



pietra
solid surface worktops

Fabrication Manual

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DERAiam

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1. INTRODUCTION

Pietra™ solid surface worktops are the ideal material that combines practicality, durability, and elegance. It enables you to create one-of-a-kind designs. Pietra™ solid surface worktops can be custom fabricated and installed for limitless self-expression and design possibilities.

Pietra™ solid surface worktops are composed of high-performance resins and natural minerals to enhance its appearance and performance. The consistent colours and patterns, which run all the way throughout the material, cannot wear away, giving timeless beauty that can be restored to its original condition.

Pietra™ solid surface worktops are hygienic by warding off mildew, bacteria, and other harmful germs. Additionally, due to inconspicuous seams, integrated sinks and bowls, and coved back splashes, Pietra™ solid surface worktops are the material of choice for residential and commercial applications.

The contents of this manual contain basic instructions of how to properly fabricate, install and maintain Pietra™ solid surface worktops. The information contained in this manual is deemed reliable; however Deralam Laminate Distributors and its affiliates assume no legal liability of any kind. All information, including but not limited to recommendations, pictures, techniques, and or instructions are for reference purpose only and the user should take all necessary measures and precautions in order to confirm and test the adequacy for specific needs and applications.

2. SAFETY

To ensure your safety and the safety of others, please use all safety precautions when working with and around Pietra™ solid surface worktops. Pietra™ solid surface worktops and Shapes are safe and non-hazardous as shipped. However, necessary precautionary measures should be taken when working with the product, including using lifting and safety equipment.

The chemical composition of Pietra does not present any potential health hazards to the user. Any fine particles that may become airborne during sawing, drilling, etc., are non-toxic and are categorised as "nuisance dust". Standard requirements for dust collection and adequate ventilation should apply. Dust masks and safety glasses should be worn, as is normal in such workshop areas.

When joining Pietra, the quantity of glue used in the Joint Adhesive Compound mixture is again minimal and any fumes that may be given off are negligible. Special care must be taken when using Jointing Adhesives and instructions for correct use and cautions should always be followed.

If you or anyone else experience any allergic reaction or have difficulty breathing while working with Pietra™ solid surface worktops, move immediately to a safe place with fresh air. If the condition gets severe, contact your physician immediately. For eye irritation due to the dust particles, flush with water for at least 15 minutes. If the irritation doesn't subside, contact your physician immediately.

Please refer to the **Material Safety Data Sheet (MSDS)** for more information

3. Handling and Storage

Special care should be taken in storing Pietra Sheets to prevent warping and sagging. Your storage system should allow for easy accessibility, handling, and batch number identification.

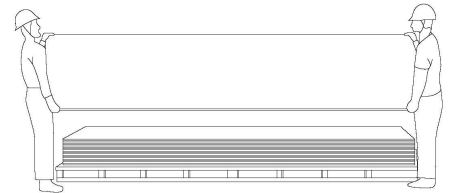
Pietra sheet orders are supplied and packed on a specially made timber pallet and each sheet face is covered with a protective film.

Pietra sheets should be stored at temperatures between 15° & 30°C and should be kept in a dry and well-ventilated indoor area and covered with UV protective material. Exposure to direct sunlight during storage may damage Pietra. UV from direct sunlight could affect to the colour of Pietra, also excessive heat from sunlight or other heat sources may cause distortion. Sheets can also become brittle if the temperature of the surrounding area or sheets are too cold

There are two ways of storing Pietra sheets to avoid warping or sagging:

1. Stored flat and evenly supported,
2. Stored on the edge on a vertical storage rack, with the base of the sheet fully supported by a flat floor or stable platform.

Single sheets should always be carried along the vertical plane, with emphasis being placed on the length and width of the product to determine the number of lifters required, or method of carrying.



Pietra sheet orders are packed on a timber pallet and should be unloaded with a forklift. If a lifting device is not available, Pietra Sheets can be unloaded manually, but it is very important to always use common sense and follow these safety guidelines when handling Pietra Sheets:

- Use proper manual lifting technique.
- Always wear appropriate personal protective clothing such as heavy-duty protective gloves, back support belt and steel capped shoes.
- Handle one sheet at a time
- Sheets should be handled on the edge
- Carry Vertically
- Use two people or more

NOTE: Whether in sheet form or moulded shapes, Pietra must always be handled with care and treated with the same respect given to glass.

4. Sheet Acceptance and Inspection

Receival Inspection

Receival inspection should be performed to be sure that no Damage has occurred during transit of Pietra solid surface worktops. If damage is evident, please report to Deralam Laminates immediately so that replacement can be arranged if sheet is unusable.

Deralam Laminates will inspect any Damage and where appropriate, arrange for prompt replacement.

Defects Inspection

A visual inspection for foreign spots and uneven Patterning of sheets should be performed prior to use. Also check for un-evenness on face of sheet.

Batch Numbers

Batch Numbers are recorded on one (1) end of all sheets and should be recorded at time of delivery. Use this Batch Number for all correspondence for additional material for the same project, so that a compatible batch number can be used.

Colour Inspection

A visual inspection of all sheets should be performed to ensure good match of colour and pattern before joining by putting edges together. If sheets are not a perfect match sometimes turning to other edges will achieve better mach.

If still not satisfactory try another sheet, if possible from same batch.

NOTE: Deralam Laminates' goal is to provide quality products and will gladly replace products that have defects and/or doesn't meet the product specification. However, Deralam Laminates is not liable for any charges ensued for fabrication work done on defective materials, and any loss of direct, incidental, and/or consequential damages caused by the inability to use Pietra products.

After receiving Pietra products, it is the fabricators' responsibility to perform quality inspection prior to fabricating the products.

5. Site Preparation and Templates

Even before the templating process, it is critical to gather and verify all pertinent information about the jobsite to prevent any problems that may occur.

Initial Site Inspection should take place at the time of templating. However, since changes can occur, the jobsite should be checked and rechecked before any installation begins.

Overview of Site Inspection

The jobsite should be inspected for any matter that may cause problems during installation and after installation of Pietra materials.

- Parking / Loading Dock at site.
- Check for access and any obstacles at the installation location.
- Width and height of entrances (Including elevator size and height).
- Condition of cabinetry or sub-structures, must be or provide:
 - Installed on True Plane
 - Stable and rigid
 - Able to hold the weight of the proposed installation and additional weights and forces experienced during usage.
 - Leveled to 3mm for every 2500mm (1/8" for every 10')
 - Adequate reinforcement for cutout areas
 - Sufficient amount of support
 - Ample space for faucets, sinks, cooktops, and other appliances to be installed
- All structures that will attached to the Pietra surface, such as cabinets, end panels, overhangs, window sills and more should be secured to the wall, floor, and/or other permanent foundations
- Any movement of the structures will cause the top to break/crack
- Structure/Position of electrical and plumbing components
- Wall conditions
- Correct installation of cabinet doors and drawers so that they don't interfere with overhang and/or edge details

NOTE: In the event that site conditions or joinery and sub-structures are not satisfactory, contact the client, builder or relevant party in writing. DO NOT attempt to install Pietra materials when conditions at site are not satisfactory.

Templates

Taking accurate templates are critical for fabrications and installations. Incorrect templates can lead to greater problems during installation.

Once the template materials are all laid out, trace the front edges of the cabinets. From the trace, calculate the edge overhang. Depending on the template material, the template can be pre-cut to include the edge overhang. This process may be difficult because the walls are usually uneven. It is important that the seam placement needs to be measured precisely at 90 degrees.

Once templates are completed, include all details and specifications.

- **Corners**
 - Using the mini corner template, mark and cut off the corners to show the customer, and make sure the Fabrication Shop doesn't miss this detail.
- **Edge Details**
 - Finished edges need to be marked
 - Specify edge profile type, name and sample drawing.
- **Backsplash**
 - Backsplashes need to be marked. The height, placement, and polish locations need to be specified.
 - Indicate the type of backsplash
- **Cutouts**
 - The measurements of sinks, faucets, cooktops, and other appliances should be taken and indicated on the templates.
 - Example –Sinks or Cooktops: Measure the inside dimension of the base cabinet
 - Measure and mark the size of the opening
 - Measure and mark the front to back dimensions, front of the edge of the top to the inside opening of the cabinet, etc.
- **Detailed Drawings**
 - Make a detailed drawing of the kitchen and the layout, Drawings should include:
 - Overall layout
 - Location of the pieces
 - Location of all cutouts and holes
 - All other pertinent information needs to be labeled and identified
- **Review and sign off from the Customer**
 - All information needs to be reviewed with the customer
 - Edge details
 - Thickness
 - Corner details
 - Backsplash
 - Seam location and how it will look
 - Overhang
 - All other information related to the installation process
 - Get sign off before fabrication.

Set-out and Planning

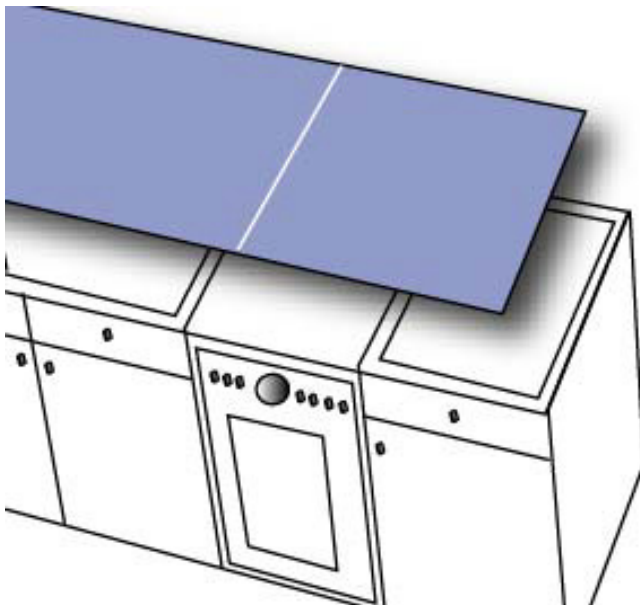
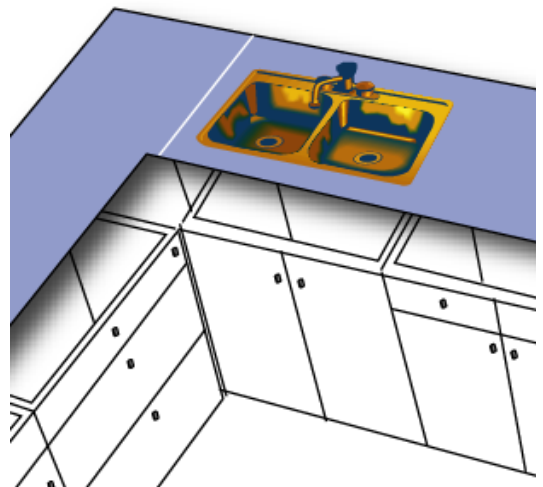
In order to have a successful outcome starting from the installation process, it is pertinent to plan the location of the seams.

- Correct planning will enable you to get maximum yield on the materials.
- Limit the amount of seams in order to bring out the natural quality of Pietra.
- Seams should not run through cooktops, sinks, dishwashers, and any cutouts for appliances

Joint and Seam Positioning

As you position the seam on the top, there are some precautionary measures to take to prevent cracking. It is critical to position the seam in the correct areas in order to complete the fabrication and installation of the top.

All seams should be placed at least 50mm (2") from all cutouts and corners. Additionally, seams should not be closer than 100mm (4") from each other.



Try to avoid placing the seam over the dishwasher. However, if there is no alternative, the seam must be reinforced. If it is impossible to avoid dishwasher, make sure to note it on the template.

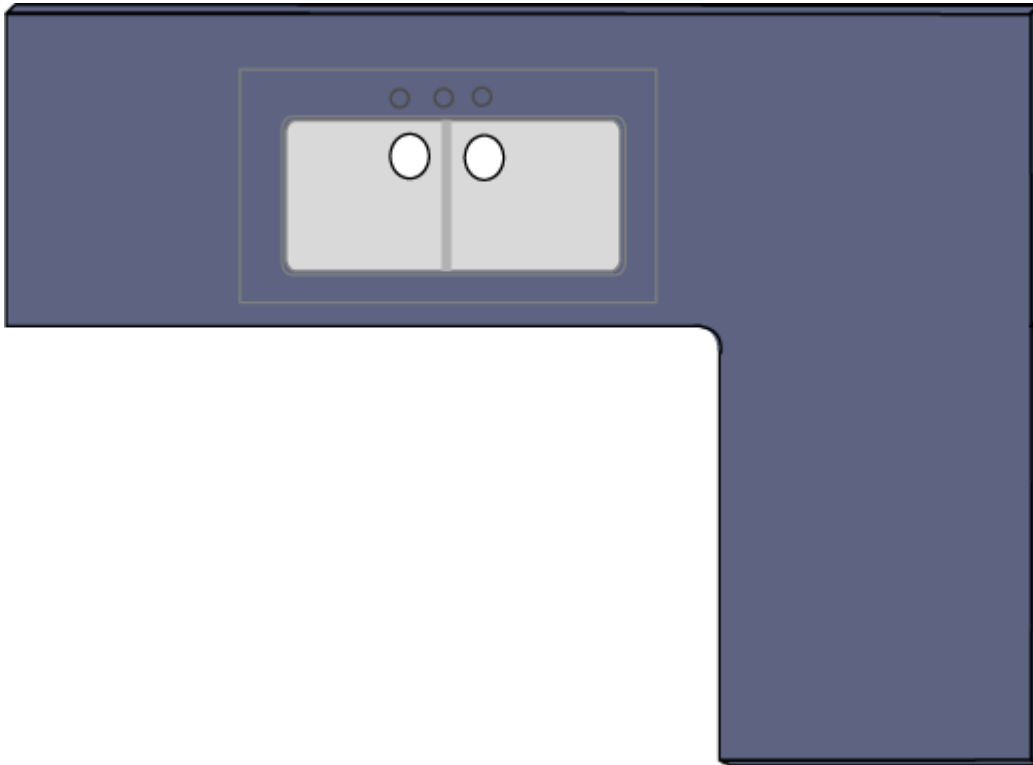
Joint and Seam Positioning – Internal Corners

Special measures need to be taken when installing on an L-shaped top or a top with an angle. The seam should not be placed at the corner to prevent cracking.

The seams need to be at least 25mm (1") from the end of the radius of any inside corner.



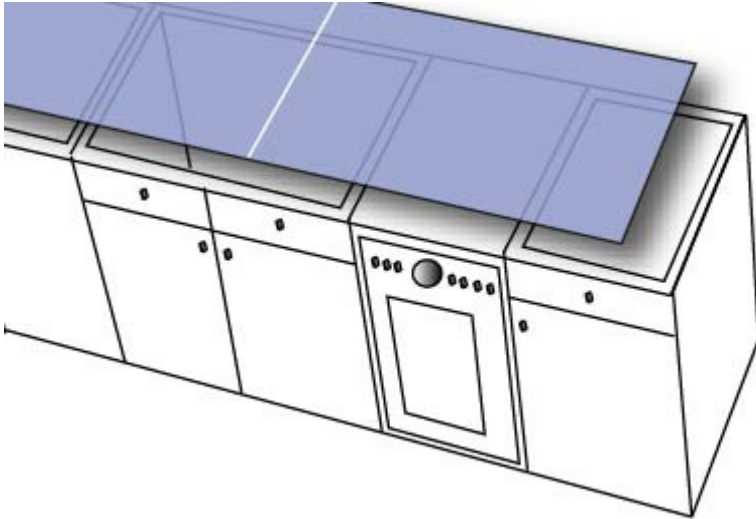
When transporting and installing an L-shaped top or a top with an angle, you must be extra careful because there is an increased chance of the top breaking due to its weight and unordinary shape.



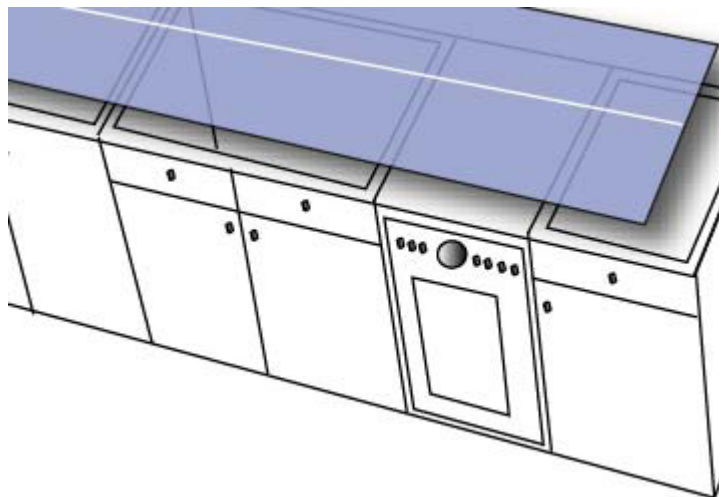
NOTE: All inside corners need to have at least 12.5mm (½") radiuses
Inside corners CAN NOT be 90 degree angles

Joint and Seam Positioning – Supporting

All seams must be supported with full perimeter support. Therefore, seams through overhangs are prohibited on peninsulas, islands, or any structures without full perimeter support.



However, seams perpendicular to overhangs are allowed.



NOTE: If seams are placed on structures without full support, the top may crack and seams may have to be replaced

6. Cutting Pietra Work Tops

Before cutting any product, it is important to work out the best, most practical way of using your sheets to their optimum (taking into account joint positions).

Pietra products are easily cut provided sharp tooling is used. It is therefore necessary that all tools have tungsten carbide cutting to ensure all cut finished edges are jag-free and smooth. A blunt blade will result in chipping along the cut edge line. Always use a gliding action when cutting Pietra; never force the cutter through.

Cutting by Panel Saw

Cut material face up, adjust saw height from table to suite thickness of material - use of saw at full height may result in chipping.

Recommended Blade Type:

RPM	4000
Diameter	300mm
Teeth	84 (Tungsten Carbide)
Thickness	3mm (1/8")
Type	Triple Chip Blade Negative 0°

Alternatively standard wood cutting blades can be used with care.

Cutting by Router

For best results, 12mm (1/2") shanks should be used to reduce vibration resulting in a bouncing cutter. Tungsten Tipped bits should be used.

Also, it is advisable to make a couple of passes with the router if large quantities of product are to be removed.

Ensure all internal corners are radiused.

Cutting by CNC

CNC router is recommended for best results and faster out put on larger jobs. Use spiral solid tungsten carbide bits except for the Stone series, which require diamond cutters or replaceable tips.

7. Jointing / Seaming

General

This part of the fabrication process is definitely the most critical. A good job will give excellent, long-term results. A poor job however, will give noticeable unsightly lines and/or inferior strength.

This is where the creditability of the fabricator and Pietra is made or lost.

a) Cleaning

It is essential that the areas to be joined are well cleaned. We recommend use of denatured alcohol or methylated spirits to ensure scrupulously clean surfaces before joining. Denatured alcohol or methylated spirits should be applied with white tissue paper - do not use rags for cleaning as any un-fast colours will be transmitted to the adhesive via the surface, contaminating the joint.

b) Gluing Pietra to Pietra

To glue and join Pietra-to-Pietra, Pietra Adhesive must be used, for plain colours, use the same colour tone as the surfaces being joined. For textured colours - where available use Pietra Compound matched for the subject texture, else use clear compound.

Surfaces to be glued require a 0.3mm tolerance between them and they must be able to meet each other at the joining point, free of any pressure being applied. Clamps should only be needed to hold the joint together with even pressure, they should not be used to force one piece down onto the other or to force the two pieces together. This type of force can create stress at the joint point and then ultimately cause failure in or near the joint

When gluing horizontally, all surfaces must be sanded before the adhesive compound is applied. This is essential, as there is still an amount of mould release present on the Pietra top and bottom surfaces. Failure to sand both surfaces will cause joint separation at a later date.

c) Gluing Pietra to Other Materials

Where Pietra is to be glued to other materials, such as timber, metal, tiles or other building material, a flexible silicone adhesive should be used. The adhesive must be of a flexible type to ensure strength and flexibility to allow for movement caused by expansion or contraction

Where a full timber backing is used under Pietra bench-top, or where Pietra is to be glued to other materials over a large area, do not glue the whole of the contact surfaces. Lines of silicone over the area will be sufficient and allow 1mm per metre gap near build up for expansion and contraction.

Pietra Joint Adhesive

Pietra Solid Surface Worktops products are non-porous and NSF-51 Certified for Food Preparation areas as surfaces can be fabricated and installed with seamless, inconspicuous joints.

When you fabricate and install the solid surface, you will notice that the seams are almost invisible. It is more so depending on the skills of the fabricator. The industry uses the terms "inconspicuous or unobtrusive."

There are various types of adhesives that are manufactured specifically for solid surfaces. It is highly recommended to use Pietra Adhesives. They can be purchased through your local distributor. Please ask the distributors for further information and support.

Pietra Adhesive is a specially formulated 10:1 ratio decorative solid surface adhesive. It offers excellent adhesion to all types of Pietra solid surface products.

Pietra Adhesive has a working time of 8–12 minutes and products seamed with Pietra Adhesive maybe handled 55 minutes after application. Fabrication of bonded parts (sanding, finishing, routing) may take place within one hour after assembly of parts. Pietra Adhesive has excellent performance in U.V. light, impact resistance, wear resistance, scuffing, staining, and in resisting water penetration, including boiling water.

Benefits:

- Colour Matched
- Fast Room Temperature Curing
- U.V. Stable
- Sandable
- Phthalate Free
- Non Yellowing
- Impact Resistant
- Wear Resistant
- Stain Resistant
- Water Penetration Resistant

NOTE:

- Working Time 8-12 minutes
- Machining Time 1 hour

**Physical Properties Pietra MMA Adhesive:
Uncured Part A Part B**

TEST	PART A ADHESIVE	PART B CATALYST
Mix Ratio by Volume	10	1
Viscosity - Brookfield RVF (20 rpm)	25–60,000 cps	5–15,000 cps
Mixed Viscosity	20–55,000 cps	
Flash Point	51°F (10.5°C)	
Open Working Time (Pot Life)	8–12 Minutes @ 72°F (22°C)	
Fixture Time	15–20 Minutes @ 72°F (22°C)	
Functional Cure (Machine Time)	50–60 Minutes @ 72°F (22°C)	
Full Cure	12 hours @ 72°F (22°C)	

Physical Properties—Cured

TEST	RESULT	STANDARD APPLIED
Tensile Strength	3,850 PSI	ASTM M-638
Tensile Elongation	6.9%	ASTM M-638
Flexural Strength	5,800 PSI	ASTM D-790
Impact Strength	3 4.6 ft., lb	NEMA LD
Water Absorption	0.26%	ASTM D-570
Water Resistance	250 cycles	ICPA SS-1
Hardness – Barcol	34/42	ASTM-2583

Handling and Application:

Pietra adhesive (Part A) is flammable, containing methacrylate esters. Keep containers closed after use. Avoid eye and skin contact. Wash with soap and water after skin contact. In case of eye contact, flush with water for 15 minutes and get immediate medical attention. Harmful if swallowed. Keep out of the reach of children. Keep away from heat, sparks, and open flames.

NOTE: Because of the rapid curing features of this product, large amounts of heat are generated when large masses of material are mixed at one time (bond joints and thicknesses greater than 3mm (1/8”) should be avoided). The heat generated by the exotherm resulting from the mixing of large masses of adhesive can result in the release of entrapped air and volatile components as evidenced by gassing. To prevent this, use only enough material as needed for use within the working time for the product and confine the gap thicknesses to no more than 3mm (1/8”).

Dispensing Adhesive:

Pietra Adhesive is generally applied using pre-measured cartridges. Hand held guns (manual or pneumatic) are generally used with the pre-measured cartridges. To assure maximum bond strength, clean surfaces must be mated within the specific open time. Use sufficient material to insure 100% joint fill when parts are mated and clamped.

Avoid over tightening of seam. Use spring-activated clamps. All adhesive application, part positioning, and fixturing must occur before the assembly time of the mix has expired. After indicated assembly time, parts must remain undisturbed until the fixture cure is reached.

Avoid contact with copper, brass, or copper alloys in all fittings, pumps, etc. Seals and gaskets should be made of Teflon, Teflon coated PVC foam or polyethylene. Avoid the use of Vitron, BUNA-N, Neoprene or other elastomers for seals or gaskets.

Clean up is best performed before the adhesive has cured. If the adhesive is already cured, careful scraping, followed by a solvent wipe may be the most effective method of clean up. Application of adhesive at temperatures between 15°C (60°F) and 32°C (90°F) will insure proper cure speeds. Temperatures below 18°C (65°F) will (slow cure) dramatically reduce the cure rate; above 32°C (90°F) will speed cure.

Storage and Shelf Life:

Store all Pietra Adhesives in a cool, dark, dry place if they are not being used for an extended period of time. The adhesives have a shelf of 12 months or more if stored at room temperature or below 22°C (72 °F) in their original, unopened containers.

Shelf life can also be prolonged if the adhesives are stored in a separate refrigerator. Do not freeze the adhesive.

Always keep the adhesive in an upright position.

Adhesive Mixing and Application

Standard protective clothing including a suitable respirator, safety glasses and disposable gloves must be worn during the gluing procedure and there should be easy access to an eye wash facility. Make sure the area around you is well ventilated and that it is clean to avoid contamination of the adhesive.

Note: There must be a minimum room temperature of 15°C before commencing any gluing otherwise the adhesive may fail to cure. Heat lamps placed about 1 meter away from the glue area may be an option to overcome cool conditions.

Carefully prepare the seam area before you apply adhesives to your Pietra work top. Seaming kits are ready to use and is composed of a catalyst and coloured glue. Mixing is very easy to complete due to the applicator, mixing tip, and pre-measured cartridge.

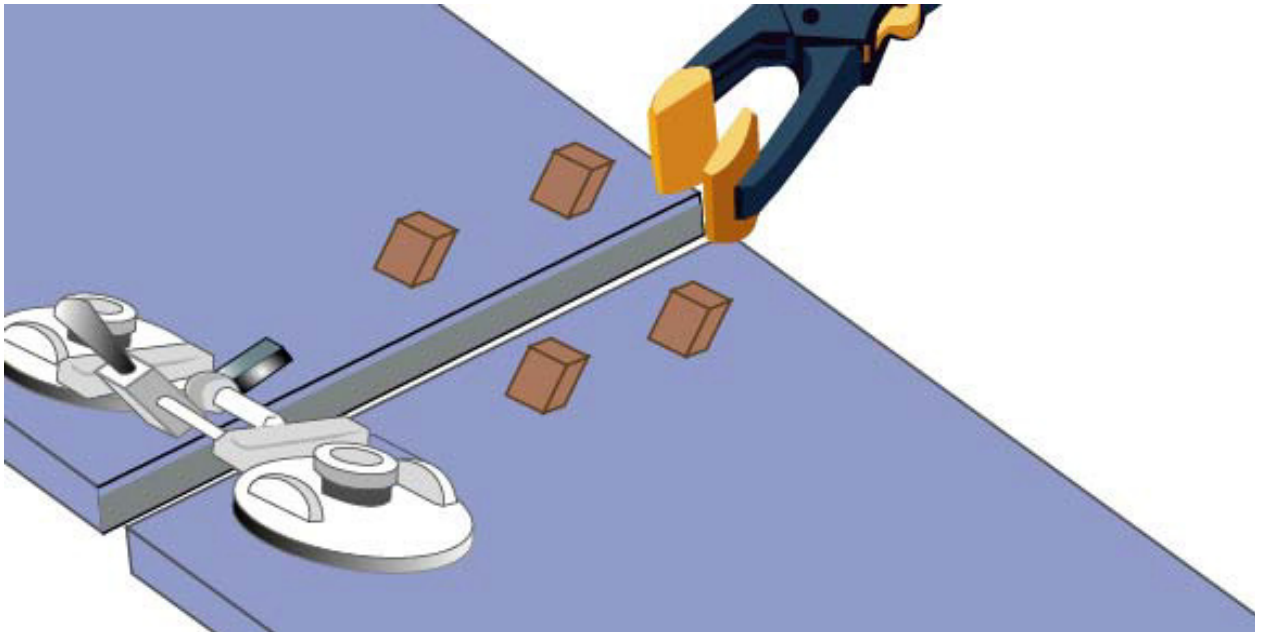
- Dry Fit to make sure the seams are aligned and placed correctly without the use of adhesives.
- Thoroughly clean both surfaces to be bonded using denatured alcohol or methylated spirits and a clean white cloth.
- Lay out all pieces and separate them in order to apply the adhesive by using the Seaming Kit. Make a 6mm (1/4") gap to apply the Seaming Kit
- Prepare the Seaming Kit
 - Put the cartridge in the applicator
 - Open the cap and attach the mixing tip
 - Use the applicator trigger and squeeze out some of the adhesive to improve the flow.
- Apply the adhesive in the gap, forming a continuous bead of the adhesive to cover both surfaces to be joined.
- Make sure there are no gaps and grooves.
- As the adhesive is applied, pull the seam together for the best outcome
- Once the seam is pulled together, you will see excess adhesive on the surface. Allow glue to over flow to form a constant bead.
- The seam should be leveled and have a clean surface
- Sand the surface after the glue is dry. If sanding is done prior to curing of adhesive compound, shrinkage will continue until the compound does cure and joint lines will fall below the two surfaces of the material making a recess which will attract grime and quickly look unsightly.

Seaming Joint Methods

You have seen that applying adhesives is an important part in putting Pietra Solid Surface Worktops together. In addition, it is equally important to pull and tighten the seam together to complete the process. Before applying the adhesive, determine which clamping method you will be using to pull the seams together.

There are various types of tools that will help in pulling the seams together. Here are three different basic methods; however, do not restrict yourselves to these methods only and consult with manufacturers for other options.

- Using wood blocks and simple clamps
- Using suction cups and simple clamps
- Using a Vacuum Clamping system



Make sure you research and become familiar with the various clamping methods before you apply it to the seaming process. If you choose the wood block method, you will have to apply hot glue along the seams before applying the adhesives.

Forming Joints – Seam Joints

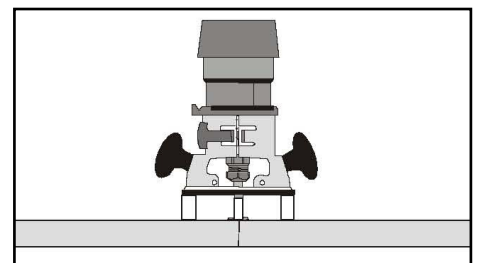
- Machine both edges to be jointed using a sharp tungsten carbide cutter.
- Joint should fit tightly when dry fitted.
- Place a release material (such as clear tape) under the joint to prevent contamination into the joint and to stop it from sticking to the substrate or workbench.
- Thoroughly clean areas to be jointed with denatured alcohol or methylated spirits. Using clean white tissue E-tork or white cloth to wipe once in one direction, but do not re-use or spot rub.
- Position the pieces to be joined adjacent to each other with a 3mm to 5mm gap and prepare clamping system (attach glue blocks if using this technique).
- Apply 1.5mm (1/16") bead of adhesive to both surfaces to be joined. This will ensure that gaps in the glue are not present. Failure to do this can result in air pockets or voids where little or no glue is present.
- Clamp the joint and gently squeeze the pieces together, leaving a glue line of about 0.2mm for traditional solid surface materials to ensure joint consistency. Make sure there is an excess glue mound squeezed out along entire joint.
- Take care not to over tighten the clamping system. If using G clamps, tighten with using only two fingers is the recommended practice.
- Ensure the joint is protected from dust contamination until the adhesive has formed a skin (20 minutes in normal room temperature).

Tip: *Do not disturb the joint and ensure there is no movement until the joint has cured (allow a minimum of 40 minutes). Curing time will vary depending on the ambient temperature and humidity at the time of joining, but full strength is obtained after 12 hours.*

If sanding is done prior to curing of adhesive compound, shrink back will occur and the joint lines will fall below the two surfaces of the material.

Remove excess adhesive with a router on Skis or edge plainer surface leveller or random orbital sander. Set the bit slightly higher than normal 0.75mm (1/32") above the surface) to prevent the ski router from damaging the surface.

Sand the finished joint to job specifications.

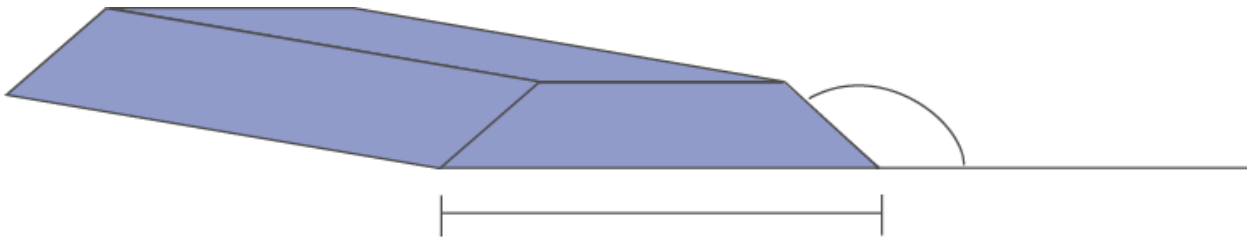


Seam Plates / High Strength Joints

Seam plates must be installed on all the seams to provide sturdy, prolonged support. Seam plates are installed to prevent seam failures, cracks, and other types of damages. Seam plates should be used above dishwashers and near commercial cookers and heated stations.

Seam Plate Specifications:

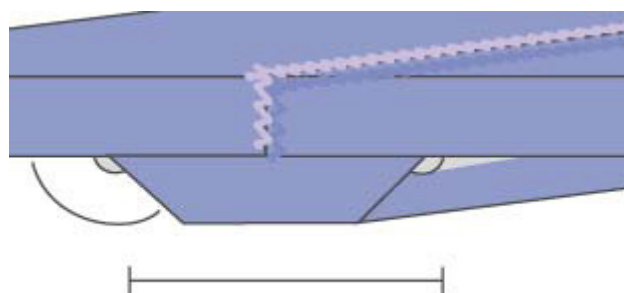
- 100mm (4") wide
- Made from Pietra material
- 45° angle side edges



Note: All side edges need to be cut to a 45° angle to prevent any stress. Remember, any 90° degree angle will exert stress on the material and can cause cracks.

Directions:

- Align the seam plates so it runs full length of the seam
- Do not put any space between the back of the front edge build up and the seam plate
- Remove excess glue from the seam that may cause the seam plates to rock
- Sand the seam plate and the top before applying the adhesive
- Centre the seam plate so that it covers 50mm (2") on both sides of the seam
- Cover the entire surface before you apply the adhesive. Apply the adhesive every 20mm (¾") to give it the best coverage



Field Seams

As you start the templating and fabricating process, you must decide on which seams will be completed on the field and/or at the shop.

Field seams are appropriate due to:

- Size and shape of the solid top
- Transportation
- Accessibility to the job site
- Difficulties during installations

Conducting field seams should be the last option due to the inconveniences to yourself and to the customer. Being in an uncontrolled environment may create problems and the work may annoy the customer.

However, if you plan a field seam, follow these procedures to complete the installation successfully.

Finishing joints

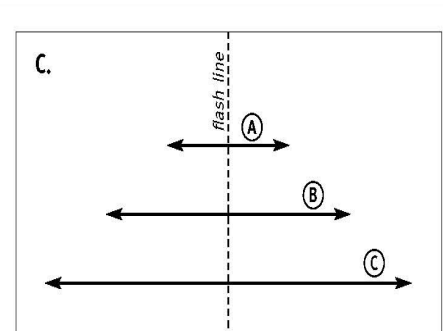
The following procedure will efficiently finish seam areas. For illustration, please refer to Figure C.

1. Trim the Pietra adhesive flash line with router on skis or offset trim router.
2. The remainder of the flash line should first be sanded with P180 grit. It is important that the sanding extends to about 150mm either side of the seam, without concentrating directly on the seam, as illustrated by Point A.

Concentrated sanding could cause a valley or a dip in the seam area.

3. The next step is to sand with P240 grit paper. The sanding area now extends to about 300mm on either side of the flash line, as shown in Point B.
4. Once the seam is sanded level, continue the standard finishing procedure by feathering out the finish in the seam area to blend with the final finish of the top, as shown in Point C.

Sanding should not concentrate directly on the flash line, but extend on either side to feather-in the finish.



8. Clamping Pietra Work Tops

When joining or creating build-up frontals or edges on Pietra worktops, spring clamps or G clamps are recommended.

Step 1:

- a) Ensure that all surfaces to be joined are cleaned with Acetone using a white tissue.
- b) Apply 0.5mm to 1mm (1/50" to 1/25") of adhesive to all surfaces to be joined.
- c) Allow glue to over flow.

Step 2:

Gently tighten clamps leaving a gap of about 0.2mm -0.5mm (1/100" – 1/50") filled with adhesive.

- b) Sufficient clamps must be used to ensure complete, even pressure on all surfaces.
- c) Minimum spacing for clamps; 1 clamp every 150mm (6") for 12mm (1/2") or greater thickness material and 1 clamp every 75 – 100mm (3" - 4") for thinner material.

Note: To ensure an even clamping procedure, apply clamps from a central point working outwards to both ends or start from one end working in sequence to the other end.

Step 3

- a) Allow joining compound to harden (minimum 45 minutes at 25°C).
- b) Do not move or disturb the Pietra material while adhesive is setting.
- c) Do not remove clamps until joining compound is fully hardened.

9. Edges and Build Ups

Countertop edges can be fabricated in various ways to satisfy the different styles. Since the seams are also inconspicuous, the edge details will add uniqueness and smoothness to the countertops.

There are three methods to correctly fabricate edges for Pietra solid surface worktops, which have been tested and verified. Follow these procedures to successfully install the surfaces.

The suggested edge build-up methods are:

- Drop Edge
- Stacked Edge
- Use of V-Grooving equipment or Shaping machine

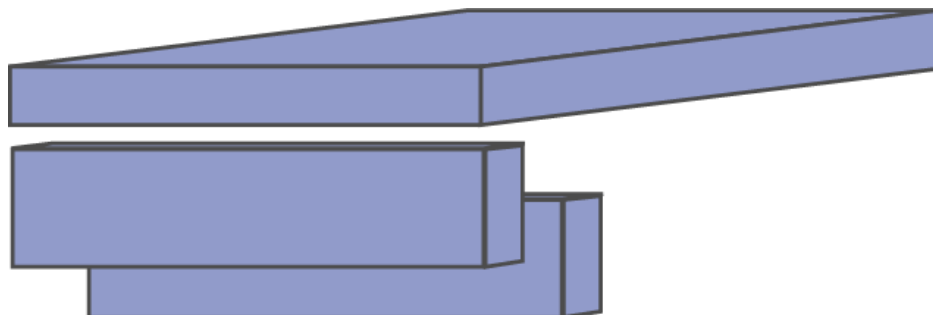
Drop Edge

The Drop Edge method is frequently chosen by fabricators in order to build the edges. You will need two strips of materials, cut to the thickness of the edge, and glue it vertically to the bottom side of the countertop.

The Drop Edge method minimizes the chance of the seam line showing in two places. This method only creates one seam line, which if fabricated correctly, is invisible to the naked eye.

Directions:

- Cut the strips to desired thickness.
- You need two strips for each build up. One will support the other strip and provide added strength.

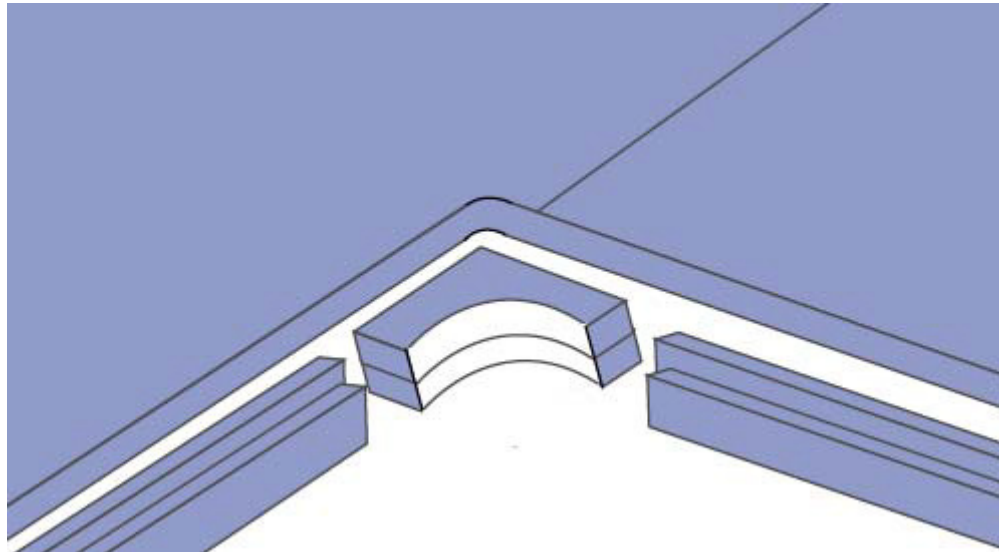
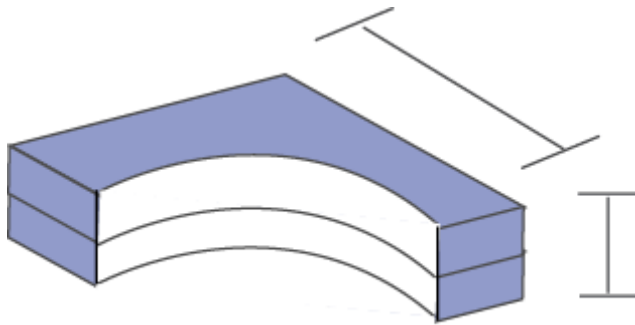


Note:

- Extra pieces may be needed for specific types of decorative edges.
- Some edges will require you to cut more than 1" off the edge.
- If you have to cut more than half of the material, the glue line will show between the strips.

Inside Corner (Corner Blocks)

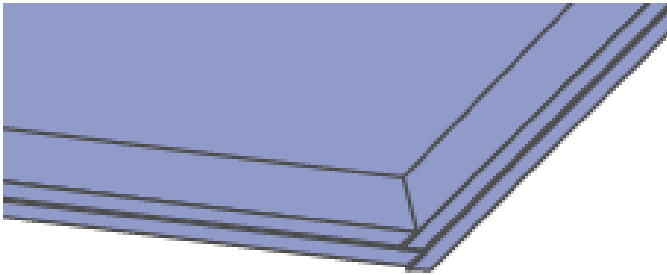
- Cut two pieces of the same colour material into 150mm x 150mm (6" x 6") parts
- Laminate the underside of the two pieces
- The pieces should be ½" thick. For edge buildup that is more than 25mm (1"), laminate more pieces for the corner blocks



- Note:**
- Inside corners need at least 12mm (½") radius
 - Manufacturer's warranty is void if the inside corners are less than 12mm (½") radius
 - It is better to have a bigger radius than a smaller one

Outside Corner and Inside Corner

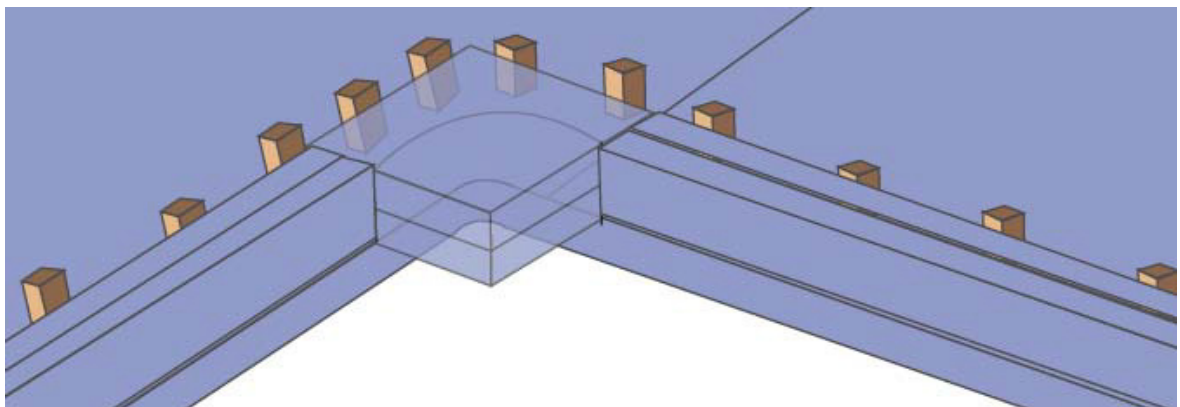
- Outside corners can be thermoformed or use corner blocks if the radius is big. In other cases, use strips and templates to rout the radius.
- Since the outside corners are very visible, try to minimize the seams.



- Tips**
- Lay out the buildup strips as pictured in illustration above
 - This minimizes the visibility of the seams.

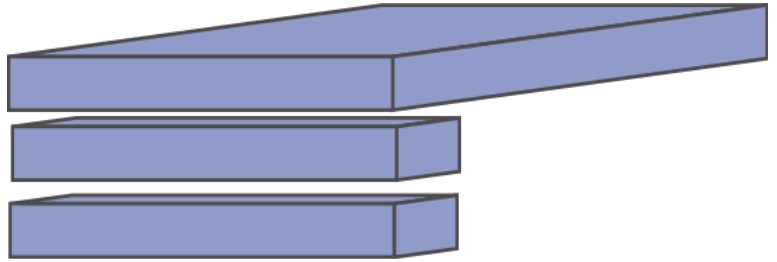
- Lay out and fit all the pieces to check the seam lines
- If the seam line is visible when the pieces are clamped down, they will also be visible after the pieces glued together.
- Seam lines will show if the cuts are made by dull bladed equipment
 - Use small wooden blocks to set guides. (See illustration below)
 - Set the wooden blocks by using hot glue
- Sand all the pieces with 80 grit sand paper
- When done, use denatured alcohol to wipe all the pieces

Tips: Spring clamps are recommended in order to add enough pressure during this process.



Stacked Edge

The Stacked Edge method is another useful way to buildup edges. You have to cut the strips of material and stack them on top of each to create the desired thickness. For example: to create a standard 75mm (3") buildup, stack two strips of material (including the surface top).



Note: There must be a width of at least 25mm (1") in order to use this method. 50mm (2") is recommended for the buildups.

The Stacked Edge method is known to provide strong support; however, this method may create two seam lines if not done correctly.

Directions:

- Cut the strips to desired thickness
- Each build up requires two strips, which depends on the thickness of the edge
- Inside corners
 - The blocks in the inside corners should be overlapped in order to act as seam plates for each other. You also need seam plates in all the seam
 - Cut two pieces of the same color material to 4" x 6"
 - Overlap the two pieces and fit them up against the inside corners.
- Lay out and fit all the pieces to check the seam lines
- If the seam line is visible when the pieces are clamped down, they will also be visible after the pieces glued together.
- Seam lines will show if the cuts are made by dull bladed equipment
 - Use small wooden blocks to set guides.)
 - Set the wooden blocks by using hot glue
- Sand all the pieces with 80 grit sand paper
- When done, use denatured alcohol to wipe all the pieces
- Apply adhesive to all the pieces and clamp them down

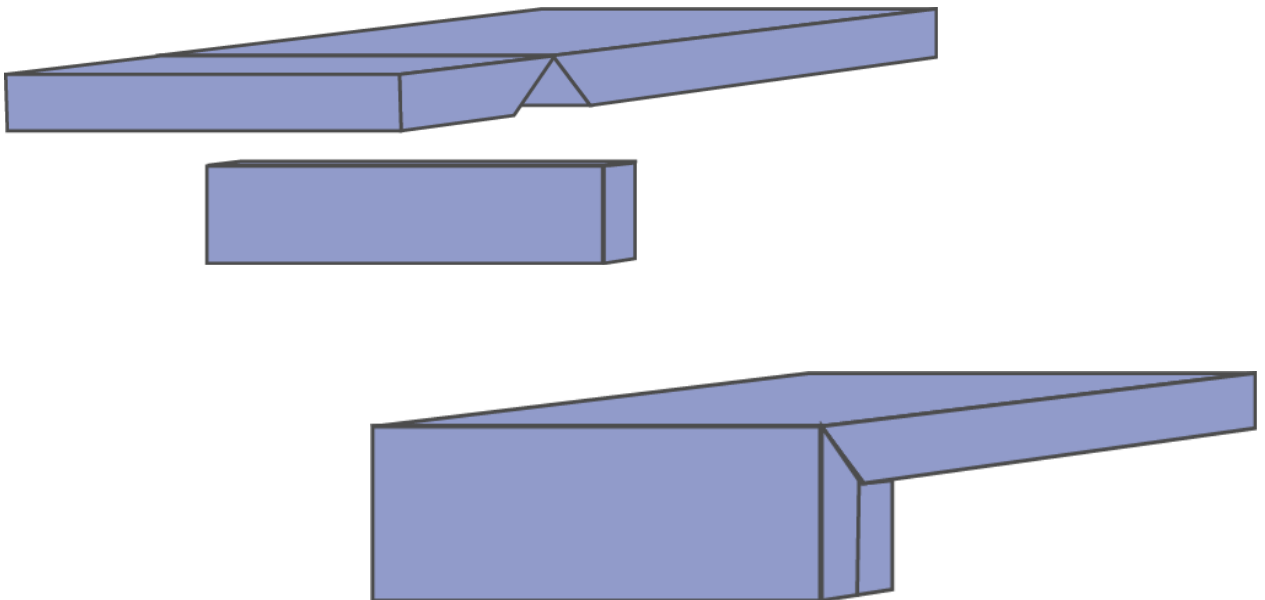
Note: Spring clamps are recommended in order to add enough pressure during this process.

V-Grooving

Using V-Grooving machines is another method to create edge buildups. These machines and others, such as different types of shapers, are quite expensive but make it very easy to form edge buildups.

Always consult the machine's manufacturer for instructions. Most V-Grooving machines share the same, basic procedures to create edge buildups. V-Grooving machines rout a "V" in the material, so that the material can be folded over and form a 90° fold. Special parts are needed to hold the pieces together. Please check with each machine's manufacturer for further instructions.

After the "V" is routed in the material, prepare the area that is going to be seamed with denatured alcohol. Once the glue dries, you can start to create the edge buildup. Unlike other methods, it is unnecessary to remove excess adhesives.



As you prepare to create decorative edges, you have to remove excess adhesives and imperfections formed from the buildup process.

Directions:

- Check to see that the glue has dried and soft spots do not exist
- Remove all clamps
- Remove all blocks that was used as guides for the edges
- Flip the counter top so the top surface is visible
- Use an interlocking straight edge system with radius corners or a top bearing flush cutter to remove any excess glue and imperfections

Note: Move the router from left to right
Secure all the clamps on the pieces before you begin routing

10. Cut Outs

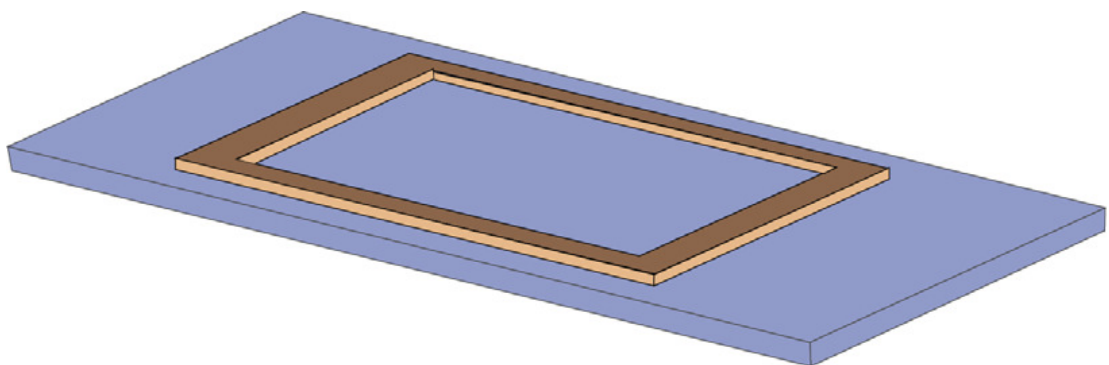
Templates

As you search for cooktops in the market, you will realize that there are many different designs and shapes that are readily available. Due to the various specifications of the cooktops, it is impossible to have a template for each type. Most manufacturers will supply paper templates as a guide, however they are not a substitute for a timber or MDF template.

Cooktop cutouts must be cut using a router in order to have smooth edges. You will have to make a template for each cooktop cutout; however, this is unnecessary if you are using a CNC. Making MDF strips are the easiest ways to create templates quickly and affordably. MDF strips should be at least 75mm (3") wide in order to be stable as you use the router.

Directions:

- Cut 75mm (3") wide MDF strips.
- Trace the cutout on the top.
- Centre the cutout from front and back.
- Leave enough space from the edges.
- Hot glue the MDF strips to the cutout lines.
- Make sure to apply enough glue to hold the MDF securely.
- All corners should be at 90 degrees.

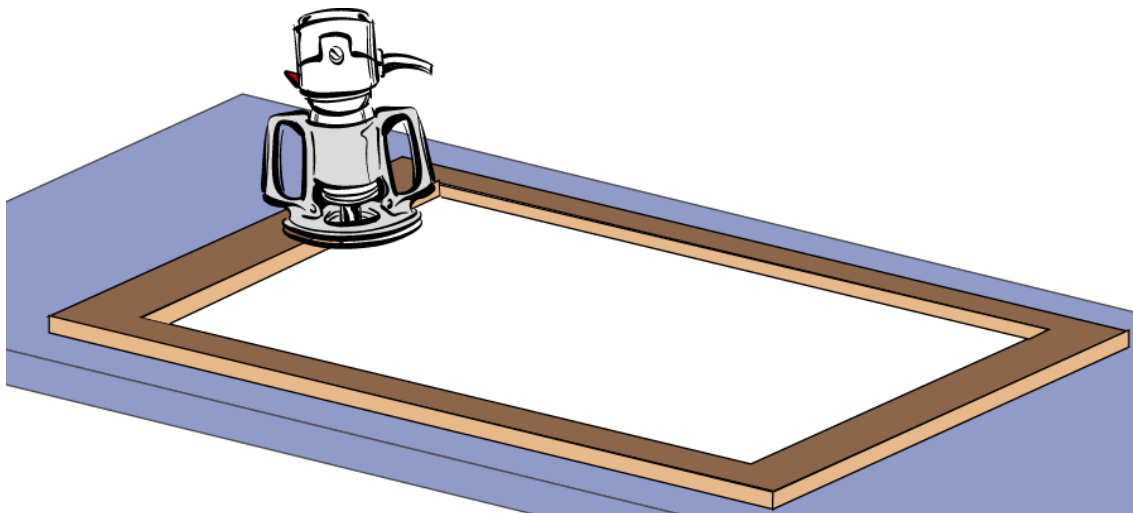


Making Cut-outs:

You may begin the routing process after you have completed making the cutout template and securing it to the surface top.

Directions:

- Use an HP Plunge Router that is at least 2 ½" and use the correct carbide bits.
- Use 20mm (¾") top bearing flesh cutter bit to move along the template
- Place the bearing ½ way down the templates in order to ride on the side of the MDF safely
- Use a router to make a starter hole
- Follow the templates and cut the material
- Slowly run the router in a clockwise direction
- Cutting too fast may create nicks in the material
- Do not tip the router
- After completing the cut, spray the template with denatured alcohol in order to loosen it from the top (A chisel may be needed)
- Allow the alcohol to naturally release the glue before trying to force the template off the material
- Be careful to not scratch and damage the top
- Remove the glue residue with a chisel (just as the glue starts to gel).



Cut Outs

Cutouts in Pietra can be achieved using a hand held router or CNC.

Hand Held Router method:

- a) Drill holes at the corners of the cut for starting points, using a high-speed drill.
- b) Mark out and cut with a router, using a template or straight edge.

Note: Make sure the section to be cut out is supported, otherwise it may break off under its own weight taking a large chip out of the surface area.

- c) It is important to round all edges and ensure a smooth finish. When rounding corners ensure all edges and corners have at least a minimum 3mm (1/8") radius vertically, top & bottom. The best router bit for this task is the half bull nose radius bit.

Ensure All Corners Are Rounded.

When cutouts are made in Pietra, the following points need to be noted in order to reduce problems after the product is installed:

1. Do not use a jigsaw or circular saw when cutting out sinks, basins, hotplates, etc., as this can lead to cracking.
2. Make sure all internal corners have the maximum radius allowable (minimum 12.5mm / ½") and all corners and edges are smoothly rounded. This will greatly reduce any stress in the cutout, thus eliminating risks of cracking due to an uneven load distribution.
11. Where cook-tops are being installed into the cutout, it is recommended that a heat reflecting foil tape be used around the cutout to reduce heat transferral into the Pietra.
12. For all cook-tops and other appliances that emit heat, high strength cut-outs are required.

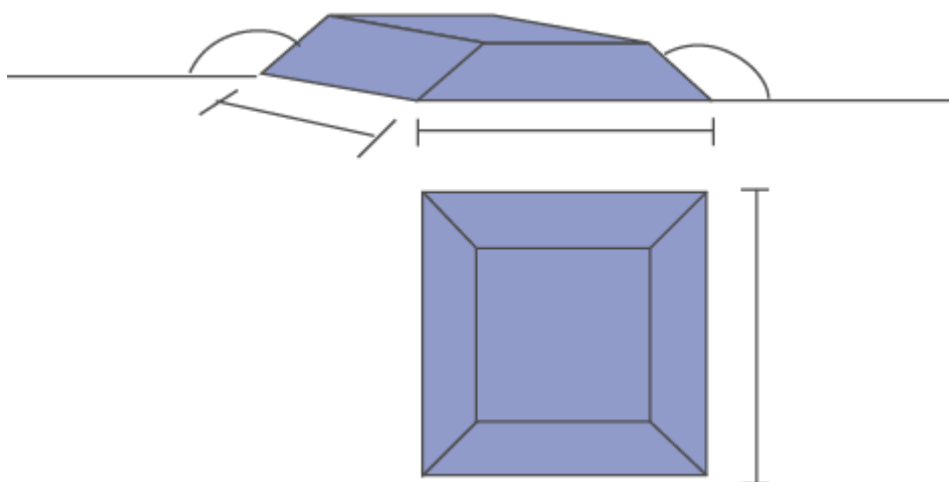
High-Strength Cutouts and Buildups:

High Strength Corner Blocks need to have minimum size and specifications.

Directions:

- All four corners of the top need high strength corner blocks.
- Corner blocks must be 100mm x 100mm (4" x 4") or bigger to provide support for the material (Pietra scrap pieces can be used).
- After installation, these blocks will be invisible.
- Corner blocks need to have 45° angles on all four sides unless the side is fitted against an edge buildup.
- Once the corner blocks are prepared for installation, line them up to centre the blocks in the corner.
- Use Pietra MMA adhesive on all four corners of the block and glue them together. Use clamps to hold them in place.
- The blocks must have adhesives on all parts

Note: High Strength Corner Blocks are required and will void any Pietra manufacturer warranty if not properly used.



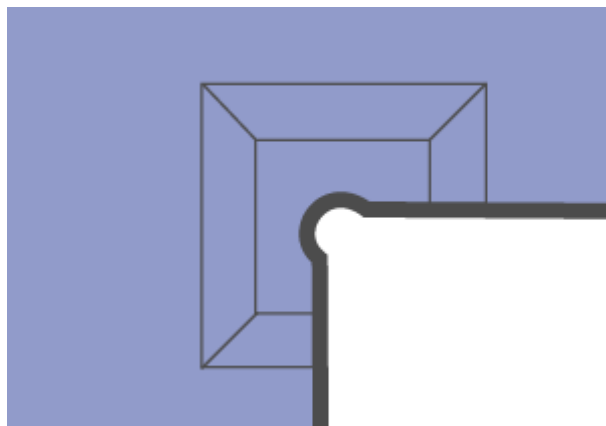
Sanding and Finishing

The final steps to install cooktop cutouts can be arduous and time-consuming, but it will provide extra barriers to prevent any problems during and after the installation.

Directions:

- When the Seam Kit (adhesive) is dry, cut off the extra parts of the corner blocks using a router.
- Only use a router to make cuts
- Install the corner blocks and rout out extra material to create more space between the cooktop and Pietra. Rout out each corner to create a 45° angle
- Use a router at least 20mm (¾").
- Before you rout, retrace and measure the cooktop. Most cooktop corners are square, which will cover the radius corners Rout 3mm (1/8") radius on the top edges of the cutout.
- Sand the cutout using a 150 grit sandpaper.
- All sides of the cutout should be sanded until smooth. All chips and router chatters must be sanded down.
- After all the sanding is complete, wipe the area with denatured alcohol or methylated spirits.
- Apply Heat Reflection tape (Aluminum tape) around the cutoutIf available, use Heat Barrier tape (such as Nomax) which creates a protective barrier against heat. Do not fold the tape.

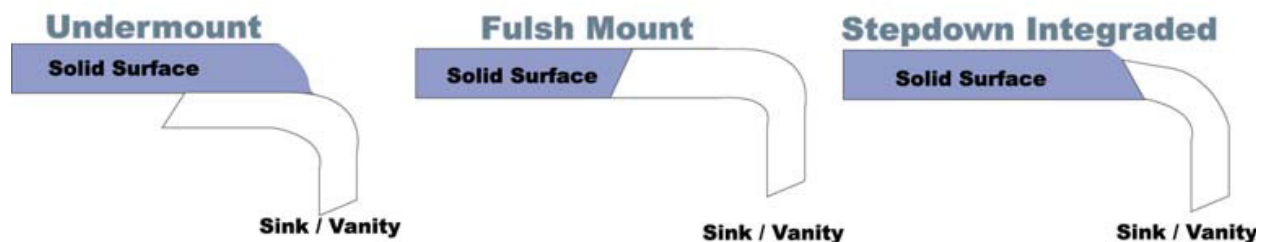
Note: Follow the pencil trace to guide you on how much of the corners you should route. The router bit should only go up to the pencil mark and not any deeper.



11. Sinks and Basins

You have the option of what type of Sinks and Bowls you would like to install. Since there are many different types and methods to install Sinks and Bowls, you need the correct tools for each specified method.

Below are some illustrations of how to fabricate using Integrated Solid Surface Sinks or Bowls.

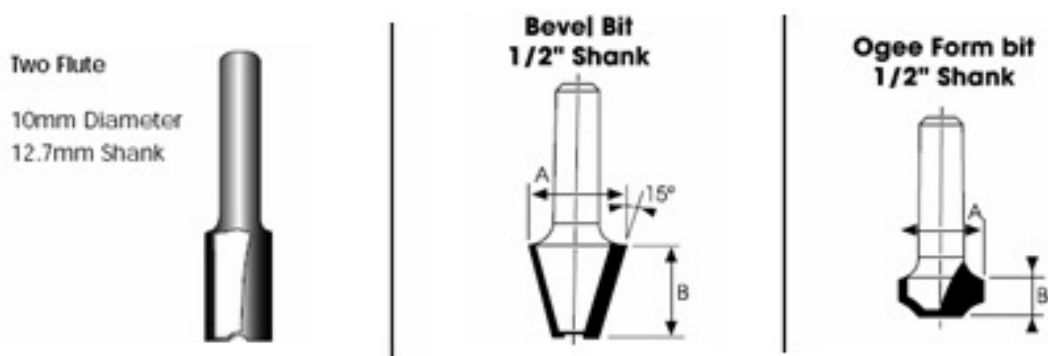


Drop-In or Angle Mount

Directions:

- Prepare the area for sink installation. The front and back edges of the top should be well supported and leveled.
- Mark the area where the sink will be placed. Put the template in the position, allowing space for the 30mm (1.25") diameter copying ring.
- Clamp the template to the surface, in its exact position. Check that the clamps are faced away from the router handles
- Place hot melt blocks around the perimeter of the router template
- Prepare the router with the 30mm diameter copying ring and 10mm diameter straight router bit. Route out the unwanted bench top area
- NOTE: Make sure there is enough support on the bottom side of the off-cut. Weak support may cause damages during the final break through of the router bit
- Fit the 15° router cutter and machine the desired edge profile. This may take several cut to create the exact location of the sink
- Remove the router template; however, leave the hot melt location blocks in place
- When the routing process is complete, prepare the area and equipment for the pre-installation process. Speed is critical during this application.
- Place 50mm (2") wide plastic packaging tape along the underside of the sink cut-out, which prevents glue from dropping through the edges.
- Clean the surface and sink edges with denatured alcohol.

- Using Pietra adhesive cartridge and mixer tip, bead the adhesive around the edge of the sink and top.
- Put the sink into the bench top aperture. Once the sink is aligned correctly, place a weight in the sink while the adhesive dries.
- Do not move or machine the sink for at least three hours.
- **For sink step down application**, replace the router template between the hot melting location blocks and rout until you get the desired finish.
- **For flush fitting sink design**, remove excess adhesive with a hand plane and sand it until you get the desired finish.

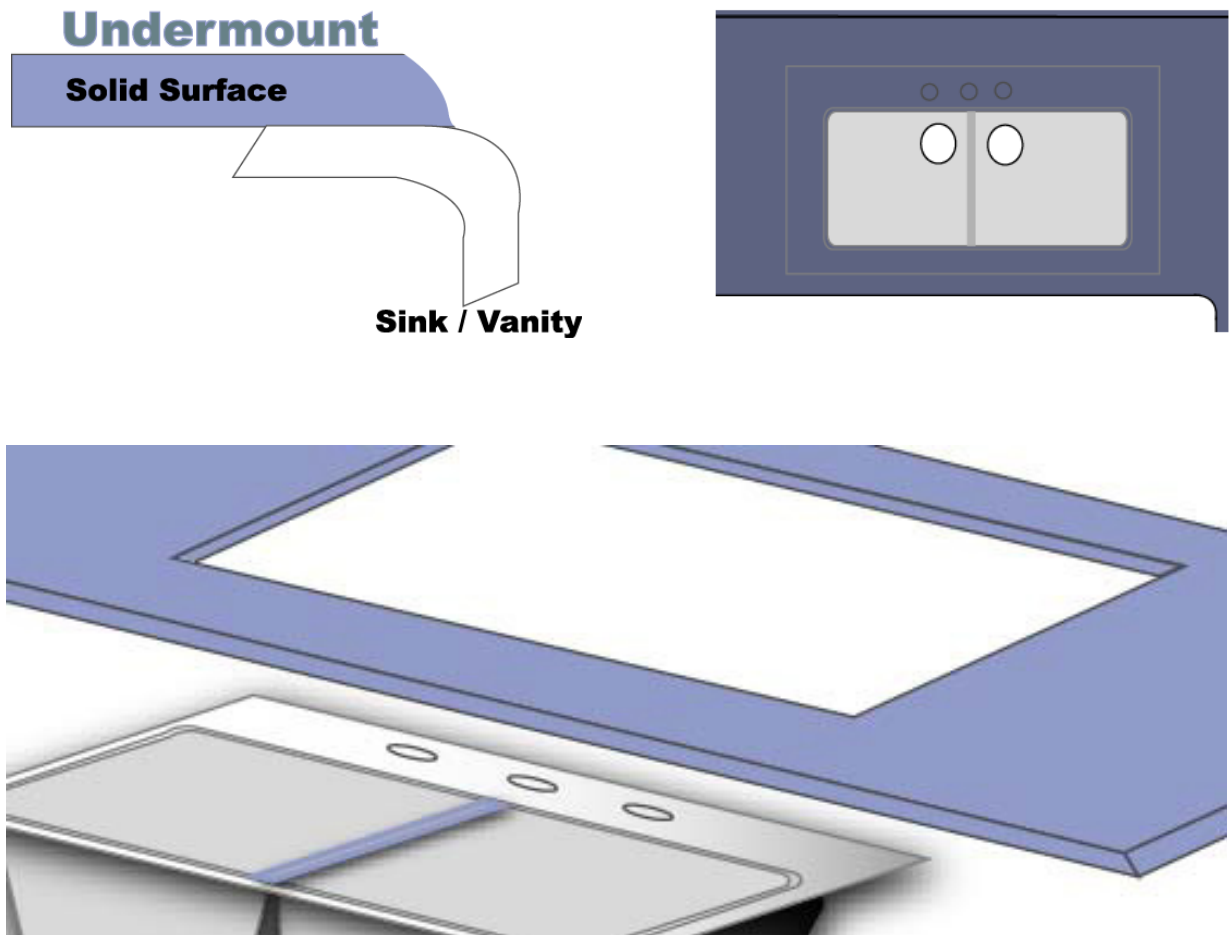


- Note:*
- For flush finishing of the sink to the face of the top – Check that the sink edge is placed directly above the top surface of the top
 - For sinks fitted below the top surface –The desired distance is determined by the profile on the profiling bit (approximately 2mm (1/8")). Position the sink above the final position, leaving enough space for machining of the surface.

Integrated Solid Surface Sinks / Bowls (Under-mount)

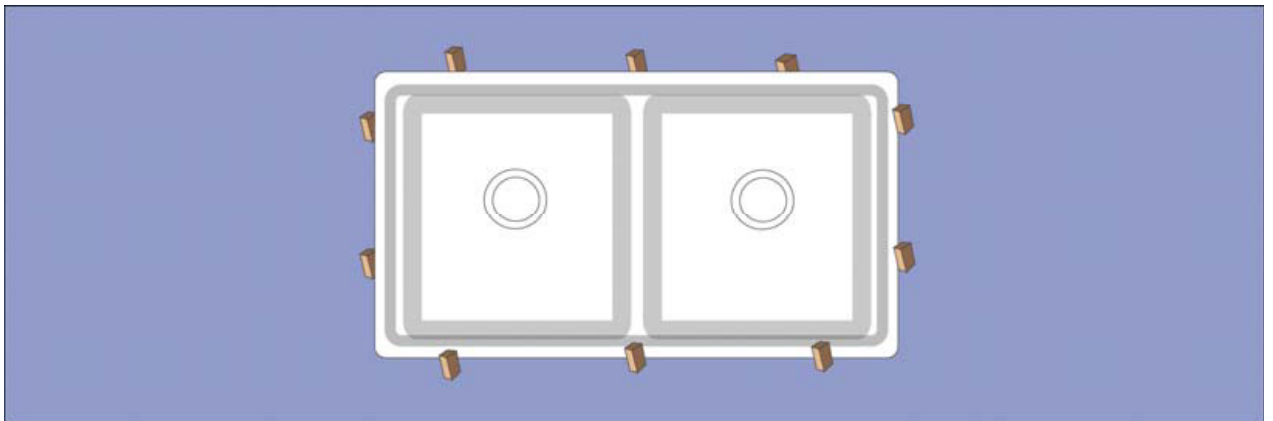
Positioning and Preparation Directions:

- Sinks bond the best to Pietra solid surface sheets that measure at least 12mm (½”) thick.
- Lay the sheet back-side up on a well-supported surface and position the bowl to the desired placement.
- Use a flat sanding block and #80 grit sandpaper and sand the underside of the sheet. By sanding the area down, the bowl will bond easily since there are no marks and/or lines.
- Use the above mentioned sanding block and sandpaper to scuff the top flange of the bowl. Do not round over or nick the rim.



Bonding Directions:

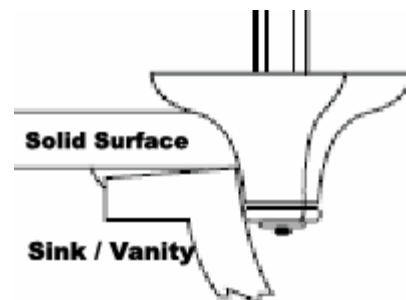
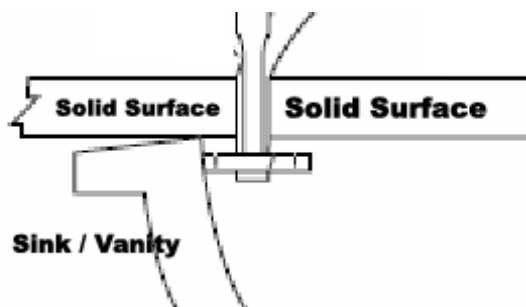
- Hot glue the guide block to the back of the sheet and around the outside edge of the sink so the sink doesn't move during bonding.
- Remove the bowl and clean all surfaces with denatured alcohol.
- Use the Pietra Adhesive seaming gun and put the adhesive around the rim of the sink or bowl.
- Place the sink between the guide blocks.
- Slowly place the bowl in place so that the adhesive sticks to the bowl flange. Clamp the bowl to the top by means of a 10mm (1/2") diameter continuous thread with clamping blocks at each end.
- Check to see that there is enough pressure added so that the excess adhesive can ooze around the bowl flange.
- Let the glue dry and allow the bowl to set into place.



Tips: • Use a timber spatula to smooth the adhesive line and to allow the adhesive to transfer to all parts.

Shaping Directions:

- Use a special straight router bit with an oversized bearing to cut the sheet from the center of the bowl.
 - Use a template to pre-cut the sink cutout before installing it
 - Make the final cut with the router and designated bearings
- Begin from the top so you don't cause damage to the edge
- Use bowl router bits to shape either a flush or other types of bowl edge trims



Tips: • In order to visualize the sink and determine how it will bond to the surface, it may be helpful to pre-cut the sink cutout or make a pilot hole in the centre.

Under-mount

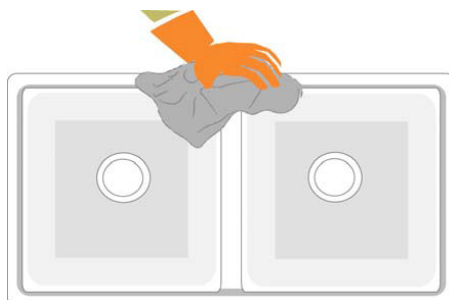
There are many different types of sinks that meets every individual's needs. Pietra is able to support all different types of sinks including stainless steel, cast iron, marble, etc.

It is important to have the actual sink available during the template phase. Since there are so many different types of sinks, without actually having the sink on hand may cause unfixable mistakes during the installing process. The template technician can make an exact cutout of the actual sink if you have it during the template phase. For special directions, consult the manufacturers of the sinks.

By now, the template technician should have taken measurements of the sinks, faucets, cooktop, and other appliances that are to be installed on the countertop. This is a good time to contact the template technician to check that the measurements and cutouts are accurate.

Overview:

- Under-Mount Sinks are usually installed with 100% silicone.
- The weight and style of the sinks determine what type of clips to use to hold the sinks in place.
- Please check with the manufacturer for more details on the different types of clips and how they are used.
- Usually, predrilled slots are available in order to clamp the clips to the sinks.
- Clean the sink and the installation area with denatured alcohol or methylated spirits.
- Place a bead of silicone on the installation lip of the sink.
- Use either the clip or other device to properly lift and hold the sink in place.
- Wipe off excess silicone, easily remove adhesives using denatured alcohol.
- Have some other support for the sink, in addition to using 100% silicone. Consult your sink manufacturer on specifics tools and equipment needed to support Under-Mount sinks.
- 100% silicone will need at least 24 hours to dry. Do not touch or use the sink or surrounding areas for at least 24 hours.



Drop-in

Drop-in Sinks may not be the first choice for consumers; however, drop-in sinks remain a common fixture in bathroom and kitchen environments.

Overview:

- Clean the sink and the installation area with denatured alcohol.
- Place a bead of silicone around the edges of the cutout.
- Drop-in the sink.
- Apply a bead of silicone where the sink and countertop meet.
- Wipe off excess silicone.

Note: Drop-in sinks have some advantages over under-mounts:

- The edges for Drop-in sink cutouts do not need to be polished.
- Drop-in sinks are less time consuming and have less risk during installation.

Cast Iron and Other Heavy Sinks

There are many different methods to use when installing Cast Iron or other heavy sinks to Pietra surfaces. It is important to consult basin manufacturer for instructions that pertain to specific types of sinks.

Drop-In:

- Follow the instructions in Section “Drop-in above”.
- If further instructions are need, contact the sink manufacturer for assistance

Under-Mount:

- Follow the instructions in Section “Under-mount”
- A special frame is needed to support the weight. Use a 25mm x 75mm (1”x 3”) hand-made wood frame OR a pre-made frame (can be purchased through tool suppliers)
- Attach the frame to the sink base cabinets
- Note: The frame should be strong enough to hold the weight of the sink, water, and other items in the sink
- Install the sink, place the sink on the frame
- Connect all plumbing
- Install the countertop
- Apply silicone around the sink
- Position the countertop in place
- Wipe off excess silicone from sink and countertop

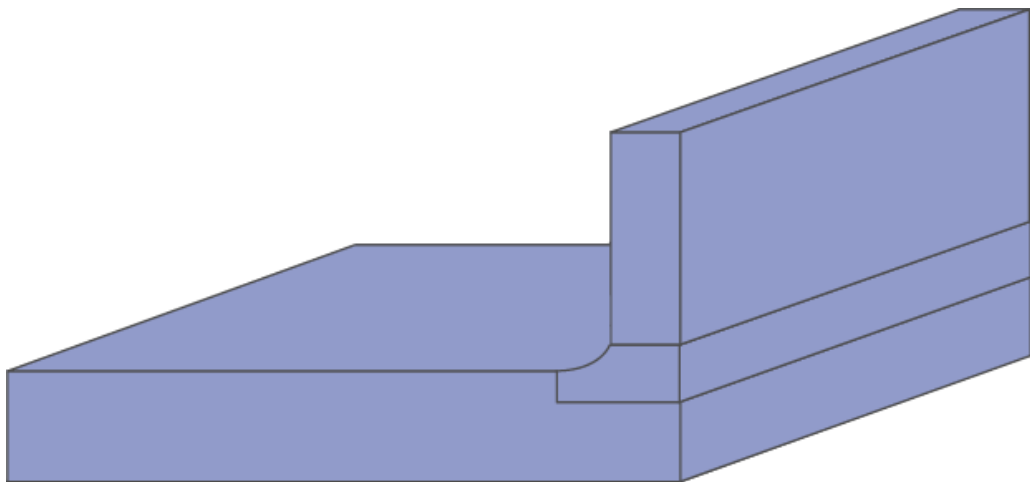
12. Splashbacks / Backsplashes

Coved

Integrated Cove Backsplashes is a unique characteristic that drives consumers toward selecting solid surfaces as their first choice. Though it is very popular among customers, there are specific fabrications techniques that must be followed. Correct fabrication and installation results in a countertop that includes beauty, character, and functionality.

Precautions:

- The on-site template needs to be created to the exact shape of the wall and cabinets.
 - Incorrect templates will cause gaps along the top edge
 - If the wall is distorted, you may have to fit a Pietra cap to the top edges.
- Same materials need to be used during the fabrication process
 - It is recommended to use same sheets or sheets from the same Batch Number
- Seam lines should be invisible
- Insert the cove build up into a notch in the deck
 - This process strengthens the backsplash and creates a proper seam.
 - If there isn't a notch in the deck, seam lines will be visible and the countertop is void of its warranty



V-Groove

One of the fastest and easiest ways to install a coved backsplash is by using V-Grooving machines. The only setback is that these machines can be quite costly. There are other options that can produce excellent results.

Specific techniques need to be used depending on the equipment of choice. Always consult the equipment manufacturer for special instructions before using the tools. Overall, V-Grooving machines rout specific shapes into the material so that it can fold to a 90° angle.

Directions:

- Adjust the equipment according to the thickness of the material
- Place the correct type of tape (recommended by the manufacturer) on the backside of the cut. The tape will hold the material in place
- Run the material into the machine
- Wipe the cut area with denatured alcohol
- Apply seam adhesive and fold up the material to create the coved backsplash
- After the adhesives dries, sand and polish for a clean finish

Tips: Due to the special characteristics of V-Grooving machines, you do not have to make a notch in the deck.

The special "V" cut results in the backsplash being in accordance to the standards.

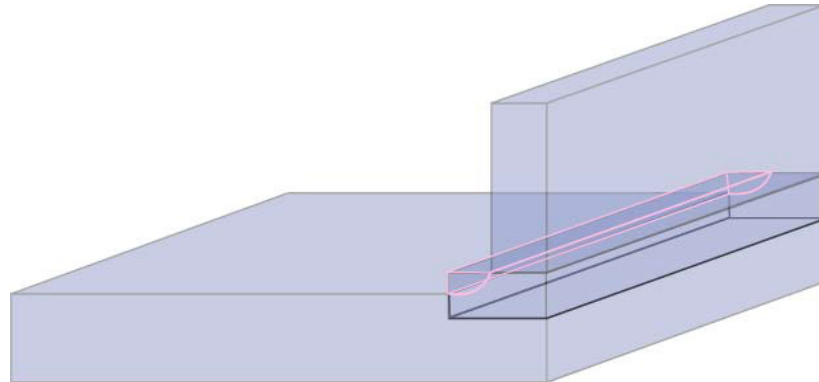
Integrated

Another method is the integrated Coved Backsplash. This is also a popular choice with consumers and fabricators because it is easy to complete and the cost of tools are quite minimal.

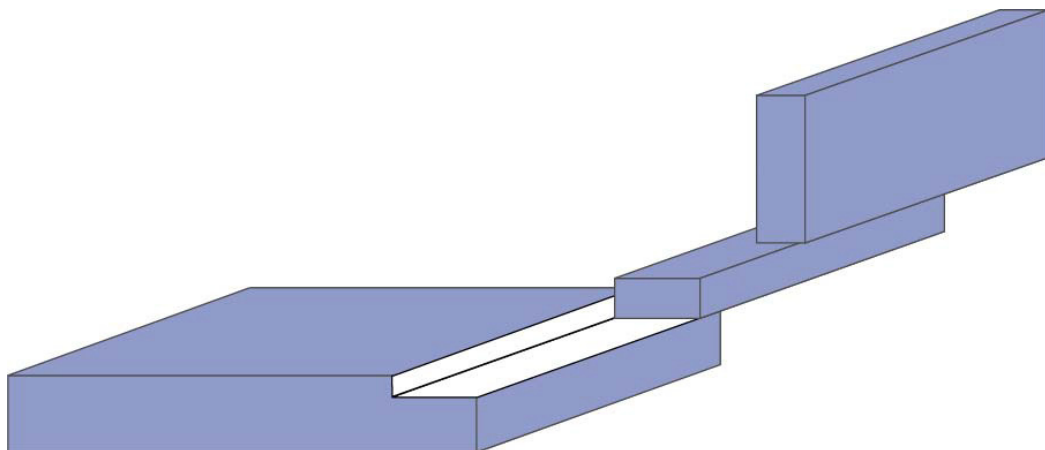
Direction:

- Cut the Backsplash (A) piece 10mm (3/8") shorter than its normal height
- Insert (B) piece will add the 10mm (3/8") in height
- Insert (B) piece needs to be 20mm (7/8") thick
- Measurements needs to be 12mm (1/2") x 10mm (7/8") x length of backsplash
- Smooth both pieces and seam them perpendicular to each other
- Use spring clamps and set them 150mm (6") apart for the entire length of the backsplash

-
- Use a rabbit bit to create a notch on the top 3mm (1/8") deep and 20mm (7/8") wide. This is where the backsplash will be placed.

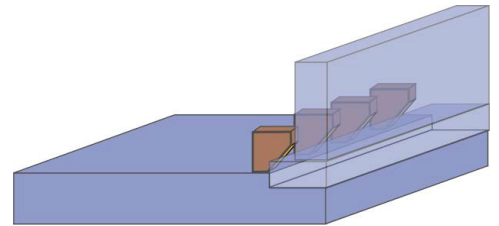
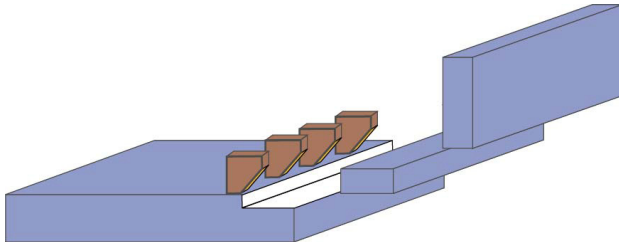


- Once the notch is complete and the glue has dried, prepare to put all the pieces together.
- Keep all the backsplash pieces perpendicular to the countertop
- Use a MDP or particleboard and make square blocks with one 45° edge. These pieces will hold the backsplash to the top
- Put the blocks 300mm (12") apart all across the length. One block needs to be placed 50mm (2") from both ends
- Dry fit the pieces and clamp them down to check if there are any gaps or faulty parts
- Hot glue the blocks to the deck. All blocks should be against the backsplash
- The blocks should be placed so that the backsplash is exactly perpendicular to the deck

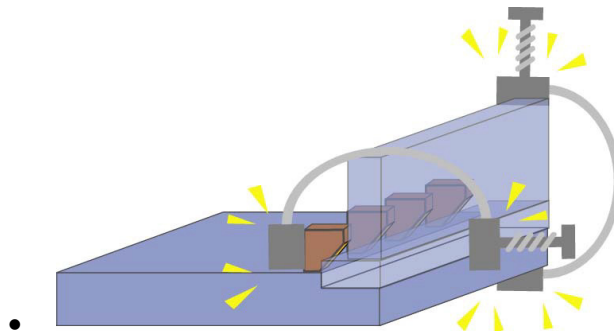


- Once the blocks are all hot glued to the deck, wipe the notch and backsplash area down with denatured alcohol or methylated spirits.
- When the area is completely dry, apply Pietra MMA seam adhesive to the notch with 3mm (1/8") bead.

- The adhesive bead should be applied to the front, back, and middle parts of the notch



- Put the backsplash piece into the notch and clamp it down. Clamp from the front to back first to ensure that the backsplash is glued down firmly and perpendicular to the countertop
- Clamp the bottom of the backsplash to the blocks so that the splash pushes against the front side of the notch and creates an inconspicuous seam



Tips: Place the backsplash slightly back and push it forward as you set it in the notch. This will help the seam adhesive to be under the splash and in front of the seam line.

- Once glue dries, remove the clamps, blocks, and residue.
- Adjust the cove router so that the bit touches the countertop deck and backsplash.
- Run the router from left to right.
- Keep the router up against the splash so it can remove all imperfections.
- After routing out the cove, sand and polish until you get the desired finish

Tips: The cove router has guides that keep the machine 90° to the wall. This keeps the router from damaging the material or the backsplash.

Full High (Installation)

Installing a Full High Coved Backsplash is the most difficult compared to the other previous methods. The templates must be exact and due to its abnormal shape, fabrication needs to be completed at the job site.

Directions:

- Choose a method to fabricate a coved backsplash with a height of 75mm (3") or higher while at the shop
- Once the countertop is installed, complete the template, fabrication, and installation process.
- Make precise templates to ensure proper fit
- In the case templates cannot be taken, take accurate measurements. Mistakes in measurements can lead to altering the backsplash
- Refer to instructions on measurements and templates
- Cut all the pieces using a straight edge and router
- Dry fit the backsplash pieces to ensure proper fit
- Use the Pietra MMA Seam Kit to glue the backsplash pieces together
- Before installation, cut the backsplashes to fit around switches and outlets on the back wall
- Do not use jigsaws to cut the material. Make the cutouts by using small routers
- Dry fit all the pieces for proper installation
- The back wall panel will be placed on top of the backsplash. Apply dabs of silicone and hot glue to hold the panel in place
- Apply the Pietra MMA Seam Kit on the coved backsplash
- Place the back panel piece in place
- Due to the weight of the material, the seam should be tight. Use proper seam joining techniques.
- Once the glue dries, sand and polish the material to meet the desired finish

13. Commercial Applications

Since there are different types of commercial applications, solid surfaces will have to be fabricated and installed using different procedures. Specific instructions and requirements can be found in the Pietra website, Technical Bulletins, and by contacting Customer Service centres.

Applications and instructions differ for commercial use due to the extreme conditions compared to residential use. Commercial surroundings involve extreme temperatures, stress, and other harsh conditions. Pietra 100% Acrylic Solid Surface is beneficial for residential and commercial applications due to its innate characteristics that are able to handle various conditions.

This chapter covers two main areas of commercial applications:

- Food Service Areas (Hot and Cold Wells)
- Bain-Marie

Food Service Areas (Hot and Cold Wells)

- Place the Hot Wells as far away from the Cold Wells
- 150mm x 150mm (6" x 6") High Strength corner buildups need to be used on all cutouts
- Round over 1/8" radius on top and bottom for all cutouts
- Sand down all rough areas
- Several hot or cold wells should be at least 3" between cutouts
- Cabinets located under wells need to be well ventilated
- Apply heat barrier and/reflection tape
- Follow all recommendations and instructions given by manufacturers

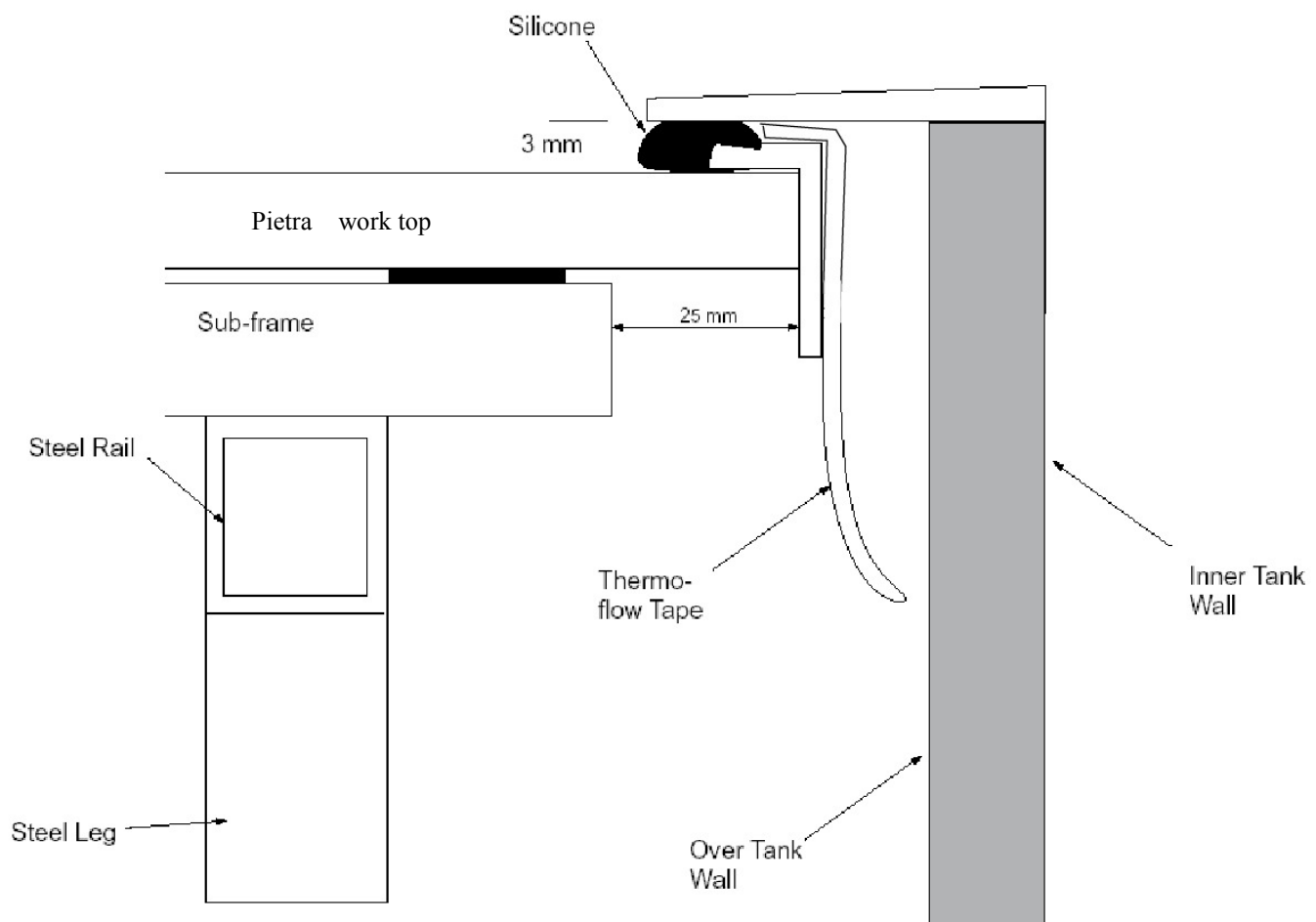
Note:

- NEVER position joints or seams across Hot and Cold Wells.
- Cabinets, joinery and sub-frames must be strengthened to limit movement from expansion and contraction.

Bain-Marie

(A large pan containing hot water that can hold smaller pans in order for slow cooking and/or food warming purposes).

- The manufacturer of the stainless steel tank is required to manufacture all hot tanks with inner and outer walls
- There is specialized insulation between the skins to reduce heat transfer to the countertop
- The flange of the stainless steel tank should be aligned at least 3mm above the countertop surface
- Fill the gap with heat resistant silicone
- Apply heat barrier and/or resistance tape before fitting the tank



14. Finishing

Sanding Pietra worktops is a relatively simple procedure as tops are supplied part-finished. Having said this there are instances where thick layers of joining compound or Pietra material has to be removed, this can be done using an aggressive sand paper (120, 180 to 240grit). As a smoother surface is required it is important to progress through sand paper grits. This progression should not jump too many grits of paper as this will not shorten the process. It is more important to gradually progress as the following chart explains:-

1. Sanding should be done using either aluminium oxide paper, Micron Graded Papers or Abranet papers.
2. Rotary eccentric type of sander fitted with a dust extraction system is recommended to be used on Pietra. Orbital sanders can also be used for more course grade grit sand papers - up to say 320 Grit.
3. For best results, keep grit changes very close through the sanding process to ensure all surface marks are removed.
4. Sanding Pattern, north - south then east - west, 2 patterns. For finer papers, sand in small circular motion. The circular motion should be done in both directions.
5. Clean the Pietra surface between uses of different Grit Papers. This dust is the same size as the paper just used. So if the next grit is used without wiping it down, then there will be scratches left behind, the size of the previous sandpaper.
 - To ensure an even coverage, overlap $\frac{1}{2}$ the distance of the pad on the sander.
Example: 150mm pad = 75mm overlap.
 - Jumping grade of grit may result in an unsatisfactory finish.
 - Whilst Pietra dust is considered a nuisance dust only, a dusk mask and eye protection must be wore at all times and a dust extraction system is recommended.

Note: These sanding procedures using Abranet sanding discs are designed for air sanding & vacuum systems. When wet sanding finishes are required, switch off and disconnect vacuum system.

Matte Finish

	Paper Grit
Aggressive initial sanding (if required)	(P120)
Intermediate sanding	(P180)
Progressive sanding	(P240)
Fine sanding	(P320)
Additional Fine sanding (Dark Colours)	(P400)

Satin / Low Sheen Finish (Regular Pietra Finish – Solid)

	Paper Grit
Aggressive initial sanding (if required)	(P120)
Intermediate sanding	(P180)
Progressive sanding	(P240)
Fine sanding	(P320)
Additional Fine sanding (Dark Colours)	(P400)
Ultra-Fine Scotch Brite (with Water & Detergent*)	(3M Lt Grey Pad)

* suggested dilution ratio 1:20

Sheen Finish

	Paper Grit
Aggressive initial sanding (if required)	(P120)
Intermediate sanding	(P180)
Progressive sanding	(P240)
Fine sanding	(P320)
Ultra-fine sanding	(P400)
Ultra-Fine Scotch Brite (with K&H Compound**)	(K&H Extra Cut)

** suggested dilution ratio 1:10

Clean the Pietra surface between use of different Grit Papers.

Note: Very light colours such as white will provide better performance to staining when a sheen finish is used.

Gloss Finish

	Paper Grit
Aggressive initial sanding (if required)	(P120)
Intermediate sanding	(P180)
Progressive sanding	(P240)
Fine sanding	(P320)
Ultra-fine sanding	(P400) Wet Sanding
Additional Fine sanding (Dark Colours)	(P600) Wet Sanding
Extra Cut Compound with Lambs-wool Pad	(Gelson 1010)

High Gloss Finish

	Paper Grit
Aggressive initial sanding (if required)	(P120)
Intermediate sanding	(P180)
Progressive sanding	(P240)
Fine sanding	(P320)
Ultra-fine sanding	(P400) Wet Sanding
Final Fine sanding	(P600) Wet Sanding
Extra Cut Compound with Lambs-wool Pad	(Gelson 1010)
K&H Finishing Glaze with Lambs-wool Pad	(K&H Glaze)

1. BUFFING MACHINE - 178mm Right Angle Polisher with 178mm flexible backing pad - 14mm Female Thread for Electric Machines, 5/8" Female Thread for Air Machines.
2. Clean all signs of dust and sanding grit from the face of the material.
3. Apply thin film of Gelson 1010 Extra Cut compound evenly over surface with buffer pad.
4. Using 1st speed work compound into surface using up and down and back and forward pattern to achieve even finish.
5. Repeat pattern about 3 times Increasing speed after each sequence. Compound will gradually disappear and then lustre will increase. Finish speed of buffer should be 2000 – 3000 (be careful to move quickly at this stage to ensure heat is kept to a minimum).
6. Wipe and inspect. Remove Buffing Pad used to apply Cutting Compound - never use the same pad for the application of both Cutting Compound and Polish - affix Polishing Pad.
 - Apply K&H Glaze to the cutt back area, smear the polish over the entire surface using pad, work until dry and clean. Start low speed, and progress to finish at 2500 – 3000 RPM.
 - Clean surface and remove any excess dried polish.

15. Substrate, Support and Overhangs

Pietra is a strong material which is self supporting when used for vertical walls or in moulded integral bowls, such as sinks and basins. However, in horizontal applications, such as bench-tops, vanities, tables, etc., there must be support under the length of the Pietra sheet, as well as under cut-out sections. Supporting via rails at front and back does give adequate support, provided the carcass top it is being fitted to, is totally level and will remain so.

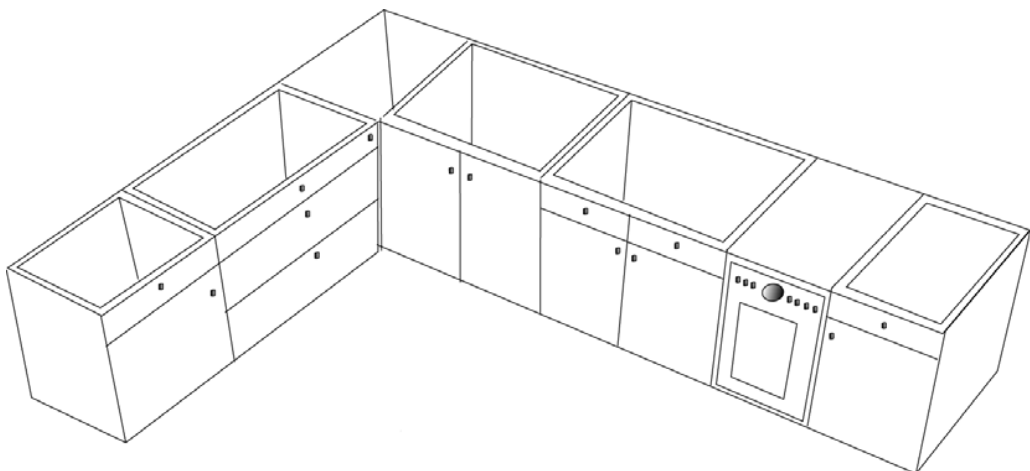
Countertop Level and Support

Building a proper support for the countertop is a critical aspect in the installation process since poor support may cause severe damage, which will not be covered under warranty.

A full perimeter support is a required when installing the countertop to the cabinets. Listed below are three specific ways to build a full perimeter support.

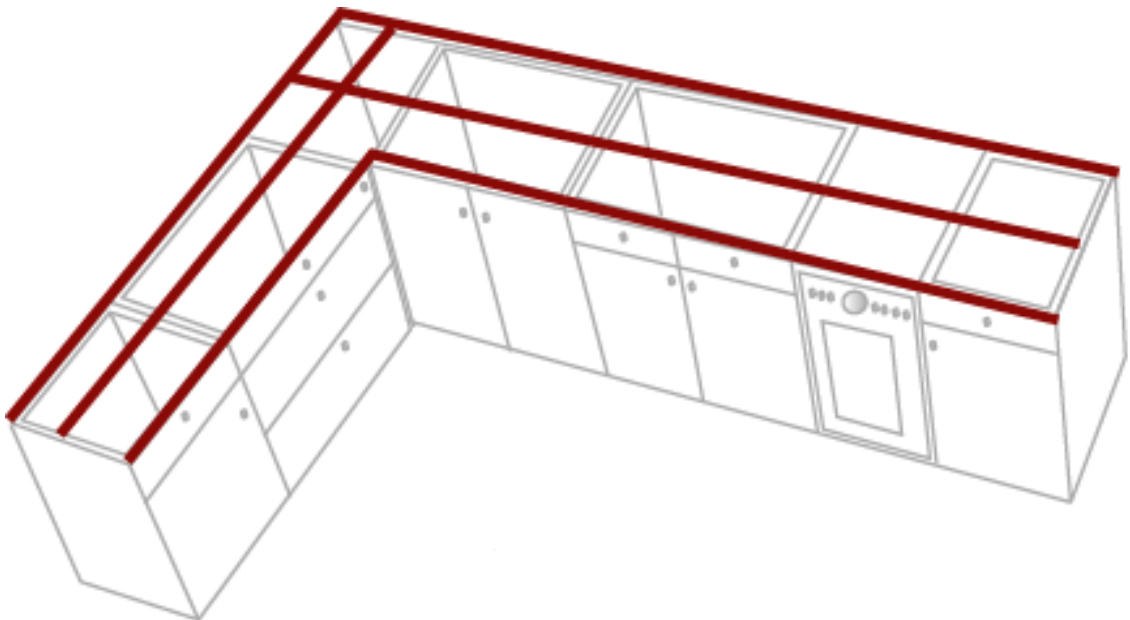
Cabinet Frame:

- Countertops must be supported at least every 300mm (12")
- Some types of cabinets can be used as the full perimeter support
- Check cabinets for sturdy frames
- Extra support frames that are attached directly into the cabinets may be necessary
- Some recommendations for support frames are:
 - Moisture resistant MDF
 - Moisture resistant Plywood
 - **NEVER** use particleboards
- Provide extra support under seams



Full Perimeter Support

- Some edge buildups block access to top drawers and doors, thus making it difficult for the countertops to be installed directly onto the cabinets
- Some recommended support frames are:
 - Moisture resistant MDF
 - Moisture resistant Plywood
 - NEVER use particleboards
- There are various ways the frames can be cut and installed
 - Install the frames on the countertop right before installing
 - Install the frames on the cabinets
- Use 100% pure silicone and hot glue to adhere the strips onto the countertop
 - If you used Stacked Edge buildups with 50mm (2") wide strips, you do not have to place extra support in the front edge
- Leave a 3mm (1/8") gap between the edge buildup and the support strip when you place a wood buildup support behind the edge buildup
 - This gives room for the residual left from the Pietra MMA Seam Kit
 - The gap also allows space for the material to contract or expand in the space between the edge buildup and support strip



- Full under-layment (sub-top) supports are not allowed
- After installation, there has to be air flow on both sides of the material
- Cabinets need to be removed of all built-in dust covers

Framing

- Framing techniques provide support for the countertops, especially when the cabinets are in bad condition.
 - Proper framing of the framing and other supports are required before installation
- The frame can be made by gluing together strips OR by solid pieces with the middle routed out.
- Here is a list of recommended support frames:
 - Moisture resistant MDF 25mm (1") thick
 - Moisture resistant Plywood 25mm (1") thick
 - NEVER use Particleboards for support

Support and Cantilever

The unloaded and unsupported Pietra cantilever length depends on the Pietra overall top thickness and the application in which it is used. The suggested maximum cantilever length is:-

***Maximum Recommended Un-Supported Cantilever
Length - 150mm (6")***

Where the application is subject to live loads (e.g. Bars, Dining Tables, Etc) it is always advisable to support the cantilever. Brackets can be placed under the projected length or, again a solid timber backing can be used, dependent upon the length of the cantilever.

Fabricators may prefer to back the whole of the Pietra top with the timber board for convenience. This method may be quite acceptable providing a flexible adhesive product - such as silicone - is used and necessary gaps are allowed between the substrate and Pietra for differential movement.

Silicone should be applied in dabs 600mm apart along the sub-frame. The silicone dabs or walnuts should be at least 3mm (1/8") bed, giving a minimum final compressed thickness of greater than 1mm (1/32"). Do not squeeze silicone flat as this will counteract the necessary flexibility. Allow silicone to stand for 5 minutes before locating other material.

Where Pietra is used above a dishwasher or similar steam giving appliance, and is backed by timber, then a treatment to seal the timber should be used to ensure steam from the appliance does not swell the timber and place stress on the Pietra.

Over all ***large spans of 300mm (12") or more*** care must be taken to ensure Pietra is adequately supported. For extreme gaps, use of a metal support arm should be considered.

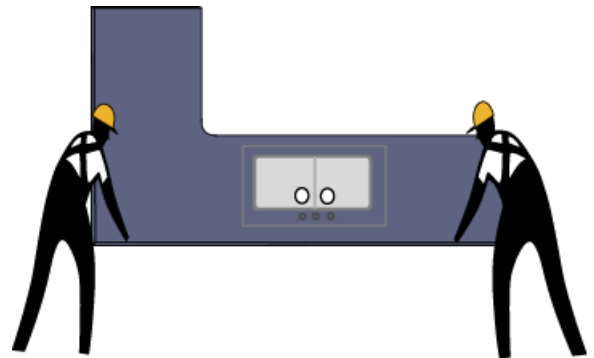
16. Installation

Transportation

In addition to installing the countertop at the job site, it is critical to transport the products to the designated location safely. It is necessary to follow every safety and precautionary measures when packaging, storing, loading, transporting, and unloading fabricated tops. Mishandling of the fabricated tops may lead to damaging the product and/or replacing the product.

Recommendations:

- Never carry, lay, and transport the pieces flat.
- Use an "A" Frame or other supporting device in order to keep the pieces on a vertical or a slight lean
- Carry the material vertically.
- Place support bars or boards for sheets with cutouts
- Do not drag the pieces
- Make sure all pieces are secure when transporting
- Handle the materials just as you would handle glass.



Site Preparation

Fabricated pieces need to be transported with utmost care because the pieces are prone to break. The special design and cutouts make the materials very fragile.

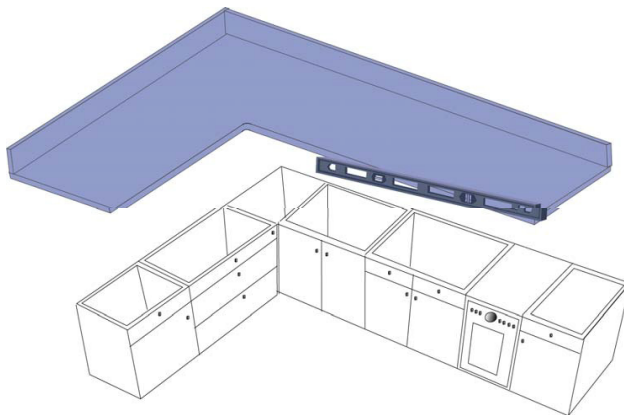
Check the following list before you unload and transport the fabricated pieces into the job site:

- Check that the cabinets are leveled. If the cabinets are not leveled, notify the customer or the contractor.
- Check that the cabinets are high in the middle.
- All cabinets should be secured and sturdy enough to carry the weight of the counter top.
- If you are not satisfied with the condition of the job site, do not unload the fabricated pieces. Do not continue the installation process until the job site meets the specifications mentioned in this manual

Dry Fit

Once all the preliminary precautions are complete, dry fit all the pieces to see if they fit correctly. Some pieces may be larger than its supposed measurements for on-site adjustments. The fabricated pieces are quite heavy, so take extra precaution when laying the pieces on the cabinets.

- Check that the cabinets are prepared correctly before lifting the fabricated pieces
- Since the countertop is heavy, plan with others on how you will lift and maneuver the top
- Always lift vertically
- Lift the top vertically and place it on the cabinets. Slide the top towards the back wall and lower the front to set it in position
- Repeat the above process for all other pieces



After setting all the pieces in place, dry fit the entire top. If you see any discrepancies, make the corrections at this time before you start the installation process. Check the following:

- All pieces fit correctly
- There are no high and low areas
- There is no sagging
- All pieces are properly supported
- Pieces are leveled (unbalance is caused by high middle)
- All seams are aligned
- Shim the seam as needed
- Pull seams together to see how it will look
 - There are 3mm (1/8") gaps at the walls for expansion. Gaps should be 3mm (1/8") for every 3000mm (10') of material

Field Seams

During the initial stages, you must decide which seam will be completed out in the field and which will be completed at the shop.

Listed below are the reasons for Field Seams:

- Size and shape of the top
- Difficulties in transporting
- Accessibility to the job site
- Difficulties in installations

Try to keep field seams at a minimal. All preparations should be completed before arriving at the job site. This will prevent any mishaps and speed up the installation process.

Directions:

- Follow the procedures listed earlier in this manual for Seam Preparation
- At the shop, attach the seam plate to only one side of the seam. See Illustration
- Lay out all the pieces on the installation site
- Wipe the area with denatured alcohol or methylated spirits and let it dry
- Apply seam adhesive to the seam plate
- Leave a 3mm (1/8") gap and place the second piece on the seam plate
- Apply the adhesive along the gap
- Use clamps to pull and tighten the seams together
- Allow the adhesive to dry
- Remove excess adhesive
- Polish to meet the desired finish

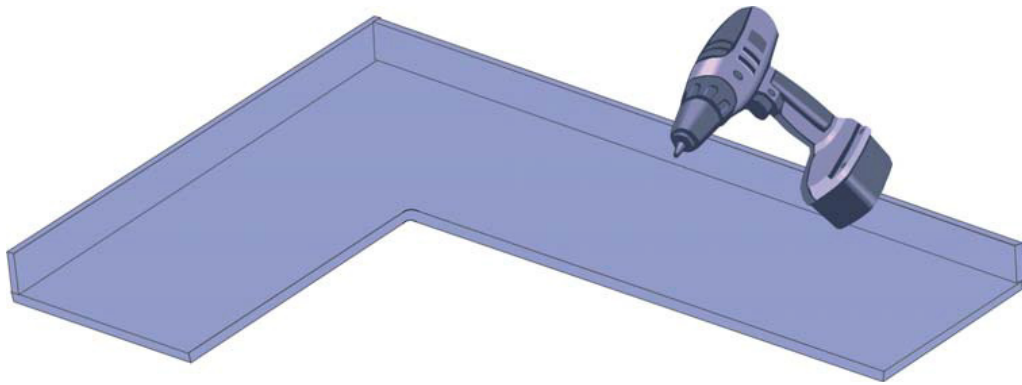
Tips: Take all precautionary measures to reduce dust and noise.
Remember, your customer will appreciate your efforts.

Making Cuts / Drilling Holes

Due to the different styles of faucets, you will have to drill the faucet holes at the job site in order to drill an accurate hole. However, if the customer has the faucet during the initial site inspection or when making templates, you can drill the hole prior to the installation.

Directions:

- You can use a Standard Hole Saw
- Attach a 6mm (1/4") pilot bit to the hole saw
- Most kitchen faucets require a 35mm (1 3/8") hole saw. It is always important to check the size of the faucet and manufacturer's directions
- Centre the hole to the sink or bowl



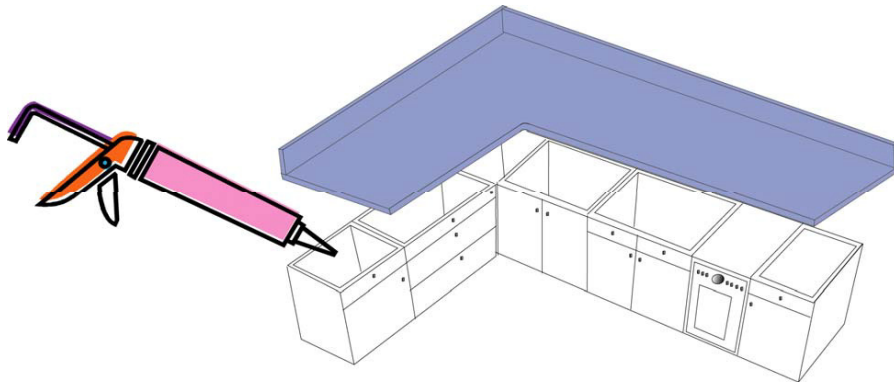
Note: Twisting or forcing the drill while drilling the hole can create cracks in the countertop. As the hole is almost cut, do not push the drill since it can cause damage to the top. Sand the hole for a smooth cut.

Fixing the Top to the Cabinets

You are now ready to fix the top to the cabinets. The cabinets should be fully supported to prevent sagging or breaking. The cabinets should be able to support heavy loads by having perimeter frames. Also, make sure the support for the seams are strong and equally distributed for the sinks and other cutouts.

Fixing the top to the cabinets:

- Use 100% silicone to glue the top to the cabinets. Flexible silicone allows the top to expand and contract. Do not use liquid nail or other strong adhesive
- Put the dabs of silicone about 250mm (10") apart
- Let the silicone dry completely by letting it sit for at least 24 hours



Installing Appliances

Pietra solid surface worktops are known for being non-porous, and stain, scratch, and heat resistant. Even with these innate characteristics, it is still important to take precautions to prevent damages when installing cooktops and other appliances.

Listed below are some common guidelines in installing appliances to Pietra worktops:

- Always refer to the specifications and instructions provided by the appliance manufacturers.
- Do not place seam on or near a dishwasher.
- Do not screw anything into Pietra.
- Secure the dishwasher tightly to the countertop frame or cabinets. If it is not secure, the shaking from the dishwasher will crack the countertop.
- Refer to chapter cooktop cutouts. Apply a heat barrier or heat reflection tape around the cutout to reflect the heat.
- Two layers of aluminium tape allows better heat dispersion.
- Do not fold the tape under the edge. This causes heat to transfer to the countertop.

Installation Check List

Use the following check list to go through the basic steps for installation. Do not consider this list to be complete since different jobs require other additional steps.

- Installations need to be colour matched and in good condition.
- All installations are flat
- There are no gaps between the countertops and the cabinets.
- The cabinets should be flat and leveled.
- There is a full perimeter support for the top. The countertop should be supported at least every 300mm (12")
- There needs to be a 36mm (1/8") gap for every 3000mm (10') of material when the surface is enclosed between two walls or other obstacles.
- Do not install any mechanical fasteners directly into Pietra. Use proper fastener guides
- Leave colour matched material with the customer for future repair. Minimum of 600mm x 300mm (2 sq. ft.) is required
- All seams need to be supported properly.
- Inside corners must have enough radius (Minimum of 12mm 1/2"radius).
- Support all overhangs properly.
- Remove all damages by sanding and polishing
- Install cooktops and other appliances properly.
- All cutouts must be fully supported and precisely fabricated.
- Remove all "Stress risers"
- Have a copy of "Care and Maintenance" instructions available.
- Answer all of customer's questions.
- Go over "Care and Maintenance" with customer

18. Care and Maintenance

Deralam Laminates takes great pride in providing the best quality Pietra solid surface worktops to our clients. In addition to creating a solid surface that is elegant, practical, and versatile, we also created our products to require as less care and maintenance for our customers who are busy in their daily lives.

From spills and stains to more serious damages, the care and maintenance guide will provide you with easy solutions to help you maintain your Pietra solid surface worktops and keep it looking as new as the day it became part of your home.

Routine Care

Routine cleaning of your Pietra solid surface worktop is based on the colour and finish. The usual finishes consist of three types: matte/satin, semi-gloss, and high-gloss. Frequent cleaning of your countertop will increase the gloss level of your top over time. Also, darker colors require more frequent cleaning and care. Dirt and residue can easily be removed by using water, soap, ammonia-based cleaners, and/or solid surface cleaners. You can also use countertop polishes to enhance the gloss level of your countertop.

Specifically for sinks and bowls, you can use the previous mentioned procedures or use a green Scotch-Brite pad to remove residue. Green Scotch-Brite pads are not recommended for routine cleaning on countertops.

In order to remove hard and difficult stains on countertops, sinks, and bowls, you will have to use different products to get the best results. Please follow the suggested cleaning procedures.

- **Matte/Satin finish:** Use a wet green Scotch-Brite pad and an abrasive cleanser and rub in a circular motion.
- **Semi-gloss finish:** Use a Soft Scrub cleanser with diluted household bleach and a wet white Scotch-Brite pad and rub in a circular motion.
- **High-gloss finish:** Same procedure as semi-gloss finish but use a sponge, NOT Scotch-Brite.

To disinfect solid surfaces, wipe the area with diluted bleach and wipe it dry with a towel. For sinks and bowls, let the diluted bleach, stand for about 15 minutes, then wash the surfaces and rinse with water.

Preventing Damage

There are quick and easy solutions to repair accidental and minor damages. However, it is most crucial to follow these precautionary measures to prevent severe and permanent damages.

Always use a cutting board. Cutting directly on top of the solid surface will scratch the countertop.

Avoid exposing solid surfaces with strong chemicals, such as acetone-based cleaners and solutions. If surfaces are exposed to these chemicals, quickly rinse the surface with water.

Keep direct and indirect heat away from countertops. Pietra has innate properties that make it heat-resistant, however placing heat-generating appliances directly on top of the surface will damage it. Use a trivet or hot pads when placing hot objects on countertops. Also allow cookware to cool before placing them in the sinks.

Removing Minor Cuts and Stains

The beauty of Pietra is that the surfaces are renewable, which means you can make your solid surfaces look just as new as the first time it was installed. You can remove minor damages like cuts and stains by following easy-to-follow procedures. Again, it is crucial that you use the correct procedures for the specific finishes:

- **Matte/Satin finish:** Sand the affected area with 240 and 320 grit fine sandpaper until the scratches/cuts are no longer visible. Use water, soap, and a green Scotch-Brite pad to restore the finish. Rub in a circular motion until the finish matches the surrounding finish.
- **Semi-gloss finish:** Sand with 400 grit sandpaper until the scratches/cuts are no longer visible. Use a non-abrasive cleanser and a white Scotch-Brite to restore the finish. Rub in a circular until the finish matches the surrounding finish.
- **High-gloss finish:** Sand with 400 grit or 600 grit sandpaper. Use a low-speed (1500-2000 rpm) polisher with a wool pad and a countertop polishing cleaner to buff the affected area. Rub the surface with wax.

Deralam Laminates recommends that severe damages should be repaired by Certified Fabricator.