
SECTION 32 18 13 - SYNTHETIC GRASS SURFACING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes synthetic turfgrass surfacing system.
 - 1. **Owner has contracted directly with Manufacturer to supply and install synthetic grass system and shall not be considered part of the Contractors scope or bid price. Manufacturer is to furnish all labor, materials, tools and equipment necessary to install, in place, all synthetic turf as indicated on the plans and as specified herein, including all related materials not specified under another section but required for the work, whether or not specifically referred to 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. **Manufacturer, Installer and Vendor are one in the same entity for this section.**
 - b. **Manufacturer is responsible for all submittals, certificates, warranties and maintenance manuals.**
 - 2. **Contractor's scope and bid price to include but not be limited to all time and materials for the installation of sub-grade work, and associated installation of sub-drainage and irrigation systems and aggregate base and leveling course installations per manufacturer's written instructions and specifications.**
- B. Related Requirements:
 - 1. Section 31 20 00 - Earth Moving.
 - 2. Section 03 30 00 – Cast-in-Place Concrete.
 - 3. Section 33 46 00 – Sub-drainage
 - 4. ODOT Construction and Material Specifications dated 2013

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers-Tension.
 - 2. ASTM D624 Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers.
 - 3. ASTM D2047 Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine.
 - 4. ASTM D2859 Standard Test Method for Flammability of Finished Textile Floor Covering Materials.
 - 5. ASTM E303 Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester.
 - 6. ASTM F1292 Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment.
 - 7. ASTM F1951 Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment.

1.03 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: **Vendor to** conduct conference at Project site.

1.04 ACTION SUBMITTALS – By Vendor

- ~~A. Product Data: For each type of product.~~
- B. Shop Drawings: One (1) set of documents shall be prepared at the scale of the construction documents and contain all pertinent information regarding installation. These drawings shall be submitted to the Landscape Architect for approval prior to the manufacturing and shipment of materials.
1. Submit drawings for:
 - a. Seaming plan.
 - b. Installation details; edge details, methods of attachment, back stop detail, other inserts, method of cutting around backstop and others inserts, etc.
 - c. Other details on construction, especially any details that may deviate from these plans and specifications.
 2. Show layout of game lines, numbers, and letters. Indicate application method of each line and marking.
 3. Show location and layout of team logo/graphics.
- C. Synthetic Grass Vendor must submit the following to Owner's Representative or Landscape Architect prior to commencing construction of the synthetic grass playground system:
1. The (1) copy of material certificates and samples for materials that will be used on the project. Each material certificate must be marked as approved by the synthetic grass contractor.
 2. Submit representative samples of the following components that will be used on the synthetic grass playground system for approval by Owner's Representative or Landscape Architect:
 - a. One (1): 12 inches loose sample of synthetic grass product.
 - b. One (1): 12 inches boxed sample including infill and resilient base course representative of finished synthetic grass system.
 - c. One (1): 12 inches square sample of shock attenuation base material.
 - d. Seam Sample: 24 inches square with seam centered in sample.
 - e. One (1) copy of independent test report from a certified independent laboratory certifying the proposed synthetic grass surface system is fully compliant with:
 - I. ASTM 1292-04
 - I. ASTM D-5848 – pile height, tuft spacing, face weight and total weight
 - II. ASTM D-1335 – tuft Bind
 - III. ASTM D-5034 – grab tear breaking strength
 - IV. ASTM D-2858 – flammability (pill test)
 - V. ASTM F-1551 – water permeability
 - f. One (1) copy of independent test report from a certified independent laboratory certifying the proposed synthetic grass surface system is fully compliant with ASTM 1951 Standardized test for ADA Compliance.
 - g. One (1) of the product warranty for proposed synthetic grass product.
 - h. One (1) copy of a signed letter from synthetic grass vendor certifying that the proposed synthetic grass product is manufactured in the USA.
 3. Source Limitations: Obtain synthetic turn surface system materials from single source from single manufacturer.
 4. Standards and Guidelines: Comply with CPSC No. 325, "Handbook for Public Playground Safety"; ASTM F 1292; and ASTM F 1487.
 5. ASTM 1292 Test Results: Critical Fall Height – impact attenuation test results shall be submitted to the requiring agency prior to installation of the surface material. The results shall be submitted on the letterhead of the independent testing lab. Impact attenuation results must comply with ASTM 1292 *Standard Specification for Impact Attenuation of*

Surface Systems Under and Around Playground Equipment for the critical fall height of the equipment.

- D. One (1) construction project plan to include: project timeline with details and dates of each phase of construction; identification and contact information for project foreman; a letter from the turf manufacturer that the installation crew and foreman are certified as competent in the installation of this material.

1.05 INFORMATIONAL SUBMITTALS – By Vendor

- ~~A. Qualification Data: For [Installer] [testing agency].~~
 - ~~1. Certified list of at least ten (10) existing installations, including Owner representative and telephone number, attesting compliance with quality assurance information. Five (5) of the existing installations must be within 150 miles of the project site.~~
 - ~~2. The base contractor (if different from the turf contractor employees) must provide a list of synthetic turf bases completed within the last 2 years, including an owner representative~~
- B. Product Test Reports: For each synthetic grass surfacing assembly.
- C. Field quality-control reports.
- D. Sample Warranties: For special warranties.

1.06 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For synthetic grass surfacing, including maintenance cleaning instructions, to include in maintenance manuals.

1.07 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Turf Fabric: Minimum of 10 sq. yd. for each type indicated.
 - 2. Infill: Minimum of 5 bags of each type.
 - 3. Seaming Tape and Adhesive: One roll of seaming tape and one gallon of adhesive.
 - 4. One new set of maintenance tools, of type recommended by synthetic grass surfacing manufacturer for installation.

1.08 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
 - 1. Installer Qualifications: The synthetic grass vendor ~~and contractor~~ must be experienced in the installation of synthetic grass systems and have completed a minimum of Five (5) major systems, a minimum of 10,000 sf each within the United States, Three (3) systems, within 150 miles of project site.
 - 2. The synthetic grass vendor shall employ only qualified, experienced supervisors and technicians skilled in the installation of synthetic grass systems.
 - 3. The synthetic grass vendor shall provide a written letter or resume confirming that the installation crew and foreman are certified as competent in the installation of specified material, including attachment of seams and proper installation of infill material prior to the start of turf installation.
 - 4. The ~~Contractor/Installer~~ **Vendor** shall have been in the synthetic turf installation business, under the same ownership, for at least five (5) years.

5. The ~~Contractor/installer~~ **Vendor** shall have a representative on site to certify the installation and Warranty compliance.
6. Synthetic Grass Surface Installer Qualifications
 - a. Installer must be IPEMA certified to install the synthetic grass surface.
 - I. Synthetic Grass Vendor must submit One (1) copy of Certification.

B. ~~Contractor~~ **Vendor** must meet the following criteria:

1. Have proper Contractor's license, in good standing, and have never had a license revoked.
2. Have not had a Surety or Bonding company finish work on any contract within the last ten (10) years.
3. Have not been disqualified or barred from performing work for any public Owner or other contracting entity.
4. No current litigation for unacceptable work or non-completion of work.

1.09 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- B. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at a minimum temperature of 40 degrees F (4 degrees C) and a maximum temperature of 90 degrees F (32 degrees C).

1.10 PROJECT CONDITIONS

- A. Weather Limitations: Install surfacing system when minimum ambient temperature is 40 degrees F (1 degree C) and maximum ambient temperature is 90 degrees F (32 degrees C). Do not install in steady or heavy rain

1.11 WARRANTY

- ~~A.~~ The synthetic grass vendor shall submit **the Manufacturer's prorated 10 Year Closed Loop Warranty and two year full installation warranty**, which warrants the usability and playability of the synthetic grass system for its intended uses commencing with the date of Substantial Completion, against all defects in workmanship ~~of the subgrade, drainage, associated sub-surface bases and~~ **with the turf surface material**. ~~The warranty coverage shall not be prorated nor limited to the amount of the usage.~~
- ~~B.~~ ~~The warranty submitted must have the following characteristics:~~
 - ~~1. Provide full coverage of materials and workmanship for a minimum of eight (8) years from the date of substantial completion.~~
 - ~~2. Warrant the workmanship and materials installed meet or exceed the product specifications.~~
 - ~~3. Cover defects in the installation and workmanship.~~
 - ~~4. Repair or replace such portions of the installed materials that are no longer serviceable to maintain a useable and playable surface.~~
 - ~~5. Be from a single source covering workmanship and all materials.~~
 - ~~6. Assure the availability of exact or substantially the same replacement materials for the synthetic grass system for the full warranty period.~~
 - ~~7. The turf manufacturer/installer must provide a third-party insurance policy covering contractual liability for the full 8-year term of the warranty. The policy must have an A.M. Best Rating of A, with a limit of \$500,000 per warranty claim and an aggregate of \$5,000,000.00 per policy year. The policy must cover both the base work and surface installation.~~

8. ~~Warrant that the yarn used to make the grass-like tufts will maintain its UV stability and tensile strength such that the strength of the fiber when measured in accordance with ASTM D-2256 will not decrease by more than 50% during the warranty period due to breakdown of UV stability.~~
- C. ~~When defective material or workmanship is discovered which will require repair or replacement, all such repair work or replacement work shall be done by the CONTRACTOR Vendor at its own expense after written notification is given of such required repairs. However, if the CONTRACTOR Vendor fails to comply with the requirements of the above guarantee within reasonable time after notification is given, the Owner, Owner's Representative or Landscape Architect shall proceed to have the repairs made by others at the CONTRACTOR'S Vendor's expense.~~
1. ~~Any unsafe conditions that arise shall be secured and maintained by the installer until all required repairs or replacements have been completed.~~
2. ~~All resurfacing will conform in kind and quality to the specifications set forth in the plans and specifications and will be free of defects in workmanship and material.~~

PART 2 - PRODUCTS

2.01 SYNTHETIC RESILIENT GRASS SURFACING

A. **Vendor/Manufactures and Type: ForeverLawn - Fusion Elite-Pro**

1. Product:
- ForeverLawn of Ohio, Inc. **NEO**
8007 Beesons St.
Lousville, OH 44641
Ph. 330-935-2321
- 5901 Ely Vista Dr.
Parma, OH 44129
Ph. 330-614-9390
<http://ohio.foreverlawn.com>

2. No substitutions will be permitted.

2.02 MISCELLANEOUS

- A. Leveling base – 3/8" **Limestone fines** angular aggregate or as per Manufacturer's requirements.
- B. Aggregate base – **ODOT 411** (3/4" **minus down to fines**) angular aggregate or as per Manufacturer's requirements.
- C. Nailer board – pressure treated, size varies or as per Manufacturer's requirements.
- D. Concrete anchors for nailer boards per Manufacturer's requirements.
- E. Staples – galvanize 1".
- F. Primer Adhesive – as per Manufacturer's requirements.
- G. Closed Cell Foam – Attenuation Material
1. Provide manufacturer's standard thickness for each layer as required for overall thickness indicated, tested for impact attenuation according to ASTM F 1292 and for accessibility according to ASTM F 1951.
- H. Resilient infill system – as per Manufacturer's requirements.

2.03 MATERIALS

- A. ~~Rubber~~ **Rounded Sand** Infill: ~~Ground SBR crumb rubber mesh free of metal, nonmetal fibers, and contaminants; mesh size as recommended by synthetic grass surfacing manufacturer.~~
- B. Seam Adhesive: One- or two-part urethane, recommended or approved by synthetic grass surfacing manufacturer, and suitable for ambient conditions at time of installation.
- C. Seam Tape: Synthetic grass manufacturer's recommended seam tape, minimum 12 inches wide.
- D. Shock-Attenuation Pad: Porous composite consisting of rubber granules bound with urethane adhesive, 1 inch thick; with drainage composite laminated to one side. Provide shock-attenuation pad with permeability sufficient to meet synthetic grass surfacing assembly permeability indicated.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. **Contractor, Vendor / Installer with Landscape Architect present to examine** base and other conditions, ~~with Installer and Landscape Architect present,~~ for compliance with requirements for installation tolerances, permeability, and other conditions affecting performance of the Work.
 - 1. Confirm work limits as per drawings.
 - 2. Examine exposed subgrades and sub-base surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.
 - a. Contractor is responsible for all work and materials necessary, but not limited to, aggregate fill, drainage and irrigation system installation ~~of turfgrass surface system to finish grade within the work limits areas~~
 - b. **Vendor is responsible for all work and materials necessary, but not limited to turfgrass surface system to finish grade within the work limit areas.**
Coordination with other trades in area will be necessary.
 - 3. Confirm point of connection to storm drainage system is available within each zone area.
 - 4. Proceed with synthetic turfgrass sub-surface operations only after nonconforming conditions have been corrected.

3.02 PREPARATION

- A. General: Prepare substrates to receive surfacing products according to synthetic turfgrass surface system manufacturer's written instructions and Section 31 20 00 "Earth Moving". Verify that substrates are sound and without high spots, ridges, holes, and depressions.
 - 1. Install sub-drainage system according to manufacturer's requirements.
 - 2. Install minimum aggregate base to 95% proctor. Slope the base material 1/8 inch per foot to accommodate proper drainage.
 - 3. Install aggregate leveling course to manufacturer's requirements.
 - 4. Cleaning - the entire surface shall be clean and free of any foreign material.

3.03 INSTALLATION

- A. General: Comply with synthetic grass surface system manufacturer's written installation instructions. Install synthetic turfgrass surface system over area and in thickness indicated.
 - 1. Thickness: The total depth of the surface shall be installed in strict accordance and conformity to the Manufacturer's drawings and these specification requirements. Surface thickness will vary in the impact layer. The thickness of the impact layer will be installed

according to the fall height (s) of the play equipment as specified. These requirements must be verified in the field prior to starting the installation of the impact layer.

- B. The perimeter of the area shall be defined with a composite nailer board secured into concrete and held in place as per the manufacturer's instructions.
- C. Closed Cell Foam Installation: Install Manufacturer's specified Foam Attenuation Material per approved shop drawings and confirmed fall height thicknesses for each play area.
- D. Synthetic Turf Installation:
 - 1. Rough cut synthetic grass rolls for installation.
 - 2. All seams shall be installed and secured with micromechanical primary bonding. Seams secured primarily with adhesive, hot weld, or stitching shall not be accepted.
 - 3. Install rubber infill to Manufacturer's recommended volume and density, using manual or machine-operated spreading equipment, distributing and embedding rubber infill throughout synthetic grass and into fiber matt

3.04 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Perform the following tests and inspections:
 - 1. Permeability: 6 in./h of rainfall capacity according to ASTM F2898 or EN 15330-1.

3.05 DEMONSTRATION

- A. Train Owner's maintenance personnel in proper maintenance procedures for synthetic grass surfacing.

3.06 PROTECTION

- A. Protect the installed synthetic turfgrass surface from damage resulting from subsequent construction activity on the site.

3.07 FINAL CLOSURE

- A. Provide owner with maintenance manuals and hold on-site meeting with owner representatives with instructions for maintaining and repair the turfgrass.
- B. Supply owner with a minimum 10 sy of material and padding for future repair or patching.

END OF SECTION 32 18 13