

A Guide to Building Steps with Pavers and Retaining Walls



VENEERING EXISTING CONCRETE STEPS USING FULL SIZE PAVERS (Optional New Step Added)

This brochure is a guide to veneering existing concrete steps with pavers. In this illustration, a new step was also added to permit access from two sides. Although interlocking concrete paving stones are shown in this example, clay brick pavers could be used for the same purpose. No special tools, other than normal paver installation equipment, are needed. By following the instructions and corresponding photos carefully, you can easily convert unsightly concrete steps into a bright new entranceway that matches a new paving stone walkway or driveway!

PREPARING OLD CONCRETE STEP FOR VENEER . . . Remove old railing if necessary, grind off high spots, ragged edges and uneven concrete bulges with masonry wheel grinder. After cleaning entire surface with PAVE TECH's PAVER PREP acid cleaner, thoroughly rinse and let dry.

PREPARATION FOR NEW STEP TO BE ADDED (OPTION) . . . Excavate 6" to 12" deep in the area where new step is to be added. First compact subsoil, then lay down geotextile fabric if extremely poor soil. Fill and compact 3/4" minus crushed aggregate in this area to a level, that when new step construction is done, the height of all materials used in the new step construction equal the same height as the finished elevation of the existing step (7" to 7- 1/4" riser is preferred). Mix damp sand with small amount of Portland cement and trowel a thin (1/4") layer on top of this compacted new base to establish a smooth, even bedding course. Cut riser units from masonry retaining wall blocks or concrete masonry blocks to fit. **Note:** There are several types of masonry retaining wall units available for such use as well as split face or textured, colored concrete masonry blocks.

ADDING NEW STEP RISERS . . . Lay out and set in place all riser units to be used as new steps, including corner units (cut to fit, if necessary). Average tread depth is 11-1/2" to 12". Install units using PAVE TECH'S Masonry Adhesives between all units and also on the back surface if it is in contact with existing concrete steps. Tamp new units to match elevation of existing steps when necessary. If retaining wall units have pre-drilled holes, pound spikes into base to hold units in position. Drill new holes if necessary and anchor as above. Check to see that entire new step is level and square to the existing structure.

VENEERING RISER UNITS ON EXISTING STEPS . . . Cut 2" thick face shells off of matching riser units for veneering existing concrete steps. **Note:** These will be the same type of masonry units as used for new step risers. Miter corner pieces and start veneering riser areas using **PAVE TECH'S Masonry Adhesives** in-between and on the backs of all units, making sure all riser units are level with the top of any adjoining steps.

CONTINUE VENEERING THE RISERS . . . **PAVE TECH'S Masonry Adhesives** are ideal to glue masonry units to each other or to concrete steps. It remains permanently flexible under all temperatures and stretches up to 6 times its cured size without losing bond. Initial set time varies with temperature (normally 24 hours in 70 degree temperatures, up to 72 hours in colder temperatures). Use wood shims and other masonry units to hold vertical veneer pieces in place until initial set is established. This does not mean that steps are ready for traffic yet.

PREPARATION OF BORDER (TREAD) UNITS . . . Select pavers for border, inspecting bottoms and edges of pavers for burrs and loose material. Pavers should be flat and true, and **MUST** be of absolute uniform thickness. Cut pavers at 45 degree angle for corners using a 3/8" average overhang as standard.

LAYING BORDER (TREAD) UNITS . . . Layout corner (mitered) pavers and several regular border pavers (dry) starting at the most visible corner, maintaining a 3/8" average overhang.

Using a marker and straight edge, draw lines as a guide for laying these border units. Chalk lines are also helpful to maintain straight lines. Starting at the corner, glue the mitered pavers, then the balance of pavers, using NO MORE THAN a 1/4" bead of **PAVE TECH'S Masonry Adhesives** in an "S" shaped pattern on the bottom of each paving stone. On border units, it is recommended that all sides of pavers also be glued. Stay 1" to 2" away from any exposed/leading edge with adhesive.

CONTINUE LAYING BORDER UNITS . . . Complete gluing of all border pavers from corner to corner, cutting only when necessary to fit and always at the least noticeable area. Maintain a level height by using small wedges or a few grains of sand to keep units true and level, using a wooden or rubber mallet to tap and set pavers.

LAYING PAVERS ON TOP STEP BEHIND BORDER .

...Start interior paver pattern with factory edge pavers, if available. Work from a front, most visible corner. It is not always necessary to glue in pavers laid behind the first two "locked in" (glued) borders. Cut pavers where necessary to maintain a tight, accurate fit. Check regularly for even height of pavers, check finished surface with a level.

LAYING OF REMAINING STEPS . . . Start on the next step down by cutting mitered corner units for the border. Try to maintain bond lines with the top step. Follow the same procedures for laying border and step units. Remember to check for straight and true lines, evenness of height, straightness of edges, and the 3/8" average overhang as recommended above. After **PAVE TECH'S Masonry Adhesives** are thoroughly dry spread **dry** sand over the top of pavers and sweep into all cracks and crevices in-between and in back of pavers and risers. It is sometimes helpful to tap the pavers with a mallet to help settle the sand.

VENEERING EXISTING STEPS WITH THIN-CUT PAVERS

In some cases, the threshold of an existing house door at the entranceway prevents the use of full thickness pavers to veneer existing steps. When this occurs, the owner need not forego plans to "tie in" the existing concrete step with new paving stone walkways, etc. By following the steps below, a "thin-cut" veneer can integrate the old step into an attractive match with the new look!

DETERMINE CLEARANCE AND CUT PAVERS . . . When the necessary thickness of pavers has been determined, they should be sliced (thin-cut) on a diamond masonry saw for use on all flat areas of the steps. Remember to always cut pavers as thick as possible. Full thickness pavers will be used to veneer all vertical riser areas and lower treads.

PREPARING OLD STEP FOR VENEER . . . Follow same procedure for preparing old step as shown on the first page of this brochure, Smooth out uneven concrete surfaces and clean the concrete step as described.

LAYOUT OF STEP PATTERN . . . Carefully lay out border pattern around perimeter of top step. **Note:** In this example, a single soldier course of Hollandstone pavers was used. Include the added thickness of full size pavers used as the vertical surface veneer in your allowance for the border. Snap a chalk line and mark with a permanent ink marker. It is always advisable to lay out the pattern "dry" to see how it will look before proceeding.

VENEERING RISER AREAS WITH FULL THICKNESS PAVERS . . . Veneering risers (the face of the steps) should be done before any gluing of thin-cut pavers is started. Using **PAVE TECH'S Masonry Adhesives**, glue full size pavers onto vertical surfaces, making sure that top pavers are level with the top of the step. Use wood shims and extra pavers to hold this veneer in place until initial set takes place.

GLUING THIN-CUT PAVERS AT BORDER . . . Starting next to the house, use **PAVE TECH'S Masonry Adhesive** to glue the thin-cut border soldier course across the back width of the step. Using LESS than a 1/4" bead of adhesive, spread in an "S" shaped gluing pattern on the pavers is recommended. Keep adhesive 3/4' - 1" distance away from any edge.

LAYING PAVER UNITS IN CENTER PORTION BEHIND BORDER . . . Next, glue in center portion (inside marked border line) pavers in the pattern and type chosen. In this example,

Hollandstone pavers (same color as border pavers) were laid in a herringbone pattern. Cut pavers where necessary to maintain symmetry. Check often with level to stay "on the bubble" and keep lines straight and true.

GLUING BALANCE OF BORDER . . . Continue gluing the thin-cut border pavers around all edges, either mitering the corner pieces or laying a straight soldier pattern at the corners. Do not attempt to glue sides of thin-cut pavers; use LESS than a 1/4" of **PAVE TECH'S Masonry Adhesive** on the bottoms only as recommended above.

FINISHING THE JOB . . . Continue veneering all steps using same layout, veneering, thin-cut border and pattern gluing procedures, as described above. It is still necessary to spread sand in the cracks and crevices of a veneered step project where thin-cut pavers have been glued.

General Application...

1. **Surface Preparation:** Surfaces should be structurally sound and free of dirt, oil, release agents and other residues. Do not apply Types 1 or 2 to damp or wet surfaces.
2. **Application:** Apply when surface temperature is between 35 degrees Fehrenheight and 120 degrees Fehrenheight Surfaces should not be below freezing.
3. **Tooling:** Exposed beads may be tooled by dipping finger in soapy water. Let finger "float" lightly over the lumps to smooth the bead out.
4. **Repair:** Repair of previously applied material may be done at any time. Newly applied PAVE TECH adhesive will actually weld itself to the previously applies material.
5. **Sealing:** Must cure 30 days before applying any sealer; otherwise the surface will remain tacky for two weeks or more, depending on temperature.
6. **Cleaning:** Surfaces, tools and hands may be cleaned with PAVE TECH's Cleaning Solvent, orange-based cleaners, mineral spirits, or paint thinner. (If using mineral spirits or paint thinner, be sure to wash your hands with soap to remove residual cleaning solvent.
7. **Storage:** If there is product left over when finished, wrap the entire nozzle in Saran plastic wrap. (NOTE: Polyethylene wraps will not keep the adhesives from curing in the nozzle. SARAN plastic wrap works best.)



SAFETY PRECAUTIONS... When using Types 1 and 2 indoors, always supply plenty of ventilation. Caution: Flammable. Contains toluene and other petroleum distillates. Keep away from heat and open flame. Use only in a well-ventilated area. Keep out of the reach of children.

TECHNICAL DATA

	TYPE1 Flexible	TYPE2 BasicBOND	TYPE3 SuperWET
Application Range	45 to 120 degrees	30 to 110 degrees	32 to 110 degrees
Application Surface	Dry	Dry	Wet or Dry (Best if some moisture present)
Toxicity	Non Toxic after full cure	Non Toxic after full cure	Non Toxic
VOC	349 gr/ltr	336 gr/ltr	
Cure Time: Tack-Free	60 Minutes	30 Minutes	30 Minutes
Cure Time: Firm	2-4 days	10 hours	4 hours
Cure Time: Complete	1-2 weeks	24 hours	24 hours

Adhesion*180 degree peel
Dry Peel**lbs./linear inch

	TYPE1 Flexible	TYPE2 BasicBOND	TYPE3 SuperWET
Brick	24	20	32
Ceramic Tile	40+	31	30
Concrete***	42	30	40
Glass	23	21	33

Wet Peel**lbs./linear inch

Brick	21	20	32
Ceramic Tile	36+	31	30
Concrete***	34	30	40
Glass	13	21	33

*Ultimate adhesive strength obtained in 3-6 weeks, depending on bead size, temperature and humidity.

**Dry Peel is performed after 1 month cure. Wet peel is 1 month followed by 7 days under water.

***Indicates failure of wire mesh to pull sample-actual values are higher.

TYPE1 - Flexible

This is an excellent **Premium Grade Adhesive** for the freeze-thaw areas of any project that might subject the bonded material to stress or heavy loads. It must be applied to clean, dry, moisture-free substrate. If rain is expected wait until you have at least 12 hours of curing time before any moisture. This adhesive is slow to set, so in warm weather allow 2-6 days. This adhesive should not be over applied. If it is too thick it will take too long to cure or will not cure fully. Do not apply thicker than 1/2 inch. Usage: You should be able to get at least 3-4 linear feet of pavers or



wall glue per tube. If material is too stiff from the cold then bring to room temperature before trying to use. Application range is from 40 to 120 degrees. Cleanup with toluene or xylene.



TYPE 2 - BasicBOND

This is a great **Standard Grade Adhesive**.

Perfect for non-critical areas like retaining wall caps or ornamental veneering. This adhesive must be applied to clean, dry, moisture-free substrate. This adhesive is fast to set, about 4-6 hours in warm weather. Wait 24 hours or overnight before traffic is allowed. Wait longer if below 55 degrees. You can use this adhesive up to 1/2 inch. Usage: You should be able to get 3-4 linear feet of pavers or retaining wall per tube. If material is too stiff from cold then bring to room temperature before trying to use. Application range is 30 to 110 degrees. Cleanup with toluene or xylene.

TYPE 3 - SuperWET

Our Super Premium Adhesive. This adhesive can be applied to wet or saturated material so it is perfect for late season application. This is a great adhesive for step veneering and freeze-thaw areas. Great for areas subjected to heavy loads like step treads and pool coping. Type 3 adhesive foams during curing and will fill up to 1/4 inch. Allow 24 hours curing time before traffic is allowed. 75 percent strength in 24 hours, 95 percent strength in 48 hours. Substrate should be dust and dirt free. If extremely dry, spraying with water on surfaces before application will help adhesive cure properly. Application range is 35 degrees to 110 degrees. Cleanup with mineral spirits before dry.

