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SECTION 270500 – COMMON WORK FOR COMMUNICATIONS

PART 1 GENERAL

1.1. RELATED DOCUMENTS

- A. Division 26 specifications govern the construction methods, materials and other aspects related to electrical work contained in these Division 27 specifications.
- B. Reference
 - 1. Section 260010 - Electrical Provisions
 - 2. Section 260011 - Basic Electrical Materials And Methods
 - 3. Section 260013 - Project Coordination
 - 4. As well as other Division 26 Sections for any other electrical requirements and provisions.
- C. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 270500

SECTION 271100 – COMMUNICATIONS EQUIPMENT ROOM FITTINGS

PART 1 GENERAL

1.1. SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For communications equipment room fittings. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Detail equipment assemblies, and location and size of each field connection.
 - 2. Equipment racks and cabinets: Include workspace requirements and access for cable connections.
 - 3. Grounding: Indicate location of grounding bus bar and its mounting detail.
- C. Qualification Data: For qualified layout technician, installation supervisor, and field inspector.

1.2. QUALITY ASSURANCE

- A. Installer Qualifications: Cabling Installer must have personnel certified by BICSI on staff.
 - 1. Layout Responsibility: Preparation of Shop Drawings shall be under the direct supervision of RCDD.
 - 2. Installation Supervision: Installation shall be under the direct supervision of Registered Technician, who shall be present at all times when Work of this Section is performed at Project site.
 - 3. Field Inspector: Currently registered by BICSI as RCDD to perform the on-site inspection.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. Telecommunications Pathways and Spaces: Comply with TIA/EIA-569-A.
- D. Grounding: Comply with ANSI-J-STD-607-A.

1.3. PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install equipment frames and cable trays until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and work above ceilings is complete.

1.4. COORDINATION

- A. Coordinate layout and installation of communications equipment with Owner's telecommunications and LAN equipment and service suppliers. Coordinate service entrance arrangement with local exchange carrier.
 - 1. Meet jointly with telecommunications and LAN equipment suppliers, local exchange carrier representatives, and Owner to exchange information and agree on details of equipment arrangements and installation interfaces.
 - 2. Record agreements reached in meetings and distribute them to other participants.
 - 3. Adjust arrangements and locations of distribution frames, cross-connects, and patch panels in equipment

rooms to accommodate and optimize arrangement and space requirements of telephone switch and LAN equipment.

PART 2 PRODUCTS

2.1. PATHWAYS

- A. Cable Support: NRTL labeled. Cable support brackets shall be designed to prevent degradation of cable performance and pinch points that could damage cable. Cable tie slots fasten cable ties to brackets.
 - 1. Comply with NFPA 70 and UL 2043 for fire-resistant and low-smoke-producing characteristics.
 - 2. Support brackets with cable tie slots for fastening cable ties to brackets.
 - 3. Lacing bars, spools, J-hooks, and D-rings.
 - 4. Straps and other devices.
- B. Cable Trays:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Cable Management Solutions, Inc.
 - b. Cablofil Inc.
 - c. Cooper B-Line, Inc.
 - d. Cope - Tyco/Allied Tube & Conduit.
 - e. GS Metals Corp.
 - 2. Cable Tray Materials: Metal, suitable for indoors and protected against corrosion by electroplated zinc galvanizing, complying with ASTM B 633, Type 1, not less than 0.000472 inch thick.
 - a. Basket Cable Trays: 6 inches wide and 2 inches (50 mm) deep. Wire mesh spacing shall not exceed 2 by 4 inches (50 by 100 mm).
 - b. Ladder Cable Trays: Nominally 18 inches wide, and a rung spacing of 12 inches.
- C. Conduit and Boxes: Comply with requirements in Division 26 Section "Raceway and Boxes for Electrical Systems"
 - 1. Outlet boxes shall be no smaller than 2 inches (50 mm) wide, 3 inches (75 mm) high, and 2-1/2 inches (64 mm) deep.

2.2. BACKBOARDS

- A. Backboards: Plywood, fire-retardant treated, 3/4 by 48 by 96.

2.3. GROUNDING

- A. Comply with requirements in Division 26 Section "Grounding and Bonding for Electrical Systems" for grounding conductors and connectors.
- B. Telecommunications Main Bus Bar:
 - 1. Connectors: Mechanical type, cast silicon bronze, solderless compression-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.
 - 2. Ground Bus Bar: Copper, minimum 1/4 inch thick by 4 inches wide with 9/32-inch holes spaced 1-1/8 inches apart.
 - 3. Stand-Off Insulators: Comply with UL 891 for use in switchboards, 600 V. Lexan or PVC, impulse tested at 5000 V.
- C. Comply with ANSI-J-STD-607-A.

2.4. LABELING

- A. Comply with TIA/EIA-606-A and UL 969 for a system of labeling materials, including label stocks, laminating adhesives, and inks used by label printers.

PART 3 EXECUTION

3.1. ENTRANCE FACILITIES

- A. Contact telecommunications service provider and arrange for installation of demarcation point, protected entrance terminals, and a housing when so directed by service provider.
- B. Install underground pathways complying with recommendations in TIA/EIA-569-A, "Entrance Facilities" Article.

3.2. Install underground entrance pathway complying with Division 26 Section "Raceway and Boxes for Electrical Systems." "INSTALLATION

- A. Comply with NECA 1.

- B. Comply with BICSI TDMM for layout and installation of communications equipment rooms.
- C. Cable Trays: Comply with NEMA VE 2 and TIA/EIA-569-A-7.
- D. Bundle, lace, and train conductors and cables to terminal points without exceeding manufacturer's limitations on bending radii. Install lacing bars and distribution spools.

3.3. FIRESTOPPING

- A. Comply with requirements in Division 07 Section "Penetration Firestopping." Comply with TIA/EIA-569-A, Annex A, "Firestopping."
- B. Comply with BICSI TDMM, "Firestopping Systems" Article.

3.4. GROUNDING

- A. Install grounding according to BICSI TDMM, "Grounding, Bonding, and Electrical Protection" Chapter.
- B. Comply with ANSI-J-STD-607-A.
- C. Locate grounding bus bar to minimize the length of bonding conductors. Fasten to wall allowing at least 2-inch (50-mm) clearance behind the grounding bus bar. Connect grounding bus bar with a minimum No. 4 AWG grounding electrode conductor from grounding bus bar to suitable electrical building ground.
- D. Bond metallic equipment to the grounding bus bar, using not smaller than No. 6 AWG equipment grounding conductor.

3.5. IDENTIFICATION

- A. Identify system components, wiring, and cabling complying with TIA/EIA-606-A. Comply with requirements in Division 26 Section "Identification for Electrical Systems." Comply with requirements in Division 09 Section "Interior Painting" for painting backboards. For fire-resistant plywood, do not paint over manufacturer's label.
- B. See Division 27 Section "Communications Horizontal Cabling" for additional identification requirements. See Evaluations for discussion of TIA/EIA standard as it applies to this Section. Paint and label colors for equipment identification shall comply with TIA/EIA-606-A for Class 2 level of administration.
- C. Labels shall be preprinted or computer-printed type.

END OF SECTION 271100

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SECTION 280500 – COMMON WORK FOR ELECTRONIC SAFETY & SECURITY

SECTION 284605 – CONDUCTORS/CABLES FOR ELECTRONIC SAFETY & SECURITY

SECTION 280500 – COMMON WORK FOR ELECTRONIC SAFETY & SECURITY

PART 1 GENERAL

1.1. RELATED DOCUMENTS

- A. Division 26 specifications govern the construction methods, materials and other aspects related to electrical work contained in these Division 28 specifications.
- B. Reference
 - 1. Section 260010 - Electrical Provisions
 - 2. Section 260011 - Basic Electrical Materials And Methods
 - 3. Section 260013 - Project Coordination
 - 4. As well as other Division 26 Sections for any other electrical requirements and provisions.
- C. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 280500

SECTION 284605 – CONDUCTORS/CABLES FOR ELECTRONIC SAFETY & SECURITY

PART 1 GENERAL

1.1. RELATED DOCUMENTS

- A. Section 280500
- B. Division 26 Sections for other electrical requirements and provisions.
- C. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2. SUMMARY

- A. Section Includes:
 - 1. Fire alarm wire and cable.

1.3. SUBMITTALS

- A. Product Data: For each type of wire/cable to be installed.

1.4. QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.5. PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install cables and connecting materials until wet work in spaces is complete and dry, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

PART 2 PRODUCTS

2.1. PATHWAYS

- A. Support of Open Cabling: NRTL labeled for support of cabling, designed to prevent degradation of cable performance and pinch points that could damage cable.
 - 1. Support brackets with cable tie slots for fastening cable ties to brackets.
 - 2. Lacing bars, spools, J-hooks, and D-rings.
 - 3. Straps and other devices.
- B. Conduit and Boxes: Comply with requirements in Division 26 Section "Raceway and Boxes for Electrical Systems." Flexible metal conduit shall not be used.

PART 3 EXECUTION

3.1. INSTALLATION OF PATHWAYS

- A. Comply with requirements in Division 26 Section "Raceways and Boxes" for installation of conduits and wireways.

3.2. CONNECTIONS

- A. Comply with requirements in all other Division 26 and 28 Sections for connecting, terminating, and identifying wires and cables.

3.3. GROUNDING

- A. For low-voltage wiring and cabling, comply with requirements in Division 26 Section "Grounding"

3.4. IDENTIFICATION

- A. Identify system components, wiring, and cabling. Comply with requirements for identification specified in Division 26 Section "Electrical Identification."

3.5. FIELD QUALITY CONTROL

- A. Perform tests and inspections.

END OF SECTION 284605

SECTION 321813 - SYNTHETIC GRASS SURFACING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Synthetic grass surfacing.

B. Related Requirements:

1. Section 312000 "Earth Moving" for preparation, compaction, and grading of granular base.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at.

1.3 ACTION SUBMITTALS

A. Product Data:

1. Synthetic grass surfacing.

B. Shop Drawings: For synthetic grass surfacing.

1. Include sections and details.
2. Show locations of seams and method of seaming.
3. Show layout of game lines, numbers, and letters. Indicate application method of each line and marking.
4. Show location and layout of team logo/graphics.

C. Samples: For each type of synthetic grass surfacing indicated.

1. Turf Fabric: 12 inches (300 mm) square.
2. Game Line Turf Fabric: 12 inches (300 mm) long by actual width.
3. Infill Material: 4 oz. (100 g) of each type.
4. Shock-Attenuation Pad: 12 inches (300 mm) square.
5. Seam Sample: 24 inches (600 mm) square with seam centered in sample.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Test Reports: For each synthetic grass surfacing assembly.

- C. Field quality-control reports.
- D. Sample Warranties: For special warranties.

1.5 CLOSEOUT SUBMITTALS

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

1.6 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 300 sq. ft. (28 sq. m) for each type indicated.
 - 2. Infill: Minimum of 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.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store materials in location and manner to allow installation of synthetic grass surfacing without excess disturbance of granular base.

1.9 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace synthetic grass surfacing that fails in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Deterioration and excessive wear.
 - b. Deterioration from UV light.
 - c. Excessive loss of shock attenuation.
 - d. Seam separation, including game lines and markings.
 - 2. Warranty Period: 8 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Turf Fabric: Turf fabric tested in accordance with the following methods, with additional test method conditions for each method in accordance with ASTM F1551.
 - 1. Tuft Bind: Not less than 10 lbf (45 N) in accordance with ASTM D1335.
 - 2. Breaking Strength: Minimum 200 lbf (890 N) in warp direction and minimum perpendicular to warp direction, in accordance with ASTM D5034.
- B. Synthetic Turf Playing Surfaces: Assembly tested in accordance with the following methods, with additional test method conditions for each method in accordance with ASTM F1551.
 - 1. Shock Attenuation: No greater than <120 g> G(max) at time of installation in accordance with ASTM F355.
 - 2. Abrasiveness Index: in accordance with ASTM F1015.
 - 3. Athletic Shoe Traction Index: Determined in accordance with ASTM F2333 for soccer shoe, as follows:
 - a. Rotational: per ASTM F2333
 - b. Translational: [per ASTM F2333
- C. Permeability: Insert >30 inches/h (mm/h) of rainfall capacity in accordance with ASTM F2898 or EN 15330-1.

2.2 SYNTHETIC GRASS SURFACING

- A. Synthetic Grass Surfacing for Field Sports: Complete surfacing system, consisting of synthetic yarns bound to water-permeable backing and infill indicated, suitable for soccer playing fields.
- B. Turf Fabric: Woven turf fabric with multicolored fiber and UV resistance, complying with the following:
 - 1. Yarn Fiber: Slit-film polyethylene.
 - 2. Lead Content of Yarn Fiber: Maximum of ppm in accordance with ASTM F2765.
 - 3. Pile Weight: <46 oz./sq. yd. (g/sq. m)> in accordance with ASTM D5848.
 - 4. Pile Height: <2-1/4 inches (mm)> in accordance with ASTM D5823.
- C. Backing: Manufacturer's standard woven or nonwoven polypropylene primary backing with urethane-coated secondary backing; provide perforations or drainage channels sufficient to meet permeability indicated.
- D. Infill: Manufacturer's standard sand and rubber infill.
 - 1. Infill Proportions: 70 percent rubber, 30 percent sand.
- E. Game Lines and Markings: Provide game lines and markers in widths and colors in accordance with requirements indicated on Drawings.

1. Application Method: Tufted in to the maximum extent practicable, with remaining lines inlaid.
 2. Team Logo/Graphic: Provide inlaid team logo/graphic in colors and design indicated.
- F. Seaming Method: Adhesive.

2.3 MATERIALS

- A. Rubber Infill: Ground SBR crumb rubber mesh free of metal, nonmetal fibers, and contaminants; mesh size as recommended by synthetic grass surfacing manufacturer.
- B. Sand Infill: Uniformly sized silica sand free of silts, clays, and contaminants, and of subangular or rounder shape in accordance with ASTM F1632; mesh size as recommended by synthetic grass surfacing manufacturer.
- C. TPO Infill: Uniformly sized TPO granules free of contaminants; particle size as recommended by synthetic grass surfacing manufacturer.
- D. Organic Fiber Infill: Coconut or cork fiber granules free of contaminants, and as recommended by synthetic grass surfacing manufacturer.
- E. Seam Adhesive: One- or two-part urethane, recommended or approved by synthetic grass surfacing manufacturer, and suitable for ambient conditions at time of installation.
- F. Seam Tape: Synthetic grass manufacturer's recommended seam tape, minimum wide, 18 inches (457 mm) wide for inlaid game lines.
- G. Seaming Cord: Seaming cord or thread, recommended by the synthetic grass surfacing manufacturer.
- H. Shock-Attenuation Pad: Porous composite consisting of rubber granules bound with urethane adhesive, 0.59 inch (15 mm) thick; nondimpled. Provide shock-attenuation pad with permeability sufficient to meet synthetic grass surfacing assembly permeability indicated.
- I. Game Line Paint: Permanent paint as recommended or approved by synthetic grass surfacing manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine base and other conditions, with Installer present, for compliance with requirements for installation tolerances, permeability, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF SYNTHETIC GRASS SURFACING

- A. Avoid disturbance of base during installation of shock-attenuation pad and turf fabric.
- B. Shock-Attenuation Pad Installation: Roll out pad and allow to relax a minimum of six hours prior to final fit and trim. Stagger head seams between adjacent rows. Fit seams snugly without stretching or forcing.
- C. Roll out turf fabric and allow to relax at least four hours prior to seaming.
- D. Provide seams flat and snug, with no gaps or fraying. Remove yarns that are trapped within seams. Attach turf fabric to perimeter restraint system as recommended by the manufacturer.
- E. Install inlaid game lines and markings by cutting through turf fabric and installing snugly fitting game line turf fabric. Provide seaming tape that extends minimum 6 inches (152 mm) beyond seam.
- F. Repair loose seams and bubbles formed due to expansion of turf fabric prior to installation of infill.
- G. Evenly broadcast and groom infill by machine in proportions and depth after settling as recommended by the manufacturer, and to meet indicated performance requirements. Rake fibers trapped by infill to surface.
- H. Painted Game Lines: Apply lines and markings as recommended by the game line paint manufacturer.

3.3 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: >500 inches/h (mm/h)> of rainfall capacity in accordance with ASTM F2898 or EN 15330-1.
 - 2. Shock Attenuation: No greater than <120> G(max) at time of installation in accordance with ASTM F1936.

3.4 DEMONSTRATION

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

END OF SECTION 321813

SECTION 321823.39 – SYNTHETIC RUNNING TRACK SURFACING

PART 1 – GENERAL

1.1 SUMMARY

- A. This section covers all labor and materials required to install a first-class high school level track & field surface. The Track & Field Synthetic Surfacing Contractor is responsible for installing all track & field synthetic surfacing materials and line markings as designated in these specifications.

1.2 CODES AND STANDARDS

- A. Codes and standards follow the current guidelines set forth by the National Federation of State High School Associations (NFSHSA) and Track Builders Association World Athletics Organization (MO)

1.3 SUBMITTALS

- A. The following information must be submitted by the Track & Field Synthetic Surfacing Contractor prior to installation.
 - 1. Test results, from an IAAF certified laboratory, verifying manufacturer's Track & Field Synthetic Surfacing product meets the IAAF Performance Specifications for Synthetic Surfaces.
 - a. The same components from the test sample must be used in the installed surface. No substitutions will be allowed.
 - b. TRRL Pendulum test results for slip resistance must be greater than 47.
 - 2. Surfacing Contractor On-site Project Manager/Superintendent Qualifications:
 - a. The project manager/superintendent for the surfacing contractor will be on-site during all surfacing operations. Substitution of project manager/superintendent shall not be permitted.
 - b. A list of completed facilities, minimum of 5, which are certified to meet NFSHSA rules & regulations in the past 5 years utilizing the product specified in these specifications. The Track & Field Synthetic Surfacing Contractor's project manager/supervisor responsible for the completed facilities must supervise this project.
 - 3. Standard printed specifications of the track & field synthetic surfacing system that is being installed.
 - 4. Installation process and requirements for subbase (stone, asphalt, and concrete) and any conditions that may limit the track & field synthetic surface installation or affect quality of installation.
 - 5. Temperature/climatic conditions limiting quality of installation.
 - 6. Standard specification and application for recommended subbase primers, crack filler, patching and leveling material.
 - 7. Three product samples, a minimum of 6" x 6" in size, the same color, texture, thickness, etc. of the same type of surfacing to be installed for this project. This must be a representative sample of the product. This sample must be submitted and approved by the Owner prior to installation. At completion of the project this sample may be used as a comparison to judge the quality of the installed product.
 - 8. Material safety data sheets on all individual components of the product being installed.
 - 9. Provide a letter stating the Track & Field Synthetic Surfacing Contractor reviewed the asphalt specification and are accepting the specification as correct. Upon completion of the Asphalt paving and prior to installation of the track & field synthetic surface, the Track & Field Synthetic Surfacing Contractor will provide a letter accepting the installed asphalt and stating it is suitable to receive the track & field synthetic surface.

10. Letter from synthetic surfacing manufacturer approving the installer/applicator of the synthetic surface listed in these specifications.
 11. Written notice and acceptance that all in-ground field event equipment is installed as per the Contract Documents and the rules of the sport.
- B. The following information shall be submitted after completion of the specified work:
1. Provide a copy of the Track & Field Synthetic Surface vendor's standard Warranty noting any exceptions to the Warranty information included in this Specification Section.
 2. Provide a Care and Maintenance manual for the Owner's use in maintaining the synthetic surfacing.

1.4 QUALITY ASSURANCE

- A. Prior to installation, or during installation or at completion of installation of the synthetic surfacing, if the Owner has any question or doubt about the quality or formulation of the material, the Track & Field Synthetic Surfacing Contractor shall have the product tested. If the product meets these specifications, then the Owner shall pay for the cost of the testing; if the product does not meet these specifications, then the Track & Field Synthetic Surfacing Contractor shall pay for the testing. Any material failing to meet specifications will be replaced with new material at the Track & Field Synthetic Surfacing Contractor's expense.
- B. Slopes and Tolerances (NFSHSA):
1. The maximum lateral inclination permitted for the track across the full width of the track, preferably toward the inside lane, and across all runways, shall not exceed 2:100, 2.0 percent.
 2. The maximum overall downward inclination permitted in the running direction for the track, the running direction for all runways and the throwing direction for all landing sectors shall not exceed 1:1,000, 0.1 percent. Inclination shall be measured by comparing the start and end points of the races that use the straightaway portion of the oval, the last 20 meters of the javelin runway, the start and end points of other runways, not to exceed 40 meters, and the full graded length of each landing sector.
 3. In the high jump approach and takeoff area, the maximum overall downward inclination shall not exceed 1:100, 1.0 percent, in the running direction toward the center of the crossbar.
 4. The surface of a throwing circle shall be level.

1.5 SPECIAL PROJECT CONDITIONS

- A. The Track & Field Synthetic Surfacing Contractor will provide a project manager/superintendent on-site daily through the completion of the Track & Field Synthetic Surfacing Contractor's portion of the contract.
1. The on-site project manager/superintendent shall remain on site through the completion of the project. Substitution of project manager/superintendent shall not be permitted.
- B. The Track & Field Synthetic Surfacing Contractor will provide a technician that will serve as a consultant to the Owner and Contractor during the Asphalt Paving, first reviewing the asphalt specification, accepting the specification as correct, and then, providing daily review and guidance of the construction of the Asphalt Paving which will directly affect the tolerances and longevity of the eventual synthetic surfacing installation.
- C. Prior to installing any concrete, the Contractor must verify with the Track & Field Synthetic Surface manufacturer if any curing compounds or agents are allowed or acceptable.

1.6 SPECIFIC SCOPE OF WORK

- A. The Track & Field Synthetic Surfacing Contractor shall verify the entire track & field subbase and all events to determine that:
 - 1. The synthetic surface for the 400-meter track oval will accurately fit onto the Asphalt Paving base.
 - 2. That slopes and elevations meet required tolerances.
 - 3. No bird baths exceed the allowable limits as specified.
 - 4. The track & field areas will meet or exceed the rules of the sport.
- B. The Track & Field Synthetic Surfacing Contractor shall provide all labor, materials and equipment to perform the following work:
 - 1. The Track & Field Synthetic Surfacing Contractor is responsible for installing all track & field synthetic surfacing materials and line markings as designated in these specifications.
 - 2. Review Bidding documents and specifications, provide technical assistance, and approve Asphalt Paving base work as required in the specifications.
 - 3. Review and approve installation of all field event in-ground equipment before any track & field synthetic surfacing is installed as specified and shown on the Drawings.
 - 4. Brush and wash down all areas to be surfaced, as often as necessary during the installation of the track and field synthetic surface.
 - 5. Repair all birdbaths as required in these specifications.
 - 6. Install removable track & field synthetic surfacing (full pour polyurethane) plugs in all pole vault boxes, throw circles (cut plugs in half); apply synthetic surfacing to the junction box covers.
 - 7. Install special material (i.e., foam, board, etc.) in slot drain opening to prevent polyurethane from entering the opening. The drainage slot opening shall be neatly trimmed out (vertical cuts), after polyurethane installation, to allow proper drainage to occur. No polyurethane is allowed on the inside of the drainage slot opening. This shall apply only if the precast slot drain is installed.
 - 8. Repair all damaged areas, clean-up all glue, and remove excess polyurethane, primers and similar products. All trim cuts shall be neat and clean; on all curves the trim-out shall follow a radius line for accuracy and neatness.

1.7 WARRANTY/GUARANTEE

- A. General: Warranties / Guarantees specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and are in addition to and run concurrent with other warranties/guarantees made by the Contractor under requirements of the Contract Documents.
- B. The following are inclusive of the term “Track & Field Synthetic Surface” for provisions of the guarantee:
 - 1. All slopes & tolerances as required in this specification.
 - 2. Synthetic track & field surface product as specified and represented by the Track & Field Synthetic Surface Manufacturer.
 - 3. All materials and products specified.
 - 4. All line markings installed in accordance with the Contract Documents.
- C. Track & Field Synthetic Surface Installer Guarantee: Provide in writing a “Full System Guarantee” agreement. The President/Principal(s) of both the Track & Field Synthetic Surface Installer and the Track & Field Synthetic Surface Manufacturer (if different) shall sign this document and it shall include the following:

1. All work executed under this section will be free from defects of material and workmanship for the specified period from date of Substantial Completion/Acceptance of the Owner.
 2. Any defects will be remedied on written notice at no additional cost to the Owner.
 3. The warranty shall not be prorated.
 4. All material shall be guaranteed to the extent that the surfacing:
 - a. Has been manufactured, applied and will perform in accordance with these and the manufacturer's specifications.
 - b. Will hold fast and/or adhere to the primer, asphalt, concrete, edging, filler, patches, or overlay materials.
 - c. Is Ultra-Violet resistant, will not bubble, blister, fade, crack, or wear excessively during the warranty period.
- D. The Track & Field Synthetic Surfacing Contractor shall, in the presence of the Owner, inspect the track and field synthetic surfacing each year until the end of the warranty period, or at any time requested by the Owner. Any defects in workmanship or materials (at no fault of the Owner) shall be repaired at the expense of the Track & Field Synthetic Surfacing Contractor to the satisfaction of the Owner.
- E. Contractor shall not be held liable for incidental or consequential damages. The Track & Field Synthetic Surface Warranties described shall be conditioned upon:
1. Owner shall maintain track as described in the Owner's Manual submitted by the Contractor to the Owner.
- F. The Warranty does not cover any defect, failure, damage caused by or connected with abuse, neglect, deliberate acts, acts of God, casualty or loads exceeding the Contractor's recommendations.
- G. Warranty period to be five (5) years minimum.

PART 2 – PRODUCTS

2.1 TRACK & FIELD SYNTHETIC SURFACE

- A. The track and field synthetic surface shall be as per the manufacturer's specifications, plus the following requirements and where discrepancies exist, they shall be brought to the attention of the Owner or Owner's representative prior to Bidding or Installation.
- B. Colors: Manufacturer's Standard Red or Blue. Confirm final color with owner.
- C. Basemat Structural Spray Track Surfacing: The following Products are approved for bidding:
1. Beynon Sports Surfaces:
 - a. Product: Basemat Structural Spray (Non-Porous): BSS 200.
 2. Advanced Polymer Technologies (APT):
 - a. Product: Basemat Structural Spray (Non-Porous): Rekortan BSS.
 3. Stockmeier Urethanes:
 - a. Product: Basemat Structural Spray (Non-Porous): Stobitan SSC.
 4. Conica:
 - a. Product: Basemat Structural Spray (Non-Porous): Conipur ISP

Or approved equal product.

- D. Synthetic Track Surfacing shall be IAAF approved thickness unless otherwise specified.
- E. Patching Material: All materials must be approved materials and compatible with the synthetic surface.

PART 3 – EXECUTION

3.1 INSPECTION AND ACCEPTANCE

- A. Examine all surfaces and contiguous elements to receive work of this section and correct, as part of the Work of this Contract, any defects affecting installation.
- B. Commencement of work will be construed as complete acceptability of surfaces and contiguous elements.

3.2 INSTALLATION REQUIREMENTS

- A. The following installation requirements must be met by the Track & Field Synthetic Surfacing Contractor:
 - 1. Installation by synthetic surface manufacturer approved project manager/superintendent applicators and technicians. Local laborers may be hired for non-technical work, only.
 - 2. Priming - The primer shall be spray-applied in accordance with the manufacturer's specifications. Only those areas which can be installed the same day should be primed. All concrete areas to be surfaced shall receive manufacturer's approved primer.

3.3 INSTALLATION OF TRACK & FIELD SYNTHETIC SURFACE

- A. Basemat Structural Spray (Non-Porous):
 - 1. Thickness to match sample submitted to IAAF certified testing laboratory.
 - 2. Base Layer:
 - a. The SBR granules and single component polyurethane shall be mixed together on site to regulate the ratio/quantity of SBR, not to exceed 82% by weight in the base mat portion of the system. The polyurethane shall be mixed with the SBR rubber so that a minimum of 20%, by weight, exists in the final mixture. This mixture is then mechanically installed using the paver.
 - 3. Seal Coat:
 - a. The two component polyurethane is mixed at the prescribed ratio homogeneously with a suitable mixing device. The coating is squeegee applied to the base mat, making it impermeable.
 - 4. Wearing Course:
 - a. The 0.5 to 1.5mm EPDM granules shall be mixed with polyurethane, the single-component structural spray coating. The structural spray shall be made in two uniform applications.

3.4 TIMING, LIMITATIONS, AND CONDITIONS AFFECTING INSTALLATION

- A. The track surfacing material shall be applied no sooner than 28 days after placement of the asphalt top course.

- B. Weather and Climate: If in the opinion of the synthetic track surfacing manufacturer or the Owner, weather and climatic conditions are having or will have an adverse effect on installation; work shall be delayed until the adverse condition has passed.
- C. Adjacent and Concurrent Construction: Installation shall not take place until the completion of the adjacent or concurrent construction operations which generate dust, airborne abrasives, or any other by-product that, in the opinion of the Owner or synthetic track surfacing manufacturer, would be harmful to the track material. Under specific direction of the Owner, the Track & Field Synthetic Surfacing Contractor may be allowed to cover the track material with an approved covering if such harmful construction operations must occur after the track material has been installed.

END OF SECTION