

SECTION 32 18 16
ARTIFICIAL TURF - INDOOR

Stadium Turf is On Deck Sports' high-durability synthetic turf system, engineered for indoor athletic facilities that experience intensive daily use and high traffic. Designed to withstand repeated athletic activity while maintaining a consistent appearance and performance, Stadium Turf is well suited for strength and conditioning areas, functional training spaces, batting cages, agility lanes, and other demanding athletic environments. Its durable construction and low-maintenance design make it an excellent choice for facilities where long-term performance and lifecycle value are primary considerations.

1. GENERAL

1. SECTION INCLUDES

- A. Provide indoor artificial turf system including the following:
 - 1. Padded indoor artificial turf.
 - 2. Unpadded indoor artificial turf.
 - 3. Batting cage padded indoor artificial turf.
 - 4. Batting cage unpadded indoor artificial turf.
 - 5. Project-specific lines, logos, markings, and inlaid turf.

2. RELATED SPECIFICATIONS

- A. Section 03 30 00 - Cast-in-Place Concrete. Concrete slabs.
- B. Section 09 05 61 - Common Work Results for Flooring Preparation.
- C. Section 09 68 00 - Carpeting. Adhesives.
- D. Section 23 84 00 - Humidity Control Equipment. Moisture mitigation.

3. REFERENCE STANDARDS

- A. ASTM International (ASTM):
 - 1. ASTM D418 – Standard Test Method for Testing Pile Yarn Floor Covering Construction.
 - 2. ASTM D1335 – Standard Test Method for Tuft Bind of Pile Yarn Floor Coverings.
 - 3. ASTM D1577 – Standard Test Method for Linear Density of Textile Fiber.
 - 4. ASTM D1682 – Standard Method of Test for Breaking Load and Elongation of Textile Fabrics.
 - 5. ASTM D2859 – Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials.
 - 6. ASTM D5034 – Standard Test Method of Breaking Strength and Elongation of Textile Fabrics (Grab Test).

7. ASTM D5848 – Standard Test Method for Mass Per Unit Area of Pile Yarn Floor Covering.
 8. ASTM F355 – Standard Test Method for Shock-Absorbing Properties of Playing Surfaces.
 9. ASTM F1015 – Standard Test Method for Relative Abrasiveness of Synthetic Turf Playing Surfaces.
 10. ASTM F1551 – Standard Test Methods for Water Permeability.
4. SUBMITTALS
- A. Submit the following with Proposal:
1. The exact product name/description as well as the name and location of the manufacturers and suppliers of each component.
 - a. Manufacturers and suppliers must not be changed after the contract is awarded unless approved by the Owner in writing.
 2. Samples Available Upon Request:
 - a. Two: 12 x 12 inch (305 x 305 mm) minimum size, illustrating details of finished product as bid.
 3. Product Literature: Two copies of the following.
 - a. Product technical data sheets.
 - b. Manufacturer's installation and maintenance information, including any technical criteria for evaluation of the installed product.
 - c. Descriptions of equipment recommended for the maintenance and repair of the turf product.
 4. A letter certifying the products submitted meet or exceed specified requirements.
 5. Names and documented experience of the designated supervisory personnel assigned to this project.
 - a. Changes to personnel assignments after contract must be approved in writing by the Owner.
 6. A sample copy of warranty documentation.
- B. Prior to Ordering Materials:
1. Submit Shop Drawings indicating:
 - a. Line Marking Plan and details if required.
 - 1) Lines, logos, training markings, batting-cage layouts, and custom inlays.
 - b. Turf Roll and Seaming Layout.
 - c. Methods of adhesive attachment.

- d. Perimeter conditions.
 - e. Openings and penetrations.
 - 2. Turf Manufacturer: Submit the fiber manufacturer's name, with fiber type and composition.
 - 3. Shop Drawings: For review by the Engineer prior to manufacture of product.
 - a. Must Contain Information Regarding:
 - 1) Seam locations.
 - 2) Line and event marking locations and dimensions.
 - 3) Turf roll widths and dimensions.
 - C. Prior to Final Acceptance, the Contractor Must Submit to the Owner:
 - 1. Project Record Documents: Record actual "as-built" locations of seams, drains or other pertinent information.
5. ENVIRONMENTAL CONDITIONS
- A. Install synthetic turf surfacing only under the following conditions: Deviation from these conditions requires documented approval by the manufacturer.
 - 1. Ambient Air Temperature: 35 degrees F (1.7 degrees C) or above.
 - 2. Acceptable Relative Humidity: Below 35 percent.
 - 3. Substrate Moisture: None.
 - 4. Adhesive Curing Conditions: Free of dirt dust and petroleum products.
6. QUALITY ASSURANCE
- A. Manufacturer Qualifications:
 - 1. Years of Experience Supplying Indoor Turf: 10 years.
 - 2. Comparable Indoor Athletic or Training Facilities Completed: 500 facilities minimum.
 - 3. At least 50 facilities of the specified material, fiber, backing, or similar system, in play in the United States.
 - B. Synthetic Turf Installer Qualifications: Company specializing in performing the work of this section.
 - 1. Trained and Certified by the turf manufacturer, as competent in the installation of the specified material, including seaming and proper turf installation.
 - C. Source Limitations: Obtain synthetic turf fiber through one source from a single manufacturer and provide fiber manufacturer's warranty.
7. DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in original containers and wrappers as agreed between the Engineer and Contractor. Inspect products upon delivery for damage.
- B. Store products in a location and in a position that protects them from crush damage or any other defects.
- C. Handle and store (on and off site) materials safely to ensure their physical properties are not adversely affected and that they are not subject to vandalism or damage.
- D. Adhesives: Must arrive in dry, sealed containers.

8. WARRANTY

- A. The Contractor shall provide a minimum five (5) year warranty policy by the manufacturer, against defects in materials and workmanship. Defects shall include, but not be limited to ultraviolet ray fading, degradation, or excessive wear of fiber.
- B. Warranty: For full replacement of any damaged product within the warranty period; comprehensive and sufficient to replace entire field if necessary.
- C. Warranty Effective Date: The date of Substantial Completion
- D. The Warranty shall contain no usage limits for warranted field.
- E. Submit Manufacturer Warranty and ensure that forms have been completed in Owner's name and registered with Manufacturer.

2.PRODUCTS

1. MANUFACTURER

- A. Manufacturer: On Deck Sports, Randolph, MA Tel 800.365.6171 www.ondecksports.com bids@ondecksports.com
 - 1. Basis of Design: Stadium synthetic turf system for indoor facilities provided by On Deck Sports. This economically padded system works well for sports applications, athletic facilities, batting cages, and other high traffic uses.
 - a. Materials other than those listed must be approved 15 days prior to written addendum.
 - b. Materials from non-approved manufacturers will not be accepted.

2. ARTIFICIAL TURF

- A. Turf Fiber:
 - 1. Material: Nylon.
 - 2. Non-abrasive.
 - 3. Less than 50 ppm of lead in all colors.
 - 4. Fibers to be from the same dye lots.

5. Single sources.
6. Pile Fiber Characteristics: All fibers to be from the same source. Values below are nominal, plus or minus 5 percent.
 - a. Pile Height, ASTM D5823: 1/2 inch.
 - b. Total Yarn Linear Density (Denier), ASTM D1577: 5100.
 - c. Face Weight, ASTM D5848: 30 oz per sq yd.
 - d. Total Weight, ASTM D5848: 100 oz per sq yd.
 - e. Primary Backing Weight, ASTM D5848: 7 oz per sq yd.
 - f. Secondary Coating Weight, ASTM D5848: 13 oz per sq yd.
 - g. Fabric Width, ASTM D5793: 15 ft (4.57 m).
 - h. Machine Gauge, ASTM D5793: 3/16 inch.
 - i. Stitch Rate, ASTM D5793: 15 per 3 inches.
 - j. Permeability, DIN 18-035: Greater than 30 inches per hour.
 - k. Grab Tear Strength, ASTM D5034: Greater than 200 lbs.
 - l. Tuft Bind, ASTM D1335: Greater than 8 lbs.
- B. Backing Material:
 1. Primary Backing System:
 - a. 13/18 PET material.
 - b. Weight: 7 oz per sq yd.
 2. Secondary Backing System:
 - a. 5 mm (0.2 inch) thick foam pad.
 - b. Weight: 13 oz per sq yd.
 3. Sustainability: 100 percent recyclable.
- C. Turf Roll Seams: Sewn or glued on site so no openings larger than the porous backing mat openings are created.
 1. Roll Width: To coincide with tufted-in sports line markings where possible.
 2. Turf Fabric Edges: To be securely bound as per the perimeter detail design.
 3. Adhesives for Joining Seams of Turf Together: TEC-4300.
 - a. Other Acceptable Adhesives: Nordot 34G, Mapei 2K, Turf Claw, hot melt technology or equivalent.

- D. Fabric Surface: Construct and install in minimum widths of 15 feet (4.572 m) with no longitudinal or transverse seams, except for inlaid lines with a finish roll assembly.
 - 1. Seams: 15 feet (4.572 m) apart.
 - 2. Rolls not complying with the proper length or conforming to the seaming diagram, as approved prior to installation, will be rejected from the site.
 - 3. No fitted pieces are allowed to true alignment.
 - 4. Parallel seams only are acceptable in the main playing areas.
 - 5. No head seams are acceptable on the sports fields.
- E. The entire system is to be resistant to the following:
 - 1. Weather, including ultra-violet light and heat degradation.
 - 2. Insects.
 - 3. Rot.
 - 4. Mildew and fungus growth.
- F. The entire system is to be non-allergenic and non-toxic.
- G. Fiber Colors: Submit samples of the available color palette for owner approval prior to placing order for turf including at a minimum the below listed colors:
 - 1. Color: Green, as selected by the Owner.
- H. Turf Material: To be non-combustible and pass the DIN standard Pill Burn test or ASTM D2859.
- I. Product: Stadium – Artificial Turf.
 - 1. Roll Size: Width: 15 ft (4.572 m). Length: Cut as specified.
 - 2. Pad Coating: 0.2 inches (5 mm) thick foam.
 - 3. Total Weight, ASTM D5848: 100 oz per sq yd.
 - 4. Secondary Coating Weight, ASTM D5848: 13 oz per sq yd.

Editor's Note: Delete the following article if not required.

3. LINES, MARKINGS AND IN-LAID TURF

- A. Line Material: To be identical dimensionally and of the same material used for the main turf surface fiber system.
- B. Inlaid Material: As indicated on the drawings, to be identical, except for fiber color, as the main turf surface.
- C. Lines and Markings: To be accurately set and surveyed to within 1/2 inch tolerance of the location shown on the drawings and in conformance with specified field marking standards.

4. SYNTHETIC GLUE MATERIAL

- A. Adhesive Products: For turf system installation is to be purpose-suited to the system.
 - 1. Preferred: TEC 4300.
 - 2. Acceptable: Nordot 34G, Mapei 2K, Turf Claw, hot melt technology or equivalent as approved by the engineer.
- B. Application Methods: As recommended by the adhesive manufacturer.
- C. Disposal of adhesive containers and unused adhesives as well as any fees resulting from such disposal are the Contractor's responsibility.

3.EXECUTION

1. GENERAL

- A. Installation of the synthetic turf system is to comply with the manufacturer's recommendations, requirements and the reviewed and approved shop drawings.
- B. Perform work in strict accordance with the Contract Documents, approved submittals, and the manufacturer's specifications and instructions. The skilled technicians proposed in the bid phase are to be assigned to this project by the Contractor. Any changes to approved technicians must be approved by the Owner.
- C. The designated Supervisor for the Synthetic Turf Installer must be present during any and all construction activity associated with installation and cleanup.
- D. All products and equipment are to be from sources approved by the authorized turf manufacturer and conform to the specifications.

2. EXAMINATION

- A. Examine substrates, and conditions with Installer present, to verify conditions affecting performance of work. Install only after unsatisfactory conditions have been corrected.
 - 1. Inspection of Completed Substrates:
 - a. The Contractor, Engineer, and Synthetic Turf Subcontractor (if applicable): Attend an inspection of the completed substrate. Verify substrate surface acceptability prior to the synthetic turf installation.
 - b. Substrate surface is to be clean and free of surface defects.
 - 1) No paint, grease, oil, sealers, or curing compounds are to be present.
 - c. Verify adhesive for artificial turf is compatible with the substrate.
 - d. Concrete Substrate:
 - 1) Verify concrete has been properly cured.
 - 2) Surface cracks and surface defects are properly repaired.
 - 3) Moisture content is within acceptable parameters for turf installation.

- e. Planarity Inspection:
 - 1) Finished Substrate Surface: Is not to vary from true plane more than 1/4 inch in 10 feet (2 mm in 1 m) in any direction.
 - 2) Contractor Responsibilities:
 - a) Provide tools and materials required. This may include but not be limited to, a laser level, string line, straight edge and/or other assessment materials.
 - b) Correct any deviations to the satisfaction of the Engineer and Synthetic Turf installer.
 - 2. When Corrective Procedures Are Completed:
 - a. The finished substrate surface must be re-inspected, with the same representatives that attended the initial inspection.
 - b. Conduct additional repairs and inspections as required until the substrate surface is deemed acceptable by the Engineer and Synthetic Turf Installer
 - 3. Upon Substrate Surface Acceptance:
 - a. The Contractor is to submit a written Certificate of Acceptance:
 - 1) The Certificate of Acceptance:
 - a) Will deem the substrate finished surface as totally suitable for the installation of the selected synthetic turf system to proceed.
 - b) Fully warrant the athletic surface installation for the period and conditions specified herein.
 - 4. Commencement of Work for this Specification: Constitutes acceptance of the work completed under other sections by the Contractor, acceptance of the substrate and the substrate surface, and hence, no claims for extra work based upon these conditions will be permitted.
3. PREPARATION
- A. Synthetic Turf Preparation:
 - 1. Allow turf to lay out unrolled and relax at least one hour before installation.
 - a. Ideal Installation Temperature: 55 to 95 degrees F (13 to 35 degrees C).
 - b. Relative Humidity: Below 35 percent.
- Editor's Note: Delete the "Plugs and Fittings" Article if not required. Retain this article only where penetrations, sleeves, plates, or other fittings are part of the indoor installation.
4. PLUGS AND FITTINGS
- A. Permanent fittings penetrating the turf indicated on the drawings must be securely sealed to the turf surface.

5. SYNTHETIC TURF SYSTEM INSTALLATION

- A. Install in accordance with the manufacturer's written installation instructions.
- B. Turf should be pre-cut for each area allowing some excess for proper seaming and edging or any trimming necessary.
- C. Inlaid Areas: To have full fastenings and no loose areas. At no time can pulling on the section separate the material.
- D. Turf is to be attached to the perimeter edge as shown in the construction plans and as per the manufacturer.
- E. Seams and Inlaid Areas: To be brushed thoroughly. Install infill materials if required..
- F. Terminations: To be as detailed and approved in the shop drawings.

Editor's Note: Delete the "Lines and Markings" Article if not required.

6. LINES AND MARKINGS

- A. Lines and Markings as per the Contract Documents: Are to be accurately positioned and marked.
 - 1. Lines must be straight and true along the length of the marked boundary to within 1/2 inch (13 mm) along the length of any such boundary.
- B. Markings are to be accurately measured and applied in widths and colors as required by the governing body and selected from the manufacturer's range of standard colors, or not more than one custom color if the manufacturer's standard colors do not meet the Owner's requirements.

7. CLEANING AND COMPLETION

- A. Protect installed work from other construction activities as installation progresses.
- B. The Contractor is to keep the area clean throughout the construction period and free from debris and waste resulting from the installation.
- C. Upon Installation Completion: Thoroughly clean surfaces and site of refuse resulting from the installation process.
- D. Any damage to existing fixtures or facilities resulting from the installation of the synthetic turf system is to be repaired to original condition at the Contractor's expense prior to Substantial Completion and commencement of the Warranty Period.
- E. A Deficiency List: Is to be produced by the Engineer at the conclusion of the project.
 - 1. All installation project deficiencies not in dispute must be remedied by the Contractor prior to the issuance of a certificate of Substantial Completion.
- F. The Contractor is to provide a written acceptance by the Turf Manufacturer that the turf and substrate assembly is installed in accordance with their recommendations prior to final completion.

8. LONG TERM MAINTENANCE

- A. Owner: Strictly follow the manufacturer's maintenance manual as a primary guide. Unauthorized methods can permanently damage fibers or backing. Proper indoor artificial turf maintenance ensures long-term performance and preserves the warranty.
1. Routine Vacuuming and Cleaning:
 - a. Debris Removal: Vacuum turf regularly using a dual-motor upright vacuum with a rotating brush to pull dirt from deep within the synthetic fibers.
 - b. Filter Maintenance: Use vacuums equipped with HEPA filters to prevent dust and microparticles from recirculating into the indoor air.
 2. Grooming and Fiber Care
 - a. Brushing: Brush the turf monthly with a synthetic, non-metal bristled pile brush to keep the blades standing upright.
 - b. High-traffic restoration: Target heavy-use zones frequently to reverse fiber matting and maintain uniform shock absorption.
 3. Spill Treatment and Approved Products:
 - a. Immediate Response: Blot liquid spills immediately with clean, absorbent towels instead of rubbing them into the pile.
 - b. Allowed Cleaners: Use household dish soap diluted with warm water for water-soluble stains, or a 3% ammonia solution for stubborn organic spots.
 - c. Prohibited Substances: Avoid all caustic chemicals, bleach, and oil-based solvents, which can dissolve the fiber binders and backing material.
 4. Equipment and Traffic Restrictions
 - a. Rolling Loads: Distribute weight evenly when rolling equipment across the surface by using wide, pneumatic rubber tires.
 - b. Surface Protection: Lay down thick plywood sheets or protective mats before moving sharp, heavy, or high-point-load items over the turf.
 5. Seam and Edge Inspection:
 - a. Routine Checks: Inspect perimeter edges and seams monthly for signs of lifting, fraying, or adhesive failure.
 - b. Proactive Repair: Fix minor separations immediately using approved turf tape and adhesive to prevent major tripping hazards and worsening tears.

END OF SECTION