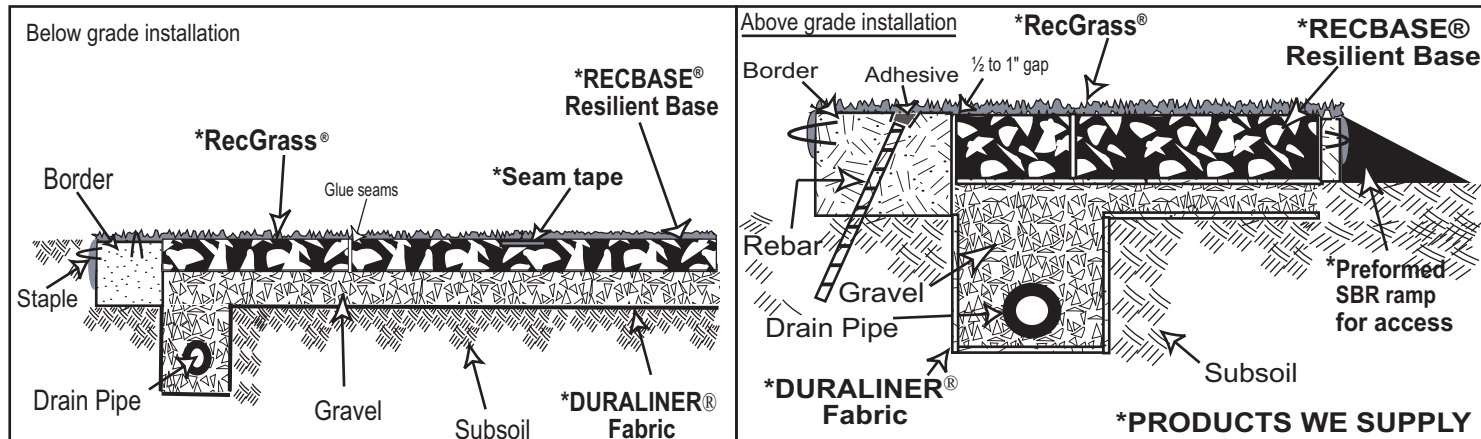


- A. Product Data:** Submit manufacturer's product data, including warranty, maintenance and installation instructions, ASTM F1292 test results, IPEMA certificates of compliance and samples.
- B. Manufacturer Qualifications:**
1. Member of International Play Equipment Manufacturer's Association (IPEMA).
 2. Total Liability Insurance Coverage: \$11,000,000.
 3. Sales Representatives attend National Playground Safety Institute (NPSI) training.
- C. Warranty covers playground surfacing for following periods:**
1. Resilient base: 3 year impact warranty.
 2. Turf or carpet: 10 year prorated warranty.
- D. Manufacturer:**
1. Zeager Bros., Inc., 4000 East Harrisburg Pike, Middletown, Pennsylvania 17057. Toll Free (800) 346-8524.
 2. Zeager Hardwood Co., 340 Steele Road, Franklin, KY 42134. Toll Free (800) 296-9227.



- E. Application:** Outdoor playground surface, installed above or below grade, over subsoil. For installation over hard surfaces see supplement.
- F. Critical Height:** 1 layer of 1.0" Recbase over hard surface -3 ft. of fall protection. With 1 layer of 1" RecBase with gravel- 4 ft. of fall protection. 1 layer of 1.5" Recbase over hard surface -4 ft. of fall protection. With 1 layer of 2" Recbase over gravel - 6ft. of fall protection.

G. Installation Instructions:

1. Prepare the site in accordance with the project engineer's directions and project specifications. Ensure that site drainage is routed away from or around the playground area to prevent sand, soil, silt, or other foreign material from being deposited in the playground area. Inside the playground area, grade subsoil to a 1-2% grade.
2. Excavate an 8 in. wide and 8 in. deep trench along the low end of the area to a storm drain.
3. Install a layer of geotextile fabric on top of the subsoil. Overlap seams 10 in. (25cm), or 5 in. (13cm) if a double bead of exterior grade construction adhesive is applied to the overlap.
4. Install drain pipe in the trench to a storm drain. Make sure the drain pipe is at least 12 inches from borders.
5. Install a wood border around play area edge (see our recommendations for a wood border). Allow sufficient space outside the border to perform step 9.
6. Install, and level 3/8-1" gravel to a minimum depth of 2". Make sure gravel fills the trench and surrounds drain pipe. A smooth surface is necessary to ensure resilient base seams will be flush.
7. Install resilient base on top of gravel. Lay panels fabric side down, butting each against the other. Run a bead of construction adhesive between each panel to secure all panels to each other. Resilient base can be cut using a knife, saber saw, or circular saw around play equipment and border. If installing in cooler temps, leave minimum 1/2 inch gap between the resilient base and the border to allow for expansion and contraction. Note: Foam will expand in higher temps which may cause buckling.
8. Trim extra backing from 1 side of turf to ensure a straight seam. This will allow for a good seam match. Start at one end and roll out the turf over Recbase and border. Make necessary cuts around equipment bases and let turf or carpet relax. Install the next adjacent piece by overlapping the end already cut about 2-3 inches over the next piece and cut with carpet knife or loop pile cutter leaving 1/8" or less between the seams. For glueing seams: fold back turf at seams and place joint tape evenly between both halves of seams. Temporarily secure seam tape on one end with a nail to make sure seam tape doesn't move while applying adhesive. Spread adhesive on seam tape with a notched trowel one section at a time. Enough to allow for 15-45 min. of setting up time before closing the seams. Atmospheric conditions will alter set up time (see notes). Close turf or carpet back over the seam tape and match up seams while pressing down to get good adhesion between turf backing and seam tape. Rolling seams with a seam roller is recommended to speed adhesion process. Attach the turf to the border with air stapler using 1/4" crown x 1.5" staples. Trim turf where necessary. To prevent vandalism, glue turf around equipment post to Recbase with polyurathane adhesive. **Do not glue** turf to Recbase resilient base in any other areas. Doing so will cause wrinkles as resilient base expands and contracts.
9. Backfill with soil around the outside of the wood border so soil is flush with the top of the wood border. Install ADA ramp for accessibility on above grade installations.

H. Notes and tricks of the trade:

1. Step 8 should be performed by an experienced carpet or turf installer.
2. Periodic maintenance should include removing debris and sweeping or vacuuming the surface.
3. Seam adhesive is ready when you touch it and it snaps back like a rubber band. If it is stringy, it still needs to set up.
4. Cut seams so they lay as close to the opposite seam as possible without touching. Seams that are touching tend to be seen.

I. Products

1. RECBASE® Resilient base
 - A. Composition: Closed-cell, cross-linked, polyethylene foam.
 - B. Recycled content: 100% pre-consumer recovered foam.
 - C. Top surface: Covered with polyester spun bound fabric.
 - D. Size: 48 in. x 72in.
 - E. Weight: 89 ounces per square yard.
 - F. Thickness: 1/2", 3/4", 1", 1.5" and 2.0"
 - G. Density: 86 ounces per cubic foot.
 - H. Transmissivity, 1" thick: ASTM D4716: 4.25E-004 m² / sec.
 - I. Transmissivity, 2" thick: ASTM D4716: 1.90E-003 m² / sec.
 - J. Flow Rate, ASTM D2434: 1" 1.0270 gal./ min. per sq. ft.
 - K. Flow Rate, ASTM D2434: 2" 4.5910 gal./ min. per sq. ft.
 - K. Impact, ASTM F1292: 1"-2.5ft, 1.5"-3ft, and 2"-5ft.
2. Fabric: DURALINER®
 - a. Composition: Non-woven, needle-punched, UV-treated polypropylene or spunbonded polyester fabric.
 - b. Recycled content: 10% post-consumer and 10% or more of pre consumer (post manufacturing).
 - c. Size: 5 to 6 feet wide x 250 feet long.
 - d. Weight, ASTM D3776: Min. 3.24 ounces per square yard
 - e. Grab Tensile Strength: ASTM D4632: min. 81/79 pounds.
 - f. Elongation: 59/63%
 - g. Mullen Burst Strength, ASTM D3786: min. 130 pounds.
 - h. Puncture Resistance, ASTM D4833: min. 45.1 pounds.
 - i. Trapezoid Tearing Strength, ASTM D4533: min. 42/71 pounds.
 - j. Permittivity, ASTM D4491: min. 2.09 sec-1.
 - k. Flow Rate, ASTM D4491: min. 300 gal/ft/min
4. RecGrass® L.P-Synthetic Grass:
 - A. Composition: Tufted nylon/ 3/16 gauge
 - B. Pile Weight: 53oz. per sq yd. Pile height: .75"
 - C. Stich/ inch - 7.00 / Yarn count - 4200 / 8
 - D. Color: Turf green / Standard width: 15ft
 - E. Backing: Primary - 2906 Matrix
 - F. Permeability: ASTM F1551- 60.84 Gal/min/yd²
 - G. PASSES the Federal Flammability Standard DOC FF 1-70.
 - H. Meets CPSIA standards for Lead content.
5. RecGrass® H.P-Synthetic Grass:
 - A. Composition: 100% Nylon w/ nylon root zone -tufted 3/16g
 - B. Pile height: 1.25" / Standard width: 15ft
 - B. Pile Weight: 54oz.per sq.yd- tufted fabric.
 - C. Textured Yarn Denier: 3900/8 Root zone Denier: 4200/8
 - D. Color: Turf green / U.V stabilized: Yes
 - E. Primary Backing: 2906matrix.
 - F. PASSES the Federal Flammability Standard DOC FF 1-70.
 - G. Permeability, ASTM 1551: 188.79 Gal/min/yd²
 - H. Meets CPSIA standards for Lead content.

I. Products - (cont.)

6. Adhesive for seams:
 - A. 5 gal. bucket - weight 35lbs
 - B. Urethane base / moisture curing / high grab strength
 - C. Chemical name: Polyisocyanate Resin. (MSDS available)
7. Seam tape
 - A. Composition: Polyester
 - B. Size: 12" x 326ft.- Weight 14lbs / roll.

J. Materials List

1. Wood for straight edge or Plastic lumber for curved edge.
 - A. Treated wood timbers - 4"x 4" or 2"x4". Composite- 5/4" x 6"w
 - B. rebar stakes - 1/2 inch x 18 inches long.
 - C. connecting plates - straight and angle plates.
 - D. wood screws - 1/4 inch x 1 1/2 inch with flat round head.
 - E. Tapcon screws -3" & fender washers if using plastic lumber.
2. Base
 - A. black drain pipe - 3-4 inch diameter.
 - B. geotextile or polyester fabric.
 - C. gravel - 3/8-1". D. RECBASE®, resilient base.
 - E. Polyurethane construction adhesive if gluing base edges.
3. Turf
 - A. Outdoor carpet or artificial turf.
 - B. Adhesive and seam tape for turf seams
 - C. 1.5" Staples- to attach turf to wood or plastic border.

K. Tools List

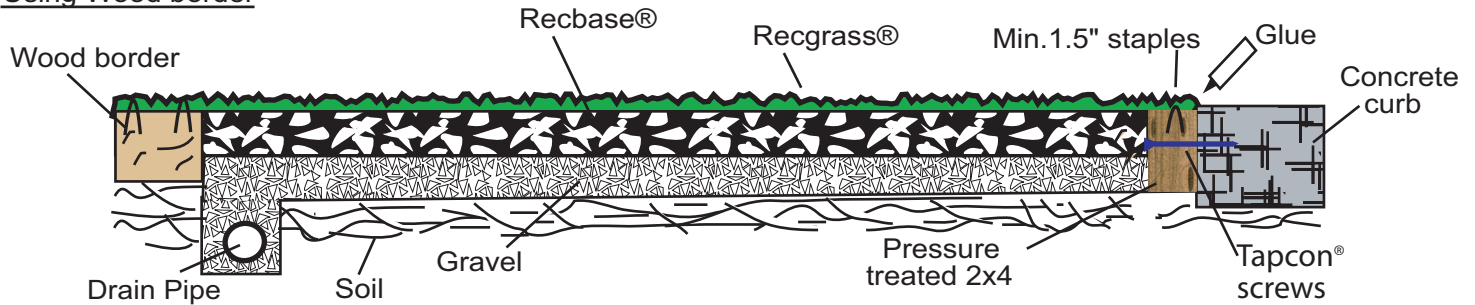
1. Wood Border
 - A. drill. Masonry bits if attaching border to concrete edge.
 - B. 1/2 inch drill bit at least 5 inches long.
 - C. measuring tape. D. hammer.
 - E. screw driver or drill with screw driver bit.
2. Base
 - A. circular saw, sabre saw, or knife.
 - B. caulk gun if gluing fabric flaps or seams of base.
3. Turf
 - A. Air staple gun with 1/4" crown x 1.5" staples
 - B. Carpet kicker & stretcher if necessary
 - C. Utility knife or carpet knife
 - D. Loop pile cutter can be used to cut seam edges.
 - E. Hammer - used to finish driving any loose staples.
 - F. Metal straight edge - used to cut turf seams.
 - G. Notched trowel to spread adhesive on seam tape.

L. Recommendations for a Wood Border:

1. For a wood border, use 2x4 or 4 x4 Non-CCA treated wood timbers. Cut and place timbers around play area edge. Ensure timbers have full contact and lay flat on top of the subsoil. Keep in mind that the resilient base is 1-2" thick. The timbers should be placed at the proper elevation so that the top of the turf will be flush with the surrounding landscape.
2. Screw a flat metal connecting plate on top of each timber seam to join the timbers to each other. Make sure the top of the screws are flush with the top of the connecting plate.
3. Using a 1/2 inch drill bit, drill holes in the top of the timbers. The holes should be drilled at a 30 degree angle from the vertical and alternate a hole pointing inward with a hole pointing outward. The holes should be spaced 30 to 40 inches apart and 9 to 12 inches from each timber edge.
4. Hammer a 1/2 inch rebar stake into each hole so that the top of the rebar stake is just below the top of the timber. Counter sink rebar and fill recess with construction adhesive.

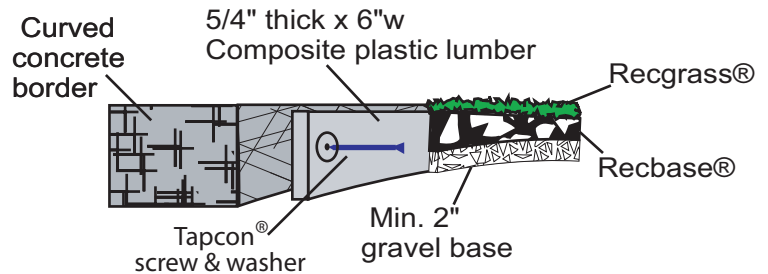
Application: RecGrass® with concrete curb border. Check with Zeager representative for fall height recommendations and thickness of Recbase required.

**Option 1 -
Using Wood border**



A. Wood border installation for concrete or fixed edge:

1. Prepare subsurface by grading, leveling and installing drainage pipe as recommended on page one.
2. Install a pressure treated 2x4 along concrete or fixed edge. (If concrete edge is not straight, go to option 2 using plastic lumber.) . Anchor the 2x4 with Tapcon® concrete screws. First, place a bead of construction adhesive between the wood border and the concrete border then fasten with the screws. Be sure wood border is flush with concrete top edge. You can adjust this by adding or removing gravel to make the border flush.
3. Finish grading stone up to the wood border. If Recbase is being used, allow for thickness of Recbase so it will be level with the wood border.
4. Install Recbase as recommended on page one. Make sure it is flush with the top of the wood border. If temperatures are cool, leave a minimum ½ inch gap between the Recbase® and wood border to allow for expansion of foam layer in hot temperatures.
5. Install Recgrass® as recommend on page one secure to wood border with a minimum 1.5" staple and use construction adhesive to bond Recgrass edge to wood border to prevent trip hazard.



B. Plastic border installation for curved concrete edge:

1. Prepare subsurface by grading, leveling and installing drainage pipe as recommended on page one.
2. Install a nailer board along the curved concrete edge using 5/4" x 6"w composite plastic lumber board. Anchor the composite board to the concrete border using concrete anchor screws (Tapcon® screws) and fender washers. A bead of construction adhesive can be applied between the board and concrete for added security. Be sure the board is flush with the top of the concrete border.
3. Install a minimum 2" gravel layer. More may be necessary to raise Recbase layer so it is flush with the top of the nailer board and concrete edge.
4. Install Recbase as recommended on page one. Make sure it is flush with the top of the plastic border. If temperatures are cool, leave a minimum ½ inch gap between the Recbase® and plastic border to allow for expansion of foam layer in hot temperatures..
5. Install Recgrass® as recommend on page one. Secure to top of plastic border with a minimum 1.5" staple and use construction adhesive to bond Recgrass edge to border to prevent trip hazard.

A. Product Data: Submit manufacturer's product data, including warranty, maintenance and installation instructions, ASTM F1292 test results, IPEMA certificates of compliance and samples.

B. Manufacturer Qualifications:

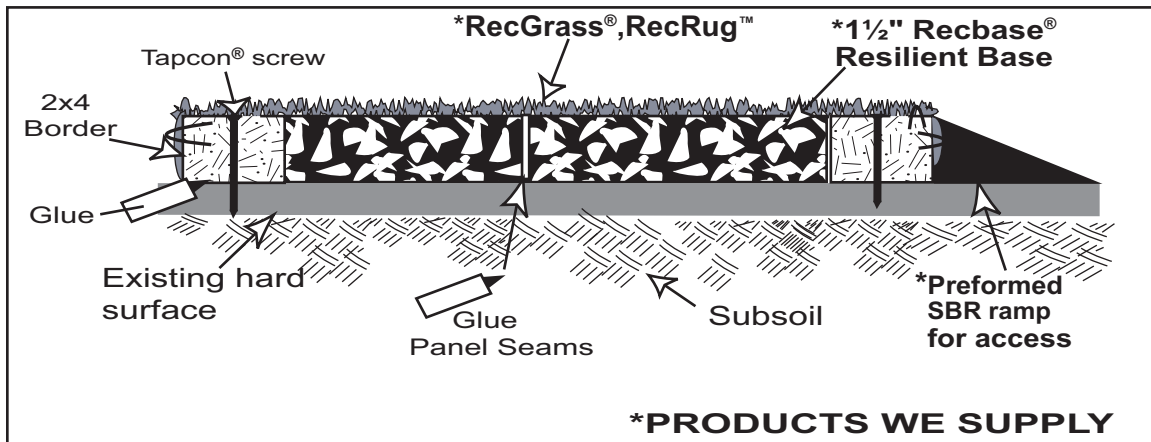
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2. Zeager Hardwood Co., 340 Steele Road, Franklin, KY 42134. Toll Free (800) 296-9227.



E. Application: Outdoor playground area installed over an existing hard surface (asphalt, concrete, etc.).

F. Critical Height: 1.5" Recbase w/ RecGrass HP or LP over hard surface gives 4 ft. of fall protection. Recbase layers can be combined for more fall protection.

G. Installation Instructions:

1. Prepare the site in accordance with the project engineer's directions and project specifications. Ensure that site drainage is routed away from or around the playground area to prevent sand, soil, silt, or other foreign material from being deposited in the playground area. Surface should have a minimum of 1-2% grade to allow water to drain away from play area to a storm drain.
2. Install pressure treated 2x4's around the edge of the play area. Place a bead of construction adhesive on the bottom side of the 2x4 first and then secure with Tapcon® concrete screws. Before installing the wood border along the lowest playground edge, cut 1.5" notches every 2 ft. on the bottom of the 2x4 to allow water to drain away to storm drain area.
3. Install resilient base over asphalt or concrete. Lay panels fabric side down. Use construction adhesive between panel seams. Do not glue Recbase to hard surface. Resilient base can be cut using a knife, saber saw, or circular saw around play equipment and border. Leave minimum 1/2 inch gap between the resilient base and the border to allow for expansion and contraction. Note: Foam will expand in heat.
4. For equipment with fall heights higher than 4ft., excavation around fall zone will be necessary to allow for thicker foam base installation. This will allow a smooth transition between thicker layers of foam and thinner layers that are outside these fall zones. For areas with no fall height required, 1/2" and 3/4" thick resilient base is available. Ask Zeager representative for more details. Note: Wood border will need to be milled to accommodate thinner surface.
7. Install Recgrass synthetic grass as recommended on first page.