Rubber Pavers

Carlisle Rubber Pavers are designed for use as an architectural paver for rooftop applications. Carlisle's Rubber Pavers lock together to create a paver assembly that is monolithic to resist wind uplift, while remaining lightweight. The locking feature, resiliency, color diversity, and lightweight design are the unique benefits that make Carlisle Rubber Pavers a popular alternative to conventional concrete pavers.

Carlisle's Rubber Pavers are designed to be installed using specific installation methods developed to ensure the long-term performance of the surface. Each step in the installation process is critical to ensure a successful installation. This manual has been designed utilizing installation best practices taken from various professional installation crews across North America. This manual shall be followed for all Carlisle Rubber Paver rooftop installations that are to be warranted.

Tools and Consumables

Like any job, the installation of Carlisle Rubber Pavers will go much more smoothly with the proper tools. The following list of tools and consumables are recommended for your upcoming project:

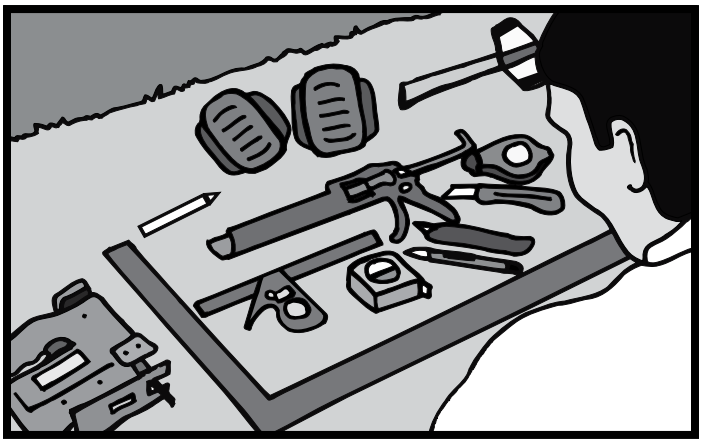
- Broom
- Leaf blower
- 30" (minimum) aluminum straightedge
- 24" square and speed square
- Tape measure
- Felt-tip marker/paint marker to mark pavers for cutting (Sharpie™ metallic silver or equal)
- Chalk line and refill bottle (black is permanent)
- String line
- Heavy-duty auto-lock cutter utility knife (Olfa® LA-X or equal) and replacement blades (LBB UltraMax® or equal)
- Jigsaw (minimum 5.5 amp or greater recommended)
- Jigsaw blades (10 teeth per inch minimum) – should not be any longer than 1¾" when in saw and fully extended
- Templates – for marking postholes for cutting
- Masking tape to protect adjacent items during adhesive application
- Disposable rags and/or paper towels (adhesive cleanup)
- Goof Off® – for cleaning any residual adhesive
- Rubber Paver Adhesive Application Gun (for 20 oz. sausage tubes) – Carlisle Part Number: 341921
- Custom Nozzle for adhesive application into paver-to-paver joints – Carlisle Part Number: 341912
- Rubber Paver Adhesive – Carlisle Part Number: 341913
- 8 lb. sledgehammer
- Pipe fittings (⅜") for glue gun

Personal Protective Equipment

- Disposable protective gloves (latex, nitrile, or other) – for adhesive application
- Gloves (general work gloves)
- Safety glasses
- Hard hat
- Knee pads

Optional Equipment

- Vacuum cleaner
- Hot box – for heating of adhesive
- Flex curve carpenter



Rubber Pavers

Site Survey

Drainage is Required

Pavers should be placed over roof surfaces that are sloped to drains. Insufficient drainage will result in standing water on the surface of the Rubber Pavers. Standing water can and will damage Carlisle's Rubber Pavers and will void the Material Warranty.

Although water will pass through corners and seams of the Rubber Pavers, in some instances additional surface water drainage may be required. This can be accomplished by drilling ⅜"-diameter holes through the hollow core molded pedestals (Fig. 1).

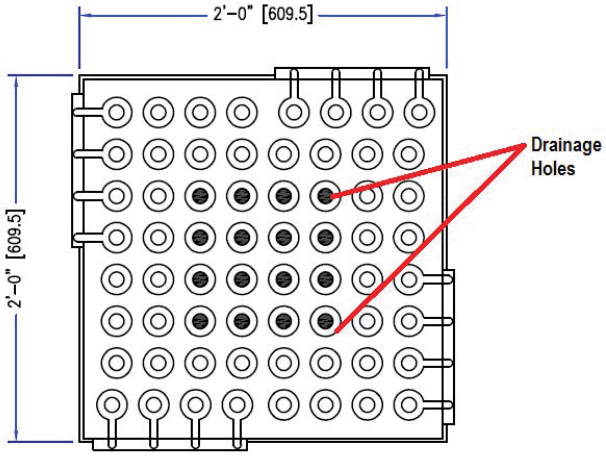


Figure 1

Note: Holes can cause the accumulation of dirt, so drilled pavers are not covered under the Material Warranty.

Pre-Installation Checklist and Considerations

- Ensure the roof system is properly installed and inspected by a Carlisle Field Service Representative.
- Flood testing or Electronic Leak Detection is strongly recommended prior to installation to ensure watertight integrity of the roof membrane.
- Install membrane protection fabric, if required:
  - 300HV Protection Fabric required for TPO, PVC, and KEE HP membranes.
  - No protection required for EPDM membranes.

Preparing the Layout

When preparing the initial site layout, there are important factors to take into consideration:

- Each Rubber Paver is manufactured to a nominal dimension of 24.25" (+/- ⅛") x 24.25"(+/- ⅛") from the factory.
- The Rubber Paver installation process requires that each paver be installed under compression to a finished dimension of 24".
- A site typically requires fixed solid edges for a proper compression installation. Fixed edges can include parapet walls, curbs, sidewalks, or plant boxes. It a fixed solid edge is unavailable, Carlisle's Rubber Paver Edge Restraints can be used. (Carlisle Part Numbers: 342832 – Straight Lengths, 342833 – Easy-Bend)
- It is unlikely that the site is perfectly square or exactly as shown in the drawings.
- Rubber Paver installation as described in this document requires that all perimeter pavers be cut in at the beginning of the installation.

To ensure a visually proportionate site, lay the surface out with similar dimension cuts on all four sides of the area. When possible, perimeter cut pavers should be a minimum of 10 inches in width. Check the prepared site paver layout drawing.

Installation Procedure

A – Locate the Center Lines of the Area

Measure and chalk line the vertical and horizontal center lines in the area. Center lines should be shifted based on the best visual effect on the perimeter cuts. When possible, perimeter cuts should be a minimum of 10" in width (Fig. 2).

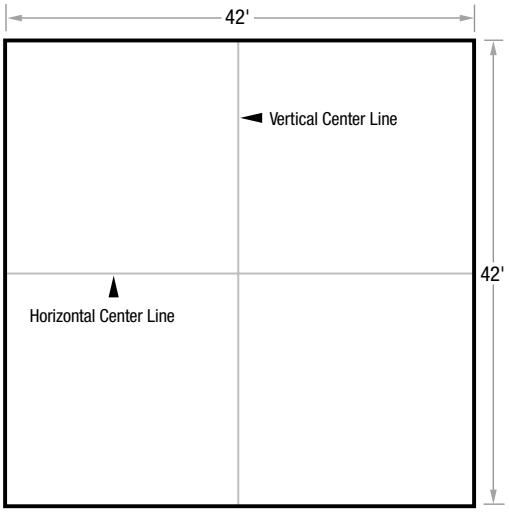


Figure 2

Rubber Pavers

B – Striking Lines

From the center point of the area, strike chalk lines in 24" increments across the area in both directions so that a grid pattern has been created across the entire area (Fig. 3).

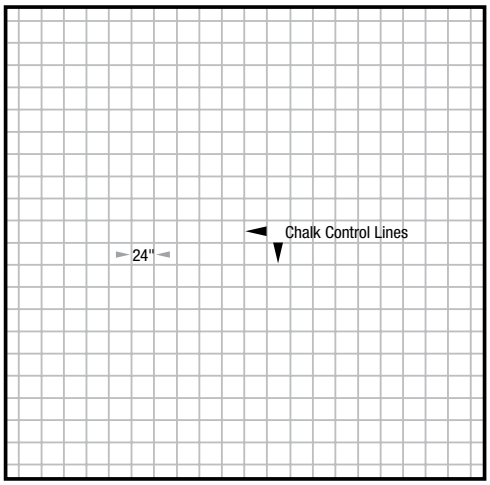


Figure 3

C – Cutting in the Perimeter

To properly compress all the field pavers, the perimeter of the area must be cut in and placed first.

At each seam location along the chalk line around the perimeter of the area, measure the distance from the line to the wall and add 1/16" to this measurement and write the dimension on the membrane using a marker or wax crayon. Continue this process at every seam around the perimeter of the area (every 24").

Transfer these measurements onto the paver. Cut pavers with a razor blade knife and metal straightedge on the line but with a back-cut or under-cut of approximately 5 degrees. Install the cut pavers all the way around the perimeter. Start at the corners and work around the area.

Perimeter pavers should be installed in 6 paver increments, leaving one paver space between each 6-paver row. This is done to make compression easier by balancing the compressive forces throughout the installation area (Fig. 4).

Compress the final perimeter pavers into the remaining voids (see 'G – Installing Field Pavers in the Opposite Direction' for further details).

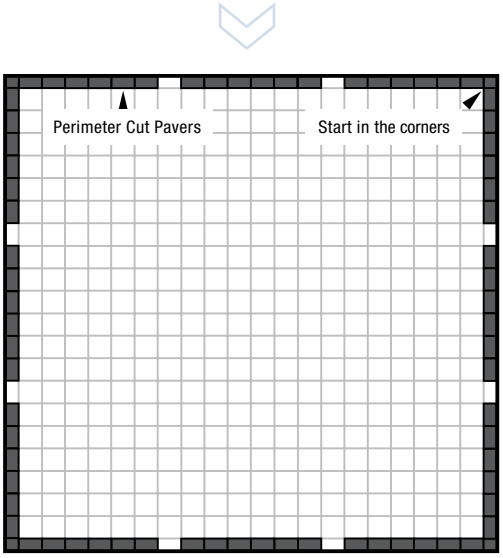


Figure 4

D – Rubber Paver Edge Securement Installation

If Carlisle Rubber Paver Edge Securement is to be used on one or more sides, it must be permanently secured to the membrane in order to provide a fixed point of compression for the field pavers. Prior to the installation of field pavers, locate the final position of the Edge Securement and adhere the edging in place by priming the membrane and bottom flange with the applicable Carlisle membrane primer and using the applicable Carlisle 3" PS SecurTAPE™ (see Rubber Paver Edge Securement product data sheet and paver details for more information).

E – Installing Field Pavers

Install the field pavers by running them in only one direction across the paver area. Install every other row of pavers beginning only at the perimeter cuts at each end of the paver area. Paver rows should be installed in approximately 6-paver increments, leaving a one paver space between each 6-paver row. The number of pavers between spaces may need to be adjusted based on the area dimensions (Fig. 5).

Rubber Pavers

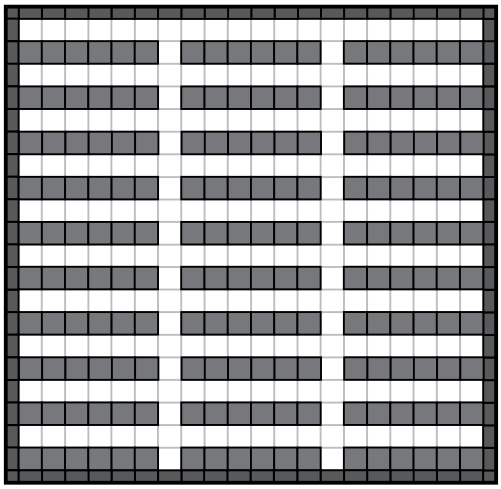


Figure 5

F – Installing Compression Pavers

Begin installing the pavers in the empty space located between the 6 paver increments. These pavers represent the compression pavers which will need to be compressed into a space smaller than the paver. The locking mechanism on each edge of the paver should be engaged with the adjacent paver, forcing the paver to buckle upwards. Once the locks are engaged, force the paver flat by applying downward pressure onto the paver. This is normally done using a kicking motion or a sledgehammer (Fig. 6).

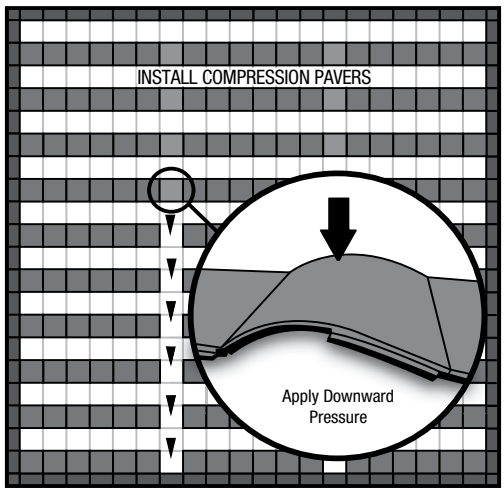


Figure 6

Note: The process of compressing a paver between rows will force the other pavers to compress and shift in opposite directions. To create equal compression across the roof area and to minimize shifting during installation, certain pavers must be temporarily weighted down prior to the compression process. Place 5 or 6 pavers on top of each 6-paver row close to the center point (Fig. 7). Once the compression pavers have been installed, the pavers used as weight pavers can be shifted to the next row of pavers.

Alternately, if the size of the installation crew permits, standing at the center point of the 6 paver rows during compression will achieve the same effect.

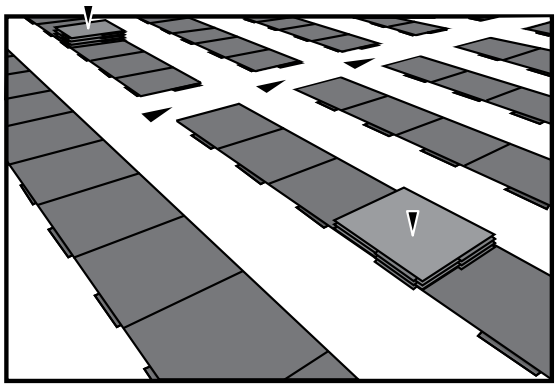


Figure 7

G – Installing Field Pavers in the Opposite Direction

Once every other row of pavers has been installed and compressed into place, begin installing every other row of pavers in the opposite direction (Fig. 8), using the same process as described in Section E.

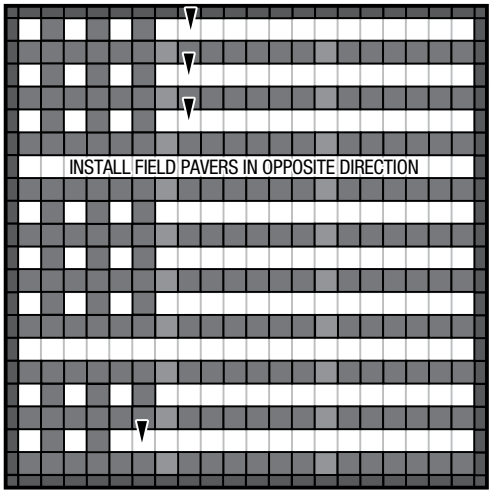


Figure 8

Rubber Pavers

H – Install Compression Pavers

Install the compression pavers in between the 6-paver increments in the same manner described in Section F. Minimize shifting by applying weight to pavers as described in Section F.

I – Placing Final Compression Pavers

At this point in the installation your paver layout should look like the drawing shown in Fig. 9. The remaining spaces in the paver area are smaller than the pavers that will be installed; therefore, each paver must be forced into place. The process of forcing each remaining paver into place will compress all the remaining pavers in opposite directions.

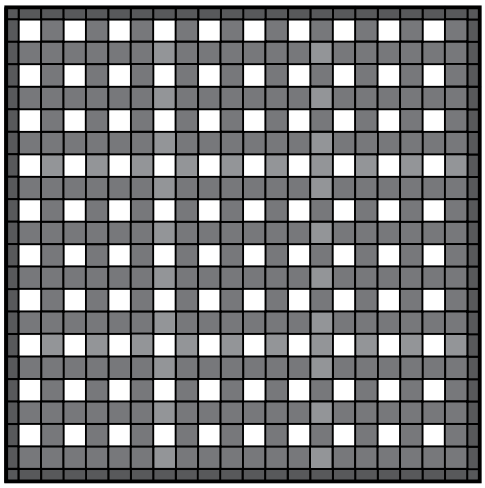


Figure 9

Step One

Begin by engaging the locks in each of the four corners with the adjacent pavers. This process will create significant pressure and will cause the compression paver to balloon (Fig. 10).

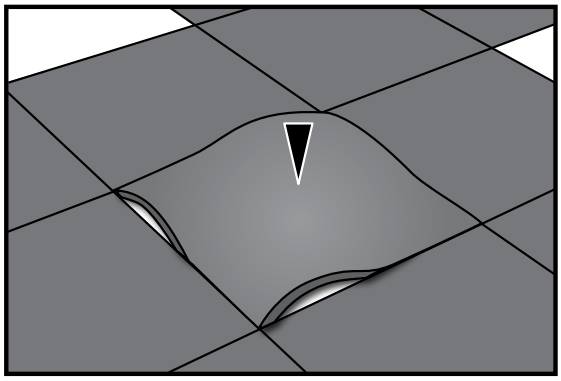


Figure 10

Starting on the outer perimeter rows, continue to engage the four corners of each compression paver without attempting to compress the pavers (Fig. 11).

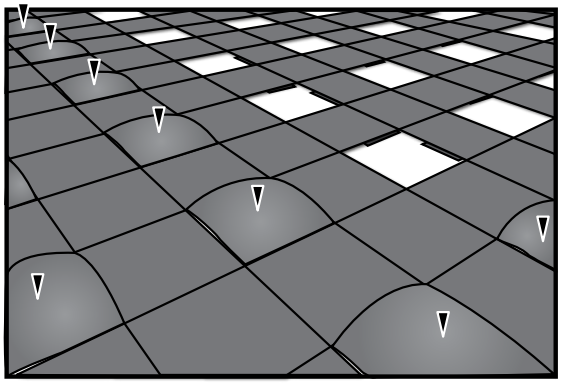


Figure 11

Step Two

Once all the pavers around the perimeter have been partially installed by engaging the corners, begin compressing the pavers into place. Compressing the pavers can be labor-intensive and is best accomplished by applying considerable downward force through a kicking action and the use of a sledgehammer.

Continue this process throughout the entire paver area using the two-step

Rubber Pavers

method above. Install final compression pavers in large groups at a time, beginning with the one or two rows around the perimeter and then working throughout the rest of the paver area (Fig. 12).

Compress pavers throughout the remainder of the area based on how the pavers are shifting during installation.

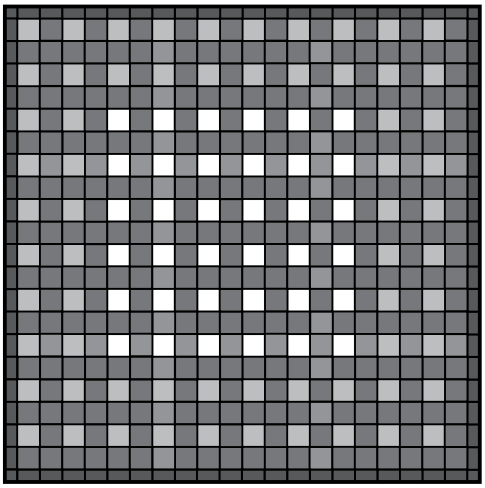


Figure 12

Cutting Pavers

Most straight cuts can be made with a utility knife. When using a utility knife, place the paver on a solid, level surface above the roof membrane and score the area to be cut with an initial pass of the knife. Once the score has been made, apply pressure to the paver to open the score. Placing the paver over a 2 x 4 or allowing the edge of the paver to hang over a tabletop will assist in opening the score. Opening the score of the paver reduces friction between the paver and the knife, making the cut much easier. Continue making passes with the knife, working your way through the paver.

A jigsaw can also be used to make straight and irregular cuts. When using a jigsaw, always score the paver with a utility knife or circular saw first. All cutting should be done in a 15-20-degree back angle. Always use a jigsaw blade that is ¼" shorter than the thickness of the paver. It is easiest to cut pavers when they are lying flat on a stable surface.

NOTE: Care must be taken to avoid damaging the roof membrane when cutting the pavers. The use of plywood or insulation board over the finished roof membrane at the cutting location is recommended.

Adhering Pavers

Carlisle Rubber Pavers feature a unique locking design that provides a mechanical means of securing the pavers together to create a monolithic system. However, the locking system was engineered to be effective only when installed with the proper quantity and placement of seam adhesive.

Key Points

- Proper application of seam adhesive in paver joints is critical to the overall performance of the Carlisle Rubber Paver system and is mandatory for all outdoor rooftop applications.
- Using too little seam adhesive or applying the seam adhesive in the incorrect location may result in failure of the locking system and will void the Material Warranty.
- Only use seam adhesive provided or recommended by Carlisle.
- Only use the application equipment provided by Carlisle.
- Sealing the entire length of the seam will prevent damage caused by the migration of sand and other loose particles into the seams of the product.
- Surface temperatures above 40˚F and rising are recommended.
- Avoid temperatures below 40˚F and above 105˚F.
- Paver seams must be clean and completely free of moisture, morning dew, or frost when applying adhesive.
- Seam adhesive should be heated to 75-80˚F prior to application.

Checklist Prior to Adhesive Application

Prior to beginning the seam adhesive application process, the following checklist should be verified. Any corrections that need to be made will be much easier prior to the application of seam adhesive.

- Check your layout and the drawings to ensure that your installation represents the intended design, check that all your rows are straight and that all the seams are properly aligned.
- Ensure that the surface has been compressed to the correct dimension.
- Make sure your perimeter and post cuts are tight and neat.
- Verify that the pavers are clean and dry.

Rubber Pavers

Paver-to-Paver Adhesion

Seam adhesive must be properly placed on the vertical wall of the interlocking joint and NOT in the bottom of the u-shaped locking system (Fig. 13a). Placing the correct amount of seam adhesive onto the proper location of the product will ensure the long-term success of the installation.

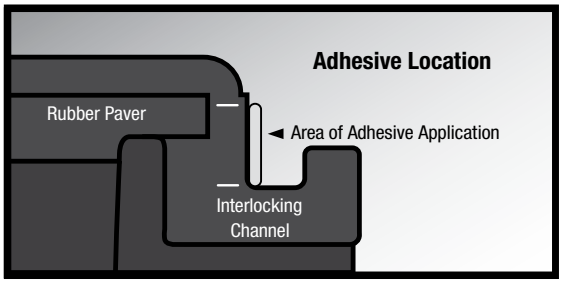


Figure 13a

Preparing the Adhesive Equipment

To minimize any potential mess during seam adhesive application, a small setup area should be created using a piece of cardboard or other disposable covering material. Prior to beginning the seam adhesive application process, make sure you have rubber gloves, rags, a knife, and appropriate cleaning solutions for cleanup purposes (see page 1).

- Open the adhesive application gun by unscrewing the tip and cap.
- Pull the notched dispensing arm out to accommodate the seam adhesive tube.
- When inserting the seam adhesive tube, leave 3"-4" exposed.
- Using scissors or a knife, cut the entire tip off the tube and discard the end.
- Hold the adhesive application gun upright to allow the tube to slide entirely into it.
- Assemble the tip and cap, ensuring they are tightly screwed into the adhesive application gun.

Application Tip

Carlisle's Rubber Paver Adhesive Application Tips have been custom-designed for use with the Rubber Paver system (Fig. 13b). The tip has been designed to control both the depth and placement of the seam adhesive. Although the tip has been designed to minimize seepage, careful attention must be paid to ensure that the correct amount of seam adhesive is being applied. Too little seam adhesive will affect the performance of the locking system. The correct amount of seam adhesive will rise to flush with the seam lines.

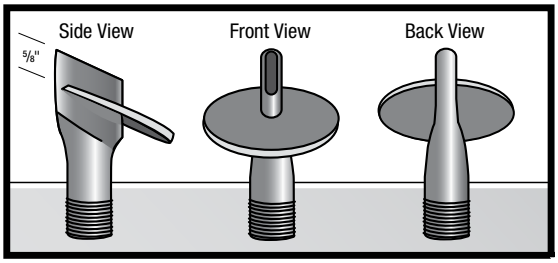


Figure 13b

Seam Adhesive Application Techniques

- Seam adhesive is to be heated to 75-80°F prior to use.
- Insert the custom application tip into the seam of the pavers until the depth guide (washer) comes into contact with the top of the pavers (Fig. 13c).
- Do NOT move tip until seam adhesive begins dispensing.
- Begin applying the seam adhesive between the pavers, ensuring that the appropriate amount of seam adhesive is being applied to each paver. If seam adhesive begins to seep from the seams, adjustments will need to be made to your pressure and speed.
- The ideal quantity of seam adhesive will provide sufficient contact to both sides of the paver and will rise flush with the top of the seam line.
- As a general guideline, select the 2.5 to 3.0 setting on the power dispenser and start with a travel speed of one paver length every 5 seconds.
- Seam adhesive coverage must always be verified by measuring against the recommended coverage of 14 lineal feet per 20 oz sausage tube.
- Since seam adhesive flow rates can be affected by temperature, adjustments to travel speed may be needed based on the actual seam adhesive coverage achieved.
- Any excess seam adhesive should be left to fully cure prior to removal the following day. The excess seam adhesive can be quickly and neatly removed using a sharp razor knife.

Rubber Pavers

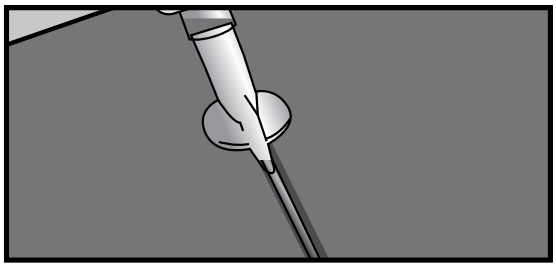


Figure 13c

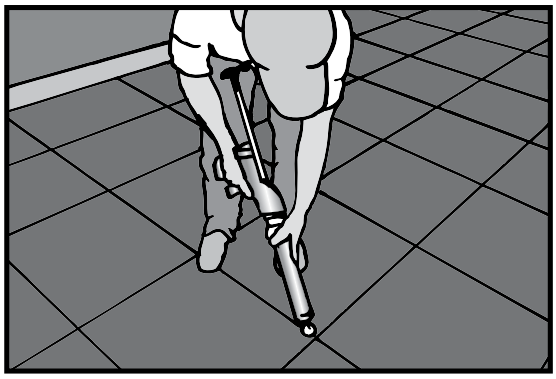


Figure 13d

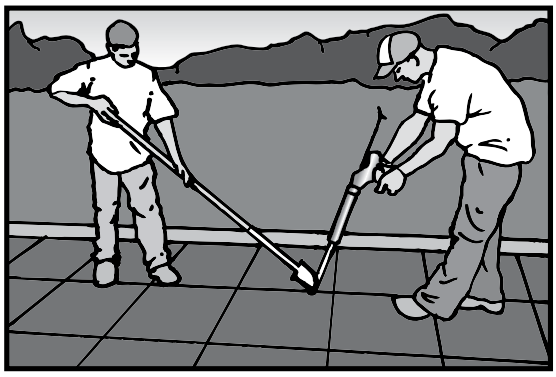


Figure 13e

Key Points

- When removing the tip from the seam, be sure to have a rag available. Twist and wipe tip while removing.
- Apply seam adhesive to an entire row at a time, keeping track of the rows you have completed (chalk mark, etc.).
- Always mark the last location where seam adhesive was placed prior to refilling seam adhesive gun.
- To prevent blockage from cured seam adhesive, the application should take place in both directions representing the length and width of the site within a short period of each other.
- Under no circumstances should a Carlisle Rubber Paver system be installed outdoors without the use of seam adhesive. Failure to do so will void the Material Warranty.
- All seam adhesive supplied with the order should be completely consumed.

Post Cuts

Seam adhesive must be applied to the initial straight cut leading into the circular cut (Fig. 14a).

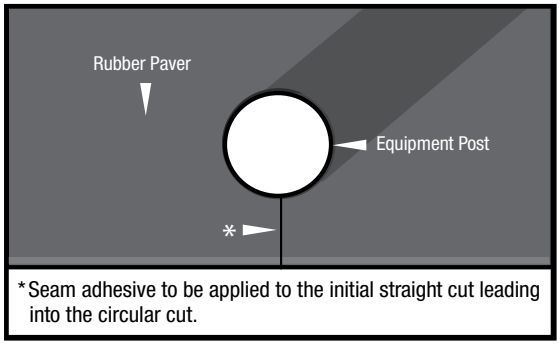


Figure 14a

Some areas of the site, such as under low elevation decks will be impossible to adhere using the applicator tip. In these instances, seam adhesive must be placed on the vertical wall of the locking joint prior to positioning the paver in place. For most decks you can use a modified extension on the glue gun as shown in Fig. 14b.

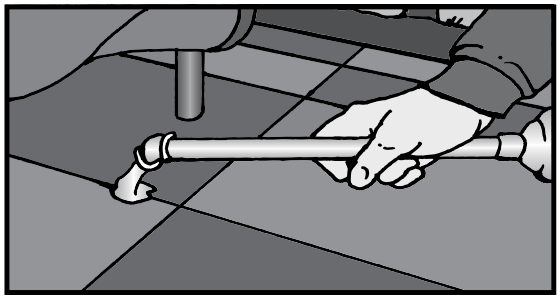


Figure 14b

Rubber Pavers

Final Installation Details

Remove Any Adhesive Spills

- "Smeared" Adhesive Spill: If a small amount of adhesive is spilled onto the surface during installation, this can be removed immediately by wiping the spot with a rag containing a small amount of WD40, Goof Off (red can), or other suitable solvent. Use proper handling procedures. Try to "lift" the adhesive from the surface if possible.
- "Bead-Shaped" Adhesive Spill: If any seam adhesive inadvertently drips out of the end of the caulking tube onto the Rubber Paver surface, and this seam adhesive lies on the paver in a convex shaped bead, with extreme caution it can be lifted immediately (do not smear) with a cloth or knife. If unable to lift, it should be removed only after it has partially cured. The area will need to be protected so the area is not walked on. After curing you will need to use a knife to "scrape" the bead off the paver.

Initial Appearance and Maintenance

Solid Rubber Paver colors will behave like new carpets when initially installed. The solid, brilliant colors will make the initial dust created by foot traffic very apparent. However, with time, the visible dust tracking will diminish.

Initial Odor

The polyurethane used to bind the rubber granules is 100% inert and odorless after it has fully cured. Full curing can take up to several days, depending on atmospheric temperature and moisture. The odor may take longer to dissipate. The rubber may also have a slight odor that will dissipate over time.

Sealant

It is Carlisle's recommendation not to apply sealants to the Rubber Paver surface. However, should you have any questions about sealing or coating the surface of the Rubber Pavers, please contact Carlisle.

Routine Maintenance

Routine Maintenance Extends Life and Enhances Appearance

Like any surface, a routine maintenance program will enhance the longevity and appearance of the Rubber Pavers.

Regular Cleaning

Sweeping or blowing the surface off with a leaf blower should be done regularly to ensure that abrasive materials such as sand are removed from the Rubber Paver surface.

Vacuum

Periodic vacuuming is recommended in areas where sand is frequently tracked onto the surface.

Cleaning Agents

Rubber Pavers can accommodate moderate use of most household or commercial cleaners that contain both odor suppressants and disinfectants. Dilute the cleaning agent as recommended by the manufacturer. Apply to the surface using a mop or scrubbing device. This will remove most light stains. Use only pH neutral-based cleaning agents that do not contain bleach or citrus.

Advanced Maintenance

Depending on frequency of use, Carlisle Rubber Pavers will occasionally need a "deep clean" to remove built-up dirt and stains.

Steam Vacuum

A steam vacuum with or without cleaning agents is ideal for advanced cleaning and maintenance. Follow instructions.

Power Washing

In areas that can accommodate power washing, use a power washer with a wand tip. Wand tip should be kept a minimum of 8" from the surface to prevent damage.

Summary

- Proper application and quantity of seam adhesive to the Rubber Paver joint is critical to the overall performance of the Carlisle Rubber Paver system.
- Only use adhesive provided or recommended by Carlisle.
- Protective gloves should be worn to prevent skin contact.
- Take caution to ensure that adhesive is not spilled on adjacent surfaces.
- All adhesive supplied with the order should be completely consumed at the end of the installation.

If you have any questions, please reach out to Carlisle's Technical Team at 1-800-479-6832

800-479-6832 | P.O. Box 7000 | Carlisle, PA 17013 | Fax: 717-245-7053 | **www.carlislesyntec.com**

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