The Silca® System is designed to be installed on a 16” on center joist system. 8” on-center has been used to provide additional support in areas with snow load issues. Using 8” on-center will also reduce the natural flex to the system. The Silca® System is designed to have some flex. Your deck will flex through the change in the weather and the seasons. If our grate did not flex it would 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 as it is not flexible. The same will happen with mortar with tile.)

Level the deck – for residential and rooftop applications (deck may still be pitched)

1. Start with the finished height of the top of your finished deck floor, then work backwards: thickness of the paver, then the thickness of the Silca grate, top edge of your joist. Consider door thresholds and steps, as well.

2. Check your dimensional lumber or metal joist for level (some contractors use 2x12 for all installations even if it is not called for in the design tables). Install joist crown up.
   a. Use straight edge
   b. Use long level
   c. Use level line

3. Correct level if needed
   a. Adjust pedestals
   b. Apply shims
   c. Plane down crowns on lumber (joists should be installed crowns up).

Install SilcaGrate™

1. Be sure the Silca grate is installed with the back-reinforcement straps on the bottom

2. Every other row should start with half a grate cut in half length-wise

3. Fasten using #9, 3” deck screw

4. Fasten using appropriate metal screw for metal joist (screw head must recess into the countersink).

5. 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 cut off in place using a saw.
   a. Any edges cut should be supported with blocking
b. When screw holes have been cut off screws can be toenailed or applied through the bottom rib

**Installation on Stairs**

1. When installing the plastic grates on steps make sure to do your math 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. Stair edges can be finished in a number of options in the same manner as the edge finishes pictured above.

2. In cases where there is a need for additional gluing surface the grate can be turned over and fastened face down and glue can be applied to the back rib. This can be used for steps as well as the body of the main deck.

**Apply Pavers**

We have three recommended methods of installation:

1. Use of SilcaMat™
2. Use of SilcaSpacers™
3. Use of Polymeric Sand and Geotextile

   a. Geotextile 3mil thick unwoven is applied prior to the installation of the stone or paver.
   b. Pavers or stones set with appropriate joint lines
   c. Polymeric sand is swept into joints and wetted down. The edges of the joints can be taped to prevent the sand from running out until it sets.

**A. Gauged Natural Stone Pavers – Use of SB 190 (Adhesive)**

This is the least labor-intensive method of installing on the SilcaGrate™. This method works only with gauged and clean-cut natural stone that can be butted together.

1. Place 4 small dime-size spots of SB 190 on SilcaGrate™ before placing the stone down.

2. Glue can be used on the perimeter and the remainder of the stones will stay in place by way of weight and friction

3. All stones or pavers can be glued down if desired (removal afterward can be problematic).

**Finishing Perimeter 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 facia must should be level with the top of the stone.

2. Layers of Geotextile 3mil thick – woven or unwoven – is applied prior to the installation of the stone.

3. A minimum of 1/2” of bedding sand must be applied.

4. Each stone must be tamped into place.

5. Upon completion, a layer of polymeric sand may be applied to the joints. The edges of the joints can be taped to prevent the sand from running out until it sets.

C. Dry fit application with wood or composite facia board or aluminum

1. Top edge of facia must should be level with the top of the stone.

2. Top edge of the facia should be level to the height of the stone.

3. Stone or paver installed within the border and held in place by facia (SilcaMat™ can be used).

D. Porcelain Pavers

1. Use of SilcaMat™ 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 such as with pedestals.

   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. Pavers may be glued to the mat if desired; only a small amount of adhesive is needed.

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

2. Use of Geotextile and spacers with Porcelain pavers
   a. Geotextile 3mil thick woven or unwoven is applied prior to the installation of the Stone or Paver.

   b. Spacers should be applied to the corners of the tile to prevent clinking and glued to the fabric and glued to the paver.

   c. Once spacers and tiles and tiles are applied a file polymeric sand should be applied to the joints and wetted down the edges of the joints can be taped to prevent the sand from running out until it sets.
E. Commercial Rooftop Application (currently in development)


2. Install pavers with spacers and lock in place using Silca® Anti-uplift system.

3. Support with dimensional lumber framing platform and apply rooftop SilcaGrate™.
   a. Install pavers with spacers and lock in place using Silca® Anti-Uplift System.

4. Support with dimensional lumber using pedestals with dimensional lumber attachments and apply rooftop SilcaGrate™.
   a. Install pavers with spacers and lock in place using Silca® Anti-Uplift System.

5. Support with Silca® rooftop grid system and apply rooftop SilcaGrate™.
   a. Install pavers with spacers and lock in place using Silca® Anti-Uplift System.

*** Rim joist or facia board can be covered with matching stone or paver using a masonry glue or SB 190. 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 cap the stone on the facia. This method can also be used with stair systems as well as being applied to exterior plywood then attached to the side of the deck. Remember to allow some gaps to allow air to the underside of your deck

Simply put, the Silca® System allows you to put any type of stone, paver or brick from ¾” to 3” thick on a wooden or metal frame structure such as a deck, roof top, porch, balcony, raised walkway, gazebo, dock, pier or landscape feature. This can save you money and time as well as offer you more options for deck coverings.

When to use the Silca system

When to suggest or think about using the Silca® system

For Deck Builders

This is a good, better, best approach with your home owner. 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. Works with decks, 2nd story decks, raised walkways, porches, balconies, docks and piers, any wooden or metal framed floor system.
2. When the home owner wants to use a product that requires far less maintenance and is longer lasting.
3. When you have a tiered patio or deck you are able to do this without all the back fill and retaining walls, and no settling issues, which would normally be very cost prohibitive.

For a Hardscaper

When working on an existing project that has an existing deck the opportunity to make add additional design elements on a current project and match existing hardscape.
1. In backyards where homeowners want a patio, but the slope is too extreme. 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 with no need to return for settling issues.
2. Water features such as bridges and waterfalls framed in wood and clad in stone.
3. Retaining walls can be built with a wooden framed structure inside to support the deck frame and keep the massive stone look without all the backfill.
4. The look can also be achieved with traditional concrete blocks with faux stone applied to the surface to reduce the overall project cost.
5. When access to the construction area is limited.
6. When you have a tiered patio or deck you are able to do this without all the back fill and retaining walls, and no settling issues which would normally be very cost prohibitive.