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SECTION 2790 – SYNTHETIC SURFACING AND LINE MARKINGS FOR CONIPUR ISP

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. The contractor shall furnish all materials, labor, tools, and equipment necessary for the installation of the synthetic track surface and line markings on all areas detailed in the contract drawings.
- B. Related Sections include the following:
 - 1. “Storm Drainage” for track and field drainage system
 - 2. “Hot-Mix Asphalt Paving” base for track surface
 - 3. “Aggregate” base for asphalt
 - 4. “Portland Cement” work for curbs and related areas

1.3 CODES AND STANDARDS

- A. Codes and standards follow the current guidelines set forth by the National Federation of State High School Associations (NFHS), the National Collegiate Athletic Association (NCAA) and the International Association of Athletics Federations (IAAF). The NFHS rules shall be enforced where differences between the three associations are noted.

1.4 SUBMITTALS

- A. Submit three (3) sets of manufacturer’s product data sheets including installation guidelines and maintenance instructions.
- B. Submit three (3) representative track samples in the color of surfacing to be installed.
- C. Submit test reports that verify the manufacturer’s specifications (data) for the product to be installed.
- D. Submit documentation that verifies that the synthetic surfacing material does not contain any toxic or hazardous substance, which exceeds limits set forth by the EPA.
- E. Submit Material Safety Data Sheets (MSDS) for all individual components of the product being installed.
- F. Provide a letter stating that the surfacing contractor has reviewed the asphalt specification and accepts the specification as correct. Furthermore, the surfacing contractor shall provide a letter after checking the asphalt accepting it for synthetic surface installation. Should areas be found that do not meet specifications, they shall be repaired or replaced by the asphalt contractor prior to the synthetic surfacing contractor issuing its letter of acceptance.
- G. The synthetic surfacing material manufacturer shall submit a letter stating that the surfacing contractor is qualified to install its synthetic surface system.
- H. Submit three (3) copies of a detailed drawing showing location and color of all lane lines, start, finishes and all related markings for the owner to review at least four weeks prior to their application.



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- I. Submit evidence that the synthetic surfacing contractor holds the necessary contractor's license to install synthetic surfacing
- J. Submit evidence that the synthetic surfacing contractor is a member of the American Sports Builders Association (ASBA).

1.5 WARRANTY

- A. Provide a Five (5) Year Warranty against faulty workmanship and materials for the synthetic surface. The warranty period shall commence at final completion of the surfacing.
- B. A one (1) Year Warranty shall be provided for the line markings.

1.6 QUALITY ASSURANCE

- A. Provide a certificate of accuracy from a registered engineer or land surveyor that the track measures 400 meters in all lanes from start to finish.
- B. Provide, as a part of the Warranty, documents stating that the materials applied conform to the manufacturer's specifications and that the material will not separate from the asphalt or concrete base, blister, bubble, fade, crack or wear excessively during the life of the warranty.
- C. The materials will not foam, thus causing air bubbles and reduce the life expectancy of the surface.
- D. The synthetic surfacing contractor and owner will annually walk and inspect the synthetic surface during the life of the warranty. Warranty issues will be repaired and for non-warranty items a method for correction will be presented.
- E. The synthetic surfacing contractor shall maintain a clean and orderly job site. All excess materials shall be removed from the construction area and properly disposed of. Scrap shall be removed in the same manner.

PART 2 - PRODUCTS

2.1 SYNTHETIC SURFACING

- A. The synthetic surfacing shall be a 13 mm thick, impermeable, sandwich system, with a paved in place rubber granule and polyurethane binder base layer sealed to render it impermeable. Two coats of a mixture of colored polyurethane and EPDM rubber granules are structurally sprayed onto the base to form a textured finish.

2.2 PREQUALIFIED PRODUCT

- A. BASF/CONICA , Conipur ISP
- B. Prequalified Equal

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2.3 PROPERTIES *

<u>PHYSICAL PROPERTY</u>	<u>REQUIREMENT</u>
Water permeability	impermeable
Spike resistance	
Sliding coefficient – dry/leather	
	Wet/leather
Force Reduction	23°C
Flammability behavior	DIN 51960 Class 1

DIN 18035/6 Class 1
DIN 18035/6 0.52
DIN 18035/6 0.49
IAAF 38%



Tensile Strength	IAAF	0.76 N/mm ²
Elongation at break	IAAF	61%
Modified Vertical Deformation	IAAF	1.2

* all technical figures given are taken from the related test reports and refer to the main products. Therefore, depending on the substrate and application conditions, or in the case of using alternative products, results may vary.

2.4 SYSTEM COMPONENTS

- A. Polyurethane Primer (Conipur 74) – shall be single component designed specifically for priming concrete prior to installation of polyurethane coating. Primer (Conipur 72) is used for priming cured polyurethane prior to the application of a new coating, when necessary.
- B. Polyurethane Binder (Conipur 322) – shall be a single component, 100% polyurethane, moisture curing, middle viscosity polyurethane binding agent based on MDI/TDI. The level of the tolylene diisocyanate monomer is very low, less than ½ of 1%. Importantly the binder contains no solvents and no extenders (plasticiser).
- C. Polyurethane Pore Filler (Conipur 203) – shall be a two component thixotropic colored polyurethane coating containing no solvents, TDI, or mercury. The material is supplied in working packs for accurate measuring. Note: Conipur 210 coating may also be used as an alternative pore filler.
- D. Polyurethane Structural Spray – a two component traditional spray coating that is mixed 1 part Conipur 216 to 2 parts Conipur 322 by weight.
- E. SBR Rubber – SBR rubber granules shall be recycled black rubber that is processed and graded to 1-3 mm in size containing no fiber or metal and contains less than 4% dust.
- F. EPDM Rubber – EPDM colored virgin rubber granules that are processed and graded to 0.5 – 1.5 mm in size unless otherwise specified. The rubber shall contain a minimum of 20% EPDM and be approved by the resin manufacturer. The specific density shall be 1.60 +/- 0.08 and Shore A hardness of 60.
- G. EPDM rubber dust is a residual product made from the excess granules listed in F above. The material is 0.0 – 0.5 mm in size.

PART 3 EXECUTION

3.1 ASPHALT AND CONCRETE PREPARATION

- A. It is the responsibility of the asphalt-paving contractor to provide documentation that the paving meets those requirements set forth for asphalt paving. Additionally, the asphalt is to cure for a minimum of 28 days prior to synthetic surfacing being applied. Asphalt compaction tests are to be provided showing a compaction of 95% or greater. The asphalt will be checked with a 10 foot straight edge in all directions. Those areas not in conformance will be repaired and/or replaced by the paving contractor. Flooding the asphalt surface to locate irregularities is highly recommended.
- B. All concrete work is to cure for a minimum of 45 days. No curing agents are to be used. Any concrete flat work such as run ups etc will be checked as in 3.1.A.
- C. All areas to receive synthetic surfacing are to be clean and free of any loose particles or foreign substances such as dirt, oil, grease, etc.

3.2 INSTALLATION OF CONIPUR ISP SURFACING



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- A. Primer - All asphalt and concrete is primed using either a mixture of Conipur 322 polyurethane binder and solvent such as butyl acetate (1:1 w/w), for the asphalt or special Conipur 74 for concrete work. Application rate is approximately 0.28 lbs/sy. Only the area to be covered within the working day should be primed to ensure a good bond to the base.
- B. Base Layer – The base layer is a mixture of 1-3 mm SBR black rubber granules mixed in a mechanical mixer with Conipur 322 polyurethane binder. The materials are mixed until homogeneous. Mixing ratio is 100 parts rubber to 20 parts polyurethane. The prepared rubber and polyurethane is then paved in place using a heated mechanical screed paver, specially designed for this work, to an approximate depth of 10 mm using approximately 15 to 16.5 lbs/sy of mixed material.
- C. Seal Coat – the base layer is sealed by scraping a thixotropic mixture of Conipur 203 coating and EPDM rubber dust onto the surface to render it impermeable. The sealed surface must be checked for pin holes prior to further application. The seal coat consumption is approximately 2.6 lbs/sy of double mixed Conipur 203 and a small amount of EPDM rubber dust to adjust for temperature and humidity changes during the work day. Conipur 210 and EPDM rubber dust may be used as an alternative. The total mix applied will be slightly higher as Conipur 210 is not thixotropic.
- D. Structural Spray Coat (two applications) – is spray applied with air and volume controlled spray equipment. Care is to be taken so as to provide an even surface without streaking. This is accomplished by reversing direction of application for the second spray coat. Total spray application rates for the system shall be between 3.1 to 4.0 lbs/sy depending on product used.

Conipur 2211 W is prepared by mixing by weight 3 parts 2211 W to 2 parts EPDM rubber granules and adding a small quantity of EPDM dust for viscosity control and thoroughly mixing in a mortar mixer or similar to provide a thick liquid mix for spraying. Likewise, Conipur 216, 1 part, Conipur 322, 2 parts and EPDM rubber, 2 parts and EPDM dust is prepared and mixed in the same manner.

- E. All methods for mixing of products are to be approved by CONICA and can be found on their Technical Data Sheet (TDS)
- F. All labor shall be full time employees of the surfacing contractor.

3.3 LINE MARKINGS

- A. All line marking paint is to be approved by the synthetic surfacing manufacturer.
- B. All markings will be in accordance to the desires of the owner. See 1.3.A.

3.4 SPECIFIC SLOPES

- A. Concrete curbs - All top elevations of any continuous concrete curbs shall be a constant elevation.
- B. Track oval – running direction 0.1 %; lateral slope 2.0 % max. NFSA, 1% NCAA and IAAF.
- C. D areas (high jump) – towards cross bar 1 % downward
- D. Run ups same as oval unless located in the “D”.

END OF SECTION 02790