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ENVIRONMENTAL MOLDING CONCEPTS KID KUSHION

Resilient Playground Surfacing

Recommendations for Installation

Prior to Installation:

The Kid Kushion mats and transition pieces intended for this installation have been shipped to you on pallets with the mats shrink wrapped and strapped. Once the packing is removed, please inspect the exposed edges for any damage. Next confirm shipment to packing list and notify supplier of any damage or shipment discrepancies.

Installation surface should be clean and dry prior to installation. Mats must be clean and dry prior to installation. Moisture acts as a catalyst to the Kid Kushion Adhesive, so dry mats and surface are essential.

Temperature variations will also affect the tiles. Tiles will contract in cold weather and expand in warm weather. This is a natural effect of the rubber and is to be expected. This will not lessen the impact resilience of the mat as in meeting the ASTM Standard F1292 as they pass the resilience tests at both low and high temperatures.

Review engineering plans for layout and ensure that the Consumer Product Safety Commission recommendations for a fall zone are met (Handbook for Public Playground Safety) and contact owner/agency with any discrepancies.



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KID KUSHION Product Line

RECOMMENDATIONS FOR INSTALLATION

SECTION 1 - Tools and Equipment Necessary for Installation

1. Rubber Gloves
2. Safety Gloves
3. Razor Knife with Extra Blades
4. Chalk Line
5. Carpenters Square
6. Paint Roller Frames, Roller Extensions and Fluffy Rollers
7. Paint Roller Trays
8. Water Spray Bottles (Mist)
9. Rubber Hammer
10. Measuring Tape
11. Serrated Filet Knife
12. Compass with Marker Pen (to mark diameter of equipment supports)
13. Aluminum Clips (if required)

SECTION 2 - Adhesive

Kid Kushion Adhesive is available in either 1 gallon or 5-gallon containers. The adhesive is used to secure the outside perimeter (mats, corners, and/or ramps) of each installation. It can also be used to secure the interior mats, if required. Approximate coverage is 55 to 60 square feet per gallon of adhesive. The adhesive is to be rolled into place (thick film) onto the asphalt or concrete base surface. A misting of water can be added (once adhesive is rolled into place) to act as a catalyst if a faster cure time is required. **STORE** the adhesive in a dry place. Do not subject Adhesive to freezing temperatures under any conditions.

SECTION 3 - Transition Pieces

For the 2 ½” thick Kid Kushion, we have transition pieces (Ramps) which are 48” long x 8” wide, reducing from 2 ½” down to 3/8”. 90 degree inside and outside corners are also available.

For the 3 ½” thick Kid Kushion, our Ramps are 48” long x 12” wide, reducing from 3 ½” down to 3/8”. Corner Ramp pieces are 48” long x 12” wide with a 45 degree angle cut left to right or right to left. One “Outside Left corner piece” and one “Outside Right corner piece” are required for each 90 degree corner of a 3 ½” Kid Kushion Ramp section.

SECTION 4 - Clips

Each 2 ½” and 3 ½” mat is molded with a clip index position in the bottom perimeter. There are two indexing positions on each edge or eight clip positions in each mat. The clips are designed for permanent installation and may damage the area of the mat surrounding the clip



attach point if removed after installation. The clip installation method unitizes all of the interior mats as a single unit. Perimeter mats (or transition pieces) are recommended to be glued in place; as well as mats that have cutouts to allow for the playground equipment supports. The quantity of clips required for a typical installation is 3 clips per tile to be clipped. Contact your Kid Kushion distributor for exact number required for your particular installation.

SECTION 5 - Sub Surface Requirements for Kid Kushion Tile Installations

SUB SURFACE REQUIREMENTS FOR KID KUSHION TILE INSTALLATIONS

Kid Kushion tiles may be applied to concrete, asphalt, wood, and compacted crushed gravel/geotextile overlay sub surfaces.

All sub surfaces should be properly excavated and applied to insure:

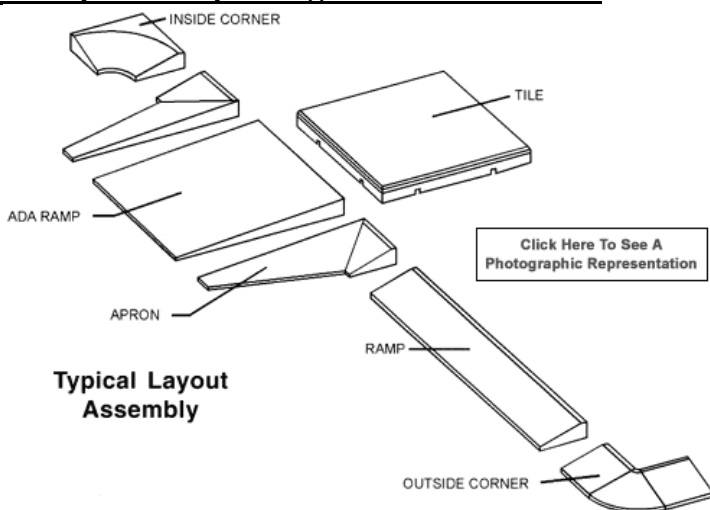
1. Sub surface drainage.
2. Non-Separation of concrete layers.
3. Prevention of Heaving due to freeze/thaw or unstable ground conditions.

The stabilization of the sub surface is the sole responsibility of the installer and/or owner.

Sub surface installation should assure good drainage of the area by either a well-defined gradient of the surface or well-placed drainage pipe in lower spots of the installation.

The Kid Kushion tiles shall be adhered to the concrete, asphalt, geotextile or wood surface using Kid Kushion adhesive and/or clipping system following the installation instructions for glue down installations. Your distributor should be contacted regarding the best application conditions for your installation.

Example of Proper Alignment of Mat Pieces - Before “Flush Application”



Typical Layout Assembly



Concrete Surfaces

Concrete surfaces must be thoroughly cured and free from hydrostatic pressure before installing Kid Kushion tiles (28 days after pour).

All surfaces should be flat, level, clean, and dry before applying adhesive for installation. The concrete finish should be reasonably smooth to reduce the amount of adhesive required.

Concrete surface should be free from paint, dirt, oil, or other surface contamination before applying Kid Kushion adhesive.

Any separation of concrete layers, heaving, etc. is the sole responsibility of the installer and/or owner.

Assure good drainage of the area by either a well defined gradient of the surface or well placed drainage pipe in lower spots of the area.

Asphalt Sub Surface

Asphalt sub surface must be hard, level, and free of grease, oil, and other contaminants. Avoid installation on new asphalt until surface oil has had time to dissipate (30 days after compacting) and drainage can be evaluated.

Any separation of asphalt or blacktop layers, heaving etc. is the sole responsibility of the installer and/or owner.

Insure good drainage of the area by either a well-defined gradient of the surface or well-placed drainage pipe in lower spots of the area.

Wood Sub Surfaces

The wooden sub surface should be properly secured to ground to avoid any ground shifting (as by pile or other means) and subsequent sub floor movement. The sub floor should be protected and sealed from moisture prior to installation of Kid Kushion tiles. The sealer should be completely dry before installation. The sealer should be compatible with Kid Kushion adhesive before tiles are applied (avoid use of surface treatments that leave oil residues on surface).

The wood surface should be free from any protruding nails and screws. All damaged wood should be replaced on old surfaces.

The surface should be level, clean and dry before application.



SECTION 6 - Installation

Installation Checklist:

1. Insure that the base surface is clean, level, and dry. Tiles must be dry.
2. Check ambient air temperature. Minimum temperature for installation is 50 degrees and rising.
3. Please note: All play equipment must be permanently installed prior to mat surfacing installation.

Surfacing Layout

Lay tiles (transition pieces if required) from the further corner along base edge in two directions. (90 Degrees) Lay out the rest of the installation, leaving out any tiles that must be “cut to fit”. Keep edges straight and aligned horizontally and vertically.

Installation of Surfacing Product

Once installation layout has been completed; adhere all perimeter pieces. If drainage is a concern, allow a ¼” gap between each Ramp piece for drainage. Install balance of surfacing using generally accepted installation procedures in compliance with engineering detail drawing for installation.

Interior surfacing can be totally adhered (glued) to base surface; unitized as one continuous piece using installation clips affixed at index points in each mat; or, left unattached to base surface and left to float.

Adhesive

Kid Kushion adhesive is a one part “glue” and is ready to use when poured out of container. Do not open container prior to time for use in installation. A misting of water may be applied to the adhesive and will act as a catalyst to decrease cure time.

Adhesive is spread in a thick film coat on the base surface and each gallon will adhere approximately 55 to 60 square feet of surfacing.

SECTION 7 - Cure Time (Typical Installation)

The cure time of Kid Kushion Adhesive is dependent on several factors. The moisture levels and temperature levels of installation surface, as well as, the ambient air temperature and relative humidity will effect the time required for the cure of the adhesive. Generally, the higher the temperature; the shorter the cure time, and the higher the moisture levels, the shorter the cure time.

The following information is provided based on trial installations preformed with the Kid Kushion Adhesive to determine approximate cure times under various temperature and humidity conditions.

<u>Temperature</u>	<u>Relative Humidity</u>	<u>Approximate Cure Time</u>
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115° F	> 50%	4 hours +
70° F	> 50%	18 hours
45° F	> 50%	30 hours

Approximate cure time can be decreased with addition of a catalyst (water).

Once the adhesive is in place and has been allowed to penetrate existing hard surface, (and prior to mat placement) a light fine spray of water (catalyst) on the adhesive will shorten the cure time. The adhesive will react to the spray by forming small bubbles (frothing appearance). Then, place the Kid Kushion mats in the normal fashion, as per the installation instructions.

SECTION 8 - Installation of the 1” thickness using Connector Pins...

Within the EMC Kid Kushion Product Line, we have the 1” thick tile which is certified with a 2 ft. fall-height; this is also referred to as the 1” SportPlay Mat, specifically used in fitness facilities for free-weight areas and aerobics, but also in daycare facilities and nursing homes. We also have the 1” Equi-Tile, which is different from the above mentioned SportPlay Mat in that it has a “Paver tile” bottom – it is denser in order to sustain more weight atop it without suffering indentations over time.

The 1” thickness can be installed using either adhesive (see instructions for installing Kid Kushion with adhesive above), **or** by using the Connector Pins offered by EMC. The Connector Pins are approx. 3” long and are made of hard black plastic with ferruled edges, which hold them in place inside the rubber tile once they have been inserted into the holes on the sides.

The 1” tile has three (3) holes on each of the four (4) sides of the tile – this results in figuring six (6) Connector Pins per tile when you figure how many will be required.

To install your mats with these Connector Pins, it is easiest to begin by inserting the pins into the tile on two adjacent sides while they are sitting in a stack (before you put them on the ground). Then when you set them on the ground you will line up the tile with pins already in it to the adjacent tile without pins. Insert the pins into the holes and push it in to close the gap as best possible.

To seal the gap, use a rubber mallet to “bang” or “push” the tile (without the pin) in over the tile with the pin. Hit the tile at a 45 degree angle a few times while trying not to hit the tile itself in the exact same spot (if you use a “normal” hammer and hit the same spot more than a couple times, you may damage the rubber tile with a “dent”). *{Note: you may use a “normal” hammer (metal head), but be very careful not to hit the same spot!}*



** When “sealing the gap” with the hammer, it works best when the tiles are sitting over a solid surface (concrete), in order to *provide resistance* beneath the tile for the rubber tile to move over the connector pins when the gap is being “forced” shut.

The 1” Ramp (48”x 4”) has six (6) holes in it, and is designed to line up with the tile and install together with the tile in the same fashion.

SECTION 9 - Disclaimer

The installation guidelines represent a typical installation and generally accepted installation practices should be followed. Use of a trained installation professional is recommended for best results.

Environmental Molding Concepts does not warrant any installation work and specifically disclaims liability for any direct or indirect personal injury, property damage or other costs or losses resulting from incorrect or inadequate installations.