

Playground Safety Surface MAX INSTALLATION GUIDE



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I. GENERAL INFORMATION

Playground Safety Surface MAX playground tiles and accessories can be installed on concrete, asphalt or loose base surfaces with a protective fabric utilizing the Quad Blok system, except for limitations noted herein.

NOTE: Dimensional tolerance for tiles is +/- 1/8" for thickness and +/- 1/8" in width. It may be necessary to hand select some tiles to make sure the course lines remain straight during the installation. Additionally, color tone and shading may vary to the extent that some hand selection is required to maintain uniformity throughout the site.

NOTE: Playground Safety Surface MAX playground tiles are manufactured from recycled materials and slight variance in shade and color chip dispersion is normal. It is the installer's responsibility to inspect all products to ensure the correct style, thickness, and color. Any moderate to severe discrepancies should be reported immediately before beginning installation.

0 = Recommended		s- Acceptable		N/A= Not Approved		
INTERIOR						
Surface	24" x 24" x 1"		24" x 24" x 2-1/2"		24" x 24" x 3-3/4", 4-1/4"	
	Dowels	Full Glue	Quad Blok	Full Glue	Quad Blok	Full Glue
Concrete Surface	0	0	0	0	0	0
Asphalt Surface	0	0	0	0	0	0
Plywood	0	0	0	0	0	0
Compact Gravel	N/A	N/A	0	N/A	0	N/A
Wood or Tile	0	N/A	0	N/A	0	N/A
Resilient Flooring	0	N/A	0	N/A	0	N/A
Carpet	0	N/A	0	N/A	0	N/A

0 = Recommended		s- Acceptable		N/A= Not Approved		
Exterior						
Surface	24" x 24" x 1"		24" x 24" x 2-1/2"		24" x 24" x 3-3/4", 4-1/4"	
	Dowels	Full Glue	Quad Blok	Full Glue	Quad Blok	Full Glue
Concrete Surface	N/A	0	0	0	0	0
Asphalt Surface	N/A	0	0	0	0	0
Compact Gravel	N/A	N/A	0	N/A	0	N/A
Wood or Tile	N/A	N/A	0	s	0	s
Resilient Flooring	N/A	N/A	0	N/A	0	N/A
Indoor/outdoor Carpet	N/A	N/A	0	N/A	0	N/A
Rooftops	N/A	N/A	0	N/A	0	N/A

N/A = Not an approved installation method



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I. TOOLS/MATERIALS REQUIRED

1. Two tape measures - one 25', one 50'
2. Chalk line
3. Saber saw
4. Blades for saber saw (7-10 teeth per inch, wood type)
5. Utility knife with heavy-duty blades
6. Framing square
7. Silver or gold color paint pencils
8. Standard size caulk gun
9. 4" slot blade screwdriver
10. Silicone Spray Lubricant
11. Notched trowels (1/8" square notch -2 minimum plus 1 for each additional 400 sq. ft.)
12. Linoleum Knife (Foam Installation)
13. Safety glasses
14. 1-1/2" flexible putty knife
15. Coveralls
16. Kneepads
17. Solvent safe rubber gloves, long cuff style
18. Rags
19. Trash bags
20. Push broom or high velocity blower
21. Mineral spirits
22. Installation instructions
23. String line
24. Cutting table (shipping pallet)
25. Dustpan

II. SITE WORK

A. Site Elevation

1. On grade installation - The finished installed height of the Max Playground will be equal to or slightly higher than the perimeter grade but not more than 1" higher unless approved by the project engineer.
2. Above grade installation - The installation of Max Playground tiles over existing decks or slabs is referred to as an "above grade installation" and will usually require the use of reducers around the perimeters of the area to transition smoothly back to the floor elevation, unless the site terminates at a wall or other vertical surface.

B. Site Slope / Drainage

1. When preparing a new hard base, a minimum slope equal to 1" per 10' of run shall be applied to the finished surface with slope toward the drain basin, drain trough or down grade side of the site, whichever applies to your project.
2. An acceptable drainage system needs to be put in place to eliminate standing water.

III. BASE OPTIONS

A. Hard Base Construction

1. Concrete Base
 - a. The base will be constructed of cast-in- place, non-structure, Class A concrete that will develop a minimum compressive strength of 3,000 PSI after a 28 day cure (minimum thickness = 4"). Care should be taken to provide for the stated slope. The base should be free of depressions that would pond water. A light broom finish is best for maximum adhesion of the Max Playground tiles. New concrete slabs should cure for a minimum of 28 days before installing Max Playground tiles by the adhered method.



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BASE PREPARATION

2. Paved Asphalt Base

- a. Course aggregate mixtures will provide a stable base. The aggregate size best suited for the adhered system is 3/8" to 1/2". Do not use asphalt mixtures that contain a high percentage of fines as they are not stable in hot weather and may become soft enough to allow the tiles to slide in high use areas.
- b. The soil subgrade must be compacted with a minimum of two passes of a 10 ton vibratory roller with no soft or moving areas upon completion. The crushed stone base must also be compacted with a minimum of two passes of a 10 ton vibratory roller. The binder and wear courses of the asphalt must both meet 95% of the theoretical maximum density of the JMF (Job Mix Formula).

Analysis of Asphalt Wear Course

Total Passing Sieve	Percent by Weight
1/2"	100
3/8"	80-100
#4	45-90
#8	30-65
#50	5-25
#200	2-8
Asphalt Cement	6-8

- c. New asphalt surfaces should be allowed to cure for 28 days before the adhered Max Playground tiles system is laid.

B. Preparation of Compacted Loose Base

- 1. In outdoor areas or areas with no walls or confines, a perimeter footer will need to be constructed to contain the compacted loose base.
- 2. The area inside the footer should be excavated to receive 6" of loose aggregate fill. The amount of excavation and fill can be adjusted to allow the Max Playground tile and footer finished surfaces to have the same elevation.
- 3. By adding fill material and compacting to the top of concrete footer, the Max Playground tiles can be laid over the top of the footer concealing it if so desired.
- 4. In all loose base areas, the base should be constructed of 6" of compacted limestone screenings mixture or equivalent aggregate common to your area. A screenings mixture is one having no aggregate larger than 3/8" and should conform to the following sieve analysis.

Total Passing Sieve	Percent by Weight
3/8"	100
#4	85-100
#100	10-30

- 5. Once the loose base has been installed and has achieved 95% compaction to the desired elevation, cover the entire area with geo-textile fabric including the top of the footer where the Max Playground tile extends over the footer. The minimum infield overlap of successive geo-textile sections is 4". The geo-textile should be adhered to the top of the footer on all sides to anchor the mat and keep it in place throughout the life of the installation.



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INSTALLATION

I. SITE LAYOUT

- A. Sweep area clear of all dust and loose debris.
- B. Determine a starting point for the first course of tile to best suit the site area. For irregular site configurations, the best starting point is often in the center. This will ensure a symmetrical finish for tiles that require trimming along the perimeter. Other installations are best started in the corner or along the edge that represents the length or width dimension of the site.
- C. Mark two points on the base surface at an equal distance from the edge of the installation. These points should be located near the opposite ends of the site in the lengthwise direction.
- D. Snap a chalk line through the established points. When installing Max Playground tile over a geo-textile fabric, string lines must be used in place of chalk lines.
- E. Measure the length of the site along the chalk line. Mark a point at half the distance of the site.
- F. Using the 3-4-5 right triangle method, snap a chalk line to form a 90° angle to the previously established length-wise chalk line. These perpendicular reference lines will serve as a guide for laying the first course of tile.

II. GENERAL INFORMATION

Max Playground tile can be installed using a variety of installation methods. The most common and secure method is full adhesion of tiles and accessories to the substrates using E-Grip III, an easy-to-use one part polyurethane adhesive.

NOTE: For rooftop and specialty applications, Greatmats recommends the use of Max Playground's exclusive fastening system called Quad Blok™. Tiles are adhered to the Quad Blok connector, eliminating damage to the roof membrane.

III. FULLY ADHERED INSTALLATION

- A. The tiles, accessories and substrates must be dry before, during and 24 hours after the application of adhesive. Application temperatures for EGRIP III adhesive are 40° F to 100° F. Higher temperatures and humidity levels will cause the adhesive to set faster and colder temperatures and low humidity will slow down the curing process. The installer should monitor on site conditions and adjust open times accordingly.

NOTE: Approx coverage rates for the E-Grip III adhesive are approximately 60 sq/ft gal on concrete and 50 sq/ft gal on asphalt. E-Grip III is available in 2-gallon and 4-gallon pails.

- B. Using a 1/8" square-notched trowel, apply the E-Grip III adhesive slightly wider than the tile being placed.
- C. Place tile into the fresh adhesive bed following pre-established lines. If applicable, place ramps into the fresh adhesive in a similar manner.
- D. Allow 24 hours for adhesive to cure before opening area for use.

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IV. QUAD BLOK INSTALLATION - 2 1/2" thick tiles only.

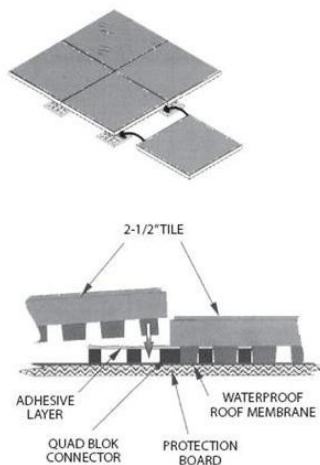
NOTE: There are two sizes of Quad Bloks. Use only the smaller, 8" x 8" Quad Blok for the 2 1/2" thick tiles. Installation instructions for 3-3/4" and 4-1/4" tiles using Quad Bloks; refer to page 8.

- A. Follow the Site Layout instructions to prepare the roof for the installation of the 2-1/2" tiles.
- B. Once chalk lines are established, place the first tile at the intersection of two chalk lines, aligning adjacent edges of the tile with the chalk lines.
- C. Apply a continuous 3/8" diameter bead of E-Grip III adhesive along the center axes of all Quad Blok connectors. Working adhesive time is dependent upon environmental conditions.
- D. Fit the first tile with four prepared Quad Blok connectors by lifting each tile corner slightly, sliding the connectors under each corner and engaging the four corner legs of each tile with the respective apertures in the Quad Blok. Continue to sequentially lay the tile and to set the Quad Blok connectors along one chalk line until the first course of tile is complete.

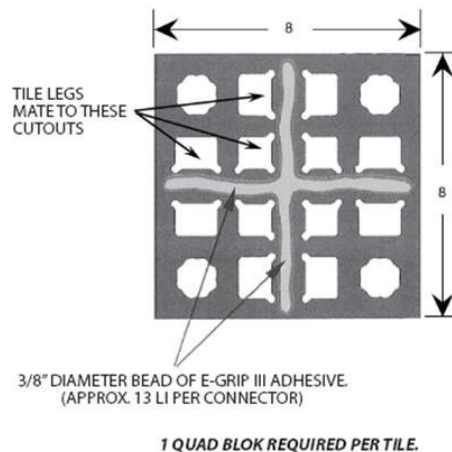
NOTE: In the field, cut the Quad Blok connectors in half to properly secure tile around the perimeter edge of surface area.

- E. Complete the other three quadrants of the roof deck in a similar fashion.
- F. Depending on manpower availability, one or more quadrants can be worked on simultaneously using the above method.
- G. Allow 24 hours for adhesive to cure before opening area for use.
- H. One 10.1 ounce tube of E-Grip III is req'd for approx. 10 of the smaller, 8" x 8" Quad Blocks.

1. Typical Tile Field Placement



2. Connector Detail



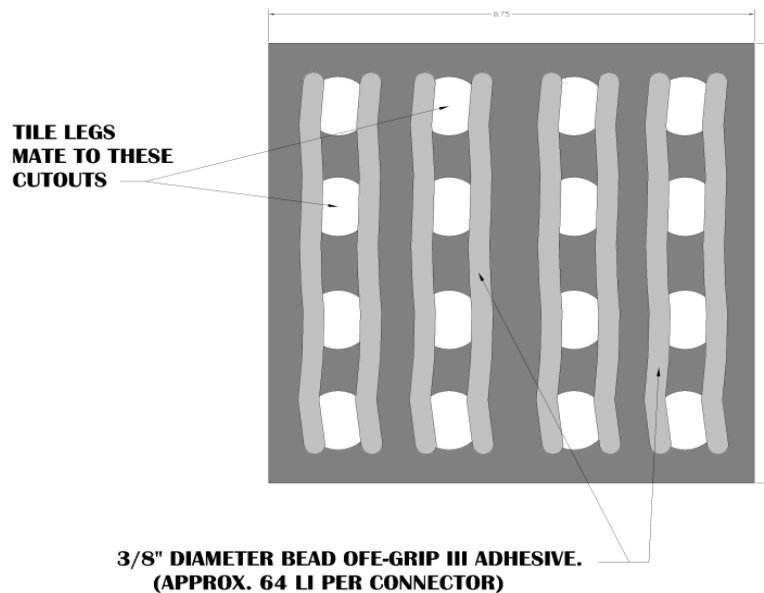
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V. QUAD BLOK INSTALLATION - 3 3/4" and 4 1/4" thick tiles.

Please note: There are two sizes of Quad Bloks. Only use the larger, 8 3/4" x 8 3/4" Quad Blok for the 3 3/4" and 4 1/4" thick tiles!! Installation of 2-1/2" tiles using Quad Blok; refer to page 7.

A. Follow the Site Layout instructions to prepare the area for installation of the 3 3/4" and 4 1/4" thick tiles

B. Place **first** tile at the intersection of the two chalk lines. Line up adjacent edges of tile to chalk lines. C. Apply a 3/8" diameter bead of E-Grip III adhesive so it falls into each hole while you drag the tube across the edges of the holes (see below). When assembled, the adhesive will squeeze between the foot of the tile and the side of each Quad Blok hole.



QUAD BLOK FOR 3-3/4" & 4-1/4" TILE

D. One 10.1 ounce tube of E-Grip III will be enough for approx. 5 of the larger, 8 3/4" x 8 3/4" Quad Blocks.

E. Place a Quad Blok with adhesive applied under each of the 4 corners of the first tile by slightly lifting each corner, sliding a Quad Blok under and inserting 4 legs of each tile into the holes in the Quad Blok. Continue to lay the tiles and set the Quad Blocks.

NOTE: Cut Quad Blok connectors in half for perimeter locations. After cutting, each half will measure 8 3/4" x 4 3/8". Apply adhesive across all holes before use.

F. Complete the other three quadrants of the installation. (Two or more quadrants can be worked on simultaneously if labor is available.)

G. Allow 24 hours for adhesive to cure before using area.



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VII. CUTTING TILES & ACCESSORIES

- A. Avoid leaving a cut edge of a tile exposed to eyesight. To ensure a finished appearance, any tile that has its factory molded edge removed or cut for any reason should be positioned against a transition ramp, masonry, or timber edging unless the edge is to be placed against a wall or other vertical member. Use either a silicone sealant or a permanently elastic urethane sealant/adhesive for filling gaps, if any, between cut edges and walls.
- B. The most accurate cuts are made using a heavy-duty utility knife and a straight edge. A saber saw utilizing a 7-10 TPI wood cutting blade also does an acceptable job, especially for free-form cuts. A saw with a 3-3.5 amp rated motor having a 1" stroke with variable orbital setting will produce the best results. Silicone spray lubricant will aide in the cutting and minimize heat from friction.
- C. On larger jobs a band saw can be used to make accurate cuts. It is recommended to use a spray silicone to minimize friction and keep the blade from binding.
- D. When working beneath the play structure, it will be necessary to occasionally notch out portions of tiles so that the tiles will properly fit around the posts supporting the play equipment.
- E. Cut tile so that the cutout is approximately ¼" larger in all dimensions than the support it will surround. The extra distance is to prevent binding of the tile around the support. Voids between the equipment supports and tile cuts should be filled in with silicone sealant or a permanently elastic urethane sealant/adhesive.
- F. Tile cuts are normally laid out by referencing dimensions from the edges of tiles already in position. These dimensions are then transferred to and laid out on the tile to be cut.
- G. A lead-in cutting line is extended from the tile edge to the portion to be cut. The lead-in cutting line chosen usually represents the shortest distance from the cutout area to an edge of the tile or the one that is least noticeable.
- H. Reducers installed at the corners should be miter cut to allow reducers to fit together correctly, or use factory molded corner pieces available in 2-1/2" thickness.

1" INTERIOR DOWEL INSTALLATION

I. GENERAL INFORMATION

- A. 1" Max Playground tiles may be installed over most concrete, wood, tile, or carpeted floors. The floor over which 1" Max Playground tiles is installed must be level, in good condition, and clear of dirt and loose debris.
- B. If 1" Max Playground is being installed wall-to-wall, the tile may be doweled together, with the walls serving to contain the outer rows of tile. Tiles which are not contained by walls, either at openings in the wall (i.e. doorways) or freestanding, should be contained by adhering the outer tiles and 1" Max Playground ramps around the outer perimeter. The adhered tile and ramps provide a transition from the 1" thick Max Playground tile to the original floor level. The perimeter tiles and ramps should be adhered using E-Grip III adhesive with a 1/16" square notched trowel indoors over substrate.
- C. Installation should not begin until after all other trades are finished in the area.



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- D. Areas to receive flooring should be weather tight and maintained at a minimum uniform temperature of 65°F for 48 hours before, during, and after the installation.
- E. Unpack tiles and allow them to sit in the area to be installed. Tiles and adhesive must be acclimated at a uniform room temperature for a minimum of 48 hours prior to installation.

NOTE: Dimensional tolerance for tiles is +/- 1/8." From time to time during installation, it may be necessary to measure and hand select tiles to assure that course lines remain straight. Additionally, color tone and shading may vary to the extent that some hand selection is required to maintain maximum uniformity throughout the site.

- A. NOTE: Max Playground flooring is manufactured from recycled materials and some variance in shade and color chip dispersion is normal. It is the installer's responsibility to inspect all products to ensure the correct style, thickness, and color. Any visual discrepancies should be reported immediately before beginning installation.

II. SITE LAYOUT

- A. Sweep area clear of all dust and loose debris.
- B. Determine a starting point for the first course of tile to best suit the site area. For irregular site configurations, the best starting point is often in the center. This will ensure a symmetrical finish for tiles that require trimming along the perimeter. Other installations are best started in the corner or along one edge that represents the length or width dimension of the site.
- C. Mark two points on the base surface at an equal distance from the edge of the installation. These points should be located near the opposite ends of the site in the length-wise direction.
- D. Snap a chalk line through the established points.
- E. Measure the length of the site along the chalk line. Mark a point at half the distance of the site.
- F. Using the 3-4-5 right triangle method, snap a chalk line to form a 90° angle to the previously established length-wise chalk line. These perpendicular reference lines will serve as a guide for laying the first course of tile.
- G. Dowel placement - Insert a dowel pin in each of the three dowel holes on two adjacent sides of the tile. Tap the dowel into the molded hole until the length of the dowel is showing beyond the edge of the tile or use a dowel setting tool available from Greatmats. Install dowels in enough tiles in this manner to lay one course line.

III. LAYING TILE FOR STARTER COURSE

- A. Place the first doweled tile at the intersection of the chalk lines with one doweled side facing inward along the course line.
- B. Join the next tile in the starter course to the original tile by pushing it against the original tile, engaging the dowel holes in the second tile with the dowels in the original tile.
- C. The assembly of tiles using dowels is a two-man job, with one man working always on top of the last tile laid to secure it while the other worker is applying force to the tile being laid.

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- D. Continue to assemble tiles in this manner until the row has been completed across the entire course.
- E. A small 2-3 lb. hand sledgehammer may be used to aid assembly by striking the tile close to the doweling point while pressure is applied to the tile in the direction of the doweling by the second workman. A sledge and 2 x 4 may be used to tightly dowel several tiles. These techniques will allow the tile edges to be butted tight together.

IV. LAYING THE SECOND AND SUBSEQUENT TILE COURSES

- A. Place dowels in the tile to be used for the second course as done previously. Join the first tile in the second course to the first tile in the first course.
- B. The second tile in the second course is now ready for placement. This tile will be doweled on two sides. First, dowel the tile to the original tile in the second course, placing the dowels from the first course of tiles above the tile being doweled.
- C. Now dowel the second side of the tile by lifting the tiles to be joined together and inserting one dowel at a time with the appropriate dowel hole.
- D. Continue to assemble tiles in this manner until the row has been completed across the entire course. Complete the third and subsequent courses in a similar manner.

V. FITTING THE OUTER COURSE TILE

- A. In most wall-to-wall installations, the tile in the outer course will have to be cut to fit. Tile may be cut using a heavy-duty utility or carpet knife and a straight edge. A saber saw utilizing a 7-10 TPI wood cutting blade also works well. A saw with a 3-3.5 amp rated motor having a 1" stroke with variable orbital settings will produce the best results. A cutting table used to support the work is required during cutting. A standard shipping pallet works well for this purpose for infield use.
- B. The outer course should then be installed as described in item C above, utilizing the remaining dowel holes. The cut edge should face the wall.

VI. ADHERING THE OUTER COURSE AND RAMPS

- A. If required, ramps can be cut in the same manner as tile. If ramps are used at a corner, each ramp should be miter cut at a 45° angle.
- B. After ramps have been properly cut, ramps and outer tile, which are not contained by walls, should be adhered to the existing floor using E-Grip III adhesive with a 1/16" square notched trowel indoors over substrate. Set tiles and ramps in the adhesive bed. Tiles being set in the adhesive bed should be doweled to the next inner course of tiles, but need not be doweled to each other. Ramps need not be doweled.
- C. For areas where adhering a ramp is not an option you may edge adhere the side heel of the reducer to the side of the tile and/or drill dowel holes in the side heel of the reducer to match the existing dowel holes in the tile.
 - 1. When drilling dowel holes, the holes should be 1/4" in diameter and 1.75" deep.
 - 2. Adhesive should be allowed to cure for 24 hours before walking on the tile.
- D. Your 1" Max Playground installation is now ready for use and will provide years of reliable, low maintenance performance. If you have questions about installation techniques or anything else regarding 1" Max Playground, call Greatmats.com at 877-822-6622.



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