

SECTION 09624 - SYNTHETIC ATHLETIC FLOORING**PART 1 - GENERAL****1.1 DESCRIPTION:****A. Scope**

The complete installation of a prefabricated rubber sports surface including adhesive and game line striping as manufactured by RPM Sports Flooring

B. Related work specified under other sections.**1. CONCRETE SUBFLOORS.....SECTION 03300**

- a. *Slab Depression: Equal to thickness of selected flooring (6, 8, or 10mm).*
- b. *Concrete Finish: Shall be steel troweled, dense and finished smooth, not polished.*
- c. *Slab Tolerance: A tolerance of 1/8" (3mm) in 10' (3m) radius shall be maintained throughout. Floor Flatness and Floor Levelness (FF and FL) numbers are not recognized.*
- d. *No concrete curing, hardening or sealing agents shall be applied to the concrete subfloor.*

2. MEMBRANE WATERPROOFING.....SECTION 07100

Concrete subfloors on or below grade shall be adequately waterproofed, beneath, at perimeter walls, and on earth side of below grade walls. Type and extent of membrane shall be determined by the Project Engineer and installed by the General Contractor.

3. THRESHOLDS.....SECTION 08700**4. GAME STANDARDS.....SECTION 11500****1.2 REFERENCES:**

American Society for Testing & Materials

1. *ASTM D 2047: Standard Test Method for Static Coefficient of Friction of Floor Surfaces*
2. *ASTM D 2240: Standard Test Method for Rubber Property—Durometer Hardness*
3. *ASTM D 5116: Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials/Products*
4. *ASTM E 648: Standard Test Method for Critical Radial Flux of Floor-Covering Systems Using a Radiant Heat Energy Source*
5. *ASTM E 662: Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials*
6. *ASTM F 970: Standard Test Method for Static Load Limit*
7. *ASTM F 1869: Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Sub-floor Using Anhydrous Calcium Chloride*
8. *ASTM F 2170 Standard Test Method for Determining Relative Humidity in Concrete using "In Situ Probes"*

1.3 SUBMITTALS:**A. Manufacturers Product Information**

Submit (3) copies of RPM Metron System Specification Sheets or as requested.

B. Samples

Submit (1) set of samples showing colors and texture of the Metron surface or as requested.

C. Shop Drawings

Submit (1) set of shop drawings reflecting seam placement and layout.

D. Maintenance Literature

Submit (3) copies of RPMs Metron maintenance instructions.

1.4 QUALITY ASSURANCE:**A. Manufacturer**

- 1. Manufacturer shall be an established firm with a minimum of 10 years in business specializing in manufacturing prefabricated sheet rubber for athletic surfaces.*
- 2. Manufacturer shall be ISO 9001 & ISO 14001 certified.*

B. Flooring Contractor:

- 1. The complete installation of the flooring system shall be performed only by an experienced flooring contractor with a minimum three years of experience installing athletic surfaces and approved by the manufacturer.*
- 2. All work will be performed in accordance with the most recent printed installation instructions of the manufacturer.*

1.5 DELIVERY, STORAGE AND HANDLING:

Materials must be delivered in manufacturer's original, unopened and undamaged packaging with identification labels intact.

- 1. The general contractor shall provide a secure area where stored materials can be maintained at 65 to 80 degrees F (18.3 to 26.7 degrees C).*
- 2. Store material in a secured area protected from exposure to harmful weather conditions on a clean, dry, flat surface protected from possible damage.*

1.6 SITE CONDITIONS:**A. The prefabricated rubber flooring specified herein shall not be installed until all trades including but not limited to, masonry, painting, plaster, tile, marble, terrazzo, carpentry, overhead mechanical trades', goals, scoreboard, electrical, and painters have finished in the installation area.**

- 1. The area will be closed and secured from all foot traffic and trades for duration of the installation and curing period.*
- 2. The building shall be enclosed, weather-tight, with permanent windows and lockable doors.*
- 3. Permanent heat, light and ventilation shall be installed and operating prior to, during and after installation.*

4. *Subfloors shall be broom clean, dry and free from dirt, dust, oil, grease, paint, and alkali, concrete curing agents, hardening and parting compounds, old adhesive residue or other foreign materials.*
5. *Moderate room temperature of 65 to 80 degrees F (18.3 to 26.7 degrees C) shall be maintained for a week prior to, during and for 72 hours after installation.*
6. *Concrete tolerance of 1/8 inch (3mm) in ten foot (3m) shall be maintained throughout. High spots shall be ground level and low spots filled with a Portland base compound such as Ardex Feather Finish. No concrete curing, hardening or sealing agents shall be applied to concrete.*
7. *Concrete must dry for a minimum of 30 days and slab moisture levels shall not exceed 5 lbs. per 1000 (2.27 kg per 304.8 m) in accordance to ASTM F1869 Anhydrous Calcium Chloride and/or "Determining Relative Humidity in Concrete with In-Situ Probes" not to exceed 85% respecting ASTM F2170. HVAC must be operational and with a constant temperature for 7 days prior to testing.*
8. *The installation area shall be closed to all traffic and activity during installation and for seven days following to allow drying/curing.*
9. *After completion, area to be kept locked by general contractor. No other trades or personnel to be allowed on floor until accepted by owner.*

1.7 WARRANTY:

- A. *RPM Sports Flooring provides a limited warranty of one (1) year on materials. (A copy of the full warranty, with its Terms and Exclusions, is available from the authorized RPM Dealer.) This warranty is expressly limited to the flooring materials (goods) supplied by RPM. This warranty does not cover floor damage caused (wholly or in part) by fire, winds, flood, other unfavorable atmospheric conditions or chemical action, nor does it apply to damage caused by ordinary wear, misuse, failure to follow recommended maintenance instructions, abuse, negligent or intentional misconduct, aging, faulty building construction, concrete slab separation or movement, moisture migration either through slab or any other source, faulty or unsuitable subsurface or site preparation, settlement of the building walls or faulty or unprofessional installation of RPM flooring systems.*
- B. *The foregoing warranty is in lieu of and excludes all other warranties not expressly set forth herein, whether express or implied, including, but not limited to any implied warranties of merchantability or fitness. RPM Sports Flooring and its contractors shall not be liable for incidental or consequential losses, damages or expenses, directly or indirectly arising from the sale, handling or use of the goods, or from any other cause relating thereto, and their liability hereunder in any case is expressly limited to the replacement of goods not complying with this agreement, or, at their election, to the repayment of, or crediting Buyer with, an amount equal to the purchase price of such goods, whether such claims are for breach of warranty or negligence.*

PART 2 – PRODUCTS

2.1 MANUFACTURER:

- A. *Basis for design is Metron as manufactured by RPM Sports Flooring.*

2.2 MATERIALS:

- A. *Material shall be prefabricated rubber athletic flooring manufactured in two vulcanized layers with a base of natural and synthetic rubber, stabilizing agents and pigmentation.*
 1. *Only vulcanized rubber will be accepted.*

2. Flooring surface shall be manufactured to maintain performance criteria, as stated by manufacturer, without defects, damage, or failure.
3. Thickness shall be ___ (choose one; 6, 8, or 10mm)
4. Material shall be ____ (Select standard tiles, interlocking tiles or roll goods)
5. Color shall be ____ (Select from standard, custom colors available at additional charge)
6. Finish: Embossed Texture

B. Adhesive (when applicable)

Two-component polyurethane as supplied by RPM.

C. Game Line Paint

Two-component polyurethane. Select from standard colors.

2.3 PHYSICAL PROPERTIES:

Physical Properties	Standard	Metron
Thickness		6, 8, or 10mm
Hardness Shore A	ASTM D 2240	68/59
Water Absorption	ASTM D 570 (%)	0.13
Tensile Strength (kgf/cm ²)	ASTM D 412 (psi)	37
Ultimate Elongation	ASTM D 412 (%)	294
Modulus 20%	ASTM D 412 (%)	175
Tear Abrasion	ASTM D 501 (index)	126 (H22 Wheels; 1 Kg Load)
Tear Resistance	ASTM D 624 (lb./in)	161
Dimensional Stability	ASTM D 1204	+0,02
Density of Smoke	ASTM D 662	411 (flaming)
Critical Radiant Flux	ASTM E 648 (w/cm2) / (class NFPA 101)	0.49 / 1
Compression Set (70°C, 22h)(%)	ASTM D 395 (%)	84
Friction Test	ASTM D1894-01	1.58 (Dry) & 1.55 (Wet)
Fire Resistance		Class 1, Inflammable
Static Load Limit (250 psi, 24h) (mm)	ASTM F970-07	0.46

PART 3 - EXECUTION

3.1 INSPECTION:

- A.** *Inspect concrete slab for proper tolerance of 1/8 inch (3mm) in ten foot (3m). Report discrepancies to general contractor for correction.*
 - 1. *High spots shall be ground level and low spots filled with a Portland base compound such as Ardex Feather Finish.*
- B.** *Perform moisture testing of the slab, results will not exceed 5 lbs. per 1000 (2.27 kg per 304.8 m) in accordance to ASTM F1869 Anhydrous Calcium Chloride and/or "Determining Relative Humidity in Concrete with In-Situ Probes" not to exceed 85% respecting ASTM F2170. Report results to the general contractor.*
 - 1. *HVAC must be operational and with a constant temperature for 7 days prior to testing.*
 - 2. *Allow further drying time if moisture tolerances are exceeded.*
- C.** *Ensure all requirements from section 1.6 SITE CONDITIONS are completed and satisfied.*
- D.** *All work required to put the concrete slab in an acceptable condition and provide correct working conditions for a successful installation is the responsibility of the General Contractor or Construction Manager.*

3.2 INSTALLATION:

- A.** *Roll goods; Install athletic flooring in accordance with current manufacturer's installation instructions*
 - 1. *Disc sand concrete in preparation to receive flooring material.*
 - 2. *Unroll flooring and allow relaxing overnight while maintaining a constant room temperature.*
 - 3. *Thoroughly mix two-component polyurethane adhesive per manufacturer's instructions and apply directly to concrete subfloor.*
 - 3. *Install flooring into freshly applied adhesive, scribing and fitting neatly at walls, around columns and around door frames. Use matching urethane caulk at tight fit locations.*
 - 4. *Roll material in multiple directions with a 100-pound (45.4 kg) roller to remove entrapped air.*
 - 5. *Clean any adhesive that migrates between seams with recommended product.*
 - 6. *Hold and weight all seams in place with cinder bricks. Leave weight in place for a minimum of 12 hours.*
- B.** *Tiles; Install athletic flooring in accordance with current manufacturer's installation instructions*
 - 1. *For a successful and aesthetically pleasing installation tiles must be laid in an ashlar or brick pattern.*
 - 2. *Square room and chalk line down center.*
 - 3. *Following chalk line, install first row keeping tiles straight.*
 - 4. *Set and hold joints with masking tape.*
 - 5. *Do not to shift or gap tiles after setting.*
 - 6. *Roll floor in multiple directions with a 100lb (45.4 kg) roller to eliminate any trapped air.*
 - 7. *After rolling, and before adhesive dries, weight all seams and at perimeter wall.*

8. *Continue installing runs as described above to completion.*
- C. Game Lines**
1. *Use only high quality masking tape approved by RPM.*
 2. *Carefully layout and mask game lines as indicated on drawings.*
 3. *Prime area to receive paint per manufacturer's instruction.*
 4. *Thoroughly mix two-component game line paint.*
 5. *Apply paint by spray method*
- C. Wall Base (optional)**
1. *Install vinyl base anchored to walls with base cement.*
- D. Cleanup**
1. *Collect and remove all bricks (weights)*
 2. *Remove all excess and waste materials from the area of work. Leave area clear from installation debris and empty containers.*

END OF SECTION 09624

SECTION 09624 - SYNTHETIC ATHLETIC FLOORING**PART 1 - GENERAL****1.1 DESCRIPTION:****A. Scope**

The complete installation of a prefabricated rubber sports surface including adhesive and game line striping as manufactured by RPM Sports Flooring

B. Related work specified under other sections.**1. CONCRETE SUBFLOORS.....SECTION 03300**

- a. *Slab Depression: Equal to thickness of selected flooring (6, 8, or 10mm).*
- b. *Concrete Finish: Shall be steel troweled, dense and finished smooth, not polished.*
- c. *Slab Tolerance: A tolerance of 1/8" (3mm) in 10' (3m) radius shall be maintained throughout. Floor Flatness and Floor Levelness (FF and FL) numbers are not recognized.*
- d. *No concrete curing, hardening or sealing agents shall be applied to the concrete subfloor.*

2. MEMBRANE WATERPROOFING.....SECTION 07100

Concrete subfloors on or below grade shall be adequately waterproofed, beneath, at perimeter walls, and on earth side of below grade walls. Type and extent of membrane shall be determined by the Project Engineer and installed by the General Contractor.

3. THRESHOLDS.....SECTION 08700**4. GAME STANDARDS.....SECTION 11500****1.2 REFERENCES:**

American Society for Testing & Materials

1. *ASTM D 2047: Standard Test Method for Static Coefficient of Friction of Floor Surfaces*
2. *ASTM D 2240: Standard Test Method for Rubber Property—Durometer Hardness*
3. *ASTM D 5116: Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials/Products*
4. *ASTM E 648: Standard Test Method for Critical Radial Flux of Floor-Covering Systems Using a Radiant Heat Energy Source*
5. *ASTM E 662: Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials*
6. *ASTM F 970: Standard Test Method for Static Load Limit*
7. *ASTM F 1869: Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Sub-floor Using Anhydrous Calcium Chloride*
8. *ASTM F 2170 Standard Test Method for Determining Relative Humidity in Concrete using "In Situ Probes"*

1.3 SUBMITTALS:**A. Manufacturers Product Information**

Submit (3) copies of RPM Metron Fleck System Specification Sheets or as requested.

B. Samples

Submit (1) set of samples showing colors and texture of the Metron Fleck surface or as requested.

C. Shop Drawings

Submit (1) set of shop drawings reflecting seam placement and layout.

D. Maintenance Literature

Submit (3) copies of RPMs Metron Fleck maintenance instructions.

1.4 QUALITY ASSURANCE:**A. Manufacturer**

- 1. Manufacturer shall be an established firm with a minimum of 10 years in business specializing in manufacturing prefabricated sheet rubber for athletic surfaces.*
- 2. Manufacturer shall be ISO 9001 & ISO 14001 certified.*

B. Flooring Contractor:

- 1. The complete installation of the flooring system shall be performed only by an experienced flooring contractor with a minimum three years of experience installing athletic surfaces and approved by the manufacturer.*
- 2. All work will be performed in accordance with the most recent printed installation instructions of the manufacturer.*

1.5 DELIVERY, STORAGE AND HANDLING:

Materials must be delivered in manufacturer's original, unopened and undamaged packaging with identification labels intact.

- 1. The general contractor shall provide a secure area where stored materials can be maintained at 65 to 80 degrees F (18.3 to 26.7 degrees C).*
- 2. Store material in a secured area protected from exposure to harmful weather conditions on a clean, dry, flat surface protected from possible damage.*

1.6 SITE CONDITIONS:**A. The prefabricated rubber flooring specified herein shall not be installed until all trades including but not limited to, masonry, painting, plaster, tile, marble, terrazzo, carpentry, overhead mechanical trades', goals, scoreboard, electrical, and painters have finished in the installation area.**

- 1. The area will be closed and secured from all foot traffic and trades for duration of the installation and curing period.*
- 2. The building shall be enclosed, weather-tight, with permanent windows and lockable doors.*
- 3. Permanent heat, light and ventilation shall be installed and operating prior to, during and after installation.*

4. *Subfloors shall be broom clean, dry and free from dirt, dust, oil, grease, paint, and alkali, concrete curing agents, hardening and parting compounds, old adhesive residue or other foreign materials.*
5. *Moderate room temperature of 65 to 80 degrees F (18.3 to 26.7 degrees C) shall be maintained for a week prior to, during and for 72 hours after installation.*
6. *Concrete tolerance of 1/8 inch (3mm) in ten foot (3m) shall be maintained throughout. High spots shall be ground level and low spots filled with a Portland base compound such as Ardex Feather Finish. No concrete curing, hardening or sealing agents shall be applied to concrete.*
7. *Concrete must dry for a minimum of 30 days and slab moisture levels shall not exceed 5 lbs. per 1000 (2.27 kg per 304.8 m) in accordance to ASTM F1869 Anhydrous Calcium Chloride and/or "Determining Relative Humidity in Concrete with In-Situ Probes" not to exceed 85% respecting ASTM F2170. HVAC must be operational and with a constant temperature for 7 days prior to testing.*
8. *The installation area shall be closed to all traffic and activity during installation and for seven days following to allow drying/curing.*
9. *After completion, area to be kept locked by general contractor. No other trades or personnel to be allowed on floor until accepted by owner.*

1.7 WARRANTY:

- A. *RPM Sports Flooring provides a limited warranty of one (1) year on materials. (A copy of the full warranty, with its Terms and Exclusions, is available from the authorized RPM Dealer.) This warranty is expressly limited to the flooring materials (goods) supplied by RPM. This warranty does not cover floor damage caused (wholly or in part) by fire, winds, flood, other unfavorable atmospheric conditions or chemical action, nor does it apply to damage caused by ordinary wear, misuse, failure to follow recommended maintenance instructions, abuse, negligent or intentional misconduct, aging, faulty building construction, concrete slab separation or movement, moisture migration either through slab or any other source, faulty or unsuitable subsurface or site preparation, settlement of the building walls or faulty or unprofessional installation of RPM flooring systems.*
- B. *The foregoing warranty is in lieu of and excludes all other warranties not expressly set forth herein, whether express or implied, including, but not limited to any implied warranties of merchantability or fitness. RPM Sports Flooring and its contractors shall not be liable for incidental or consequential losses, damages or expenses, directly or indirectly arising from the sale, handling or use of the goods, or from any other cause relating thereto, and their liability hereunder in any case is expressly limited to the replacement of goods not complying with this agreement, or, at their election, to the repayment of, or crediting Buyer with, an amount equal to the purchase price of such goods, whether such claims are for breach of warranty or negligence.*

PART 2 – PRODUCTS

2.1 MANUFACTURER:

- A. *Basis for design is Metron Fleck as manufactured by RPM Sports Flooring.*

2.2 MATERIALS:

- A. *Material shall be prefabricated rubber athletic flooring manufactured in two vulcanized layers with a base of natural and synthetic rubber, stabilizing agents and pigmentation.*
 1. *Only vulcanized rubber will be accepted.*

2. Flooring surface shall be manufactured to maintain performance criteria, as stated by manufacturer, without defects, damage, or failure.
3. Thickness shall be ___ (choose one; 6, 8, or 10mm)
4. Material shall be_____(Select standard tiles, interlocking tiles or roll goods)
5. Color shall be _____ (Select from standard, custom colors available at additional charge)
6. Finish: Embossed Texture

B. Adhesive (when applicable)

Two-component polyurethane as supplied by RPM.

C. Game Line Paint

Two-component polyurethane. Select from standard colors.

2.3 PHYSICAL PROPERTIES:

Physical Properties	Standard	Metron Fleck
Thickness		6, 8, or 10 mm
Hardness Shore A	ASTM D 2240	68/59
Water Absorption	ASTM D 570 (%)	0.13
Tensile Strength (kgf/cm ²)	ASTM D 412 (psi)	37
Ultimate Elongation	ASTM D 412 (%)	294
Modulus 20%	ASTM D 412 (%)	175
Tear Abrasion	ASTM D 501 (index)	126 (H22 Wheels; 1 Kg Load)
Tear Resistance	ASTM D 624 (lb./in)	161
Dimensional Stability	ASTM D 1204	+0,02
Density of Smoke	ASTM D 662	411 (flaming)
Critical Radiant Flux	ASTM E 648 (w/cm2) / (class NFPA 101)	0.49 / 1
Compression Set (70°C, 22h)(%)	ASTM D 395 (%)	84
Friction Test	ASTM D1894-01	1.58 (Dry) & 1.55 (Wet)
Fire Resistance		Class 1, Inflammable
Static Load Limit (250 psi, 24h) (mm)	ASTM F970-07	0.46

PART 3 - EXECUTION

3.1 INSPECTION:

- A.** *Inspect concrete slab for proper tolerance of 1/8 inch (3mm) in ten foot (3m). Report discrepancies to general contractor for correction.*
 - 1. *High spots shall be ground level and low spots filled with a Portland base compound such as Ardex Feather Finish.*
- B.** *Perform moisture testing of the slab, results will not exceed 5 lbs. per 1000 (2.27 kg per 304.8 m) in accordance to ASTM F1869 Anhydrous Calcium Chloride and/or "Determining Relative Humidity in Concrete with In-Situ Probes" not to exceed 85% respecting ASTM F2170. Report results to the general contractor.*
 - 1. *HVAC must be operational and with a constant temperature for 7 days prior to testing.*
 - 2. *Allow further drying time if moisture tolerances are exceeded.*
- C.** *Ensure all requirements from section 1.6 SITE CONDITIONS are completed and satisfied.*
- D.** *All work required to put the concrete slab in an acceptable condition and provide correct working conditions for a successful installation is the responsibility of the General Contractor or Construction Manager.*

3.2 INSTALLATION:

- A.** *Roll goods; Install athletic flooring in accordance with current manufacturer's installation instructions*
 - 1. *Disc sand concrete in preparation to receive flooring material.*
 - 2. *Unroll flooring and allow relaxing overnight while maintaining a constant room temperature.*
 - 3. *Thoroughly mix two-component polyurethane adhesive per manufacturer's instructions and apply directly to concrete subfloor.*
 - 3. *Install flooring into freshly applied adhesive, scribing and fitting neatly at walls, around columns and around door frames. Use matching urethane caulk at tight fit locations.*
 - 4. *Roll material in multiple directions with a 100-pound (45.4 kg) roller to remove entrapped air.*
 - 5. *Clean any adhesive that migrates between seams with recommended product.*
 - 6. *Hold and weight all seams in place with cinder bricks. Leave weight in place for a minimum of 12 hours.*
- B.** *Tiles; Install athletic flooring in accordance with current manufacturer's installation instructions*
 - 1. *For a successful and aesthetically pleasing installation tiles must be laid in an ashlar or brick pattern.*
 - 2. *Square room and chalk line down center.*
 - 3. *Following chalk line, install first row keeping tiles straight.*
 - 4. *Set and hold joints with masking tape.*
 - 5. *Do not to shift or gap tiles after setting.*
 - 6. *Roll floor in multiple directions with a 100lb (45.4 kg) roller to eliminate any trapped air.*
 - 7. *After rolling, and before adhesive dries, weight all seams and at perimeter wall.*

8. *Continue installing runs as described above to completion.*

C. Game Lines

1. *Use only high quality masking tape approved by RPM.*
2. *Carefully layout and mask game lines as indicated on drawings.*
3. *Prime area to receive paint per manufacturer's instruction.*
4. *Thoroughly mix two-component game line paint.*
5. *Apply paint by spray method*

C. Wall Base (optional)

1. *Install vinyl base anchored to walls with base cement.*

D. Cleanup

1. *Collect and remove all bricks (weights)*
2. *Remove all excess and waste materials from the area of work. Leave area clear from installation debris and empty containers.*

END OF SECTION 09624