the following criteria:

1. Turf Contractor must have proper Contractors license, authority to do business in the state bidding, in good standing, and have never had revocation of the same.
2. Turf Contractor must have been in business for ten (10) years under the same name and corporate organization.
3. Turf Contractor must have NOT had a Surety or Bonding Company finish work on any contract within the last ten (10) years.
4. Turf Contractor must have not been disqualified or barred from performing work for any public Owner or other contracting entity in the last ten (10) years.
5. Turf Contractor must not have any fields replaced under warranty.
6. Turf Contractor must not be currently involved with any patent or trademark litigation, specifically being sued or suing for patent infringement.
7. Turf Contractor must be a member of American Sports Builders Association (A.S.B.A) for more than 10 years and be in good standing with the association and must have a Certified Field Builder on staff during the bidding and construction process.
8. Any Turf Contractor which has been in business for less than 10 years, had a name change within that time period or has changed/modified its name or had a legal structure change, has had a 35% change in ownership in the last 10 years, will not be considered as a contractor or supplier.
9. Turf Contractor must be a single source contractor. The contractor must install the synthetic turf and the base construction or repair with its own employees (not subcontractors) and must self-perform 100% of total scope of work.
10. Turf Contractor must utilize the Field Lock System US Patent #7,838,096 and have Field Lock certification.
11. Turf Contractor must manufacture its own synthetic turf carpet. Turf Contractors who do not manufacture their own synthetic turf carpet shall be disqualified.
12. Turf Contractor must have manufactured its own synthetic turf for at least 10 years.
13. Turf Foreman must currently be employed by Turf Contractor and have been an employee not subcontractor of Turf Contractor for at least the last five years.

14. Turf Contractor must be a member of the Synthetic Turf Council.
15. Turf Contractor must self-perform the laser grading of the stone, curb work, drainage work and all other site work associated with the construction of the synthetic turf field.
16. Turf Contractor must provide liability insurance policy with aggregate umbrella liability coverage of \$10,000,000.

C. Warranty:

The Turf Contractor shall submit the synthetic turf manufacturer's warranty. The warranty guarantees the usability and playability of the synthetic turf system for its intended uses for an eight (8) year period commencing with the date of Substantial Completion.

1. The warranty submitted must have the following characteristics:
  - a. Must provide coverage for eight (8) years from the date of Substantial Completion.
  - b. Must warrant materials and workmanship.
  - c. Must verify through a third party that the materials installed meet or exceed the product specifications.
  - d. Must have a provision to either make a cash refund or repair or replace such portions of the installed materials that are no longer serviceable to maintain a serviceable and playable surface.
  - e. Must be a manufacturer's warranty from a single source covering workmanship and all self-manufactured or procured materials.
  - f. Turf Contractor must provide a full eight year third party insured warranty on the synthetic turf with an aggregate coverage of \$10,000,000.

## 1.5 EXISTING CONDITIONS

- A. If the surface on which the new synthetic turf system is to be placed is an existing asphaltic/concrete base, the Turf Contractor will be responsible for any damage to the concrete during removal/installation of the synthetic turf system. The football goal posts, if any, are to be removed and reinstalled by the Owner or Prime Contractor to facilitate the installation of the new synthetic turf system.
- B. If the surface on which the new synthetic turf system is to be placed is a new asphaltic concrete base or a new base of porous aggregate, the Synthetic Turf Contractor will be responsible for any damage to the subbase during removal/installation of the synthetic turf system *after* the deficiencies (if any) have been corrected as noted on the Certificate of Subbase Acceptability. New football goal posts (if any) and/or infield dirt mix backfill within the contiguous turf limits or immediately adjacent thereto are not to be installed by the Owner/Prime Contractor until after the new synthetic turf system has been completed.

## 1.6 SCHEDULE

- A. Turf Contractor shall complete all work on the synthetic turf system in accordance with the published project schedule.

- B. The Turf Contractor will require unencumbered use of an area within 30 feet of the synthetic turf area(s) being installed in order to complete his work. Turf Contractor shall also be afforded unencumbered access through the construction site to reach the turf field area being installed.

## 1.7 SURFACE AREA

- A. The Turf Contractor is to verify all measurements.

## 1.8 UTILITIES

- A. Owner/Prime Contractor will supply necessary water, adequate lighting and electricity for installation. Owner/Prime Contractor shall permit the use of toilet and wash up facilities.

## 2.0 PRODUCTS

### 2.1 MATERIALS

- A. Shall be a tufted, slit-film fiber grass-like fabric coated with a secondary backing of high grade polyurethane. The fibers shall be tufted to a finished pile height of approximately 2 ¼". The turf fabric shall be filled with a layered system of pea gravel and rubber.
- B. All components and their installation method shall be designed and manufactured for use on outdoor athletic fields. The materials as hereinafter specified, should be able to withstand full climatic exposure in all climates, be resistant to insect infestation, rot, fungus and mildew; to ultraviolet light and heat degradation, and shall have the basic characteristic of flow through-drainage allowing free movement of surface run-off through the turf fabric where such water may flow to the existing subbase and into the field drainage system.
- C. The finished playing surface shall appear as mowed grass with no irregularities and shall afford excellent traction for conventional athletic shoes of all types. The finished surface shall resist abrasion and cutting from normal use. The installed system shall be suitable for football, soccer, lacrosse, baseball, softball, PE classes, intramurals and recreational use.
- D. Pile yarn (Polyethylene) shall be a proven athletic caliber yarn designed specifically for outdoor use and stabilized to resist the effect of ultraviolet degradation, heat, foot traffic, water and airborne pollutants.
- E. Infill material shall be layered system of pea gravel and rubber in accordance with the manufacturer's recommendations and the owner's preference and shall be constructed in accordance with the United States Patent #6,800,339 B. No other infill will be accepted.
- F. Perimeter and interior edge details, underground storm sewer piping and connections, and goal post foundations required for the system shall be as detailed and recommended by the manufacturer, and as approved by the Owner.
- G. Basis of Design: VelocityXP<sup>2</sup>® synthetic turf as manufactured by Hellas Construction, Inc.

	<u>Standard</u>	<u>Property</u>	<u>Specification</u>
1	ASTM D418/D5848	Pile Weight	40 oz. /Sq. Yd.
2	ASTM D5848	Primary and Secondary Backing Weight	7.9 oz. /Sq. Yd.
3	ASTM D5848	Secondary Coating Weight	20 - 26 oz. /Sq. Yd.
4	ASTM D5848	Total Weigh	67.9 - 73.9 oz. /Sq. Yd.
5	ASTM 1907	Yarn Denier	10,750
6	ASTM D418/D5848	Pile Height	Finished 2- 2 1/4" (+/- 1/8")
7	ASTM D5793	Tufting Gauge	1/2"
8	ASTM D5848	Primary Backing	Tri-layer woven Polypropylene
9	ASTM D5848	Secondary Coating	Polyurethane
10	ASTM D1335	Tuft Bind without Infill	10 lbs. +/-
11	ASTM D1682/D5034	Grab Tear (length)	>300 lbs. Force
12	ASTM D1682/D5034	Grab Tear (width)	>300 lbs. Force
13	ASTM D4991	Carpet Permeability	>40 inches/hour
14	ASTM D2859	Flammability (Pill Burn)	Pass
15	ASTM E-11	Realfill™ Infill	5 - 6 lbs. +/- per sq. ft
16	ASTM F355	G-max (Impact Attenuation)	<130 at installation <190 over Warranty life
17		Fabric Width	15'
18		Perforation	3/16" Holes 4" x 4"
19	ASTM D3218	Yarn XP <sup>2</sup>	Bi-color yarn (field green/lime green) Parallel Fibrillated PE Average thickness 100 microns C8 LLDPE Resin 10,000 PPM UV Stabilizer
20	All Characteristics listed above are nominal +/- 5%		

**VELOCITYXP<sup>2</sup><sup>®</sup>** synthetic turf incorporates life like blades of grass, tufted into the strongest and most dimensionally stable backing system available with a polyurethane pre-coat for the ultimate in tuft-bind.

**VELOCITYXP<sup>2</sup><sup>®</sup>** is filled with a pea gravel (2-3 lbs) and cuboidal rubber (2.5-3.5 lbs) infill – Realfill™ - creating the most realistic looking and feeling surface ever.

Infill will be a minimum of 75% of synthetic turf pile height.

**VELOCITYXP<sup>2</sup><sup>®</sup>** is a fully UV stabilized system ideal for outdoor use.

This document is for illustrative purposes and may change without notice. Purchaser should verify that a representative specification of the system to be installed has been received prior to the establishment of a project or contract.

### 3.0 EXECUTION

#### 3.1 GENERAL

A. The installation shall be performed in full compliance with approved shop drawings.

- B. Only factory-trained technicians, skilled in the installation of athletic caliber synthetic turf systems working under the direct supervision of the synthetic turf manufacturer's installation supervisors shall undertake the placement of the system.
- C. The surface to receive the synthetic turf shall be inspected and certified by the turf manufacturer as ready for the installation of the synthetic turf system and must be perfectly clean as installation commences and shall be maintained in that condition throughout the process.

## 3.2 INSTALLATION

- A. The subbase and curbs shall be inspected by the Engineer or Sitework Contractor by means of a laser level and plotted on a 10-foot grid. Based upon the Turf Contractor's inspection of the topological survey, the Sitework Contractor shall fine grade the subbase suitably - including properly rolling and compacting the base to achieve a surface planarity within ¼" in 10 feet (+0, - 1/4"0). OWNER, ENGINEER OR PRIME CONTRACTOR SHALL NOT APPROVE THE SUBBASE FOR TOLERANCE TO GRADE WITHOUT OBTAINING THE TOPOLOGICAL SURVEY.
- B. The Turf Project Superintendent shall thoroughly inspect all materials delivered to the site for both quality and quantity to assure that the entire installation shall have sufficient materials to maintain the schedule and proper mixing ratios.
- C. Synthetic turf shall be loose laid across the field and attached to the perimeter edge detail. Turf shall be of sufficient length to permit full cross-field installation. No head or cross seams will be allowed, except as required for inlaid fabric striping or to accommodate programmed cut-outs.
- D. All seams shall be flat, tight, and permanent with no separation or fraying. All seams and markings shall be adhered to a special tape with a single component, high strength polyurethane adhesive applied per the Turf Supplier's standard procedures for outdoor applications.
- E. Infill materials shall be properly applied in numerous thin lifts using special broadcasting equipment to produce a layered system of pea gravel and rubber particles. The turf shall be raked and brushed properly as the mixture is applied. The infill material shall be installed to a depth of about 1.5-1.75 inches. The layered system of pea gravel and rubber materials can only be applied when the turf fabric is dry.
- F. Weather/climatic conditions may be a factor in delay of installation, but shall not warrant the accrual of additional liquidated damages. Should the ambient outdoor temperature fall below 45 degrees Fahrenheit, the Turf Contractor and Owner will discuss available options and/or stoppage of work. However, the final decision shall be at the Turf Contractor's discretion.

## 3.3 FIELD MARKINGS AND DECORATIONS

- A. Field markings and decorations shall be installed in accordance with approved project shop drawings.

## 3.4 CLEAN UP

- A. Turf Contractor shall provide the labor, supplies and equipment as necessary for final cleaning of surfaces and installed items.
- B. All usable remnants of new material shall become the property of the Owner.

- C. The Turf Contractor shall keep the area clean throughout the project and clear of debris.
- D. Surfaces, recesses, enclosures, etc., shall be cleaned as necessary to leave the work area in a clean, immaculate condition ready for immediate occupancy and use by the Owner.

#### 4.0 OTHER MATERIALS AND EQUIPMENT

##### A. Maintenance Equipment

Provide one (1) towed, non-powered Turf Sweeper with hitch, excluding prime mover vehicle. The sweeper attachment shall be of sufficient size to cover a 36" wide swath in a single pass. The sweeper attachment shall be fitted with synthetic bristle brushes as recommended by the synthetic turf manufacturer and shall be used primarily to collect surface debris.



#### HELLAS CONSTRUCTION, INC.

12710 Research Boulevard Suite 240

Austin, Texas 78759

T: 512.250.2910

F: 512.250.2910

[WWW.HELLASCONSTRUCTION.COM](http://WWW.HELLASCONSTRUCTION.COM)

