A. Product Data: Submit manufacturer's product data, including warranty, maintenance and installation instructions, ASTM F1292, ASTM F1951 test results, IPEMA certificates of compliance where applicable and samples.

B. Manufacturer Qualifications:

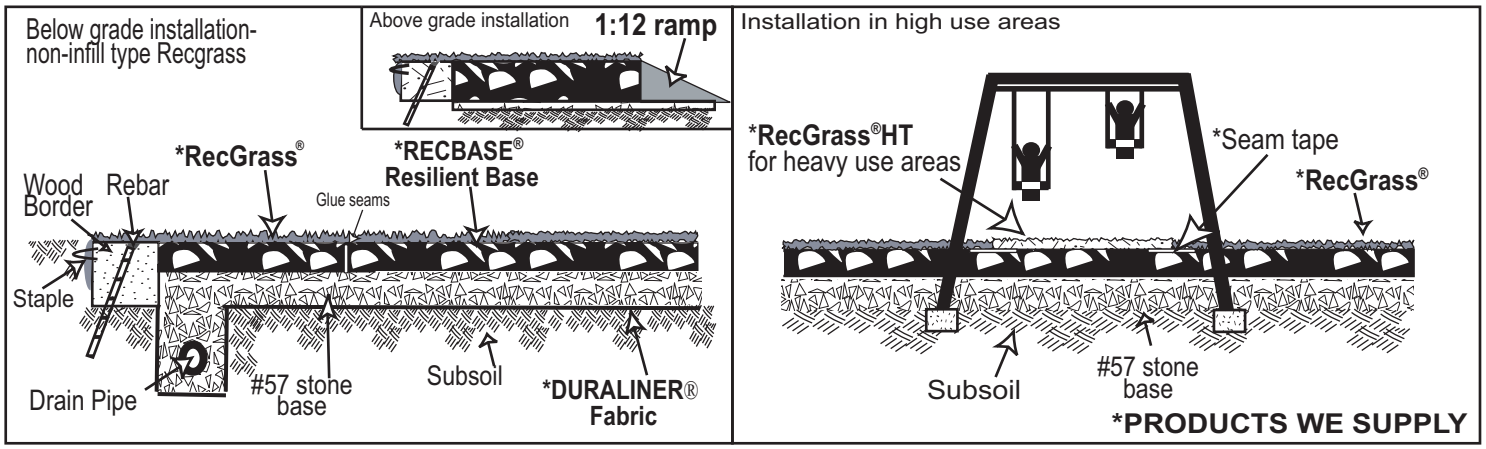
1. Member of International Play Equipment Manufacturer's Association (IPEMA).
2. Total Liability Insurance Coverage: $11,000,000.
3. Sales Representatives attend National Playground Safety Institute (NPSI) training.

C. Warranty covers playground surfacing for following periods:

1. Resilient base: 5 year impact warranty. 2. Recgrass HP & LP synthetic grass: 8 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.

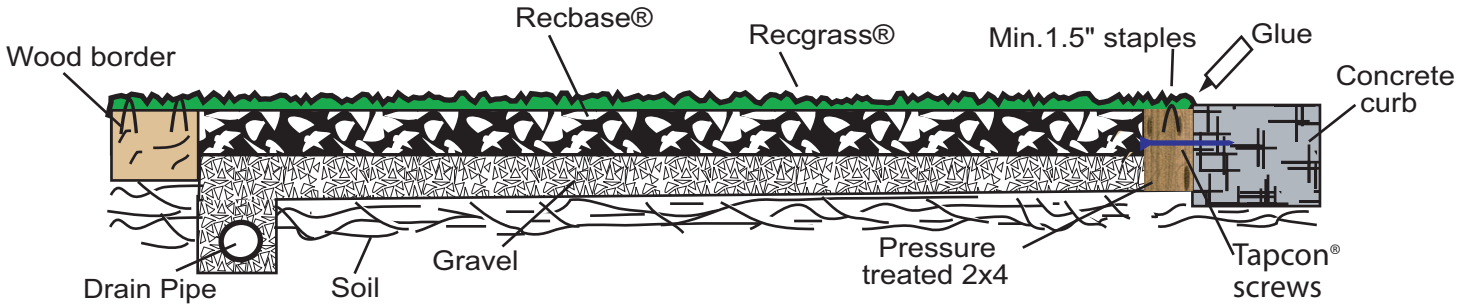
F. Critical Height: 1 layer of 1.0" Recbase over hard surface -3 ft. of fall protection. With 1 layer of 1" RecBase with gravel- 4 ft. of fall protection. 1 layer of 1.5" Recbase over hard surface -4 ft. of fall protection. With 1 layer of 2" Recbase over gravel - 6ft. of fall protection. With one layer of 1" Recbase combined with one layer 2" Recbase over gravel - 8ft. 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.
5. Install a wood border around play area edge anchored with rebar. Screw a flat metal connecting plate on top of each timber seam to join the timbers to each other. Drill ½" holes @ 30 deg.angle in the top of the timbers. 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. Allow sufficient space outside the border to wrap turf over and around the side. Hammer a 1/2 inch rebar stake into each hole. Counter sink rebar and fill recess with construction adhesive.
6. Install, level & compact stone base. to a minimum depth of 3" plus fill the drainage trench. #57 stone is acceptable. A smooth,stable sub- surface is necessary to ensure a level finish. A layer of 1/4" minus crushed stone can be used to level the #57 stone base when Recbase foam is used but if installing the turf directly over stone, use caution not to clog the drainage system below the subsurface with fine stone dust. Consult engineer for drainage details.
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. For Recgrass infill system; keep 1" below border to allow for containment of 1" infill.
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. Once seams are dry; stetch & 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. In high use areas, install RecGrass HT heavy duty turf . Cut HT turf, lay in place and mark turf to be cut out. Use seam tape and adhesive to secure HT turf.
9. Backfill 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.

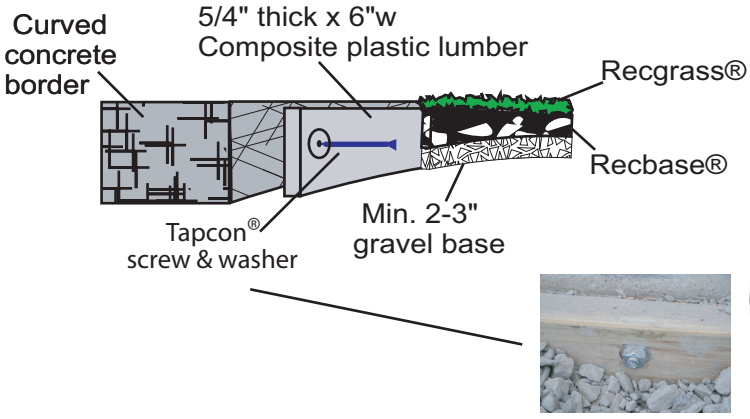
 Jan. 2016

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



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 B using composite lumber.) . Anchor the 2x4 with Tapcon® concrete screws a minimum of 12" apart (more may be necessary if curb is curved-see option B). Place a bead of construction adhesive between the wood border and the concrete border then fasten with the screws. Be sure wood border is no more than .25" below curb to meet accessibility guidelines.
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 or with optional wedge bolt anchor a minimum of 6" apart. Apply a bead of construction adhesive between the board and concrete for added security. Be sure the board is .25" max below the top of the concrete border unless you are installing Recgrass infill system. (See page 1 top right diagram). Drop the border below the concrete curb the thickness of the infill layer.
3. Install a minimum 2-3" gravel layer. See page one for recommended size of gravel. More may be necessary to raise Recbase layer so it is flush with the top of the nailer board.
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:

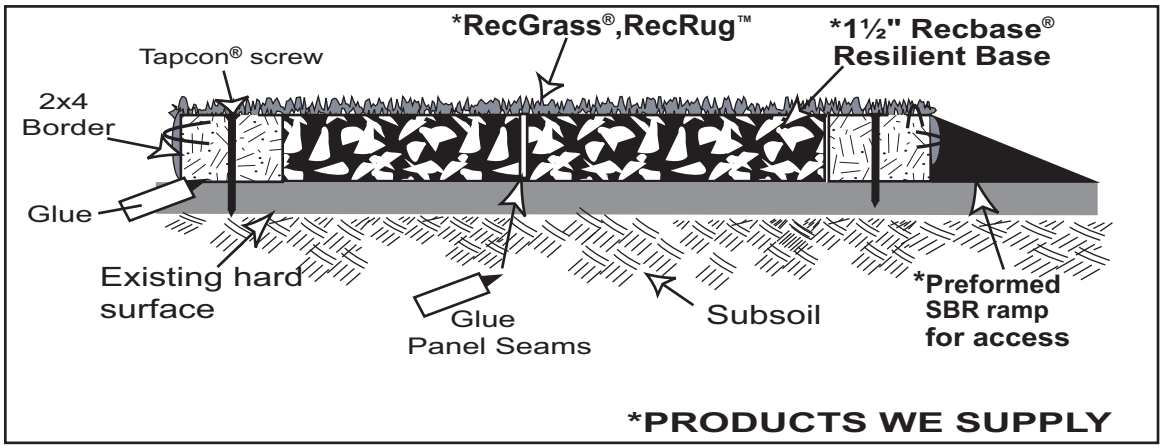
1. Member of International Play Equipment Manufacturer's Association (IPEMA).
2. Total Liability Insurance Coverage: $11,000,000.
3. Sales Representatives attend National Playground Safety Institute (NPSI) training.

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.



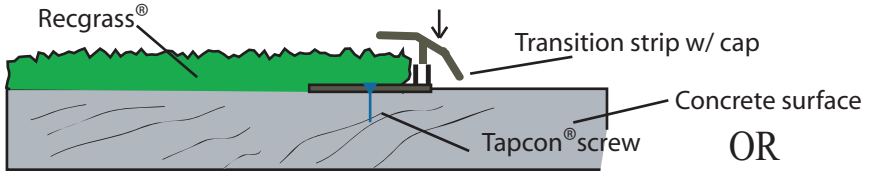
E. Application: Outdoor playground area installed over an existing hard surface (asphalt, concrete, etc.).

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:

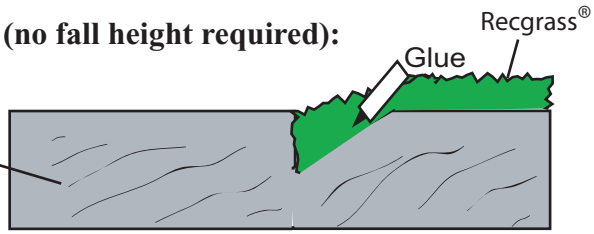
1. Prepare the site in accordance with the project engineer's directions and project specifications. Ensure that site drainage is routed away from or around the playground area to prevent sand, soil, silt, or other foreign material from being deposited in the playground area. Surface should have a minimum 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 accomodate thinner surface.
7. Install Recgrass synthetic grass as recommended on first page.

H. Direct glue down installation-transition from Recgrass to concrete (no fall height required):



1. Use a transition strip (pictured above) from the turf to the concrete. We recommend using a 2 part strip like the one pictured above. See a local commercial flooring center for availability.

OR



1. Cut "V" channel (pictured above) with concrete saw into concrete surface ½"deep max where Recgrass ends. Glue with bead of polyure--thane construction adhesive. Place weighted boards over top until dry.

H. Notes
1. Step 8 must be performed by a certified Zeager installer. Ask your Zeager representative for information.
2. Periodic maintenance should include removing debris and sweep -ing or vacuuming the surface.
3. Allow seam adhesive to set up before closing seams.
4. Make sure adjacent rolls run in the same pile direction.

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. Weight: 89 ounces per square yard.
E. Thickness: 3/4", 1", 1.5" and 2"/ Density: 86 ounces per cu.ft.
F 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.

2. RecGrass® L.P-Synthetic Grass:
A. Primary Yarn Polymer- Nylon
B. Yarn Cross Section- Diamond Monofilament
C. Standard Color- Turf Green
D. UV Stabilized - Yes / Fabric Construction- Tufted
E. Primary Backing- 13 Pic Woven (2)
F. Coating Type - Biocel™ Polyurethane
G. Polyethylene Yarn Denier / Ends - 4200/8 Texturized Thatch
H. Sustainability- 100% Recyclable
I. Warranty Period– 8 years- see warranty for details.
J. Accessibility: ASTM F1951 - Meets criteria.
K. IPEMA Certifications per F1292 : 4ft, 6ft, and 8ft fall heights are available. See certifications for details.
L. Tested to ASTM F1551 test methods. See product guide spec for specific test result criteria.

3. RecGrass® H.P-Synthetic Grass:
A. Primary Yarn Polymer - Nylon
B. Yarn Cross Section- Diamond Monofilament
C, Standard Color - Turf Green
D. UV Stabilized- Yes / Fabric Construction- Tufted
E. Secondary Yarn Polymer Thatch - Nylon
F. Secondary Yarn Color- Turf Green
G. Primary Backing - 13 Pic Woven (2)
H. Coating Type - Biocel™ Polyurethane
I. Polyethylene Yarn Denier / Ends- 4200/8Thatch-Ends- 4200/8
J. Sustainability- 100% Recyclable
K. Warranty Period - 8 years- See warranty for details
L. Accessibility: ASTM F1951 - Meets criteria.
M. IPEMA Certifications per F1292: 4ft, 6ft, and 8ft fall heights are available. See certifications for details.
N. Tested to ASTM F1551 test methods. See product guide spec for specifice test result criteria.

4. RecGrass® Color Blend Grass
A. Primary Yarn Polymer - Polyethylene
B. Yarn Cross Section- Web slit film
C. Standard color— multiple colors available
D. UV Stabilized—Yes / Fabric construction—Tufted
F. Secondary Yarn Thatch: Nylon
G. Primary Backing - 13 Pic Woven (2)
H. Coating Type - 5 mm Biocel™ Polyurethane Cushion

I. Products-cont.
4. RecGrass® Color Turf (cont.)
I. Warranty Period– 8 years- see warranty for details.
J. Accessibility: ASTM F1951 - Meets criteria.
K. Tested to ASTM F1551 test methods. See product guide spec for specific test result criteria.

5. RecGrass® FD (Fast Drain-Roof tops, dog areas)
A. Primary Yarn Polymer - Nylon
B. Yarn Cross Section- Diamond
C, Standard Color - Stadium Green
D. UV Stabilized- Yes / Fabric Construction- Tufted
E. Primary Backing - Polyester/ Secondary—Acrylic
F. Coating Type - None
G. Polyethylene Yarn Denier / Ends- 5200/8
H. Warranty Period - 8 years- See warranty for details

6. Adhesive for seams: 34G/ 34N2
A. 5 gal. bucket - weight 35lbs
B. Solvent based / high grab strength
C. Chemical name: Diphenyl Methane 4,4' Diisocyanate (M (MSDS available)
7. Seam tape
A. Compostion: Polyester - Size approx. 400ft / weight: 14lbs.

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 - ½ inch x 18 inches long.
C. connecting plates - straight and angle plates.
D. wood screws - ¼ 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 - #57 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. Masonary bits if attaching border to concrete edge.
B. ½ inch drill bit at least 5 inches long.
C. measuring tape. D. hammer.
E. screw driver or drill with screw driver bit.
2. Foam Base
A. circular saw, sabre saw, or knife.
B. caulk gun if gluing seams of base w/ construction adhesive.
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. 1/4-3/8" notched trowel to spread adhesive on seam tape.

L. Recommendations for a Wood Border:
1. For over subsoil use 4 x4 preasure treated wood. For over existing hard surfaces such as concrete, see specification detail page 4.

