

Overview of surfaces - technical specifications

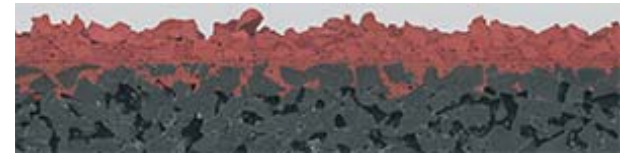
Polytan offers a tailor made product range of different surfaces for all kinds of athletic sports.

polytan PUR



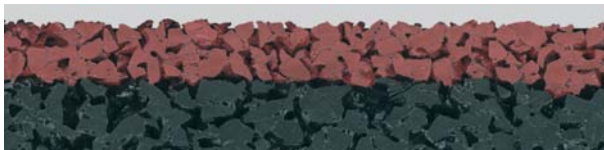
Type	Polyurethane surface cast insitu technology
Properties	Long lasting and super-elastic, high shock absorption and aberasion resistance, outstanding competition properties
Water permeable	No
Thickness	13 mm
Colour	Red (standard), green, blue (optional)
Application	Stadium running track
Surface	Special granulated surface (high UV-resistance), perfect for the use of spikes
Super structure	3 layers, „in situ“ installation: 1. Basic PU-layer 2. Non porous surface 3. Top layer: coloured EPDM granulate
Category	International Competitions, IAAF CLASS 1

polytan M



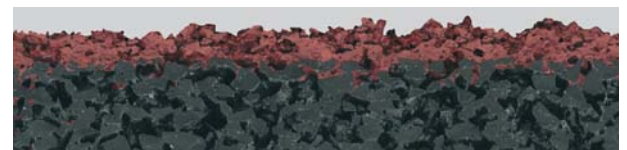
Type	Multi layer surface
Properties	Long lasting and elastic, high shock absorption,
Water permeable	No
Thickness	13 mm
Colour	Red (standard), blue (optional)
Application	Stadium running track
Surface	Granulated surface (high UV-resistance), perfect for the use of spikes
Super structure	3 layers, „in situ“ installation: 1. Basic layer 2. Non porous surface 3. Top layer: coloured EPDM granulate
Category	Training and competition, IAAF CLASS 1

polytan S



Type	Multi layer surface
Properties	High elasticity and aberasion resistance, highly weather resistant
Water permeable	Yes
Thickness	15 mm (available up to 20 mm)
Colour	Red (standard)
Application	School, amateur and professional level, running tracks and all weather pitches
Surface	Structured surface, perfect for the use of spikes
Super structure	2 layers „in situ“ installation 1. Basic layer: rubber granulate 2. Top layer: coloured EPDM granulate
Category	Long lasting allround surface

polytan WS



Type	Spraycoated surface
Properties	Special competition version available, high wear resistance
Water permeable	Yes
Thickness	14 mm
Colour	Red (standard)
Application	School, amateur and professional level, running tracks and all weather pitches
Surface	Rough, granular sturctured surface, also for the use of spikes
Super structure	2 layers 1. Basic layer: rubber granulate 2. Top layer: spray coated / EPDM
Category	Allround + competition, IAAF CLASS 1



POLYTAN PUR SYNTHETIC OUTDOOR RUNNING TRACK

GENERAL

Description

Scope: The complete installation of a seamless permanently resilient polyurethane-bound synthetic sports surfacing with a water impermeable, seamless, UV-resistant granulated surface, joint-free due to an in situ wet-in-wet installation.

Polytan PUR is a specially formulated spike resistant multi-layer multi-component rubber and resin composite system, formed in-situ by mixing, pouring and leveling. The two basic layers comprising black SBR granules of a graded size 1-4mm bound in polyurethane resin. The surface top layer comprises of formulated high resilience EDPM granules 1-3.5mm bound in polyurethane resin. Specific work consists of furnishing all required labor, materials, equipment, parts, and supplies necessary for the installation of this synthetic running track surface. Layout and paint all track lines and event markings as required and specified by current IAAF and NCAA rules. The work hereunder shall be done and conform to:

1. IAAF- Track and Field Manual
2. NCAA- Track and Field Rules
3. ASBA Track Construction Manual and Guidelines

Color: Terracotta red (other colors are available on request).

Quality Assurance:

Track system shall have documented independent test results from an accredited IAAF testing house to the requirements of the IAAF Performance Specifications for Synthetic Surface Athletics Tracks (Outdoor) dated January 1990.

The surfacing contractors installing foreman must have at least 8 years experience installing the specified type of synthetic track surface system.

Acceptable Installer:

Polytan PUR shall be installed by authorized factory trained and employed technicians only. Installer-Technician must submit a list of 10 completed projects of similar magnitude and complexity over a five year period.

Submittals

Samples: Submit samples of track surface system in standard colors with specified texture.

Maintenance Literature: Submit 3 copies of Surface Care and Maintenance guide.

Delivery and Storage

Delivery of Materials: Materials should be delivered in manufacturer's container to maintain clean and dry conditions. See manufacturer's guidelines for temperature requirements for the installation.



Storage of Materials: The Trade Contractor shall provide a secure, clean, dry location for storage of materials at temperature as above 50 degrees Fahrenheit. Under no circumstances should materials be stored outside unless fully protected from moisture with 10 mil polyethylene barrier and tarpaulin. All materials stored outside shall be inspected by installer for moisture contamination prior to installation.

Related Work

- A) When surfacing on new asphalt pavement, the asphalt must meet the specifications and standards set forth by the Engineer. The General Contractor shall be responsible for performing an elevation survey of the asphalt prior to application of the synthetic track surface. The General Contractor is to perform a flood test of the asphalt top course prior to application of the synthetic track surface.
- B) The asphalt pavement shall be sufficiently cured and cleaned prior to Work of this to be performed. The governing guidelines of track construction allow for a maximum longitudinal slope of one tenth of one percent (0.1%) in the running direction. The maximum lateral slope shall not exceed one percent (1%) for NCAA and IAAF specifications, or two percent (2%) for NFHS.
- C) Grade performance tests may be required to be performed by the General Contractor on both the leveling course and the top course of the asphalt pavement at the Engineer's discretion. The entire surface shall provide positive drainage to the inside edge of the track. The maximum allowable planarity deviation within an asphalt pass should be 1/8 inch in 10 feet when measured in any direction with a straight edge. Deficient areas in the leveling course should be corrected as approved by the Engineer. After any corrections the surface shall not allow water to stand greater than 1/16 inch deep one hour after a flood test has been performed.
- D) The General Contractor shall be responsible to have adjacent grass edged and removed from all areas receiving the synthetic surface. It may be necessary to apply a liquid herbicide such as Roundup to any adjacent edges of track and field event areas.

Job Site Conditions

Schedule of Installation: Track system must not be applied until other trades are completely finished in the area and surrounding area.

Asphalt base shall be level to the track manufacturer's specified tolerances, free from any materials and released to the installer clean and in good condition.

Upon completion of installation, installer shall remove all unused materials, tools, equipment, and rubbish.

GUARANTEE

The track surface installation shall be guaranteed against defects in workmanship and materials for a period of five (5) years from the date of completion. This five year guarantee shall be provided directly to the owner by Polytan USA.

The Polytan guarantee excludes the following as applicable:

- 1. Where materials or the installation is damaged by others or use of improper equipment.
- 2. The surface has not been properly maintained according to Polytan's maintenance instructions and recommendations.
- 3. Damage from improper vehicle traffic, other than those specified by Polytan, use of improper tires, and oil or fuel leaks.
- 4. Failure of the asphalt base, concrete, or aggregate subbase.
- 5. Defects caused by vandalism, Force Majeure, or natural disasters.
- 6. Unless other terms and conditions are previously agreed upon by both parties and stipulated in the contract.



Polytan will repair or replace any proven defective workmanship or material during the guarantee period at no cost to the owner. This guarantee is in lieu of all other warranties, expressed or implied, including but not limited to any warranty of merchantability or fitness for a particular purpose and shall not include any other damages, either direct or consequential.

PRODUCTS

Thickness: Polytan PUR is laid to achieve a minimum thickness of 13mm to comply with the current IAAF requirements. The thickness will be measured in accordance with DIN 18350 pt 6.

1st Layer: Polytan PU layer 4000 (A-Component) + Polytan PU binder 2300 (B-Component) + broadcasted black recycling rubber granules SBR

2nd Layer: Polytan PU layer 4000 (A-Component) + Polytan PU binder 2300 (B-Component) + broadcasted black recycling rubber granules SBR

Top Layer: Polytan PU layer 4000 (A-Component) + Polytan PU binder 2300 (B-Component) + colored high quality, broadcasted EPDM-granules (1.0 - 3.5 mm)

Lane Marking: PU-Line Paints, a pigmented two-component polyurethane paint. Line striping and event markings shall be laid out in accordance with current IAAF and NCAA rules.

Polytan PUR shall meet the following minimum physical properties:

	<u>Test Results</u>	<u>DIN Standard</u>
Standard Deformation:		
At 0 degrees C	0.67mm	0.6mm - 1.8mm
At 23 degrees C	0.90mm	(temp range 0 degrees -
At 40 degrees C	1.13mm	40 degrees C)
Permeability:	Not applicable as surface is non-porous.	
Spike Resistance:	Class 1 to DIN 18035/part 6.	
Tensile Strength:	0.68N/mm	min 0.5N/mm ²
	74%	min 40%
Sliding Behavior:	Dry 0.85	dry < 1.1
	Wet 0.60	wet < 0.5
Penetration Characteristics:	0.62mm	max 1.00mm
Burning Characteristics:	Class 1 to DIN 51960	
Wearing Behavior:	1.2 min	1.0
Ageing:	QZ no value < 0.75 tensile strength min 0.75 QB no value < 0.75 ultimate strain min 0.75 QE no value < 0.75 QE min 0.75 QE no value > 1.25 QE max 1.25 No color value color transfer min 3 degrees < 3 degrees	

All Materials shall have documented independent test results by an accredited IAAF testing house to the current requirements of the IAAF Performance Specifications for Synthetic Surface Athletics Tracks (Outdoor) dated January 1990.

The following details have been taken from the MpA University of Stuttgart, Laboratory Test Report dated 28th March 2007, product Test Certificate IAAF and shall be used as minimum standard for this project:



	TEST RESULT	MINIMUM SPEC
Sample thickness: (mm)	13.8mm	>12
Force Reduction (percentage)	36.0%	35.50%
Modified vertical deformation (mm)	1.4	0.6-1.8
Friction - TRRL	0.60	>0.47
Tensile Strength: (Mpa)	0.68	>0.5
Elongation at break (Percentage)	70	>40

Environmental Compatibility - Polytan PUR has been tested by the independent testing laboratory, Messrs FMPA, Germany, test Report RAL KB 010205, confirming the requirements relating to the environmental compatibility is fulfilled in all points by the Synthetic Surface Polytan PUR.

The above test results confirm that Polytan PUR complies with the requirements of DIN 18035 pt 6 (draft October 1989) and the IAAF specifications for outdoor running tracks, and is a suitable synthetic surface for running tracks and field event runways.

EXECUTION

Inspection

The asphalt base shall be allowed to cure for a minimum of 21 days prior to work of this section being performed. Prior to installation of the 1st layer of polyurethane, the entire asphalt base shall be checked for planarity and surface tolerance. The maximum allowable planarity deviation of an asphalt pass should be 1/8 inch in any direction when measured with a 10' straight edge. Any areas that vary outside this tolerance shall be patched with a compound compatible with the base material and approved by the track surface manufacturer and the Engineer. After patching, the surface shall not allow water to stand greater than 1/16 inch, one hour after a flood test has been performed.

Track installer shall inspect asphalt base for contamination, dryness and tolerances and report any discrepancies to the General Contractor in writing. Installation will not start until acceptance of substrate by the installer.

All work required to put the substrate in acceptable condition shall be the responsibility of the General Contractor.

Track installer shall perform tests for moisture and adhesion prior to application and report adverse conditions to the General Contractor in writing.

Limitations

Installation of the track surface material shall take place only when conditions are dry and the temperature is 50 degrees F and rising. If, in the installer's opinion, weather or climate conditions are harmful for proper track surface installation, work will be delayed until conditions are agreeable. Installation of the track surface material cannot begin if any nearby construction is producing excessive dust or foreign particles that would be harmful to the synthetic track materials.

Installation

1st Layer:

Polytan PU layer 4000 (A-Component) and Polytan PU binder 2300 (B-Component) shall be mechanically mixed together on site then poured and leveled with broadcasted black recycling rubber granules SBR graded 1-4 mm.



2nd Layer:

After the first layer has properly cured, Polytan PU layer 4000 (A-Component) and Polytan PU binder 2300 (B-Component) are once again mechanically mixed together on site then poured and leveled with broadcasted black recycling rubber granules SBR graded 1-4 mm.

Wearing Layer:

The 1-3.5 mm colored high quality EPDM granules shall be integrated into the poured-in-place U.V. stabilized polyurethane to achieve the full depth of the 5 mm top layer. The resilient embedded textured finish shall be a dense matrix of exposed EPDM granules.

Protection

Cure Time: No traffic or other trades shall be allowed on the surface for a period of one week following completion to allow for complete cure of finish.

Other Trades: It shall be the responsibility of the general contractor to protect the surface from damage by other trades before acceptance by the Owner or his agent.

Safety: No smoking, open flames or sparks from electrical equipment shall be permitted during the application of materials.

- A) Please contact dealer United Sports Surfacing of America, Inc.
for installation quotations

phone: 949-551-4696
fax: 949-551-4696
email: info@sportsurfacing.com
Web: <http://www.sportsurfacing.com>



PolyTan- M -SYNTHETIC OUTDOOR RUNNING TRACK

PART 1 GENERAL

Scope: The complete installation of a seamless permanently resilient polyurethane-bound synthetic sports surfacing with a water impermeable, seamless, UV-resistant granulated surface, and joint-free due to an insitu wet-in-wet installation.

Polytan M is a specially formulated spike resistant multi-layer multi-component rubber and resin composite system, formed in-situ by mixing, pouring and leveling. The base layer is composed of polyurethane binder and black SBR granules of a graded size 1-4mm. The surface layer comprises of formulated high resilience EDPM granules 1.0-3.5mm embedded in polyurethane resin. Terracotta Red (other colors available at extra cost). Specific work consists of furnishing all the required labor, materials, equipment, parts, and supplies necessary for the installation of this synthetic running track surface. Layout and paint all track lines and event markings as required and specified by current IAAF and NCAA rules. The work hereunder shall be done and conform to:

1. IAAF- Track and Field Manual
2. NCAA- Track and Field Rules
3. American Sports Builders Association Track Construction Manual and Guidelines

Quality Assurance:

Track system shall have documented independent test results from an accredited IAAF testing house to the requirements of the IAAF Performance Specifications for Synthetic Surface Athletics Tracks (Outdoor) dated January 1990.

The Contractor's installing foreman must have at least 8 years experience installing the specified type of synthetic track surface system.

Acceptable Installer: Polytan M shall be installed by authorized factory trained technicians only. Installer-Technician must submit a list of 10 completed projects of similar magnitude and complexity over a five year period.

Submittals

Samples: Submit samples of track surface system in standard colors with specified texture.

Maintenance Literature: Submit 3 copies of Surface Care and Maintenance guide.

Related Work

- A) When surfacing on new asphalt pavement, the asphalt must meet the specifications and standards set forth by the Engineer. The contractor shall be responsible for performing an elevation survey of the asphalt prior to application of the synthetic track surface. The contractor is to perform a flood test of the asphalt top course prior to application of the synthetic track surface.
- B) The asphalt pavement shall be sufficiently cured and cleaned prior to Work of this section to be performed. The governing guidelines of track construction allow for a maximum longitudinal slope of one tenth of one percent (0.10%) in the running direction. The maximum lateral slope shall not exceed one (1) percent (1.00%) for NCAA or IAAF specifications, or two (2) percent (2.00%) for NFHS.
- C) Grade performance tests may be required to be performed by the Contractor on both the leveling course and the top course of the asphalt pavement at the Engineer's discretion. The entire surface shall provide positive drainage to the inside edge of the track. The maximum allowable planarity deviation within an asphalt pass should be 1/8 inch in 10 feet when measured in any direction with a straight edge. Deficient areas in the leveling course should be corrected as approved by the Engineer. After any corrections, the surface shall not allow water to stand greater than 1/16 inch deep one (1) hour after rain has ended.
- D) The Contractor shall be responsible to have adjacent grass edged and removed from all areas receiving the synthetic surface. It may be necessary to apply a liquid herbicide such as Roundup to any adjacent edges of track and event areas.

Delivery and Storage

Delivery of Materials: Materials should be delivered in manufacturer's container to maintain clean and dry conditions. See manufacturer's guidelines for temperature requirements for the locale of installation.

Storage of Materials: The Trade Contractor shall provide a secure, clean, dry location for storage of materials at temperatures above 10°C or 50°F. Under no circumstances should materials be stored outside unless fully protected from moisture with 10 mil polyethylene barrier and tarpaulin. All materials stored outside shall be inspected by dealer for moisture contamination before application.

Job Site Conditions

Schedule of Installation:

Track system must not be applied until other trades are completely finished in the area and surrounding area.

Asphalt base shall be level to the track manufacturer's specified tolerances, free of any materials and released to the applicator clean and in good condition.

Upon completion of installation, installer shall remove all unused materials, tools, equipment, and rubbish.

No smoking, open flames, or sparks from electrical equipment shall be permitted during the application of materials.

GUARANTEE

The track surface installation shall be guaranteed against defects in workmanship and materials for a period of five (5) years from the date of completion. This five year guarantee shall be provided directly to the owner by Polytan USA.

The Polytan guarantee excludes the following as applicable:

1. Where materials or the installation is damaged by others or use of improper equipment.
2. The surface has not been properly maintained according to Polytan's maintenance instructions and recommendations.
3. Damage from improper vehicle traffic, other than those specified by Polytan, use of improper tires, and oil or fuel leaks.
4. Failure of the asphalt base, concrete, or aggregate subbase.
5. Defects caused by vandalism, Force Majeure, or natural disasters.
6. Unless other terms and conditions are previously agreed upon by both parties and stipulated in the contract.

Polytan will repair or replace any proven defective workmanship or material during the guarantee period at no cost to the owner. This guarantee is in lieu of all other warranties, expressed or implied, including but not limited to any warranty of merchantability or fitness for a particular purpose and shall not include any other damages, either direct or consequential.

PRODUCTS

Materials: Polytan M is laid to achieve a minimum thickness of 13mm to comply with the current IAAF requirements. The thickness will be measured in accordance with DIN 18350 pt 6. Any adjustments required to meet specific contract conditions will be taken up in the base layer of the system (i.e. min, max, or average depths).

Base Layer: Black recycling rubber granules (Industrial recycling granules) Recycling-rubber + Polytan PU binder. The ratio of rubber to binder shall not be less than 5 parts rubber to 1 part binder as determined by the weight of the products.

Sealing Layer: Polytan PU layer 4000 (A-Component) + Polytan PU binder 2300 (B-Component) + colored EPDM-powder (0.0 – 0.5 mm)

Top Layer: Polytan PU layer 4000 (A-Component) + Polytan PU binder 2300 (B-Component) + colored high quality EPDM-granules (1.0 mm to 3.5 mm)

Lane Marking: PU-Line Paints, a pigmented two-component polyurethane paint. Color as chosen from manufacturer's standard colors. See architectural drawings for lane marking details.

Polytan M shall meet the following minimum physical properties:

	<u>Test Results</u>	<u>DIN Standard</u>
Standard Deformation:		
At 0 degrees C	0.85mm	0.6mm - 1.8mm
At 23 degrees C	1.09mm	(temp range 0 degrees -
At 40 degrees C	1.36mm	40 degrees C)
Permeability:	Not applicable as surface is non-porous.	
Spike Resistance:	Class 1 to DIN 18035/part 6.	
Tensile Strength:	0.58N/mm	min 0.5N/mm ²
	78%	min 40%
Sliding Behavior:	Dry 0.85	dry < 1.1
	Wet 0.60	wet < 0.5
Penetration Characteristics:	0.71mm	max 1.00mm
Burning Characteristics:	Class 1 to DIN 51960.	
Wearing Behavior:	1.1 min	1.0
Ageing:	QZ no value < 0.75 tensile strength min 0.75	
	QB no value < 0.75 ultimate strain min 0.75	
	QE no value < 0.75 QE min 0.75	
	QE no value > 1.25 QE max 1.25	
	No color value color transfer min 3 degrees < 3 degrees	

All Materials shall have documented independent test results by an accredited IAAF testing house to the requirements of the IAAF Performance Specifications for Synthetic Surface Athletics Tracks (Outdoor) dated January 1990.

The following details have been taken from the Centre of Sports Technology, London, Laboratory Report L-0306 dated 16th March 1992 and shall be used as minimum standard for this project:

	TEST RESULT	MINIMUM SPEC
Sample thickness: (mm)	14.6mm	>12
Force Reduction (percentage)	39.1%	35.50%
Modified vertical deformation(mm)	1.13	0.6-1.8
Friction - TRRL	58	>47
Tensile Strength: (Mpa)	0.52	>0.5
Elongation at break (Percentage)	69	>40

Environmental Compatibility - Polytan M has been tested by the independent testing laboratory, Messrs FMPA, Germany, Test Report RAL KB 010205, confirming the requirements relating to the environmental compatibility are fulfilled in all points by the Synthetic Surface Polytan M.

The above test results confirm that Polytan M complies with the requirements of DIN 18035 pt 6 (draft October 1989) and the IAAF specifications for outdoor running tracks, and is a suitable synthetic surface for running tracks and field event runways.

EXECUTION

Inspection

Asphalt Base: The asphalt base shall be allowed to cure for a minimum of 21 days prior to work of this section being performed. Prior to installation of the polyurethane base mat, the entire asphalt base shall be checked for planarity and surface tolerance. Any areas that vary more than 1/8 inch in any direction when measured with a 10-foot straight edge shall be patched with a compound compatible with the base material and approved by the track surface manufacturer and the Engineer. After patching, the surface shall not allow water to stand greater than 1/16 inch, one hour after a flood test has been performed. Track installer shall inspect asphalt base for contamination, dryness and tolerances and report any discrepancies to the General Contractor in writing.

All work required to put the asphalt base in acceptable condition shall be the responsibility of the General Contractor.

Installer shall perform tests for moisture and adhesion prior to application and report adverse conditions to the General Contractor in writing.

Installation

Polyurethane Track Basemat:

The entire area to be surfaced shall receive an application of polyurethane primer applied uniformly at a rate between 0.20-0.30 lbs. per sq. yd. A minimum cure time of 30 minutes is required before the application of the base mat materials.

The mixing ratio of rubber to binder shall not be less than 5 parts rubber to 1 part binder as determined by the weight of the products. The materials shall be prepared in a mechanical mixer until a homogenous mix is obtained.

The mixed materials making up the synthetic track surface shall be applied by a mechanically operated finishing machine which shall have an electrically heated screed. The surface shall be in situ installed in one single layer to the specified depth.

The cured edge of each joint shall be primed with the synthetic track surface binding agent prior to the adjacent base mat. All joint work shall be troweled flush with the adjacent mat.

All seams shall be troweled smooth within the pot life of the material. All edges shall be straight and rounded by turning the trowel. All cold dry seams shall be cut straight at an inward angle and primed prior to commencing with subsequent work.

Sealer Coat:

The polyurethane track base mat shall be cleaned and prepared prior to the installation of the sealer coat in accordance with the manufacturer's specifications and instructions.

The manufacturer's specified quantity of colored EPDM powder shall be mixed thoroughly with the specified quantity of one component polyurethane and the one component binder.

The mixed sealing material shall be placed in front of the paving machine and mechanically pressed into the polyurethane track basemat.

After the sealer coat installation, a second check needs to take place to make sure the entire area is properly sealed.

Top Layer:

The 1-3.5 mm EPDM granules shall be integrated into poured-in-place U.V. stabilized elastomeric polyurethane to achieve the full depth of the 5mm top layer. The resilient embedded textured finish shall be a dense matrix of exposed EPDM granules. The homogeneous wearing course shall be applied in situ with the base course.

Protection

Cure Time: No traffic or other trades shall be allowed on the surface for a period of one week following completion to allow for complete cure of finish.

Other Trades: It shall be the responsibility of the general contractor to protect the surface from damage by other trades before acceptance by the Owner or his agent.



POLYTAN WS -SYNTHETIC OUTDOOR RUNNING TRACK

PART 1 GENERAL

SUMMARY

- A) Work of this specification includes the installation of a cast in place, durable, permeable, resilient, all-weather track surface (Product IAAF Certified) consisting of a polyurethane bound rubber base mat and structural spray top coat.
- B) The manufacturer of all installed materials for the Polytan WS system needs to be the same as the installer.

ACCEPTABLE INSTALLERS

The surface shall be installed by an authorized factory trained technician only. Installer-Technician must submit a list of 10 completed projects of similar magnitude and complexity over a five year period.

- A) Please contact dealer United Sports Surfacing of America, Inc. for installation quotations

phone: 949-551-4696
fax: 949-551-4696
email: info@sportsurfacing.com
Web: <http://www.sportsurfacing.com>

- B) Approved Equal

DESCRIPTION OF WORK

- A) Work of this specification consists of furnishing all the required labor, materials, equipment, parts and supplies necessary for this installation of the synthetic running track surface.
- B) Layout and paint all track lines and event markings as required and specified by current IAAF and NCAA rules.
- C) The work hereunder shall be done and conform to:
 - 1. IAAF - Track and Field Manual
 - 2. NCAA – Track and Field Rules

3. American Sports Builders Association Track Construction Manual and Track Construction Guidelines

SUBMITTALS

- A) Bidders of this product are to provide a list of at least 20 installations that are a minimum of 3 years old that contain the same products, and use the same method of installation showing locations and the owners representatives. Tracks are to have been installed under the same name and ownership that is presently bidding. Contractor shall have written maintenance information on this product to be presented to the Owner, upon completion of the surface. This will include repair methods and availability of repair materials including cost. Submit 3 copies of Flooring Care and Maintenance guide.

QUALITY ASSURANCE

- A) Track system shall have documented independent test results from an accredited IAAF testing house to the requirements of the IAAF Performance Specifications for Synthetic Surface Athletics Tracks (Outdoor) dated January 1990.
- B) The Contractor's installing foreman must have at least 8 years experience installing the specified type of synthetic track surface system.

WARRANTY

- A) The warranty for the Polytan WS track surface shall be (5) years from the date of acceptance by the Owner. This five-year warranty shall be provided directly to the owner by Polytan USA.
- B) The Polytan warranty excludes the following as applicable:
 - 1.) Where the materials or the installation is damaged by others or use of improper equipment.
 - 2.) The surface has not been properly maintained according to Polytan's maintenance instructions and recommendations.
 - 3.) Damage from improper vehicle traffic, other than those specified by Polytan, use of improper tires, and oil or fuel leaks.
 - 4.) Failure of the asphalt base, concrete, or aggregate subbase.
 - 5.) Defects caused by vandalism, Force Majeure, or natural disasters.
 - 6.) Unless other terms and conditions are previously agreed upon by both parties and stipulated in the contract.

- C) Polytan will repair or replace any proven defective workmanship or material during the warranty period at no cost to the owner. This warranty is in lieu of all other warranties, expressed or implied, including but not limited to any warranty of merchantability or fitness for a particular purpose and shall not include any other damages, either direct or consequential.

RELATED WORK

- A) When surfacing on new asphalt pavement, the asphalt must meet the specifications and standards set forth by the Engineer. The contractor shall be responsible for performing an elevation survey of the asphalt prior to application of the synthetic track surface. The contractor is to perform a flood test of the asphalt top course prior to application of the synthetic track surface.
- B) The asphalt pavement shall be sufficiently cured and cleaned prior to Work of this section to be performed. The governing guidelines of track construction allow for a maximum longitudinal slope of one tenth of one percent (0.10%) in the running direction. The maximum lateral slope shall not exceed one (1) percent (1.0%) for NCAA or IAAF, or two percent (2.0%) for NFHS.
- C) Grade conformance tests may be required to be performed by the Contractor on both the leveling course and the top course of the asphalt pavement at the Engineer's discretion. The entire surface shall provide positive drainage to the inside edge of the track. The maximum allowable planarity deviation within a pass should be 1/8 inch in 10 feet when measured in any direction. Deficient areas in the leveling course should be corrected as approved by the Engineer. After any corrections, the surface shall not allow water to stand greater than 1/16 inch deep, one (1) hour after a flood test has been performed.
- D) The Contractor shall be responsible to have adjacent grass edged and removed from all areas receiving the synthetic surface. It may be necessary to apply a liquid herbicide such as Roundup to any adjacent edges of track and event areas.

PART 2 PRODUCTS

GENERAL

- A) The specified running track surface shall be a mixture of graded rubber granules bound with 100 percent polyurethane binders. The track surface shall be of a permeable design and the mixture is applied to a previous or impervious base by means of a mechanically operated screen.

1. Only a high quality polyurethane binder shall be used. The ratio of rubber to binder shall not be less than 5 parts rubber to 1 part binder as determined by the weight of the products.
 2. The depth shall be a minimum of ½ of an inch (12,75mm) or as specified
- B) The synthetic track surface system shall have a smooth finish and may be applied for both indoor and outdoor use.
- C) The structural spray applied polyurethane and rubber blended Coating (top coat) shall be resilient and allow moisture to pass through the surface. It shall have a textured finish for outdoor applications.

D) The product shall meet the following minimum physical properties:

	Test Results	DIN Standard
Standard Deformation:		
At 0 degrees C	0.81mm	0.6mm - 1.8mm
At 23 degrees C	1.04mm	(temp range 0 degrees -
At 40 degrees C	1.35mm	40 degrees C)
Permeability	0.24 cm/s	min 0.01 cm/s
Spike Resistance:	Class 1 to DIN 18035/part 6.	
Tensile Strength:	0.65N/mm ²	min. 0.5N/mm ²
	68%	min. 40%
Sliding Behavior:	Dry 0.97	Dry < 1.1
	Wet 0.73	Wet < 0.5
Penetration Characteristics:	0.65mm	max. 1.00mm
Burning Characteristics:	Class 1 to DIN 51960.	
Wearing Behavior:	2.0	min. 1.0
Ageing:	QZ no value < 0.75 tensile strength min 0.75	
	QB no value < 0.75 ultimate strain min 0.75	
	QE no value < 0.75 QE min 0.75	
	QE no value > 1.25 QE max 1.25	
	No color value color transfer min 3 degrees < 3 degrees	

E) All Materials shall have documented independent test results by an accredited IAAF testing house to the requirements of the IAAF Performance Specifications for Synthetic Surface Athletics Tracks (Outdoor) dated January 1990.

F) Environmental Compatibility – Product has been tested by the independent testing laboratory, Messrs FMPA, Germany, Test Report RAL KB 010205, confirming the requirements relating to the environmental compatibility are fulfilled in all points by the Synthetic Surface.

RUBBER – POLYURETHANE TRACK BASEMAT

- A) The polyurethane track base mat rubber shall be specifically graded rubber granules with a controlled gradation between 1.0mm to 4.00mm.
 - 1. Dust and rubber particulate smaller than a No. 200 sieve size shall not exceed 4 percent of the total rubber.
 - 2. The rubber shall be black SBR or EPDM

RUBBER – STRUCTURAL SPRAY TOP COAT

- A) The EPDM rubber for the structural spray to coat shall have a gradation of 0.5mm to 1.5mm.
- B) Polytan PU one component 5100 or 5200.
- C) One application clockwise, one application counter-clockwise.

PRIMER

- A) The synthetic track surface primer shall be polyurethane based and compatible with asphalt and synthetic track surfacing materials.
- B) The polyurethane primer may be diluted to ensure proper penetration of the existing surface.
- C) When installing over an asphalt base, the primer application may be reduced or eliminated when extreme heat conditions soften the asphalt.
- D) When installing over a concrete pavement special developed concrete primer, manufactured by the same manufacturer of the other materials, shall be applied.

BINDER

- A) The synthetic track surface binding agent shall be a single component; MDI based, moisture cure polyurethane binder.
 - 1. The polyurethane binder shall be 100 percent solids.
 - 2. The polyurethane binder shall be compatible with SBR and EPDM rubber granules.
- B) All polyurethane binder shall be manufactured by the installation company and to be delivered in new unopened containers, clearly labeled by the manufacturer.

PART 3 EXECUTION

GENERAL

- A) The asphalt base should be sufficiently cured and cleaned in order for work to progress
- B) The entire surface shall be swept, power blown, or high pressure washed to remove all dirt, oil, grease, or any other foreign matter. The surface shall be free from any loose material.
- C) All work shall be performed by manufacturer's technicians and comply with the manufacturer's guidelines for the complete placement and installation of the base layer, the sealing and surface layers.
- D) Track system must not be applied until other trades are completely finished in the area.

SURFACE PREPARATION

- A) The asphalt base shall be allowed to cure for a minimum of 21 days prior to work of this section being performed.
- B) Prior to installation of the polyurethane track base mat, the entire asphalt base shall be checked for planarity and surface tolerance. Any areas that vary more than 1/8 inch when measured with a 10-foot straightedge in any direction shall be patched with a compound compatible with the base material and approved by the synthetic track surface manufacturer and the Engineer. After patching, the surface shall not allow water to stand greater than 1/16" depth, one (1) hour after a flood test has been performed.

LIMITATIONS

- A) Apply the synthetic surfacing material only during favorable weather conditions. Work is to proceed only when adequate curing can be guaranteed by the manufacturer and installer.
- B) During surface installation and striping all sprinkler systems shall be shut off, or controlled so that no water falls on the track or event surfaces.
- C) All materials shall be installed in strict compliance with the manufacturer's specifications and instructions.
- D) The Contractor shall be responsible to have the entire track area, and other pertinent areas such as football field, concessions, etc., closed and secured of all activities 24 hours per day through the curing and completion of the synthetic track surface.

INSTALLATION – POLYURETHANE TRACK BASEMAT

- A) The entire area to be surfaced shall receive an application of polyurethane primer applied uniformly at a rate between 0.20-0.30 lb. per sq. yd. A

- minimum cure time of 30 minutes is required before application of the base mat materials.
- B) The mixing ratio of rubber to binder shall not be less than 5 parts rubber to 1 part binder as determined by the weight of the products. The materials shall be prepared in a mechanical mixer until a homogenous mix is obtained.
 - C) The mixed materials making up the synthetic track surface shall be applied by a mechanically operated finishing machine, which shall have an electrically heated screed. The surface shall be in situ installed in one single layer to the specified depth.
 - D) The cured edge of each joint shall be primed with the synthetic track surface binding agent prior to the laying of the adjacent base mat. All joint work shall be troweled flush with the adjacent mat.
 - E) Trowel work: All seams shall be troweled smooth within the pot life of the material. All edges shall be straight and rounded by turning the trowel. All cold dry seams shall be cut straight at an inward angle and primed prior to commencing with subsequent work.

INSTALLATION – STRUCTURAL SPRAY TOP COAT

- A) The polyurethane track base mat shall be cleaned and prepared prior to the installation of the structural spray top coat in accordance with the manufacturer's specifications and instructions.
- B) According to the manufacturer's specifications, the specified quantity of colored EPDM granules shall be mixed thoroughly with the specified quantity of the one component polyurethane of the structural spray material.
- C) The mixed structural spray material shall be placed into a spray machine and the material is applied to the polyurethane track base mat. A second coat of material over the first is applied in the opposite direction. The total rate of both coats of spray shall range from 3.5 to 4.0 lbs. per square yard.

STRIPING

- A) Experienced personal specializing in all-weather running track striping shall accomplish all striping.
- B) Provide lane lines, starting lines, and markings required, and conform to the standards for track construction as prescribed by the applicable governing body.
- C) Contractor shall verify with the Engineer and Owner the exact locations, size, shape and color of the lines and markings before proceeding with markings and striping.
- D) Calculations shall be made to the nearest 0.0001'. These shall be rounded to the nearest 0.01' for marking.
- E) A transit or theodolite capable of reading direct to 20 seconds shall set the angles.
- F) Measurements shall be made with a steel tape in engineering scale that will read directly to 0.01'.
- G) All lane lines shall have a width of 5cm (approx. 2")

- H) All measurements and calculations shall be made by an IAAF, NCAA or N.F.S.H.S.A. certified surveyor for track and field event layout.
- I) PU-Line Paints, a pigmented two-component polyurethane paint. Color as chosen from manufacturer's standard colors. See architectural drawings for lane marking details.

DELIVERY , STORAGE, AND CLEANING

- A) Materials should be delivered in manufacturer's container to maintain clean and dry conditions. See Manufacturer's guidelines for temperature requirements for the locale of installation.

- B) The owner shall provide a secure, clean, dry location for storage of materials at temperatures above 50 degrees F. Under no circumstances should materials be stored outside unless fully protected from moisture with 10 mil polyethylene barrier and tarpaulin. All materials stored outside shall be inspected by dealer for moisture contamination before application.

- C) Upon completion of all work, installer shall remove all containers, surplus materials and installation debris. Leave work area in clean orderly condition.