CROSSVILLE®

Porcelain Slabs

crossvilleinc.com

Crossville's Fabrication Guide

Volume 3
August 2021

Information listed here is subject to change.
Please refer to CrossvilleInc.com
for the latest, most accurate information.

CROSSVILLE®

CROSSVILLE®
Porcelain Slabs
crossvilleinc.com

1. THE PRODUCT

Crossville Porcelain Slabs 1620 x 3240 x 12mm - 63.75"x 127.5" x 0.47"(56.5 sf)

The Crossville Porcelain Slabs in the 1620x3240mm size, 12mm thick (63.7"x 127.5"size, 0.47" thick) provide more creative freedom than ever before. These surfaces are designed for the world of furnishings, from horizontal surfaces to large, top- of-the-line kitchens and bathrooms where extra-large porcelain slabs can be used as an alternative to materials such as marble and stone, which have a higher price and greater environmental impact.
Thanks to their excellent technical performance, Crossville Porcelain Slabs are perfect for areas requiring superior physical performance. The aesthetic value of the large size offers a major artistic advantage, guaranteeing material consistency, in sophisticated, natural shades.

Crossville Porcelain Slab Applications:

Flat surfaces for bathrooms and kitchens, tables, desks and furnishings indoors or outdoors. Crossville porcelain products - including tile, panels, and slabs - are resistant to freeze, frost, and UV light, making them an excellent choice for outdoor use. Exposure to direct, non-shaded sunlight will elevate the temperature of all porcelain products, especially darker colors. Please select products in accordance with the application to ensure maximum comfort.

The Special Features of Crossville Porcelain Slabs:

Crossville Porcelain Slabs are made up of a base slab strengthened with a fiberglass mesh bonded on the back.

Processing surface: 1620x3240mm (63.7"x 127.5").

Porcelain obtained by wet grinding of clay and feldspathic (granite and metamorphic rock) raw materials, with ceramic pigments. Specially shaped by compaction and fired at 1200°C. Structurally reinforced with fiberglass mesh bonded on the back.

Surface suitable for contact with food
Certified by NSF for food zone use.

Easy to clean and maintain
Simple, fast, and easy to clean. Has no special maintenance requirements over time; generally speaking, all you need to clean the surface is warm water and a neutral detergent.

No surface porosity
The water absorption is average 0.1%.

Dimensional stability
Not subject to dimensional variations of any significance, as it has a low coefficient of thermal expansion.

Suitable as an indoor or outdoor solution
Can be used as a surface for interiors or exteriors.

Resistant to heat and high temperatures
The porcelain surface does not contain any organic materials and so its surface is not altered in case of direct contact with very hot items in the kitchen, like pots and pans, and high temperatures.

Resistant to mold and fungi
Does not support the growth of mold and fungi.

Resistance to staining**
Is not affected by prolonged contact with products commonly found in the kitchen that can cause staining, such as wine, coffee, olive oil, or lemon juice, and its color or shine will not be affected permanently.

Resistant to detergents and cleaning products**
Is not affected by prolonged contact with normal household detergents, including products to eliminate grease or lime scale.

Resistant to chemicals, acids, alkalis and solvents**
Is not affected by chemicals, solvents or disinfectants. The only chemical that can damage porcelain is hydrofluoric acid.

Resistant to thermal shock
Sudden changes in temperature outdoors will not damage the countertops.

Frost resistant
The porcelain surface is not affected by drops in temperature or the formation of ice.

Resistance to humidity
The porcelain surface is not affected by long-term humidity.

Resistant to UV light, no alteration to colors
Is not affected by exposure to UV light and will preserve its original beauty throughout its lifetime.

Resistant to flexion
Has a high modulus of rupture.

Resistant to scratching and abrasion**
Is resistant to scratching and deep abrasion. Its properties do not change even if it is subjected to intensive use in the kitchen and frequent cleaning.

NOTE: The information and data given in this Technical Guide have been offered according to our best experience, our best technical knowledge, and the knowledge of our fabrication partners. Given the many and variable situations that may arise, this Technical Guide must be considered purely indicative and therefore, before proceeding with the applications preliminary machining tests should be carried out.

Visit crossvilleinc.com for the most updated versions of the document and the Technical Sheets.

** Not guaranteed for the polished finish as it is more sensitive than other surfaces. However, the polished surfaces still offer a similar or a better performance than other countertop materials.

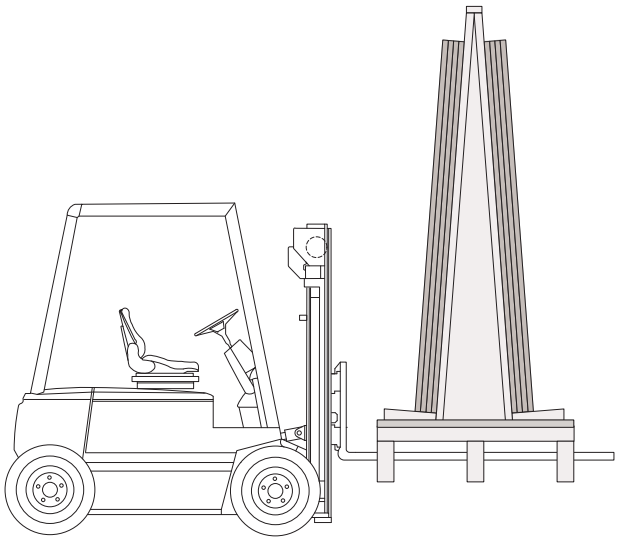
2. HANDLING & STORAGE

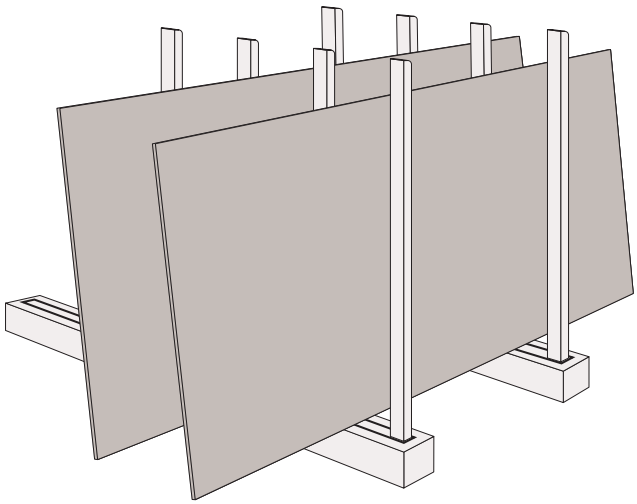
2.1 Packaging

For complete packaging information, please contact your local distributor or Crossville Inc. Customer Service.

2.2 Handling & Storage

The A-frame must be loaded symmetrically before it is moved in order to prevent problems of instability. The operator should always check that the slabs are secured to the A-frame trestle using the proper straps before attempting to move it. Take great care when moving the material, as the outer edges of the slabs may not be protected.





2.3 Loading & Unloading A-Frames

When loading/unloading A-frames, insert the forklift forks into the side of the A-frame with a minimum space between the forks of at least 740 mm (29 in). Use forks that are at least 1800 mm (71 in) long when loading and unloading the A-frame from the center of the truck.

When loading, check that the material is stable, securing the base of the platform to the upper part of the loading pallet. Use suitable straps made from polyester or a similar material. When loading several rows of A-frames, leave a gap between the A-frames of at least 50 mm (2 in).

Before unloading, always check how the A-frames have been secured in place, in order to remove them properly. During loading and unloading, the operator must pay attention to prevent any instability of the load. For this reason, the load should always be in a low position when it is being moved and only lifted when it is in the direct vicinity of the truck.

2.4 Handling & Storage of Individual Slabs

When unpacking the slabs, for safety reasons, it is necessary to alternate sides when removing the slabs from the A-frame: first one side, then from the other. This will maintain the maximum symmetry of the load and ensure greater stability.

Individual slabs can also be moved using rubber-coated canvas straps; the use of chains or steel cables is not advisable as they could damage the material. When moving individual slabs with a glossy finish, use rubber-coated grips.

Slabs can be stored in the warehouse on appropriate supports and metal structures such as trestles or racks, provided the surface where the material will rest in a vertical position is protected with wood, rubber or plastic. The trestle can also be used for storage.

3. PRODUCT INSPECTION

Having carefully cleaned the slab surface, fabricators must perform a visual inspection of the slab prior to processing. Any deformities which may be noted must be reported prior to processing.

Crossville Inc. will not accept any claims or disputes after the product has been processed and/or installed.

3.1 Color Shade

CPC slabs are inventoried by lot. As long as all material comes from the same lot, shade will be consistent unless the decoration is designed to have high variation.

Each shipment could contain slightly different shades in the same finish. Check the color uniformity when using more than one slab in the same project.

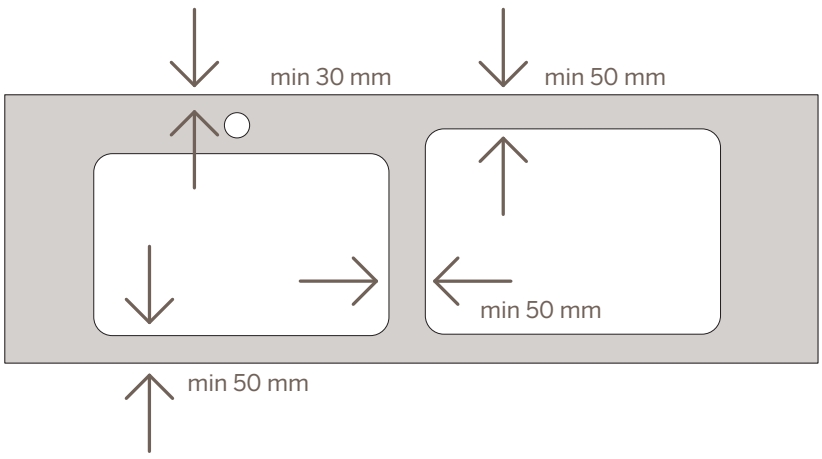
3.2 Size

The term "Full Size" refers to the slab at the end of the manufacturing cycle and without rectification. This is the size destined for fabrication, as the fabricator has the possibility to optimize all potential cutting patterns in line with the required design and at their own discretion.

Each slab can be used to obtain the size 1620 x 3240 mm.

4. DESIGN LAYOUT

4.1 Minimum Distances from the Edges

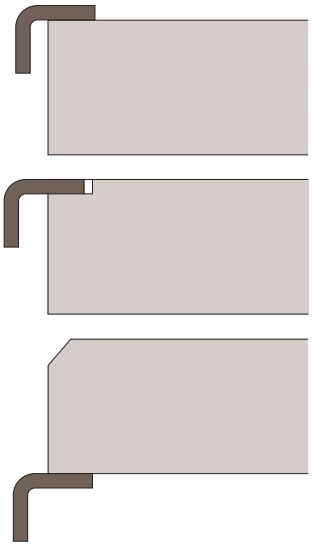


In the design of a kitchen top, maintain a minimum distance of 50 mm (2 in) from the outer edge with large holes and grooves. The same minimum distance must be maintained between adjacent openings.

4. DESIGN LAYOUT CONTINUED

4.2 Fabrication for Sinks & Cooktops

Crossville Porcelain Slabs can be processed to obtain a range of configurations for sinks and cooktops.



Top Mount Installation:

Corresponding to flush-mounting of the most conventional and simple kind of processing, with a protruding edge of a few millimeters, above the work top.

Top Flush Installation:

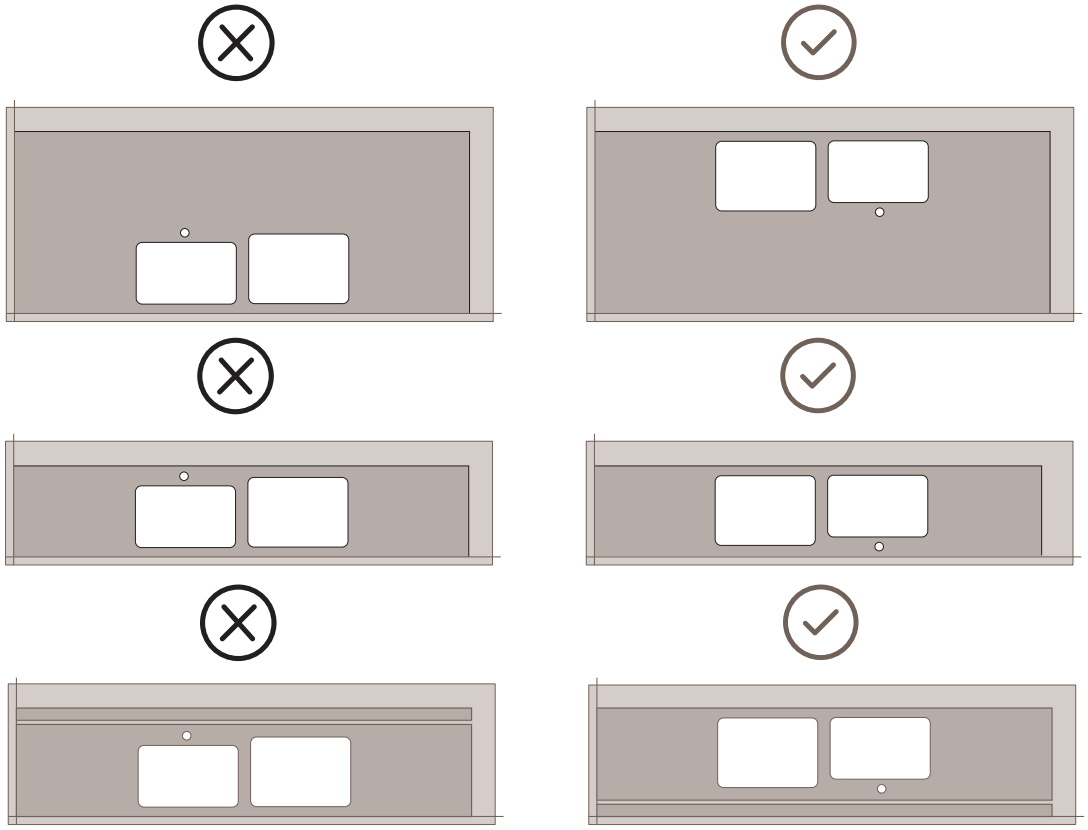
Top flush Installation leaves no overlapping edges and the cooktop is fitted into a groove a couple of millimeters deep made in the top, depending on the thickness of the edge of the sink or cooktops to be fitted into the kitchen top. It is a more practical solution for cleaning but is trickier to fit.

Under Mount Installation:

Used for sinks, this solution ensures the uniformity of the work top surface as it has no edges. Cleaning and hygiene are also quicker and simpler as there are no protrusions to capture dust and dirt. Crossville recommends leaving a 2mm reveal around the rim of the sink in order to minimize impact taken by the edge of the counter. Crossville also recommends removing 2 inches of mesh around the perimeter of the sink hole underside to ensure proper adhesion of the sink to the porcelain.

4.3 Piece Positioning During Processing

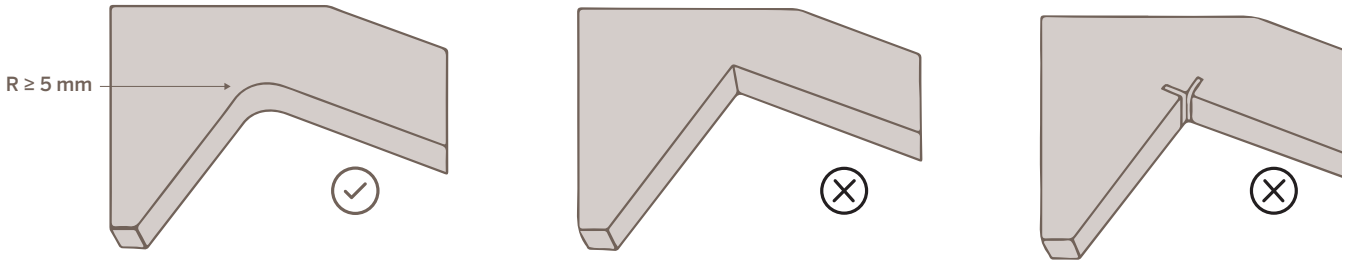
Position the slab during processing to create openings and grooves in the central part of the slab.



4. DESIGN LAYOUT CONTINUED

4.4 Inside Corners

To create internal corners and openings, create a radius of at least 5 mm (3/16 in) in the angle to distribute the stresses, as is generally done when working stone, marble and bonded materials.



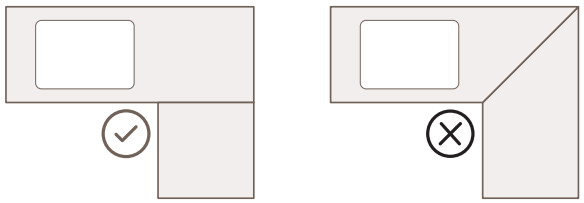
Although not advised, 90° internal angles may be obtained using a water-jet process. This finish increases the possibility of cracking during processing, handling, transport and installation of the top, and the subsequent settling of the various kitchen units.

4.5 "L" Top With Seam

When creating "L" shaped tops, it is advisable to fit the slabs using a straight pattern. When installing the top, fill the seam between the two slabs with epoxy, polyester, or silicone.

A diagonal seam is not advised.

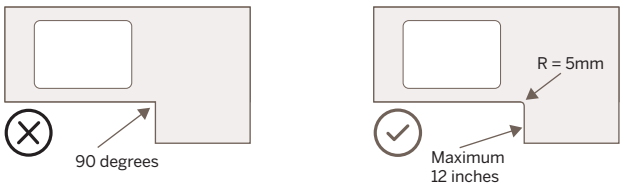
Slabs that have a non-uniform and/ or with a directional pattern, perform a preliminary check on the parts to be joined to make them compatible as much as possible.



4.6 "L" Top Solid Piece

An "L" shaped top can also be created as a single piece but only if the supporting cabinetry is flush and solid.

It is recommended to maintain a 5mm or greater radius for the inside corner and one adjacent side be no longer than 12 inches.



4.7 Reinforcements & Substrates

Tables: To fix the slab to a table frame it is possible to use glass accessories, such as recessing anchoring, with an indicative maximum depth of 6 mm (1/4 in).

Alternatively, depending on the table frame and the use, e.g. indoor or outdoor, it is also possible to use Velcro® or adhesives.

Reinforcements: In order to give more strength to the top, it is important to observe the following guidelines:

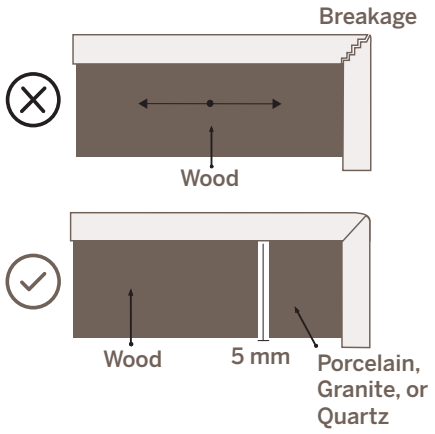
- Countertop supports should correspond to the whole perimeter of the cabinets and across each cabinet section, with particular attention to areas next to sinks, dishwashers, cooktops, and other appliances. Reinforcement must be added when there is lack of perimeter cabinetry support.
- Countertops made directly with front edge and miter cut may be reinforced by the insertion of metal bars, granite, porcelain, or quartz material taking care to use appropriate adhesives.

4. DESIGN LAYOUT CONTINUED

4.7 Reinforcements & Substrates cont..

Substrates: If a full substrate is necessary, cabinet grade plywood, MDO, HDO, foam board, concrete backer board, MDF, porcelain, granite, or quartz is suitable. Supporting with a wood substrate should be avoided in areas (outdoors or above the dishwasher) exposed to frequent moisture, as wood may expand or swell and create pressures acting on the bonded joints causing them to become detached.

We recommend maintaining a gap of at least 5 mm (3/16 in) between the substrate and mitered edge reinforcement in order to compensate for any thermal expansion. Crossville recommends a U/V resistant 2 part epoxy for bonding the miter in outdoor applications.



4.8 Overhangs & Table Extensions

The fabrication of overhangs using Crossville Porcelain Slabs has been tested to standard EN 1730:2012 "Furniture. Tables. Test methods for the determination of stability, strength and durability."

Any overhang exceeding 350mm (13.78in) in length shall be supported by a leg/column, corbel or continous wooden subtop. The countertop or table shall have supports spanning the full width/depth at intervals no greater than 120cm (48 in).

5. FABRICATION

Fabricate slabs using water-based machinery for processing natural stones and bonded materials.

Before cutting check the maintenance of the operating machine, in particular:

- The work top must be solid, clean and intact.
- The work top must be perfectly flat and level.
- The cutting tools must be suited to working porcelain stoneware and must be in good condition.

The operating parameters, in the ranges indicated in this guide, are those recommended by the manufacturers of the machinery and tools and by specialized technicians, but are in any case purely guidelines and must be checked by the user according to the available equipment, his experience and the type of finish to be obtained.

It is therefore recommended that all operators perform preliminary tests on a sample before cutting and processing, to test and suitably program the machine and tools used.

If the cutting finish is unsatisfactory or the operation leads to breakage of the slab, the reasons for this are normally in the incorrect feed speed, operating pressure or blade rotational speed, the incorrect planarity of the support surface, movements or vibrations caused to the slab during the operations, or the incorrect choice of disk or tool.

IMPORTANT: It is recommended to work in compliance with local laws and provisions concerning safety. Do not cut/fabricate dry. Crossville recommends wet cutting/fabrication. Improper cutting/fabrication techniques could expose the fabricator/installer to harmful silica dust.

END PROCESSING / IMPORTANT NOTE: After processing with any type of machine, pay particular attention to the handling of the slab, in particular if openings or inner holes are present. Use suction cups only if equipped with a sufficient number to avoid any bending of the processed countertop. Alternatively, manually move the vertical piece, taking care to avoid twisting. **After each cutting operation using water-jets, disc cutters or numerical control machines, clean the slab surface with plenty of water to remove any processing residues, then dry with a squeegee or similar. Do not store any machine-processed slabs when wet. To eliminate any residues of dust after fabrication, we recommend washing the product using a mild acid-based detergent.**

5. FABRICATION CONTINUED

5.1 Disc Cutting Operations

For cutting on water fed machinery, use good condition diamond blades suited for wet machining porcelain stoneware.

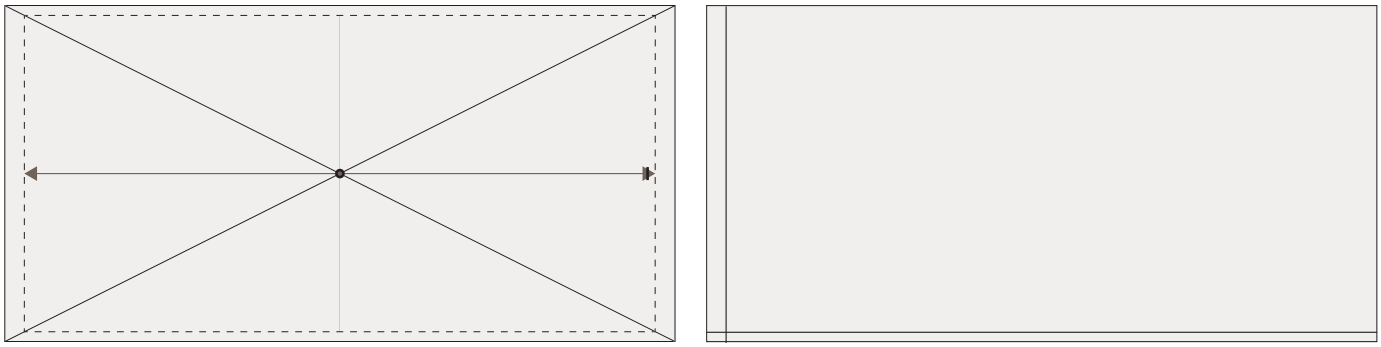
Both segmented and continuous rim blades can be used.

The slab must be fed in the same direction as the blade rotation.

Cutting Diagram:

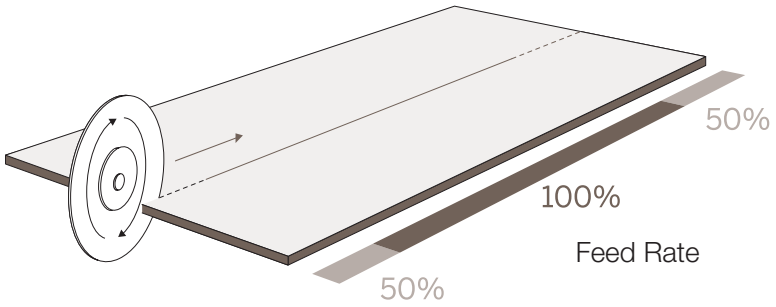
To obtain size 1620 x 3240 mm, set the disc path to obtain the size from the centre of the "Full Size" slab.

Crossville Porcelain Slabs in "Full Size" have non-squared external edges. If necessary, begin by squaring off the two perpendicular sides. Crossville Porcelain Slabs do not require perimeter cuts to relieve stress.



Parameters:

- The smaller the disc diameter, the greater the spindle rotation speed.
- Feed speed will affect the cutting quality, pay attention to the sound.
- The infeed and outfeed speed may influence the cutting quality, if the machine allows, slowing the entrance and exit can be beneficial.
- Correct positioning and amount of water greatly affects the finished quality.
- Limit Vibration.



5. FABRICATION CONTINUED

5.1 Disc Cutting Operations Continued

Below are the recommended parameters for processing. (Based on Italdiamant's Evogres Series).

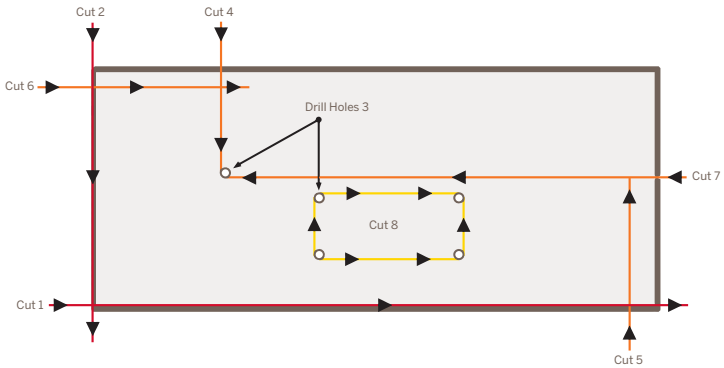
CUT ANGLE	DISC DIAMETER	RPM	FEED RATE: mm / min (in / min)	INFEED / OUTFEED SPEED
STRAIGHT	300 mm (12 in)	2100 - 2800	1000 - 1500 mm (39 - 59 in)	50%
STRAIGHT	350 mm (14 in)	1900 - 2500	1000 - 1500 mm (39 - 59 in)	50%
STRAIGHT	400 mm (16 in)	1500 - 2300	1000 - 1500 mm (39 - 59 in)	50%
STRAIGHT	500 mm (20 in)	1000 - 1600	1000 - 1500 mm (39 - 59 in)	50%
45°	300 mm (12 in)	2100 - 2800	500 - 750 mm (19.5 - 29.5 in)	50%
45°	350 mm (14 in)	1900 - 2500	500 - 750 mm (19.5 - 29.5 in)	50%
45°	400 mm (16 in)	1500 - 2300	500 - 750 mm (19.5 - 29.5 in)	50%
45°	500 mm (20 in)	1000 - 1600	500 - 750 mm (19.5 - 29.5 in)	50%

By appropriately setting the machine it is possible to cut the slab on the bias. When cutting at 45° to join two slabs, the new edge must be chamfered.

For straight and 45° plunge cuts, a plunge rate of 10 - 20 in/min is recommended.

For “L” cuts, first make a hole at the angle, and then the straight cuts. The last part near the hole must be cut by hand using a grinder and/or waterjet. Do not cut/fabricate dry. Crossville recommends wet cutting/fabrication. Improper cutting/fabrication techniques could expose the fabricator/installer to harmful silica dust.

"L" cut: processing sequence.

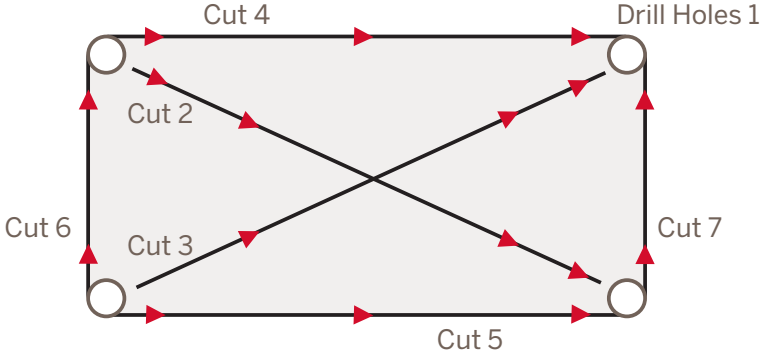


At the end of each processing phase and before the piece has dried, clean the surface with clean water.

Crossville Porcelain Slabs can be machined with numeric control machinery (CNC).
The most complex CNC stations offer the possibility to angle the head to create many different types of shapes and outlines. This machine is used mainly to obtain recesses for cooktops and sinks, edge finishing for flush-mounted tops, holes, edges and curved cuts.

Tools:

The tool must be diamond finished and suitable for processing porcelain stoneware. The choice of tool is linked to the specific processing in question.
Do not make any cuts or holes with oscillating tools.
During machining, use plenty of well positioned water feeds, both inside and outside the tool.

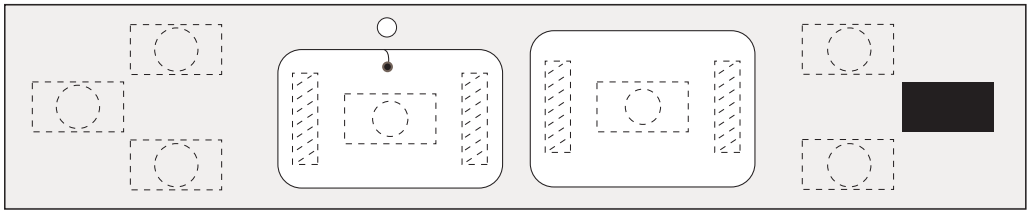


5. FABRICATION CONTINUED

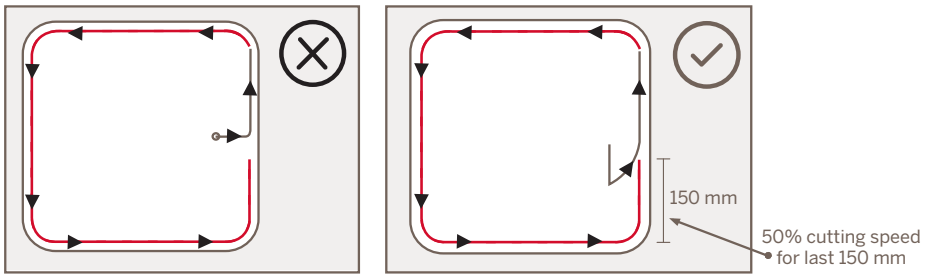
5.2 Numerical Control Machining

Positioning the Suction Cups:

Before starting machining, check the correct grip of the suction cups on the slab. If unsatisfactory, use softer seals of a more suitable thickness. If the slab is not perfectly secured it may move, consequently making the piece unusable.



The correct positioning of the suction cups supporting the slab is a fundamental aspect for successful cutting. For this reason, distribute the suction cups evenly to support the slab particularly near the cut and below the part to be removed after cutting.

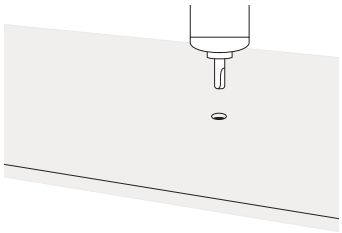


With the cutting feed, it is important to avoid any bending/binding between the part to be removed and the part machined as this may cause cracks and/or breakages. As an alternative to the suction cups, special clamps can be used: in this case, bear in mind that the part the clamp is positioned on cannot be machined.

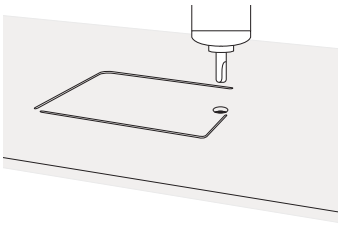
Top Flush Machining:

It is recommended to machine the recess before making the hole. Make the cut to the size and depth required for the appliance being installed. Leave a minimum distance of 2 mm between the sink or cooktop and the countertop surface, to allow for thermal expansion.

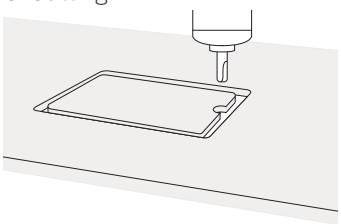
1. Drilling



2. Incremental Cutting



3. Cutting



(These values are based on recommended bits for CPC made by Italdiamant)

METHOD	RPM	FEED RATE: mm / min (in / min)	NOTES
Hole d = 10 - 25mm (3/8 - 1 in)	3500 - 4000	35 mm (1 - 3/8 in)	Cut in steps. Pull up in between
Cutter 20 - 25 mm (3/4 - 1 in)	3500 - 4500	100 - 200 mm (4 - 8 in)	2 mm per step
Top Flush 10 - 20 mm (3/8 - 3/4 in)	5000 - 7000	200 - 300 mm (8 - 12 in)	2 mm per step
Chamfering 30 mm (1 - 1/4 in)	5000 - 6000	1000 - 2000 mm (39 - 78 in)	
Edge Polishing (Matte finishing with metal grinder sequence)	3000 - 5500	1000 - 3000 mm (39 - 118 in)	
Edge Polishing (Polished finishing with resin grinder sequence, after metal grinder sequence)	3000 - 5500	1500 - 3000 mm (59 - 118 in)	

At the end of each processing phase and before the piece has dried, rinse the surface with clean water.

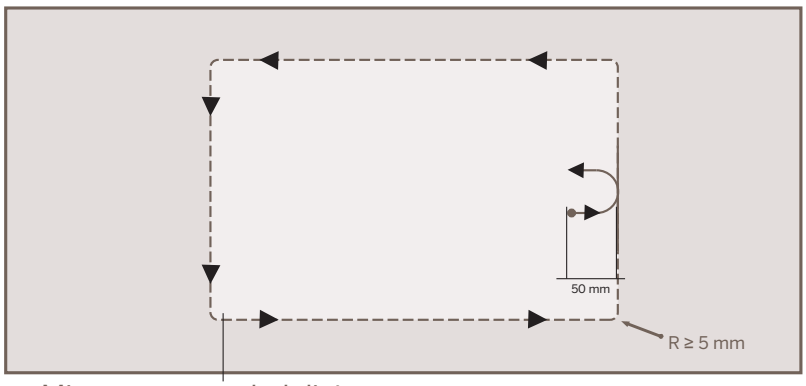
5. FABRICATION CONTINUED

5.3 Waterjet Machining

Crossville Porcelain Slabs can easily be cut with water-jet machines: this method is used for all cutting, shaping and drilling operations with a high degree of precision.

Check that the metal support grid is in a good condition and flat, and that the piece is appropriately fixed to prevent it from moving, which could compromise the quality of the cut.

For openings in the slab, start cutting 50 mm (2 in) inside the hole and then proceed towards the perimeter of the cut. Keep a minimum radius of 5 mm (3/16 in) for internal angles.



Min. recommended distance
50 mm

TYPE	PRESSURE BAR / PSI	FEED RATE: mm / min in / min	CUTTING ABRASIVE	INITIAL PUNCTURE PRESSURE	PUNCTURE ABRASIVE
LIGHT COLOR	3500 - 3800 bar 50,700 - 55,000 psi	400 - 500 mm / min 15.75 - 19.7 in / min	80 mesh 350 g / min	800 bar 11,600 psi	80 mesh 150 g / min
DARK COLOR	3500 - 3800 bar 50,700 - 55,000 psi	500 - 600 mm / min 19.7 - 23.6 in / min	80 mesh 350 g / min	800 bar 11,600 psi	80 mesh 150 g / min

6. EDGES

The materials edge can be finished using automatic machinery or by hand, depending on the visual effect desired.

6.1 Straight Edge & Chamfering

The flat edge is the finish that keeps the body edge of the slab visible. It can be used as a perimeter edge for table tops and kitchen tops, or to finish the sink hole when the sink is fitted beneath the top.

Subsequently, where required, it is possible to polish the edge using a sequence of abrasive diamond grinders, with increasing grit size, on numerical control machines.

To guarantee the durability of the edge over time, the straight edge must end with a chamfered angle of at least 2 - 3 mm.

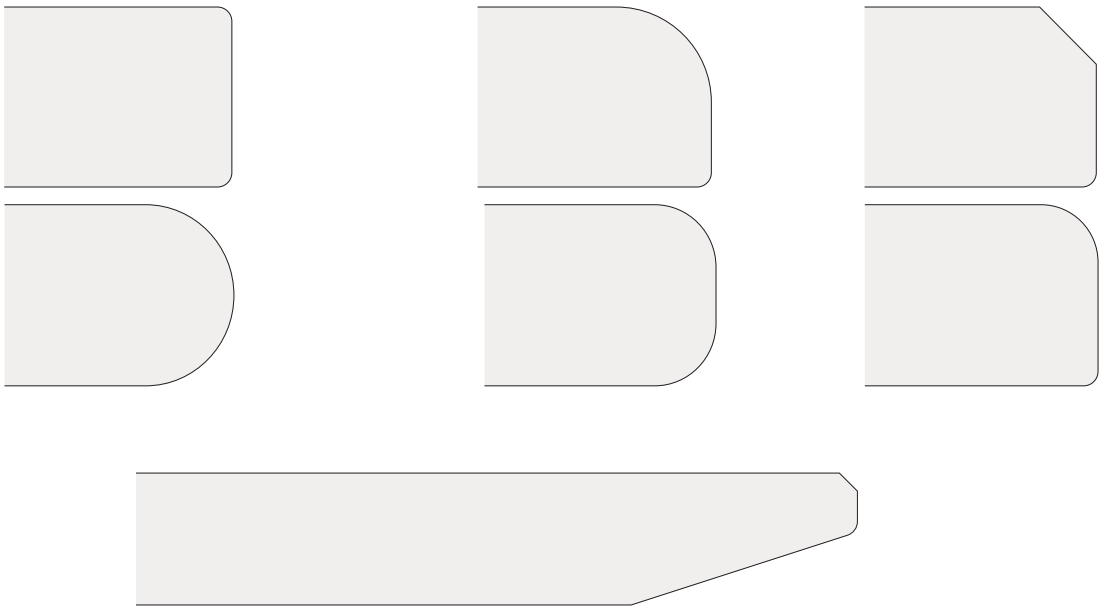
Generally only the upper corner must be chamfered, but in some cases it may be necessary to chamfer on both sides: in this case, use a tool that can perform the operation in a single passage.

The final passes of polishing and chamfering may be completed by hand, using special diamond pads: in this case the precision of the result is linked to the skill of the operator.

6. EDGES CONTINUED

6.2 Other Types of Edges

Other types of edges (such as bullnose and half bullnose) can be obtained using special profiling tools fitted on numeric control machines (CNC). The operating speed must be checked in advance.



Note: To improve the appearance of visible edges, the reinforcing mesh can be removed along the perimeter of the slab by hand with a diamond pad. **At the end of each processing phase and before the piece has dried, rinse the surface with clean water.**

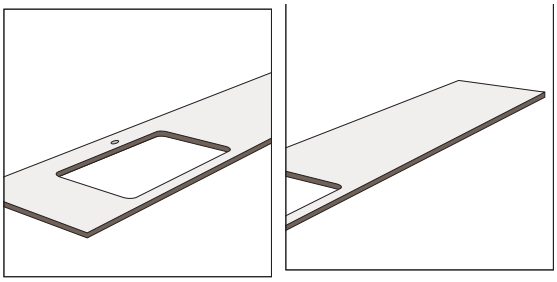
This should be done for a maximum width of 50 mm (2") from the outer edge.

7. TREATMENTS

Once cut or machined, edges should be treated with commercial transparent protective products to maintain stain resistance. For example, visible edges along kitchen tops, tables ,or along sink openings. Refer to the manufacturer's Technical Sheets for the correct application of the chosen product.

Below is a selection of products available on the market.

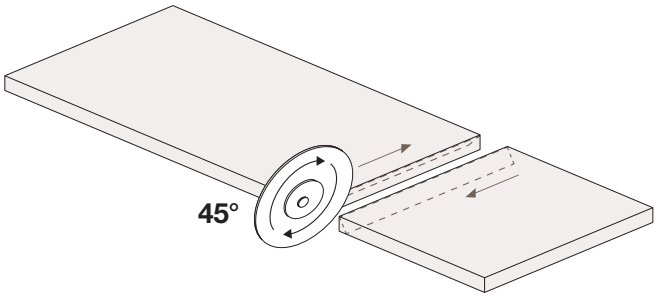
MANUFACTURER	EDGE TREATMENT	MANUFACTURER'S WEBSITE
Akemi	Ever Shield - slight color change Transformer - "faded effect"	www.akemi.com
Tenax	Progress - "faded effect" Ager - "wet" effect	www.tenax4you.com

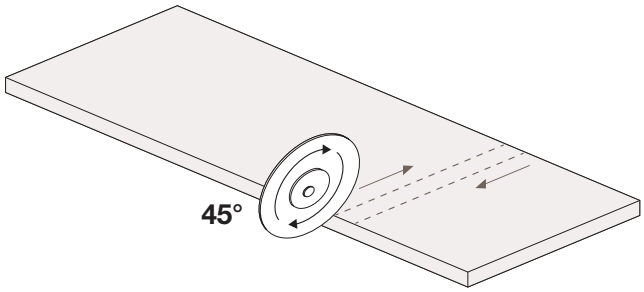


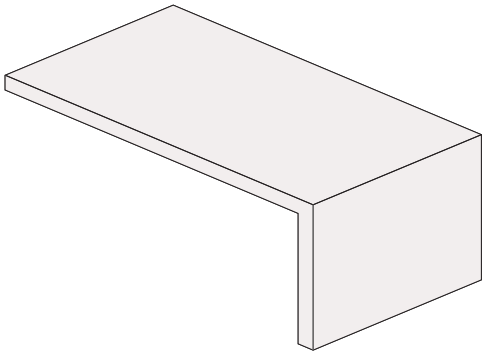
8. BONDING

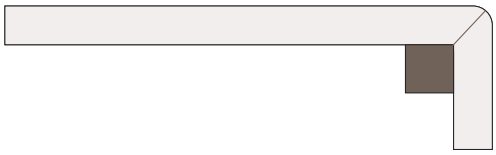
8.1 Miters

Crossville Porcelain Slabs can be machined to create continuous joints to achieve the appearance of a thicker slab.









Note: It is highly recommended to reinforce the miter with metal bars, granite, porcelain, or quartz

8.2 Edge Bonding

To join Crossville Porcelain Slab edges, use a color matched 2-part epoxy, polyurethane, or equivalent.

We also recommend that a mock-up be prepared for the first bonding, testing the sample under the most severe conditions, according to the final application, to assess the stability of the support panel.

NOTE: Remove any adhesive residues before hardening with acetone or solvent as indicated by the manufacturer. 2-component products are difficult to remove once hardened.

Below is a selection of products available on the market.

MANUFACTURER	ADHESIVE FOR BONDING SLABS	MANUFACTURER'S WEBSITE
Akemi	Colour Bond (internal use) Akepox 5010 (internal use) Coloured Cartridges	www.akemi.com
Tenax	Powerbond	www.tenax4you.com
Integra Adhesives	Integra Xi Coloured Cartridges Integra Ultra (per esterno)	www.integra-adhesives.com

8.3 Adhering to Other Materials

When adhering to different materials you must consider:

- The technical characteristics of the slab and the chosen material, including thermal expansion and humidity,and the use of the finished product, for example indoor or outdoor.

9. TRANSPORT & INSTALLATION OF THE FINISHED CROSSVILLE PORCELAIN SLAB

During handling, transport, and installation of the finished top, avoid any excessive bending, twisting, or impacts particularly on the edges.

9.1 Packaging & Transport

Once the slabs have been fabricated, handle the finished countertop vertically, keeping any openings towards the top.

If transported on trestles or stands, make sure that these are of the right size to completely protect the finished piece.

The edges can also be protected with foam rubber or polystyrene corner guards.

9.2 Installation

When installing directly to cabinetry check that the base supporting the countertop is perfectly flat and level as well as structurally solid and stable, to ensure that the countertop can be continuously supported by the cabinet units.

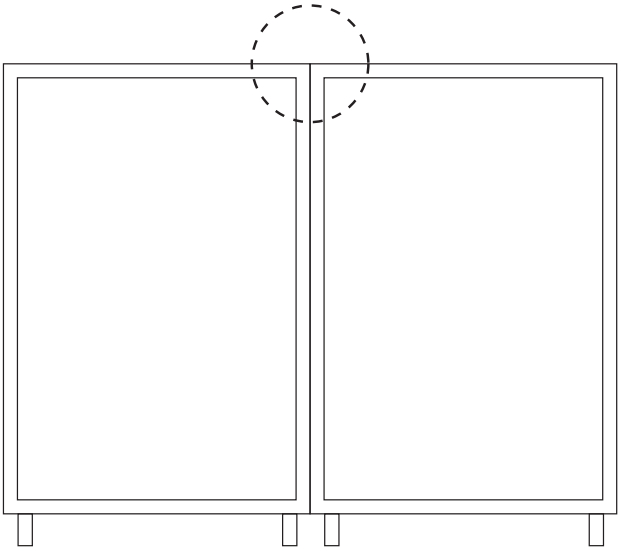
Any cracks in the countertops caused by an uneven supporting surface or the subsequent settling of the units will not be considered a defect of the porcelain product.

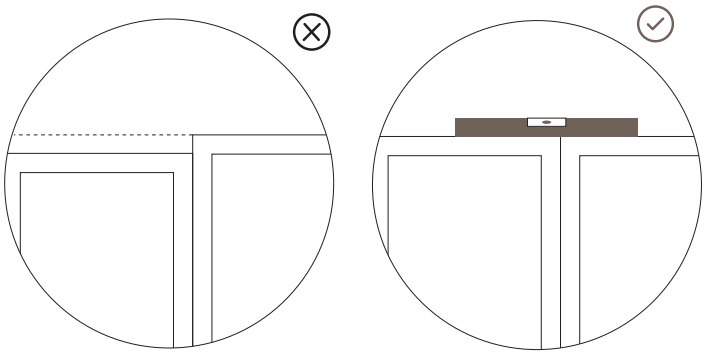
On site, always handle the finished pieces vertically, keeping any openings towards the top. To reduce the risk of breakage during assembly, handle the countertop until it is resting on the supporting surface of the cabinet unit.

Fix to the base using silicone, taking care to spread uniformly.

If the countertop is made of more than one piece, pay particular attention during installation to prevent any impact on the visible edges. This operation can be facilitated with the use of shims between the pieces, that must be removed once in position.

The coupled edges may be minimally chamfered beforehand by the operator to make it easier to join the pieces without chipping. Finally, fill the joint with silicone, epoxy, polyurethane, or equivalent.

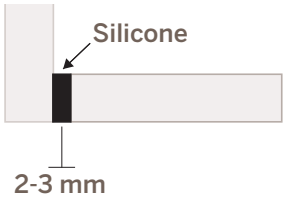


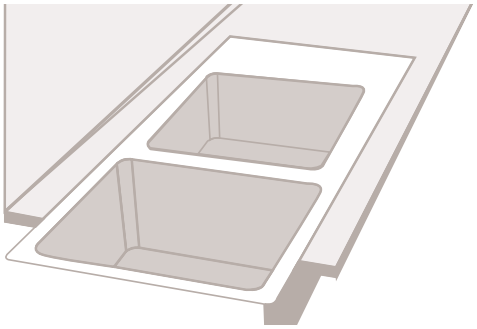


9.3 Wall Joint

Install the top at a distance of 2-3 mm from the wall.

To allow for movement, a 2-3mm gap should also be left between countertop and backsplash material.





9. TRANSPORT & INSTALLATION OF THE FINISHED CROSSVILLE PORCELAIN SLAB CONTINUED

9.4 Installation of Sinks & Cooktops

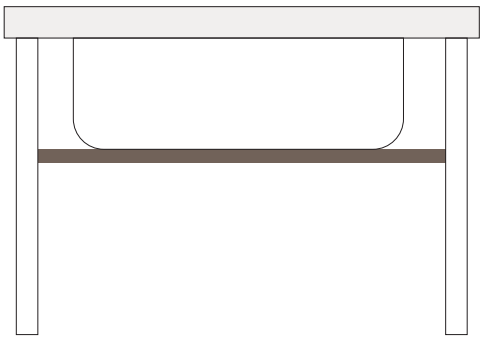
When installing a top flush mount sink or cooktop, leave a minimum distance of 2 mm between the sink or cooktop and the countertop surface, to allow for thermal expansion.

Before fitting an under mount sink the edges of the slab around the hole should be chamfered.

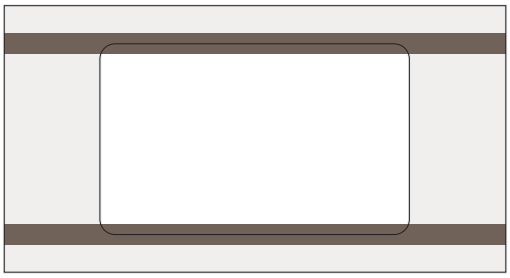
Under mount sinks may be attached by using threaded inserts (6mm max depth) or threaded studs

When fitting any prefabricated sink and/or cooktop seal the edges with silicone, adhesive seal or an equivalent product.

Use one or two support bars when necessary to support heavier sinks and cooktops, fixed to the unit frame, in order to avoid stresses to the countertop.



Side View



Top View

10. CLEANING & MAINTENANCE

Crossville Porcelain Slabs are extremely easy to clean.

For the best results follow the instructions given below.

For all cleaning operations, it is advisable to carry out tests in advance on a small portion of material using the cleaning product to make sure that it does not damage the countertop surfaces.

Smears and stains on the surfaces are usually the result of incorrect cleaning. It is generally harder to remove stains the longer they are allowed to dwell.

Do not use hydrofluoric acid or products containing hydrofluoric acid.

10.1 Cleaning After Machining / Installation

The instructions given in this paragraph are valid for all finishes.

After each cutting operation on water-jets, disc cutters, or numerical control machines, clean the slab surface with plenty of water to remove any processing residues, then dry with a squeegee or similar. Do not store any machine-processed slabs when wet. To eliminate any residues of dust after fabrication, we recommend washing the product using a mild acid-based detergent. After installing the material, clean the surface to remove any contaminants (glue or other adhesive residues...) that may be present.

NOTE: Once catalysed, two-component products (adhesives, plasters etc.) and silicon-based products are hard to remove. During installation, it is important to prevent them from being spread over the surface of the slab, as the removal of residues and hardened adhesives is not always possible. Clean the affected areas using a soft cloth dampened with acetone or solvent, as indicated by the adhesive manufacturer.

If necessary, we recommend protecting the surface of the slab before applying adhesive, with a plastic film or masking tape.

Moreover, clean the slab surface after installation with water and neutral detergent using a sponge or damp cloth. Do not use abrasive substances or equipment.

10. CLEANING & MAINTENANCE CONTINUED

10.2 Routine Cleaning & Maintenance

For everyday cleaning of the Crossville Porcelain Slab use hot water and neutral detergents if required, with a soft cloth. Follow the instructions given on the detergent package.

Rinse with plenty of water and dry the surface with a soft cloth.

Do not use products containing wax.

Stains not promptly removed may leave visible traces on the surface.

To remove stains or particularly resistant residues from the surface, clean first with hot water and neutral detergent.

If this is not sufficient, use increasingly aggressive cleaning techniques and specific products, depending on the stain, including:

- Non-abrasive neutral pH detergents
- Slightly abrasive detergents
- Acid or alkali detergents
- Solvent-based detergents

It is important to comply with the information given in the cleaner's technical data sheet and product label.

10.3 Cleaning & Maintenance of the Polished Finish

Due to the production process, polished surfaces are more sensitive to stains, chemicals, and scratching than the unpolished finish, but are comparable to other polished countertop materials. For this reason, it is advisable to follow the cleaning methods described in the following paragraphs to maintain the original appearance of the surface.

Stains not promptly removed may leave visible traces on the surface.

For everyday cleaning of the polished finish use hot water and neutral detergents if required, with a soft cloth. Follow the instructions given on the detergent package. Do not use products containing wax.

Rinse with plenty of water and dry the surface with a soft cloth. Do not drag objects such as crockery, pans, knives or appliances directly on the countertop. Use cutting boards, pan stands/trivets, placemats and coasters.

Clean liquid spills such as coffee, tea, red wine, etc. quickly off the surface with an absorbent cloth. Stains not promptly removed may leave visible traces on the surface.

Do not use abrasive sponges or detergents containing abrasives.

The use of bleach or any high alkali (above 11) detergents should be used with caution and tried in an inconspicuous test area first. If used, start with diluted strengths and only use for removing stubborn stains. Dampen a soft cloth with the solution and rub the surface for a few seconds. Most stains will disappear 2/3 minutes after application. If the stain persists place the solution directly on the surface. Leave the solution in place for a duration normally not exceeding 10 minutes. Then rinse carefully with plenty of water and dry the surface. If necessary, repeat the cleaning procedure. Acidic products such as limescale remover may be used, always try a test area first.

10. CLEANING & MAINTENANCE CONTINUED

10.4 Cleaning Reference Chart

	STAIN	FILA	AQUA MIX	MIRACLE SEALANTS	COMMON
Food Groups	Mustard Ketchup Mayonnaise Tea Bags Ice Cream Beer / Wine Orange Juice Grape Juice Coffee Coke Soy Sauce	Fila PS87 or Fila SR95	Concentrated Stone & Tile Cleaner or Grout Deep Clean	Porcelain and Ceramic Tile Cleaner or Tile & Stone Cleaner or Liquid Poultice	Mr. Clean® Neutral Floor Cleaner® 409® Spic and Span® Fantastic® Comet® Windex® Lysol® Soft Scrub® Mr. Clean Magic Eraser®
Oil & Grease	Vegetable Mineral Petroleum Wax Sealer Meat Grease Linseed Oil Lipstick Rubber Shoe Polish Paint (Oil Based)	Fila PS87 or Fila No Spot - Fila No Paint Star Fila PS87 or Fila No Paint Star	Heavy-Duty Tile & Grout Cleaner	Porcelain and Ceramic Tile Cleaner or Tile & Stone Cleaner or Liquid Poultice	Mr. Clean® Neutral Floor Cleaner® 409® Spic and Span® Fantastic® Comet® Windex® Lysol® Soft Scrub® Mr. Clean Magic Eraser®
Markers / Graffiti	Felt Tip Ink Water Marker Permanent Flourescent Pencil Crayon	Fila PS87 or Fila SR95 - FilaPS87		Porcelain and Ceramic Tile Cleaner or Tile Restor	Comet® Soft Scrub® Mr. Clean® Neutral Floor Cleaner® ZUD Mr. Clean Magic Eraser® ®
Water-Based Agents	Water Based Paint or Stain	Fila PS87 or Deterdek		Porcelain and Ceramic Tile Cleaner or Tile & Stone Cleaner	Mr. Clean® Neutral Floor Cleaner® Comet® Mr. Clean Magic Eraser®

11. SURFACE REPAIR

If the surfaces become damaged or chipped during the use of the slab/countertop it can be restored using 2-component epoxy in a similar color to that of the countertop. The repair will have different properties from the original surface and the aesthetic will vary depending on the skills of the person making the repair.

NOTE: The information and data given in this Technical Guide have been offered according to our best experience, our best technical knowledge, and the knowledge of our fabrication partners. Given the many and variable situations that may arise, this Technical Guide must be considered purely indicative and therefore, before proceeding with the applications preliminary machining tests should be carried out.

Consult crossvilleinc.com for the most updated versions of the document and the Technical Sheets.

12. TECHNICAL SPECIFICATIONS

PHYSICAL & CHEMICAL PROPERTIES	TEST METHOD	UNPOLISHED	POLISHED
Overall Dimensions	Laminam	≥ 1620 x 3240 mm	≥ 1620 x 3240 mm
Weight	Laminam	average value 30 kg/m²	average value 30 kg/m²
Surface Quality / % of tiles with no visible flaws	ISO 10545-2	> 95%	> 95%
Flatness: 1620 side 3240 side	Laminam	 +/- 2 mm +/- 2 mm	 +/- 2 mm +/- 2 mm
Thickness	Laminam	+/- 0.5 mm	+/- 0.5 mm
Breaking Strength in N / camp. 200 x 300 MM	ISO 10545-4	> 4000 (sample dimensions 200 x 300 mm)	> 4000 (sample dimensions 200 x 300 mm)
Water Absorption	ASTMC373	average value 0.1% (< 0.3%)	verage value 0.1% (< 0.3%)
Modulus of Rupture in N / MM^2	ISO 10545-4	average value 50 (sample dimensions 200 x 300 mm)	average value 50 (sample dimensions 200 x 300 mm)
Mohs Scale Hardness	UNI EN 101	class: from 5 to 7	max 5
Resistance to Deep Abrasion	ISO10545-6	≤ 175 mm^3	≤ 175 mm^3
Coefficient of Linear Thermal Expansion	ISO 10545-8	6.6 average value	6.6 average value
Resistance to Thermal Shock	ISO 10545-9	resistant	resistant
Frost Resistance	ISO 10545-12	resistant	resistant
Fire Reaction	EN 13501 (rev. 2005)	A2 - s1,d0	A2 - s1,d0
Density	EN 14617-1 ASTM C97	2500 kg/m^3 (average value)	2500 kg/m^3 (average value)

12. TECHNICAL SPECIFICATIONS CONTINUED

PHYSICAL & CHEMICAL PROPERTIES	TEST METHOD	UNPOLISHED	POLISHED
Water Absorption	EN 14617-1 ISO 10545-3 ASTM C373	average value 0.1%	average value 0.1%
Bending Strength	EN 14617-2	50 MPa (average value)	50 MPa (average value)
Freeze & Thaw Resistance	EN 14617-5	resistant	resistant
Dry Heat Resistance	EN 12722 EN438-2 par.16	5 (no visible effect till 200°C)	5 (no visible effect till 200°C)
Chemical Resistance	ISO 10545-13 ASTM C650	from class A to B resistant	from class A to C resistant (except potassium hydroxide)
Cold Liquid Resistance	EN 12720	no visible effect except ink (2)	from class 5 to 2
Cleaner Product Resistance	PTP 53 CATAS	5 no visible effect	from class 5 to 3
Abrasion Resistance	EN 14617-4	28 mm	28 mm
Resistance to Fungi	ASTM G21	no fungal growth	no fungal growth
Overall Migration	UNI EN 1186	0 mg/dmˆ2 no significant migration	no significant migration
VOC Emission	UNI EN 16000-9	Class A+ French	Class A+ French
Shock Resistance	ISO 4211-4 EN14617-9	no damage 400 mm average value 3	no damage 400 mm average value 3
Light Resistance	UNI EN 15187	5 no visible effect	5 no visible effect
Thermal Shock Resistance	EN 14617-6 ISO 10545-9	resistant	resistant
Resistance to Staining	ISO 10545-14 ASTM C1378	class: from 4 to 5 resistant	class: from 2 to 5 resistant (except ink and methylene blue)

Contact:

Crossville Inc.,
349 Sweeney Dr.
Crossville, TN 38555
CrossvilleInc.com

CROSSVILLE®

LIT-CPSFG-21