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VAST

Recycled Composite Landscape Paver Installation Guide

Overview

The Recycled Composite Landscape Pavers are designed to make installations quick, safe and trouble free. Overall, site preparations will be very similar to that of conventional concrete paver systems.

Equipment Needed

- Safety glasses, Gloves, Ear Plugs
- Shovel
- Wheelbarrow
- Straight edge/Screed Rake
- Skid-Steer Loader (Optional)
- Hand Trowel/Float
- (2) 3/4" sections of conduit (generally purchased in 8' lengths)
- Rubber mallet
- 10" power mitre saw
- 10" 24-tooth carbide tipped wood ripping blade (teflon or other coating recommended)
- Reommended Blade: Freud D1024X Diablo 10" 24-tooth ATB Ripping Saw Blade with 5/8" Arbor and Permashield Coating
- Vibrating plate compactor (4Hp walk-behind or similar)
- Broom

If design has a curved border or soldier course, you will need the following:

- 10" Table Saw
- Reommended Blade: Freud D1024X Diablo 10" 24-tooth ATB Ripping Saw Blade with 5/8" Arbor and Permashield Coating
- Adhesive
- Recommended Adhesives: PL Landscape Block Low VOC Adhesive, PL 375 Low VOC Heavy Duty Construction Adhesive

Project Design, Pattern and Color Choice

NOTE: Recycled Composite Landscape Pavers allow for any shape installation, including straight and curved edges.

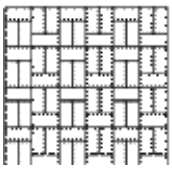
Determine Layout and Calculate Square-Footage

Decide where your pavers will be installed and draw out using graph paper. Use this design to accurately measure the square footage of the project.

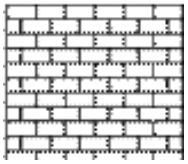
Choose Pattern

RCP pavers can be installed in a multitude of different patterns and combinations Designs can include small and large repeating patterns. Some example patterns are provided below:

Herringbone



Basketweave



Stretcher Bond

IMPORTANT: Regardless of the pattern, make sure that each installation grid is connected to each other with at least one paver from each adjacent grid. This will help lock the installation into location and limit separation of the grids over time. If there is a section where grid sections are not interlocked with each other, stake each grid in location using spikes.

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Project Design, Pattern and Color Choice - Continued

Pick Colors

Recycled Composite Landscape Pavers come in a variaty of colors that can be used by themselves or combined to create unique color blends.

Decide on Border / Soldier Course

VAST Composite Landscape Pavers allow for a several border and soldier course options, either straight or at any size radius or arch.

IMPORTANT: If a straight edge border is used, the pavers can be used as-is without any cutting. If a curved border is used, the pavers will need to be trimmed. See cutting instructions below.

Site Planning and Marking

Locate Utilities

Before beginning installation, ensure all underground utilities (e.g. electrical lines, phone lines, water lines) have been properly located and identified. Also make sure there are no overhead hazardous conditions (e.g. power lines) that might interfere.

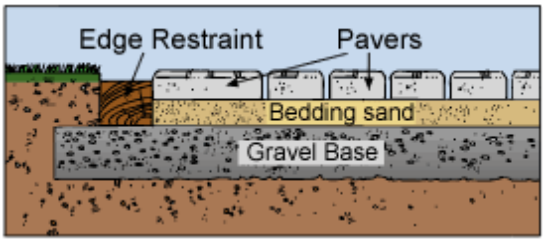
Mark Project Area

Once you have determined your installation's layout, mark or spray paint the overall outline, approximately twelve inches wider than the planned installation area. This wll provide the additional excavation area needed for installing edging. Layout edges that abut up to structures or other paved surfaces will not require installed edging and therefore not require the additional twelve inches of excavation.

Use either string lines or a laser level to set proper elevations and slope, so as water can run off the pavers. Suggested slope is a minimum of 1/4 inch to 1/2 inch per every four feet of the install.

Base Material Design

IMPORTANT: The preparation of the site and base material is critical to a long lasting, flat and premium looking installation. Also, a properly prepared site will reduce installation time. Please consult a landscape professional if required.



Subgrade

The subgrade is the existing soil or surface that the installation will be built upon. Subgrades that are primarily clay or silt are the weakest subgrades and require an additional two inches of base material (see below for recommendations).

Geotextile

Geotextile material can be used to help prevent poor subgrade conditions from mixing with the base material. Heavy foot or vehicle traffic conditions are also good opportunities to use geotextiles. The geotextile will be placed between the subgrade and base material.

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Base Material Design - Continued

Base (Non-Permeable Applications)

Base material should be a dense graded aggregate. Aggregate graded to 3/4 minus is a commonly used based material, often referred to as "Class 5." Also refer to local requirements and specifications or ASTM D 2940 for further information. Do not use stone dust or screedings.

The following is a general recommendation for compacted base depths. Using more base that is properly compacted can improve the longterm stability and appearance of the installation.

Patios, Walkways, Pool Decks, Other Foot Traffic	4 to 6 inches
Driveways, Other Light Traffic	6 to 8 inches
Parking Lots	(consult landscape professional)

Add a minimum two inches of base material in areas with wet, clay or silt type subgrades. In cold winter climates, base thicknesses may need to be increased by two to six inches, especially where soils retain excess water.

Base (Permeable Applications)

An open-graded base is most commonly used because it has water storage capacity of typically 30% to 40%. The stone sizes in open-graded bases can be as large as 3 inches and as small as 6 millimeters. Typically, a thinner layer of small stones (6mm to 1mm) is used for bedding directly under the pavers. The intensity and duration of storms that can be managed is dependant upon the depth (and storage capacity), the base, and the infiltration rate of the soil under an open-graded base and the presence of drainpipes within an open-graded base. To determine the correct permeable base for your project, consult a landscape professional or check out the additional resources below.

Edge Restraints

Recycled Composite Landscape Pavers require the use of an edge restraint around the perimeter. Edge restraints keep the installation from moving over time, allow proper final joint sanding and provide a clean finished edge. Edge restraints are generally installed prior to placing the bedding sand on a corner of the installation site. Plastic edge restraints designed for conventional paver installations are recommended. Cast in place concrete (e.g. curbs) or steel edging should be used in heavy traffic applications, such as (e.g. parking lots).

Edge restraints can be installed next to, or on top of, VAST installation grids. For example, sites that will eventually be bordered by sod may prefer to install edging over the top of the installation grids. This will provide additional lateral support for the paver and allowing the bordering sod a location to lock into the grid system.

Sand Bed

A level 1" bed of sand will create a flat surface for the paver installation. Sand bed material should conform to the following:

- Course and washed and conform to ASTM C33
- Do not use mason sand, stone dust or sand with excess fine particles (these sands increase the chances for rutting or movement over time)

IMPORTANT: Do not use sand to level depressions in the base layer. Add aggregate to level.

Calculate Excavation Depth

Excavation Depth = Compacted Base Thickness + 1" Sand Bed + Paver Height (Including Installation Grid)
Refer to the specifications below for product height.

Excavation

- Excavate site to correct depth as calculated above
- Only excavate down to the level required and try not to disturb the subgrade beneath the required depth.
- Level and compact the subgrade using a plate compactor
- Subgrade should be compacted to a 95% standard proctor density (ASTM D 698)

Install Base Material and Sand Bed

Install and Compact Base

- Add base material in 3 to 4 inches layers at a time
- Compact each layer completely with plate compactor
- It is best to install base material when it is slightly moist to aid in compaction
- Compact to 95% proctor density (ASTM D 698)
- Ensure to compact all edges and corners thoroughly as these are the areas most at risk to degradation

IMPORTANT: Ensure the proper slope of the base material to allow for sufficient water drainage.

IMPORTANT: Base material should be finished with no more than a 1/4" variation over a 4' straight edge. This will allow for quick application of the sand bend and minimize the likelihood of dip and humps in final installation.

Install and Level Sand Bed

- Add a maximum of 1" layer of sand bed material
- Level sand by pulling a straight edge over two pieces of conduit (1/2" or 3/4" diameter)
- Place the pieces of conduit parallel to one another and close enough to allow the straight edge (screed rake or screed board) to be placed on top
- Place sand bed material between the conduit and rough screed using a rake or shovel
- Pull the straight edge over the conduit leaving a leveled sand bed
- Add sand to areas that are uneven and re-level
- Use a hand trowel or float to level any small uneven areas

If an edge restraint is in location, especially if the installation is in-between current pavements (e.g. concrete or asphalt), the straight edge can be notched to the proper finished height. Remember to notch the straight edge to allow for a maximum of 1" of sand bedding material.

When retaining walls or curbs are used as edge restraints or in other high drainage situations, a geotextile may be used to stabilize the install. The geotextile should be turned up against the vertical surface to aid in containing the sand bed.

IMPORTANT: Often, the entire sand bed is not put down at one time, but instead installed as sections of the installation are completed. Start putting the sand bed down at the starting point (see below) of the installation.

Cutting Grids and Pavers

Cut a Single Paver

- Use a 10" power mitre saw with proper blade (see Equipment Needed)
- Cut pavers individually using a spare grid to hold it in place
- Do not force the cut, but allow the blade to do the work
- Force cutting causes melting of the product, excessive smoke and binding of the saw blade.

Trim Legs Off Paver for Soldier Course

- Use a 10" table saw with proper blade (see Equipment Needed)
- Make two cuts per paver to remove the legs on each side
- In extremely tight radii curves, an additional cut might be required along the length of the paver to keep sandlines correct

Cut a Single Grid

- Use a 10" power mitre saw or 10" table saw with proper blade (see Equipment Needed)
- Do not force the cut, but allow the blade to do the work
- Force cutting results in unwanted melting of the product, excessive smoke and binding of the saw blade.

IMPORTANT: ALWAYS WEAR SAFETY GLASSES, GLOVES, AND EAR PLUGS WHEN TRIMMING PAVERS OR GRIDS. Obey all safety and operational instructions that came with your mitre saw.

Laying Grids and Pavers

Pick a Starting Point

Picking the right starting point will make your installation quicker and easier.

- Start off of any existing structure (building or other paved surface) that the installation will touch
- Select a starting point that will avoid working yourself into a corner and make for less fitting (cutting) against any structure

Easy Arches

The patented grid system allows arches to be installed **without** cutting. Recycled Composite Landscape Pavers can expand 0.100 inches per 1 foot or 1.0 inches per 10 linear feet. This allows for arches of x.xx foot radius.

Starting the Installation

- Put down a section of sand bed as detailed above
- Remove 10 to 20 sq-ft of pavers from the installation grids and place them in a wheelbarrow
- Lay the grids at the starting point of the installation, ensuring they are aligned with one another

Laying out several square feet of grids without pavers will allow some space to work. It is okay to walk on grids once they are in location; however, make sure no sand is tracked onto the grids. This will cause the paver to not seat properly and might cause an uneven installation.

- After the grids are in location, bring pavers stacked on grids to the starting location
- Empty pavers from grids for installation and align empty grids with those already in place
- Start installing pavers on grids in desired patterns making sure than pavers adequately interlock grids together (see above)
- Review the desired pattern, and start installing pavers at any desired location

IMPORTANT: Continually check and adjust paver alignment. Make minor adjustments with a rubber mallet

Install Remaining Edge Restraints

- After all pavers and grids are placed into their final locations, install all remaining edge restraints
- Place edge restraint firmly next to installed pavers
- Fasten edge restraint to installation using proper length spikes (10" recommended)

Installing Curves and Corners

The addition of curves and corners is a straight forward process and can increase the aesthetics of any installation.

Mark and Cut the Curve

- Evaluate whether the curve or arch can be created without cutting (see Easy Arches above)
- Install pavers wider than the actual curve leaving 4" to 6" of grid extending beyond the curve (this will allow the edge restraint to be installed on top of the grid and spiked down)
- Align the flex edging to the desired start and end point and strike a chalk line
- Or, use a string or tape measure from the center point of the circle to create a chalk line
- Or, if there is not enough space to measure from the center of the curve's circle, create a template from a piece of plywood
- Mark pavers on the outside of the curve with an "X" to indicate which section of the paver is scrap
- Cut each paver as described in the cutting instructions

Install Soldier Course Pavers

If a soldier course is being used, install the soldier course pavers as detailed below:

- Trim the legs from soldier course pavers as described in the cutting instructions
- Install the soldier course pavers with recommended adhesive onto the grid in the desired curve
- Make sure the pavers are dry and clean prior to applying the adhesive
- Use a 1/4" to 3/8" bead of adhesive around the paver's entire perimeter

IMPORTANT: Do not walk on glued pavers for approximately 24 hours.

Tamping Pavers and Joint Sand

Tamp (Plate Compacting) Pavers

- Tamp installed pavers prior to adding joint sand with plate compactor to set pavers into sand bed and remove any minor imperfections in the top surface
- Do not allow the plate compactor to remain stationary for an extended period of time as it may scuff the top surface of the pavers

Fix Depressions or Elevated Areas

After tamping the installation, review the surface for any imperfections (depressions or high spots) by using a straight edge or by viewing across the top at paver level. If there are imperfections in the middle region of the installation, remove the pavers and grids in that area and either add to or remove from the sand bed to make level. If needed, a screwdriver can be used to remove pavers. Re-tamp pavers after imperfections have been removed.

Select Joint Sand

Sanding Recycled Composite Landscape Pavers locks them in location. The sand used to fill the joints should be clean, sharp and well graded.

- Non-Permeable Applications: Same sand as the sand bed (ASTM C33).
- Permeable Applications: 1/4" granite chip or similar aggregate

Install Joint Sand

- Spread the sand across the installation site and allow to dry completely
- Sweep sand into the paver joints
- Tamp sand into paver joints using a plate compactor
- Continue to spread and sweep sand while running the plate compactor over the installation
- When paver joints appear to be filled to the desired level, sweep the installation clean of any remaining sand or dust
- The pavers original color will return once the pavers are cleaned by a soaking rain
- Installation may require additional sanding after rain or settling of the joint sand occurs

IMPORTANT: Polymeric sand may be used, but all sand and dust must be swept from the paver surface prior to placing water on the installation. Leaving polymeric dust on pavers may cause hazing.

Sealing

DO NOT seal Recycled Composite Pavers. Conventional sealers may leave unwanted haze on the surface. Use of a sealer will void your warranty. Please contact Eco-$mart for more information.