

Poured in Place Product Specification

PART 1 - GENERAL

Work Details:

This work includes furnishing and installing GT Impax recycled poured rubber surfacing.

GT Impax recycled poured rubber surfacing shall be poured in place and trowelled to provide for a resilient, seamless rubber surface installed over the specified base. The surfacing provider shall be responsible for all labor, materials, tools, equipment, and applicable taxes to perform all work and services for the installation of the surface. The surface shall be stable and slip resistant to comply with all requirements set forth in the Americans with Disabilities Act.

Quality Assurance & Compliance Details:

Impact Attenuation - ASTM F1292-04: Impact attenuation test results will be provided to the owner or owner's representative. These test results shall be certified and submitted on the letterhead of an independent testing lab. Impact attenuation test results shall meet or exceed Consumer Product Safety Commission Guidelines for impact attenuation (G-max and Head Injury Criteria (HIC).

Accessibility of Surface Systems - ASTM F1951-08: All Playground surfacing products must pass testing to ensure wheelchair access under and around playground equipment as required by the American Disabilities Act.

Coefficient of Friction - ASTM D2047-82: All products must meet a minimum standard on coefficient of friction of .9-wet, 1.0 dry.

Permeability: Product shall meet or exceed a coefficient of permeability of 0.4 gallons per square yard per second.

Flammability of Finished Floor cover - ASTM D2859: Product shall meet requirements of ASTM D2859.

Tensile Strength - ASTM D412-87: This test indicates a product's ability to stretch, and how far it will stretch before it breaks. Test results for wear course must be a minimum tensile strength of 60.

PSI and minimum % elongation @ break of 140%.

IPEMA Certification: Manufacturer must provide proof of certification. "In the interest of public playground safety, IPEMA provides an independent laboratory which validates a manufacturer's certification of conformance to ASTM F1292-04. A list of current validated products, their thickness and critical heights may be viewed at www.ipema.org."

Submittal Details:

Submittal packages shall include but not be limited to: (1) product samples, (2) supplier's written warranty, and (3) independent laboratory results.

PART 2 - MATERIAL DATA:

Polyurethane Primer and Binder - 100% Single Component Polyurethane Binding Agent - Methylene Dephenyl Isocyanate (MDI) based binder.

Aromatic Binder - All projects will include aromatic binder unless project specifies the use of aliphatic binder. The natural properties of the aromatic binder is to present a yellow tint which may cause some EPDM/TPV colors to amber. The yellowing affect is more common on lighter EPDM colors and will wear off with foot traffic and weathering.

Aliphatic Binder - This binder is available upon request but at an added cost to the over all project. Aliphatic binder is all clear providing full EPDM/TPV color from day one. This binder has a higher resistance to ultra violet light and provides a greater resistance to wear.

Impact Course - The impact layer is to be a precise combination of 100% recycled black Styrene Budadine Rubber (SBR) and polyurethane binder. SBR is manufactured as a liquid, poured into molds and generally used by the automobile industry. This recycled rubber is shredded, mixed with binder and hand-trowelled to create a seamless application. The impact course thickness, as specified by owner or architect, must be composed of recycled rubber and free of foreign matter.

Wear Course - The wear course is made of Ethyl Propolyne Dione Monomer (EPDM) or Thermal Plastic Vulcanized (TPV) pigmented rubber granules with polyurethane binder. Thickness of the wear course shall be a minimum 1/2".

EPDM- The granule size will be 1-3 mm in diameter.

TPV- The granule size will be 1-4 mm in diameter.

PART 2 - MATERIAL DATA (Continued)

Colors - The color of GT Impax recycled poured rubber surfacing will be indicated on plans. Owner or owner's representative will be responsible for selecting standard blends. Selection of either standard color blends or custom color blends must be made at time quotation is being requested. EPDM/TPV colors are available in 100% black and a variety of colors. Ask your GameTime representative for available color combinations.

Note: If graphic designs and color transitions are used, they shall be full wear course depth. Color(s) to be determined by architect. Graphic Templates are the responsibility of the Architect or owner.

Physical Properties:

Tensile Strength (ASTM D412)	60 PSI, minimum
Elongation at Break (ASTM D412)	140%, minimum
Flammability (ASTM D2859)	Pass
Coefficient of Friction (ASTM D204)	
Wet	0.9, minimum
Dry	1.0, minimum
Water Permeability	0.4 gal. /sq. yd./sec., minimum

PART 3 - SUB-BASE TYPES & DETAILS:

Sub-base Requirements - The base shall have the specific maximum slope (2%) and shall vary no more than 1/8" when measured in any direction with a 10' straight edge.

Stone - The density requirement is 90% to 95% compaction with final condition of stone as level and stable so as not to shift when traveled on or during surface installation process. A compaction test is required and must be submitted to GameTime prior to installation of poured rubber surfacing. Failure to provide proof of compaction test will void 5-year warranty of PIP surfacing should signs of sub-base failure occurs.

<u>Depth:</u>	4 inch minimum thickness.
<u>Slope:</u>	Stone elevation shall maintain 1/4" per foot toward low end.
<u>Porosity:</u>	Base course shall maintain porosity for direct drainage.
<u>Enclosure:</u>	Stone base course must be surrounded by a retaining curb.
<u>Drainage:</u>	Subsurface drainage is recommended under and around a stone base. Perforated pipe or similar system is acceptable.
<u>Tolerances:</u>	1/4" in any 10-foot direction and 1/8" in any 3-foot direction.
<u>Stone Selection:</u>	It is critical that different size stones are used so that the base shall be uniformly mixed. The material shall be wetted during mixing operations if necessary for proper blending.

PART 3 - SUB-BASE TYPES & DETAILS (Continued)

Stone Graduation	U.S. Sieve Percent Passing
1"	100
3/4"	90 - 100
No. 4	35 - 60
No. 30	10 - 30
No. 200	2 - 9

Concrete or Asphalt - Concrete should be finished with a medium broom finish. All new concrete slabs must cure for a minimum of seven (7) days prior to installation. Asphalt cure time requires fourteen (14) days. Once the new asphalt has cured, it must be pressure washed prior to the surfacing being installed. The concrete contractor shall be responsible for flooding the pad to insure proper slope and tolerance. Any areas holding enough water to cover a flat nickel shall be patched prior to arrival of poured rubber installation crews.

Depth: 4 inch minimum thickness.

Slope: Concrete or asphalt shall maintain 1/4" per foot.

Tolerance: Concrete must maintain a tolerance of 1/8" in 10 ft. to avoid low areas that will hold water under the poured rubber surfacing.

PART 4 - SITE PREPARATION AND REQUIREMENTS:

Drainage - Having proper drainage at the low end of the concrete slab is of utmost importance. Any brick walls or curbs at the low end of the slab shall have drainage access through weep holes. Concrete curbing weep holes should be level with finish grade of sub-base or a minimum of 1/8" below top of concrete slab, as GT IMPAX recycled poured rubber surfacing is porous and water drains immediately through it. Weep holes shall be 2" high and 3" wide and shall be installed every three (3) feet. If weep holes are smaller than the recommended size, they shall be installed every 18". Floor drains shall be located outside the high impact areas, as the drains may not be covered with GT IMPAX poured rubber surfacing. Recommended locations for drains are against low-end wall or curb.

Security & Waste Disposal - Surface installation crew shall be responsible for the protection of surface during the installation process while on site only. Owner or general contractor shall be responsible for the protection of the surface during the curing period upon completion of the installation and overnight during the installation. Owner or general contractor shall be responsible for having a dumpster on site for all waste and debris. Failure to provide security and a dumpster will result in additional cost.

Utilities & Access - Power and water must be available within 300 feet of installation. Site will require tractor-trailer access. In a case where tractor-trailer access is not possible, owner or general contractor shall be responsible for transporting materials from delivering carrier to the installation site.

PART 5 - INSTALLATION:

Weather Conditions - Because the polyurethane agents are moisture or heat sensitive, the nighttime temperatures must be above 40 degrees with daytime temperatures around 50 degrees. These temperatures must be consistent for several days before and after the poured rubber installation period. Complying with these weather conditions will prevent poured rubber from freezing which prevents proper curing.

Thickness - Overall depth of the poured rubber will vary based on critical fall heights and installers test results. Depth of EPDM/TPV will be no less than 0.5". Installation is performed by technically trained GameTime approved specialists. Your GameTime dealer will schedule installation of playground surfacing to meet your requirements.

THICKNESS CHART - (Below depths include 0.5" EPDM/TPV Topcoat)

1' to 4' Critical Fall Height	1.5" to 2" Total Depth
5' Critical Fall Height	2" to 2.5" Total Depth
6' Critical Fall Height	2.5" to 3" Total Depth
7' to 8' Critical Fall Height	3" to 3.5" Total Depth
9' to 10' Critical Fall Height	4" to 4.5" Total Depth
11' to 12' Critical Fall Height	5.5" Total Depth

Cold Joints - Areas in excess of 2,000 square feet or areas that require adjacent color pours will have a cold joint or seam. Although seldom visible, seams are necessary when large pads require more than one day pours.

Edges - Surface edges shall be flush, beveled or rolled. It is important to advise what type of edge will be required so that the appropriate amount of materials are ordered.

Flush - When curbing is provided around the outside perimeters of the pad, the poured rubber will be adhered to the edge of the curbing so that the rubber surfacing is flush. This allows for a smooth transition into the play area. However, the sub-base should be installed to allow the proper depth of poured rubber so that the flush edge can be installed without having to fill voids by increasing the depth SBR materials. If the sub-base is not installed properly, using too much of the SBR materials can cause the installer to run short on the cushion course which is require a change order to add additional materials for the project.

Beveled - When curbing is not provided for concrete or asphalt sub-bases, the installers will bevel the edge down along the edge of the pad. This type of edge can be sloped to provide a smoother transition but will require additional materials. If beveled at the edge of the use zones, the edge can be more round due to the depth of the poured rubber. In this case, you may want to have a rolled edge added to allow a smooth transition for wheelchair users.



PART 5 - INSTALLATION (Continued)

ADA Rolled - This is the type of edge to meet the requirements of ASTM 1951, Specifications for Determination of Accessibility of Surface Systems Under and Around Playground Equipment. The rolled edge will require additional materials in order to provide adequate ADA Wheelchair access. The total linear feet of the pad will need to be provided if the whole site is to be ADA compliant.

Keyway Cut - This type of an edge requires a trenched saw cut of 1/2" wide x 1/2" deep along the edge of the concrete or asphalt pad. The contractor or customer will be responsible for providing the keyway cut. There will be a up charge if the poured rubber installer is asked to provide this cut. The poured rubber will be beveled down into the saw cut where it will adhere preventing the exposure of a raw edge.

Cure Time - The poured rubber will require 72 hours (3 days) to properly cure. Security is required by the owner during this time so to avoid unnecessary damages.

PART 6 - WARRANTY:

When used under playground equipment, GameTime's GT Impax recycled poured rubber is warranted against defects in materials and workmanship for five years.

When used with water play equipment, GameTime's GT Impax recycled poured rubber is warranted against defects in materials and workmanship for three years provided aliphatic binder is added. Without the aliphatic binder, the GT Impax recycled poured rubber will carry only one year warranty.

Ask you GameTime representative for a copy of our full GT Impax recycled poured rubber warranty details.

PART 7 - MAINTENANCE:

Ask your GameTime representative for a copy of our full GT Impax recycled poured rubber maintenance details.