



StoneDeks™ System INSTALLATION METHODS

Applications and basic information:

There are so many possibilities when you use the StoneDeks™ System! Any Stone, Paver or Porcelain pavers from ¾" up to 3" can be used for a deck surface. *(for additional technical/installation questions, please call 330-821-1585. Design tables are available upon request or at <https://stonedeks.com/design-tables/>.*

Uses for the StoneDeks System include:

- Raised or second story decks
- Gazebos
- Patios - especially those located on steep inclines where back fill and access are issues.
- Multi-level or terraced patios - especially on grades where installation is difficult and expensive.
- Balconies and porches – match surrounding hardscape right up the steps and onto the deck.
- Water features
- Bridges
- Docks, piers or water's edge walkways
- Boat houses
- Pool decks for above ground pools
- Pool decks where the surrounding grade is problematic
- Raised walkways where the soil conditions are poor or saturated
- Any area where you want to match the deck to the hard scape
- When the homeowner wants an option other than wood or composite lumber.
- Any time you want to eliminate settling issues and callbacks

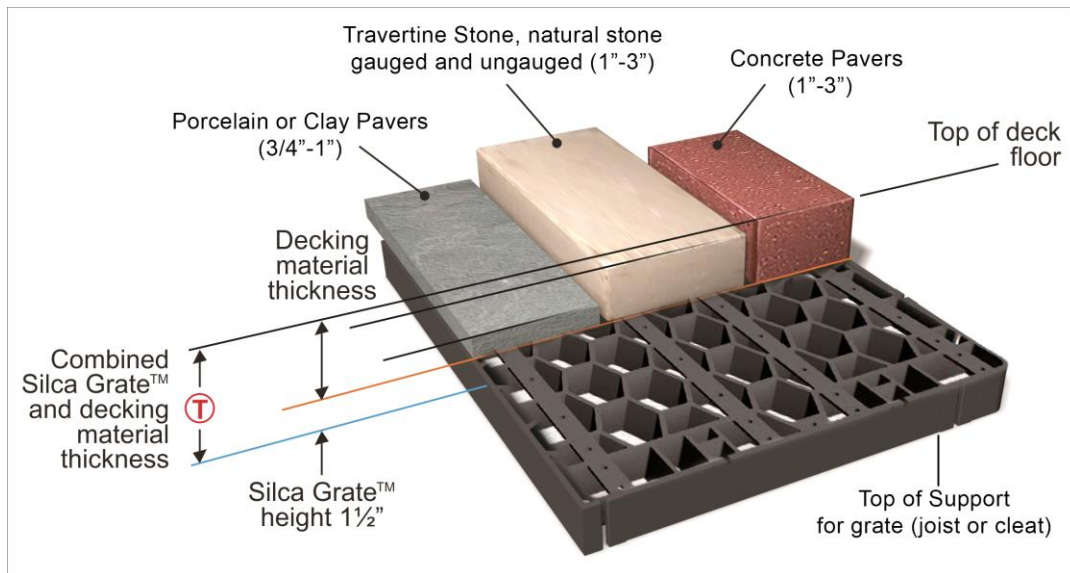
The StoneDeks™ System is designed to be installed on a 16" on center joist system. To provide additional support in areas with snow load issues or to reduce the natural flex to the system joists can be installed 8" on-center..

The StoneDeks™ System SilcaGrate™ is designed to have some flex. Your deck will flex through the change in the weather and the seasons. If the grate did not flex it could break. (e.g. when attempting to use concrete on a deck, even when installed correctly, the concrete will crack and break over a few years because it is not flexible. The same will happen with mortar and tile.)

Installation Process:

Level the deck – for residential and rooftop applications the deck should be pitched to shed water but the deck surface should be flat so that there is no variation in height from one joist to the next one.

1. Start with the finished height of the top of your finished deck floor, then work backwards subtracting the thickness of the paver, then the thickness of the Silca grate, down to the top edge of your joist. Be sure to allow for clearance to door thresholds and steps.



2. Check your dimensional lumber or metal joists to make sure they are level and install joists with the crowns up.

Use a straight edge, a long level, or a level line to check for flatness of the surface. This will help to avoid paver movement.

3. Correcting the level (Flatness) if needed
 - a. Apply shims on top of the joists or pedestals under the SilcaGrate™
 - b. Plane down crowns on lumber (joists should be installed crowns up).
 - c. If installing on pedestals adjust the pedestals
 - d.

Install the SilcaGrate™

1. The SilcaGrate™ can be installed with the reinforcement straps on the top to provide more surface area if adhesive is being used.



2. Every other row should start with a Silca Starter Grate or a half of a grate cut in half lengthwise.
3. Fasten using #9, 3" deck screw.

When using metal joists fasten using appropriate metal screw with a #9 or #10 head for the joist system (screw head must recess into the countersink).

4. Trim SilcaGrate™ where necessary (use medium tooth saw blade/circular saw/reciprocating saw/ table saw/jig saw). Grates can be pre-cut or run over the edge of the rim joist and then cut off in place using a saw.
 - a. Any cut edges should be supported with blocking
 - b. When screw holes have been cut off screws can be toenailed or applied through the reinforcement strap or the sidewall. Screws should be completely recessed so that they don't prevent the pavers from laying flat.

Apply Pavers

There are four recommended methods of paver installation, depending on the type of paver and the preferred finish:

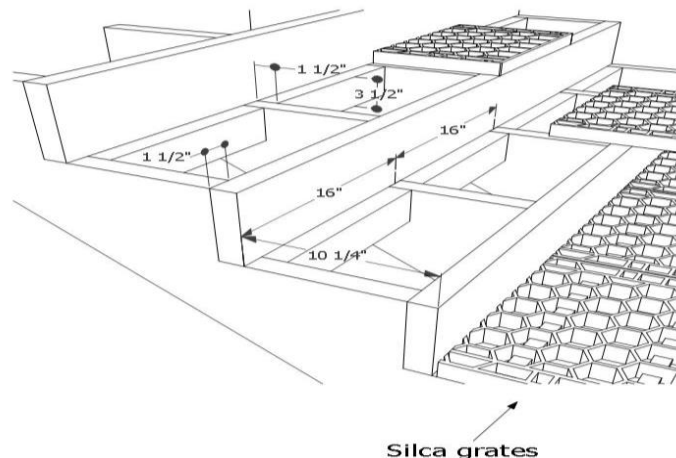
1. Use of SilcaMat™
2. Use of SilcaSpacers™ (when installing with open joints for drainage).
3. Use of Polymeric Sand and Geotextile
4. Open joints

*** Rim joist or fascia board can be covered with matching stone or paver using SB 190 adhesive or equivalent adhesive. A ledger board may be needed to hold the stone in place until the glue sets up. The stone on the main body of the deck can be extended to the fascia. This method can also be used for installing stairs.

*** If finishing the side with a wall, the stone can be applied to exterior plywood with the adhesive and then attached to the side of the deck. Remember to allow ventilation to the underside of your deck.

***Installation on Stairs**

When installing the SilcaGrates™ on steps be sure to ensure correct tread and riser spacing. Stringers should be positioned 16" on center and the grates cut to the length of the tread. *The grate should be supported on all 4 sides for stair application.* Risers can be finished in stone by attaching the stone to the wood with adhesive. The tread can then be bull-nosed over the top of the riser and secured with adhesive, and then the next riser placed on top of the tread.



Stair edges can be finished in a number of options in the same manner as the edge finishes pictured below.

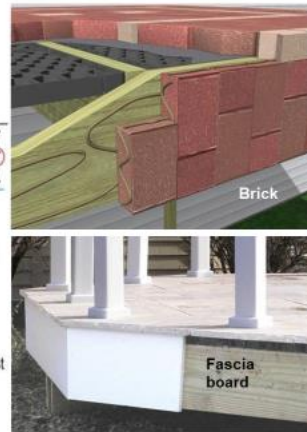
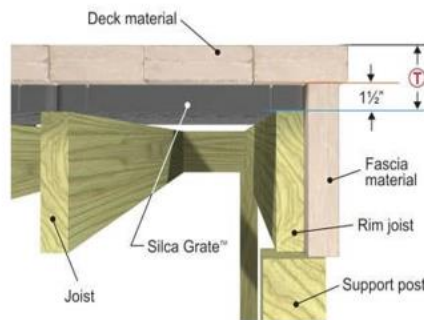
Fascia Border finishing options

- A.) apply pavers or veneer with adhesive and bullnose pavers on surface over edge.
- B.) Create a wall using marine plywood and pavers or veneer and secure with adhesive. Bullnose the paver over the edge.

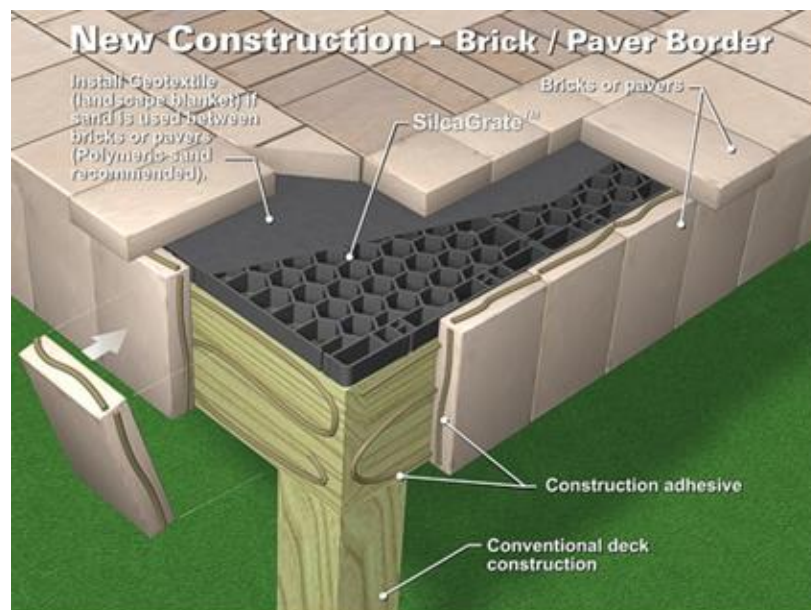
- C.) Use a fascia board attached to the rim joist and level with the top of the pavers to retain the pavers.

Rim Joist Fascia

- Natural stone or brick pavers.
- Composite fascia material
- Pressure treated wood, cedar, redwood.
- Wrap with aluminum or vinyl



New Construction



Pavers adhered to ledger board with adhesive and pavers bullnosed over top. The top edge of the fascia is covered so water doesn't collect in the joint of the edging. The stone on the horizontal surface can be applied directly to the rim joint by gluing them and using a ledger board for support until the glue sets up or in some cases the ledger board is included as part of the finished design.

1. The SilcaGrates™ are installed with support strap up and adhesive can be applied as mentioned previously. This is recommended for porcelain paver installation and for some natural stone installations, especially if the joints are being left open. Install with straps up as pictured below.



Installation by Paver or Stone Type

A. Concrete Pavers or Gauged Clean-Cut Stone – Use SB-190 adhesive or equivalent.

The SilcaGrate™ can be used to install Concrete Pavers or gauged stone with either joint filler or open joints.

With Filled Joints:

1. Install SilcaGrates™ using deck screws. Check the surface to make sure it's flat and shim grates or adjust joists to get the surface flat.
2. Install geotextile fabric over SilcaGrates™
3. Lay pavers and install polymeric sand.

With Open Joints:

1. Install SilcaGrates™ using deck screws. Check the surface to make sure it's flat and shim grates or adjust joists to get the surface flat.
2. Place 4 small dime to nickel size spots of SB 190 adhesive on the SilcaGrate™ or on each corner on the bottom of the stone before placing the stone down. Butt pavers up to each other when installing.

3. Adhesive can be used to secure the perimeter stone and outside row of pavers and the house will keep the pavers in place

***Finishing Perimeter fascia with Stone**

Facia stone can be glued in place with any masonry adhesive. However, if you are intending to glue stone to the sides of the **SilcaGrate®** we recommend using Everseal SB-190, or an equivalent adhesive, as it is not caustic to plastic and it remains flexible through a freeze-thaw cycle. A temporary ledger board may be needed to hold the stones in place until the glue sets.

B. Ungauged Natural Stone (Flagstone, Slate, etc.) – Use of Bedding Sand

This is the most labor-intensive method of installation.

1. Top edge of fascia must be level with the top of the stone.
2. 2 layers of 4oz non-woven geotextile fabric is applied prior to the installation of the stone, laid in alternating direction.
3. Put down a minimum of ½" of bedding sand on top of the fabric
4. Set pavers - each stone must be tamped into place with a dead blow hammer to level the surface.
5. Upon completion, apply a layer of polymeric sand to the joints. The edges of the joints can be taped to prevent the sand from running out until it sets.

(The Stone or paver is installed within the border and held in place by fascia (**SilcaMat™** can be used to reduce sound and movement, adhesive can be used on bottom of stone where movement exists).

C. PORCELAIN PAVER INSTALLATION ON DECK JOISTS

- 3 installation options

1. Filled Joints: **SilcaMat™ and polymeric sand or joint filler with porcelain pavers.**

- a. **SilcaMat™** is applied to the top of the **SilcaGrate™** prior to the installation of the paver. The advantage to the use of the **SilcaMat™** is the reduction of movement and reduction of sound as porcelain pavers have a hollow ringing sound when used over an open area.
- b. When installing the pavers on **SilcaMat™** we recommend the use of removable tile spacers to ensure proper spacing. *Butting together porcelain*

pavers is not recommended as chipping will occur. It can be helpful to glue the SilcaMat to the grates. Pavers should be glued to the mat using SB-190 adhesive or equivalent (only a dime to nickel sized amount of adhesive is needed on each corner.)

- c. Apply polymeric sand to joint lines and wet down as recommended. Sand may take a few days to fully set up. The outside edges of the joints on the end of the deck can be taped to prevent the sand from running out until it sets.

Note: With most polymeric sand the amount of drainage will be reduced to 5%-45% or less. There are joint filler products on the market that are permeable, or you can use combinations of finer aggregate and joint stabilizer that will allow for better drainage.

2. Open Joints: use of spacers and adhesive with porcelain pavers for open joints

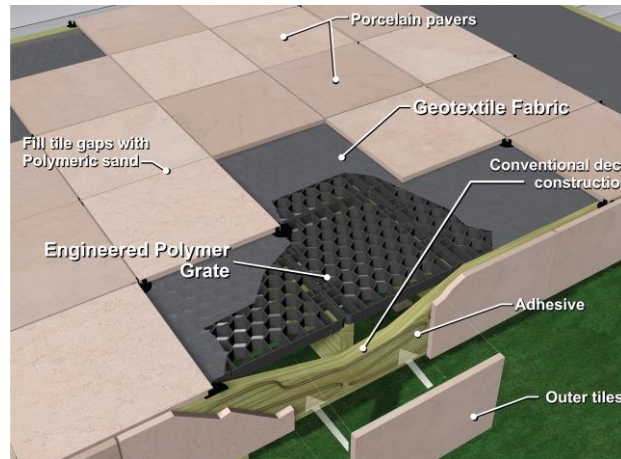
- a. Install the SilcaGrates™ using #9x3" deck screws.
- b. Install Rise-It 1/8" thick flexible pedestals onto the SilcaGrates™ using SB-190 adhesive or equivalent.
- c. Use adhesive to secure the spacer to SilcaGrates™ and then to secure the paver to the spacer

This application will help to prevent movement of the spacers or the pavers.

3. Filled Joints: use of Geotextile and spacers with porcelain pavers

- a. Install SilcaGrates™ on joists using #9x3" deck screws.
- b. 4oz unwoven Geotextile is applied on top of the SilcaGrates™ prior to the installation of the stone or paver.
- c. Flexible spacers should be applied to the corners of the tile to prevent clinking together and glued to the fabric and also glued to the paver using SB-190 adhesive or equivalent.
- a. Once spacers and tiles are applied, a polymeric sand or other joint filler can be applied to the joints and wetted down. The outside edges of the joints on the end of the deck can be taped to prevent the sand from running out until it sets.

Note: With most polymeric sand the amount of drainage will be reduced to 5%-45% or less. If that is a problem there are joint filler products on the market that are permeable, or you can use combinations of a fine aggregate (#9 or granite chips) and joint stabilizer that will allow for better drainage.



D. Artificial Turf Installation:

Deck installation: To install Artificial turf on a deck first attach the SilcaGrates to the joists with 4 deck screws. Unless the artificial turf manufacturer specifies that their product is guaranteed against punch through, 8mm SilcaMat should be installed to protect against a straight legged chair or table punching through the cells in the SilcaGrates if a heavy load is applied.

Attach SilcaGrates™ to joists with #9 x 3" deck screws. Roll out 8mm SilcaMat as underlayment for artificial turf. SilcaMat can be secured to SilcaGrates with adhesive or screws, and turf should be secured per the manufacturer's instructions.

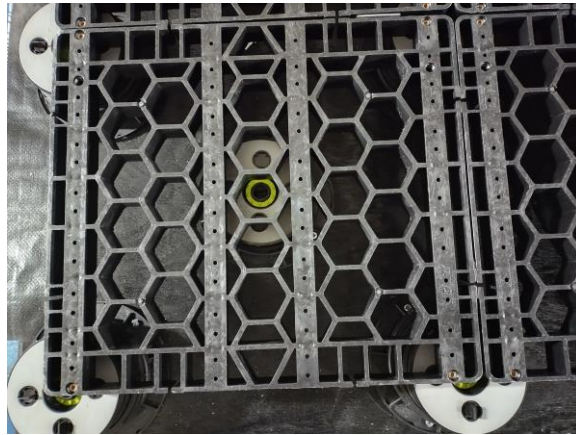
E. Rooftop Installation – 3 methods:

Install pavers with Surebond 190 adhesive or equivalent for a more secure installation. We recommend a 1/8th perimeter gap for drainage

1. Joist installation on pedestals. Use a joist adapter for the pedestal and screw the SilcaGrate to the wood or metal framing with screws. Install the 8mm SilcaMat (if being used). Install pavers as described in the installation instructions for the stone or paver that you are using.



2. Attach the SilcaGrate™ directly to the pedestal using screws. For direct installation on pedestals StoneDeks System requires a pedestal in the center of the grate as well as the 4 corners for our warranty to apply. Install the 8mm SilcaMat and then install pavers as described in the installation instructions for the stone or paver that you are using.. Adhesive is recommended to attach the SilcaMat to the SilcaGrate™, and to attach the pavers to the SilcaMat.



Use a pedestal in the center when installing direct onto pedestals

3. If there is low clearance, cleats or sleepers of metal, stone, or composite lumber can be laid on the roof and the SilcaGrates™ attached to them with screws. Shims, spacers, or small pedestals could be used to level the surface. The framing should not block the flow of water to drains.



F. Ground Application

1. Silca® Soil Grid - Hardscape Installation for Walkways and Pathways (half the base and aggregate is needed and the product creates greater load dispersal resulting in fewer call backs for settling of pavers.)

- a. For a typical pathway installation, the area must be excavated but only by half as much as normal for the soil conditions, then the leveling media set in place and compacted. Excavation and base should be done according to ICPI recommendations.
- b. A geotextile blanket should be installed, followed by the Soil Grid
- c. Once the grates are in place fill the cells with the desired aggregate, normally a #89, pea-sized gravel..
- d. pavers, bricks, or natural stone are then installed and secured with Surebond 190 or equivalent adhesive.
- e. The final step is sweeping polymeric sand into the joint lines and setting per the manufacturer's instructions.

Installation using the Silca SoilGrid will save you 50% of base and provide you a more stable base with a wider weight dispersal.



Silca Soil Grid 13"x 13" x 1"

When to use the StoneDeks System

Simply put, the StoneDeks™ System allows you to put any type of stone, paver or brick from 3/4" to 3" thick on a wood or metal frame structure such as a deck, roof top, porch, balcony, raised walkway, gazebo, dock, pier or landscape feature. Use of the StoneDeks System can save you money and time as well as offer you more options for deck coverings.

When to suggest or think about using the StoneDeks™ system

For Deck Builders

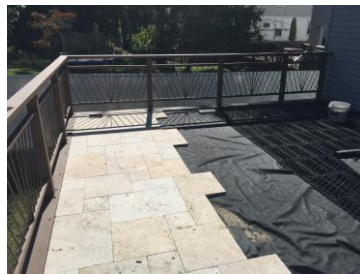
You can present a **good, better, best option** to your customer. In addition, with the use of any stone from ¾" up to 3" there are thousands of design options, including matching existing hardscape or interior stone tiles.

1. The StoneDeks™ System works on any wooden or metal framed floor system.
2. The StoneDeks™ System allows your customer a product option that requires far less maintenance and is longer lasting.
3. The StoneDeks™ System can be used to provide a non-flammable, stain resistant surface for kitchen areas or fire effects.

For Hardscapers

The StoneDeks™ System creates the opportunity to add additional design elements and match existing hardscape when working on a project that has an existing deck

1. It can be used in backyards where homeowners want a patio, but the slope is too extreme.
2. The StoneDeks™ System can be used when you need to build a tiered patio or deck. With the system you can create tiered decks, without all the back fill and retaining walls, and with no settling issues so that you eliminate expensive callbacks for repairs
3. Where retaining walls and huge amounts of backfill are needed, the same job can be done with a wood or metal frame that is then clad in stone. Since the posts are set below the frostline there is no need to return for settling issues.
4. Water features such as bridges can be framed in wood and clad in stone.
5. Retaining walls can be built with a wood framed structure inside to support the deck frame and keep the massive stone look without all the backfill and the pressure on the retaining wall.
6. The look of a stone wall can be achieved with marine grade fascia lumber with faux stone applied to the surface, reducing the overall project cost.
7. The StoneDeks™ System can save time and money when access to the construction area is limited.
8. Use the StoneDeks™ System when soil conditions are poor or the soil is water saturated, such as near rivers or lakes.



Welcome to the StoneDek Revolution!
Your Deck, Your Way!