caesarstone®

Fabrication & Installation

Caesarstone University

Fabrication & Installation

For health & safety instructions please refer to the Good Practice Guide at:
https://mos.caesarstone.co.uk/home-page/article-collection/good-practice-guide

Legend

The following symbols are used in this manual:

 Important

 Tip

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The information and recommendations contained herein are based upon data believed to be correct, based on experience as of the date of publication. The information and data are not necessarily all-inclusive or fully adequate in every circumstance. The information and data set forth herein are intended for use by persons having technical skills and at their own discretion and risk. We accept no responsibility and disclaim all liability for any harmful effects that may be caused by fabrication and installation of our products.

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Manual version November 2017 - amendment April 2019

1. Introduction

Caesarstone quartz surfaces are ideal for a wide range of interior commercial and residential applications, including: kitchen countertops, bathrooms, bartops, vanities, interior cladding, reception counters, flooring, wall cladding and furniture.

Caesarstone quartz surfaces are not suitable for exterior use, or on any areas that are exposed to UV radiation or excessive heat.

Caesarstone quartz surfaces are manufactured in a vast range of colours, divided into several series with unique properties.

Caesarstone quartz surfaces are manufactured from approximately 90% quartz (one of nature's hardest minerals) and high-quality polymer resins and pigments that are compacted under intense vibration, vacuum and pressure into dense, non-porous slabs. The quartz slabs are then post cured, gauged to various thicknesses and polished.

2. Slab Information

2.1 Slab Data

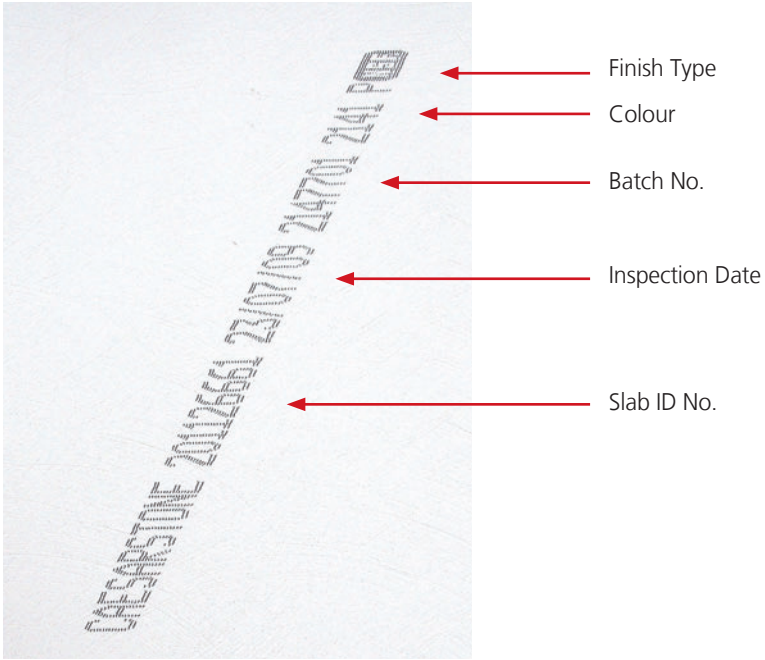
Slab data provided here are nominal only, for storage and transportation purposes. Actual usable slab surface is slightly less per side due to the bevelled perimeter.

Length
3050 mm +/- 10 mm
Width
1440 mm +/- 5 mm
Thickness
13 mm; 20 mm; 30 mm +/- 1 mm
Weight
140 kg; 220 kg; 330 kg

13 mm slabs are available in selected colours.

2.2 Slab Stamp

A stamp appears on the back of the slab with identification information. This information remains on the slab for its lifetime and can be used for identification after installation.

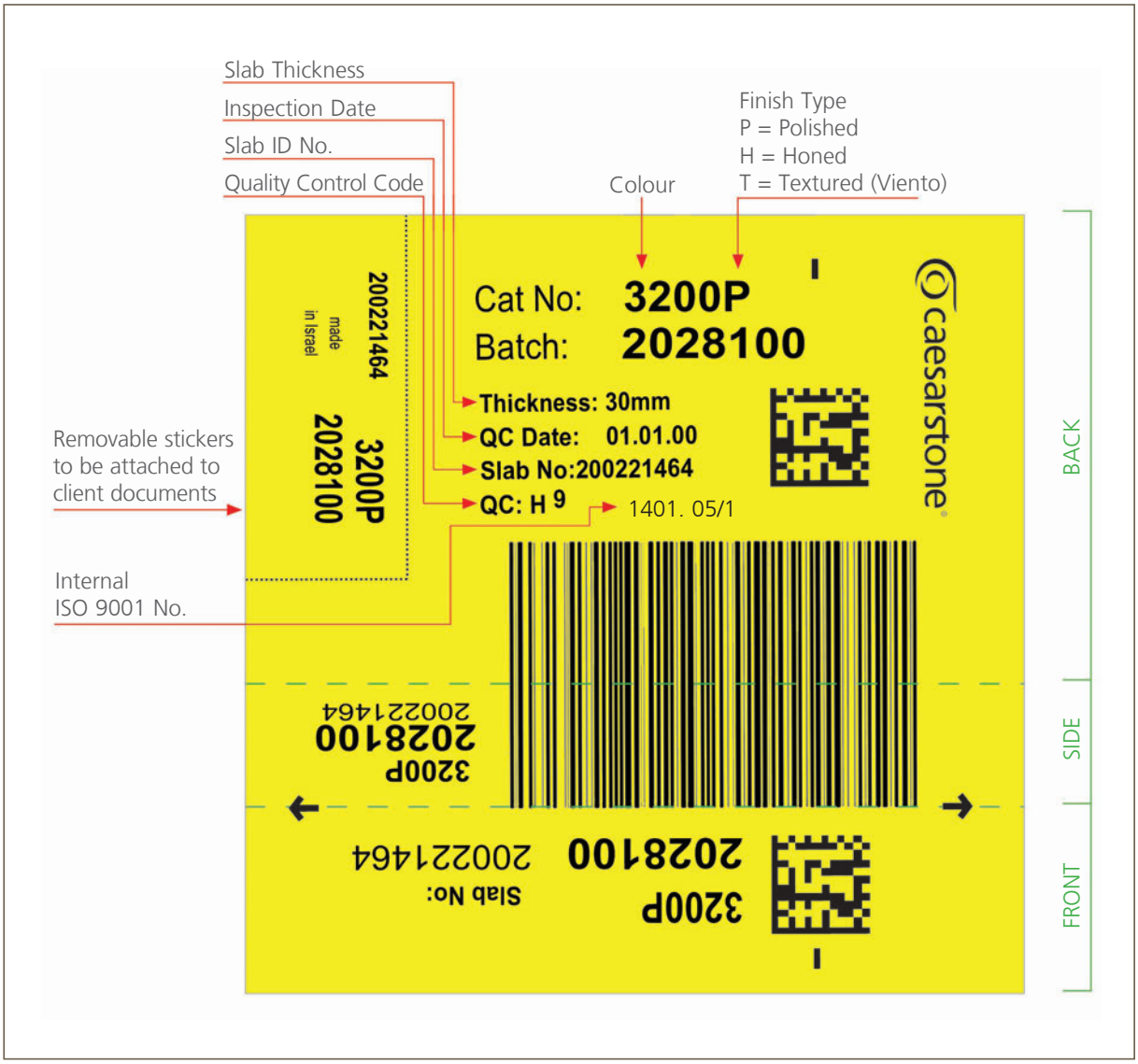


Detail of Stamp on Back of Slab

2.3 Slab Label

Every slab manufactured by Caesarstone undergoes individual inspection and quality control and is designated either a yellow or a green label. Yellow and green labels contain the same information.

Green labels denote slabs that may include visual imperfections. It is the fabricator's responsibility to ensure that any imperfection is cut around and not included in the final product.



4. Handling, Transportation & Storage

At all stages of handling, transportation and storage, the slabs must be balanced to the centre of gravity.

4.1 Handling

Caesarstone slabs must be loaded, unloaded and transported by means of a forklift, bridge crane or other suitable lifting device; see, e.g., bridge crane opposite.

- An engineer who specializes in lifting and handling must approve that all the lifting tools and equipment are in good working order, and that they are suitable for the purpose and the weight of the load.
- When more than one slab is lifted in one load, the slabs must be arranged face-to face and/or back-to-back with no gaps.

  ⚠ During unloading and transporting, adhere to all the relevant safety regulations regarding equipment and personnel.
- The preferred accessories for attaching the slabs to the lifting device are clamps or straps.

4.1.1 Lifting Methods

- Lift slabs by one of the methods below.

  ⚠ When lifting slabs by scissor lifter or clamp lifter, start lifting the slabs slowly and check that they are firmly secured before transporting them.

Scissor Lifter

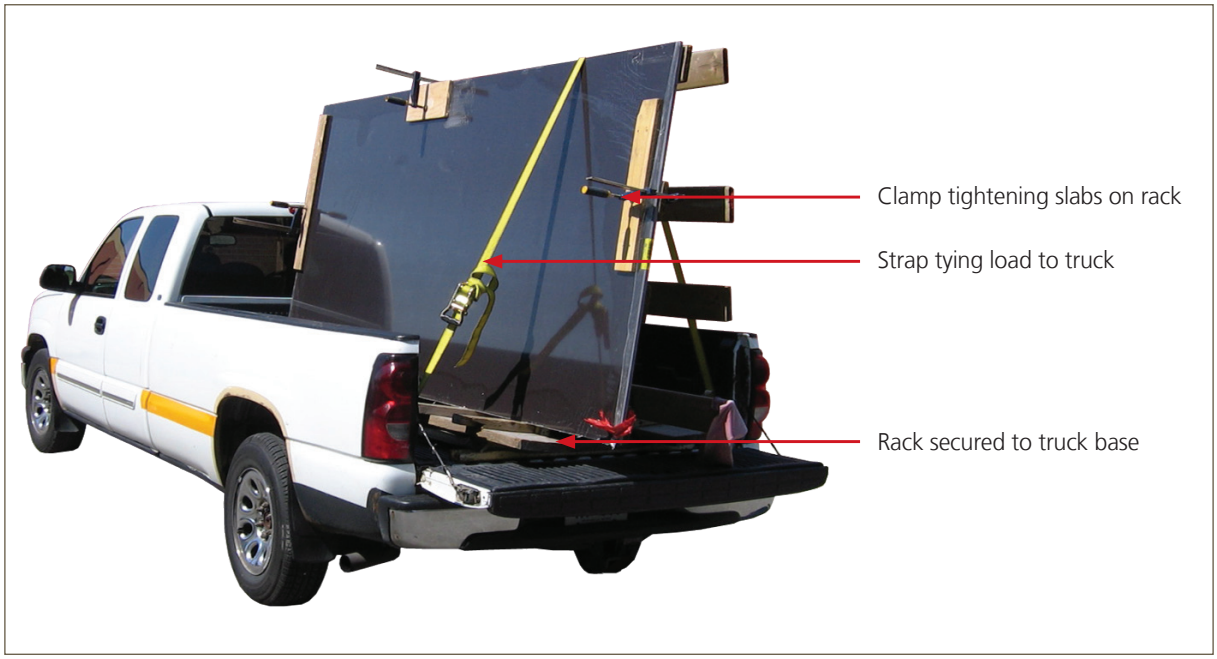
Clamp Lifter

Lifting Straps

4.2 Transportation

Caesarstone slabs are large and heavy. They must be transported in a safe and appropriate manner, securely attached to a truck as shown below.

- Securely attach an appropriate frame to the truck for loading Caesarstone slabs, e.g., an A-frame.
- Load the slabs evenly on both sides of the frame, face-to-face and back-to-back with no gaps.
- Tie the stack of slabs to the frame.
- Tie the stack of slabs with the frame to the truck.



4.2.1 Driver Responsibilities

Drivers must stay with their vehicles. Drivers must ensure that:

- the correct slabs are loaded.
- the load is within the legal carrying capacity of the vehicle.
- the load is fully supported and safely secured to the vehicle prior to leaving the premises.

Handling, Transportation & Storage

4.3 Storage

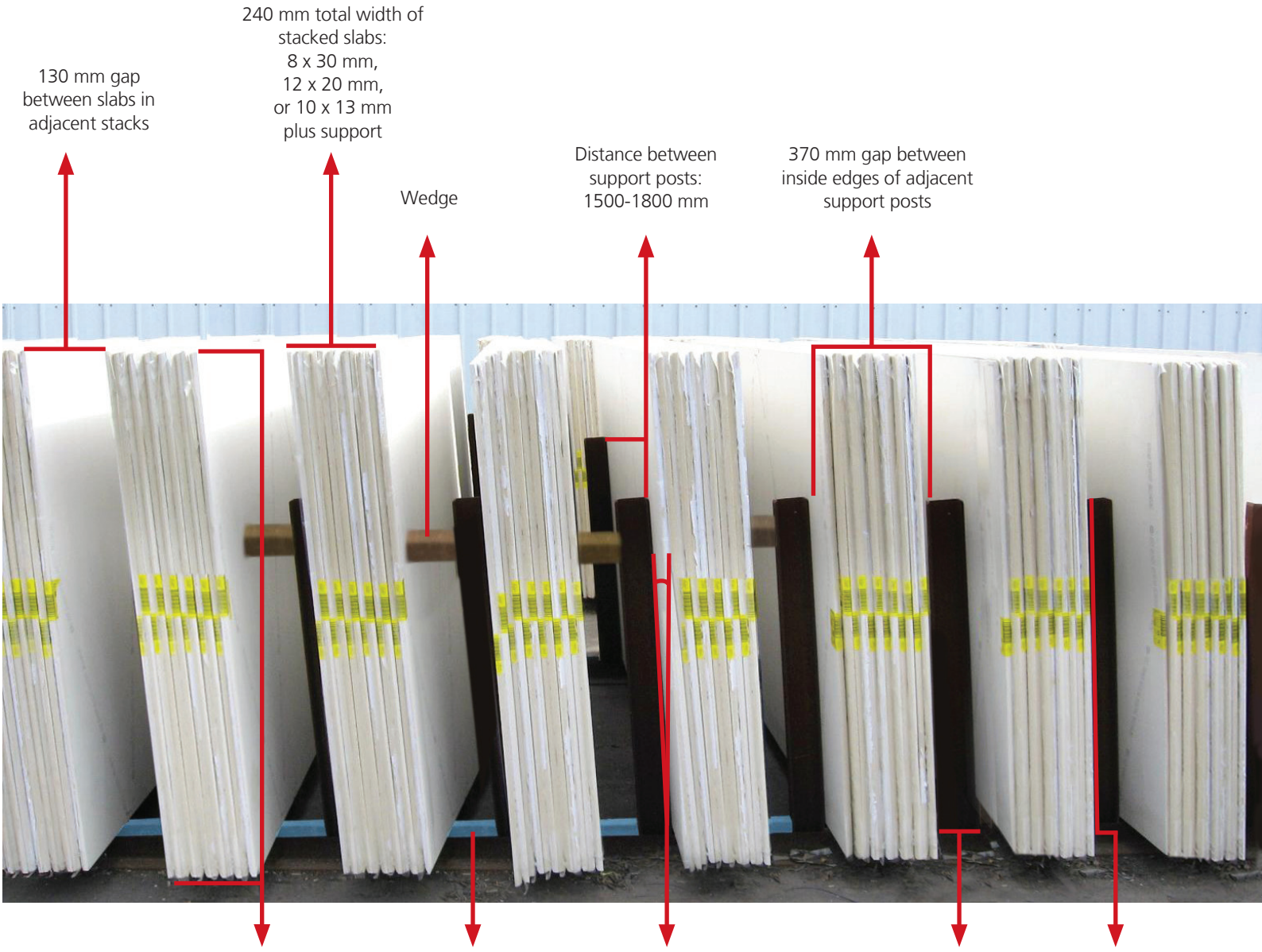
The picture opposite shows the recommended storage method for Caesarstone slabs.

- Caesarstone recommends storing slabs under shade wherever possible.
- Support the slabs with a minimum of two support posts spaced 1500-1800 mm apart, with the slab positioned centrally in relation to the posts. The slab must be in full contact with the whole height of the support posts.
- The maximum number of slabs permitted in a stack is as follows:
  - 8 x 30 mm
  - 12 x 20 mm
  - 10 x 13 mm

    ⚠ For 13 mm slabs, add two slabs between the stack and the support posts for support; and two slabs on the outer side of the stack for protection. Use 2 x 30 mm, or 1 x 30 mm and 1 x 20 mm slabs, preferably in colours with large granules as they are less flexible.
- When storing Caesarstone slabs in areas exposed to sunlight and high temperatures it is recommended to provide additional support to the slabs to prevent warping. This can be achieved by building a third post on the stand, or placing a 30 mm thickness slab against the posts.
- Store the outer slabs in each rack with their backs facing outwards, so that the polished surface is not exposed.
- Store slabs face-to-face and back-to-back with no gaps, in a manner that allows for easy identification of colour and batch numbers.
- When there are few slabs in the stack and they are subject to high winds, the stack must be stabilized. Place a wooden wedge at a 90° angle between the last slab in the stack and the next post to prevent the slabs from falling.
- Caesarstone recommends placing wooden or plastic buffers on the base of the stand to prevent the slabs chipping.

⚠ Caesarstone slabs are heavy and can cause serious injury or death if not stored and handled properly. It is recommended that all slabs be secured during storage to maintain a safe working environment.

⚠ When storing slabs on an A-frame, ensure that the slabs rest entirely on the base. If they do not, uneven pressure on the uprights may cause the A-frame to move and the slabs to fall.



THE SUPPORT POST MUST NOT REACH THE TOP OF THE SLAB!

5. Visual Slab Inspection

5.1 Inspection Process

It is essential to perform a visual inspection for imperfections on the front and back of all slabs, including the perimeter, before cutting.

- Caesarstone covers all slabs with a protective plastic coating. Remove the coating for the visual inspection.
- Perform the following visual inspection checks for imperfections:
  - Cracks, pits, voids, blemishes
  - Slab-to-slab colour match
  - Colour inconsistency within the slab
  - Irregular spots
  - Quartz pattern irregularity
  - Inconsistent gloss levels
  - Thickness tolerance ± 1 mm
  - Warping: up to 3 mm length and 2 mm width when slab horizontal and fully supported

⚠ Caesarstone will not accept claims for any of the above if the slab is modified in any way. The fabricator is responsible for determining if the slabs are fit for use. If they are not, they should be exchanged before the slabs are cut or modified in any way.

Check length warp using a full-length straight edge with the slab in a horizontal position.

5.2 Colour Matching

Caesarstone slabs contain approximately 90% natural quartz. This may result in slight colour variations between production cycles.

- Each production cycle carries different batch numbers. The batch number appears on the label affixed to all slabs. The batch number is also stamped on the back of the slab.

⚠ Use slabs from the same batch for each job. This should ensure a colour match. However, always perform a visual colour match before cutting to confirm consistency in shading.

6. Tools and Machinery

6.1 Required Equipment

- Table mounted saw
- Bridge saw
- Stone carts/dollies
- Forklift or other lifting device
- Fabrication workbenches in various sizes
- Air filtration system
- Water recycling system
- Air compressor
- Sedimentation system
- Table mounted portable pillar drill

6.2 Optional Equipment (Advanced)

- CNC
- Automated edge profiling machine for narrow slab pieces
- Water jet cutter or Combicut
- Automated edge profiling machine for wide slab pieces

6.3 Required Tools

- Heavy duty electric/pneumatic angle grinder for cutting or grinding (variable speed preferred)
- Light electric/pneumatic angle grinder for polishing (variable speed preferred)
- Electric hand drill (variable speed preferred)
- Diamond cutting disks in various sizes
- Diamond contour blades
- Diamond core bits in various diameters
- Diamond grinding wheel
- Shaped grinding wheel
- Grinding stone
- Seaming clamps
- Sets of diamond and sanding polishing pads
- Scraper and spatula
- Engineer's square set
- Angle measuring devices
- Viento/textured brushes
- Polishing drums
- Carbide-tipped drill bits
- Wet edge profiling machine (edge router)
- Storage racks or A-frame
- Clamps in various sizes

Consult your local distributor to select the correct diamond tools for cutting Caesarstone slabs.

6.4 Accessories

- Pigments
- Cleaning materials
- Quartz granules

6.5 Adhesives

- To join two pieces of Caesarstone surfaces, use polyester resin adhesive or epoxy-modified acrylic. Suitable Tenax adhesives matching Caesarstone's colour range are available.
- Adding transparent adhesive to the colour-matched adhesive may improve its properties.
- The colour of the adhesive used must match the colour of the surface in order to achieve a minimally visible seam. If a pre-coloured matching adhesive is not available, mix colour paste pigments with the adhesive to achieve a match.

  ⚠ When mixing the adhesive to colour match the surface, take into account that the colour will be slightly lighter after drying.
- To join Caesarstone surfaces to a different material, use a flexible adhesive such as 100% silicone or polyurethane-based adhesives suitable for both Caesarstone surfaces and the material to which it is joined.

  ⚠ Use only neutral silicone with acid-sensitive substrates, e.g., metal or concrete.

7. Pre-Fabrication

7.1 Planning

- Check that the substrate (the kitchen cabinet in the case of a kitchen countertop) is in its correct and final location, ready for the surface to be installed.
- Plan the size, shape and location of the surface pieces.
- Plan the fabrication of rectangular pieces as far as possible in order to minimize wastage of the slab.
- Take into account that a minimal amount of the outer perimeter of the slab will be removed in order to straighten the edges.

7.2 Measuring

- Accurate measuring is essential to successful fabrication and installation of surfaces.
- The three most common methods of measuring are by template; by dimension; and by Laser, Photo and touch-type devices as described in sections 7.2.1, 7.2.2 and 7.2.3.

7.2.1 Measuring by Template

- Mark on the cabinets the location of the seams to be fabricated in the surface.
- Construct a solid template or frame template for each piece of the surface as described opposite.
- Mark on the template the centre point of items to be installed in the surface, such as sinks and stove tops.
- Verify the location and the space available for items to be installed in the surface, taking into account the relation between the items and the surrounding area, e.g., a stove top centred underneath a vent; a sink centred underneath a window.
- Mark on the template any required information for fabrication, e.g., edges requiring polishing, adjoining edges, etc.
- Take a few control measurements in order to confirm the angles, dimensions and arrangement of the cut pieces later in the workshop.
- Transfer the template measurements to the slab by one of the following methods:
  - Lay the template on the slab and copy it onto the slab.
  - Scan the template in an industrial scanner. The scanner converts the template measurements into shapes and dimensions and sends them to the computer of the cutting machine.

Constructing a Solid Template

Caesarstone recommends constructing solid templates out of polypropylene sheets cut to size, as follows:

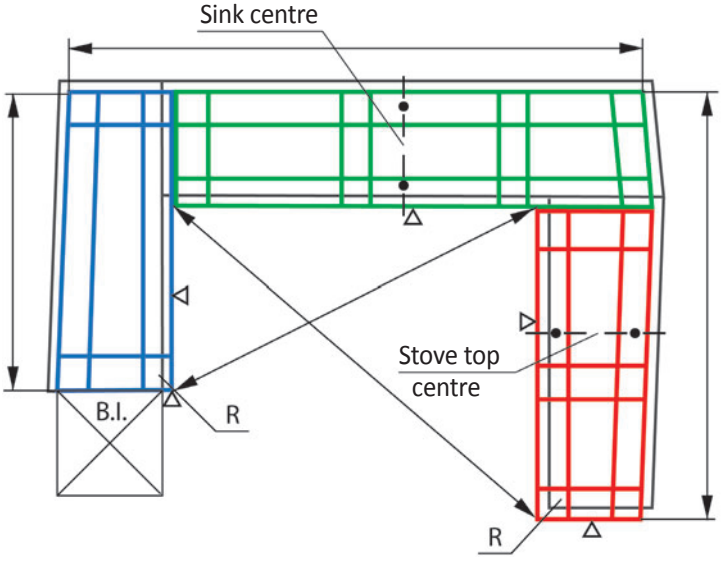
- Place the polypropylene sheets on the cabinet.
- Position the edges of the sheet to correspond with the seam lines and the edge of the cabinet or the wall.
- Cut the template to the external shape and dimensions required, including overhangs and space allowed for circumferential gaps.

It may be necessary to join two or more sheets of polypropylene to create the correct size and shape for each part of the template.

Caesarstone does not recommend the commonly used method of constructing templates out of cardboard as it is easily damaged and distorted.

Constructing a Frame Template

- Construct a frame template out of any light, stable, rigid material, using plastic strips approximately 70-100 mm wide and 2 mm thick.
- Position length strips along the length of the surface piece, including overhangs and space allowed for circumferential gaps. Align the ends of the length strip with the seams marked on the cabinet.
- Glue plastic width strips approximately every 300-400 mm across the width of the template with rapid-drying adhesive. Align the two end width strips with the seams marked on the cabinet.



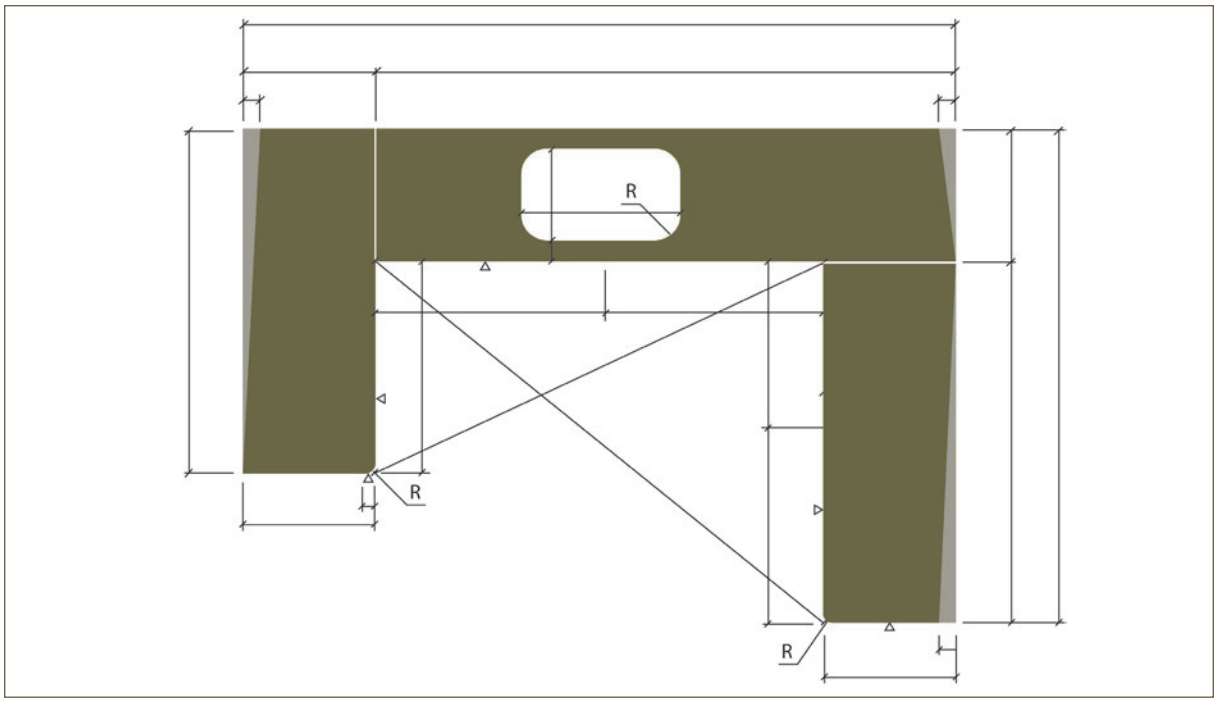
Example of template

7.2.2 Measuring by Dimension

- Create a clear diagram on which to record the measurements, preferably on a computer or professional drawing board with a ruler.
- Use the front line of the installation as the central line of the diagram from which to draw all other measurements. If the front line is not perfectly straight, create a straight line on the cabinet to use as the central line.
- Mark on the diagram the centre point of items to be installed in the countertop, such as sinks and stove tops.
- Check that the sum of the dimensions that make up one side are equal to the length of the whole side.

Do not assume that corners are exact 90° angles. Measure the sides or use an angle measure.

A deviation of 1° in a 90° angle creates a deviation of 52 mm per 3 m!



Example of measuring diagram

Measuring can also be performed via laser, which is automatically converted by a computer programme to a work plan.

7.2.3 Measuring Using Electronics

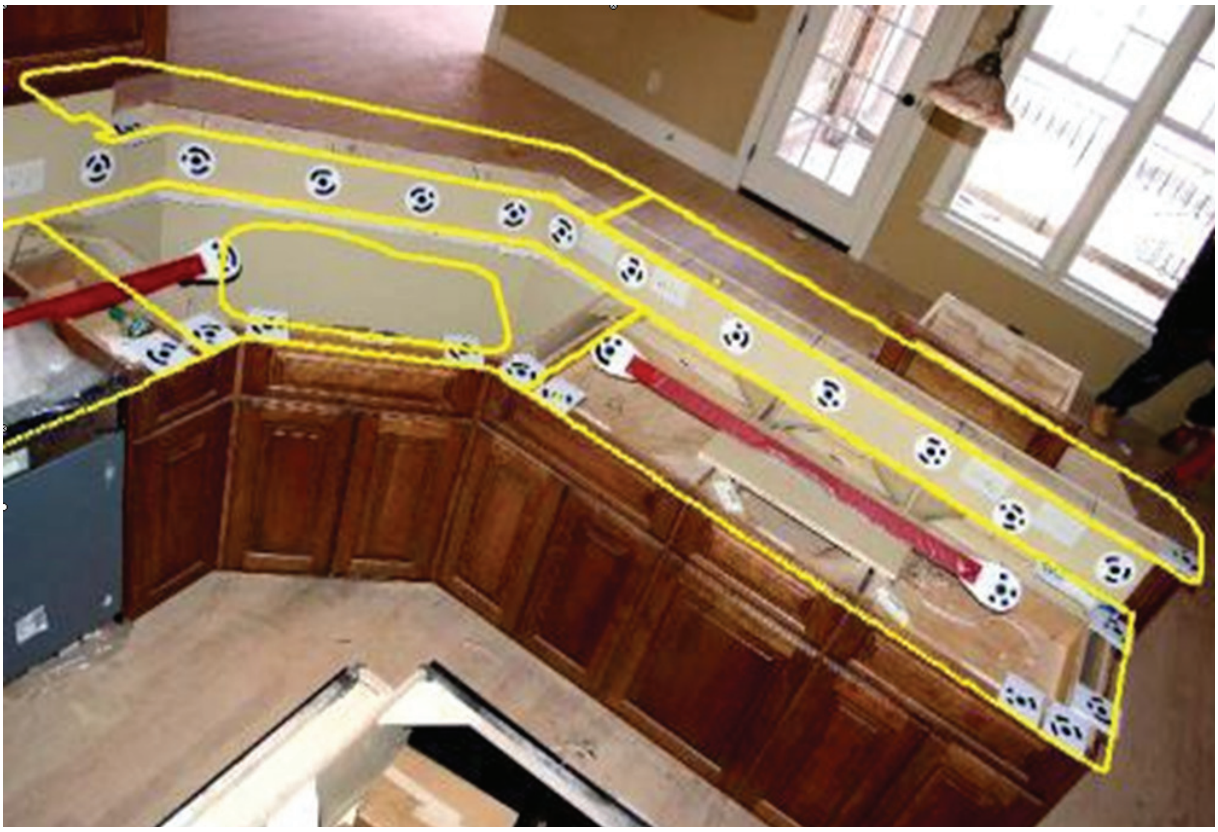
Advanced electronic measurements that produce a form of CAD file can be made using a variety of technologies including E-Templating®, Proliner® and LT 55® laser method. These have major benefits to fabricators using CAD files for automated equipment like CNC Machines and “Water Jet” cutting.

Only those trained on the equipment should attempt to use it and care should be taken to check several dimensions manually to ensure the equipment is functioning correctly.

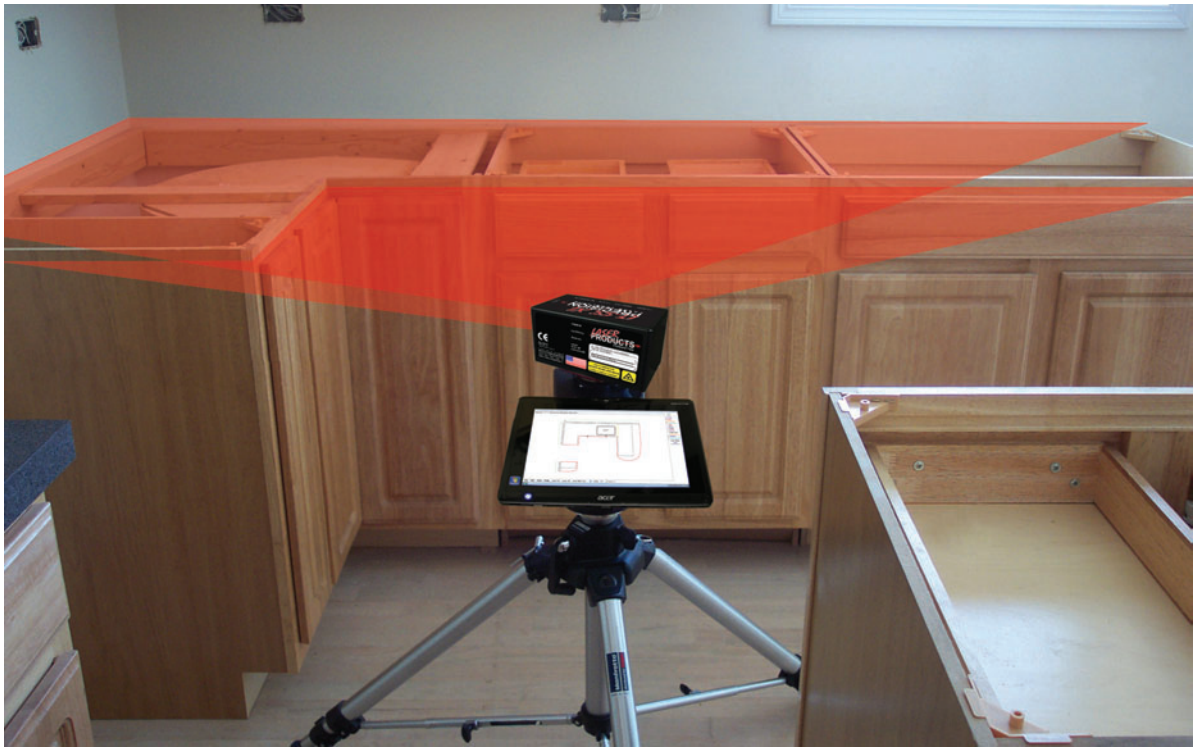
All critical points must be recorded to allow the equipment to create an accurate file and the trained operator must add details such as overhangs, radiuses, sink locations, etc. Finished edges must be indicated and defined.

These units will typically give accuracy to with 2 mm but still require someone with knowledge of the installation challenges a site may present.

Line extension



E-template

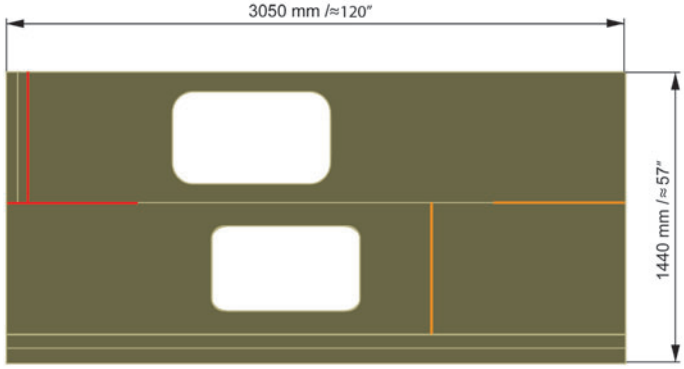


Laser

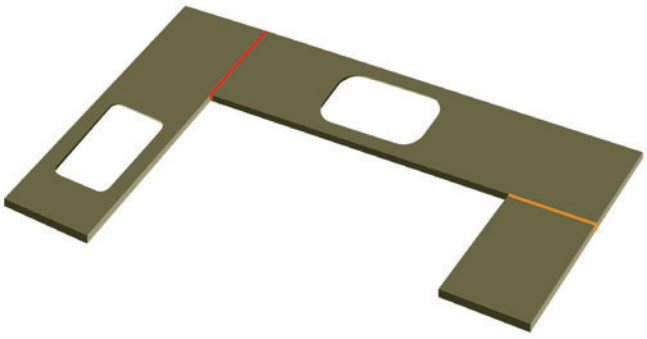
7.3 Utilization of the Slab

- Plan the arrangement of the pieces to be cut from the slab to minimize wastage. Take into account that a minimal amount must be cut off the outer perimeter of the slab in order to straighten the edges.
- Check the flatness of the surface at the locations planned for seams.
- Do not cut seams or visible edges of the countertop from the edges of the slab. Use the edges of the slab for the part of the countertop adjoining the wall.

Example of arrangement of cut slab pieces with lamination strips.

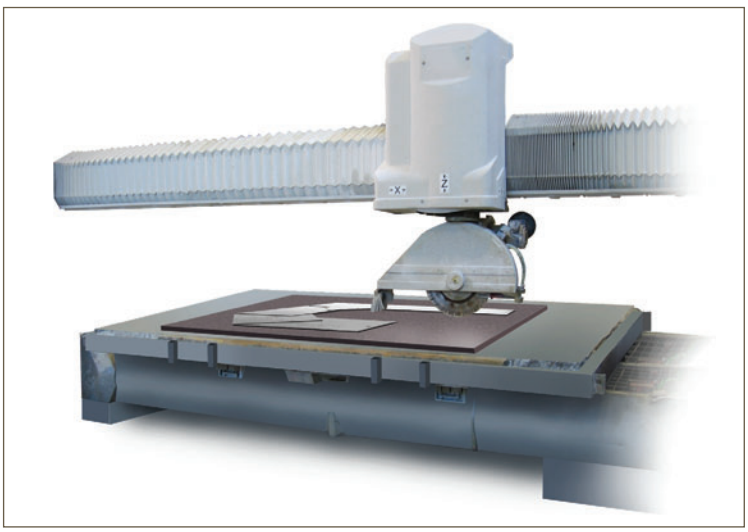


Example of plan of slab pieces.



It is possible to create 7.2 m of countertop from one slab.

Example of template arrangement before cutting the slab.



8. Fabrication

8.1 Cutting the Slab

- Cut a minimal amount off the outer perimeter of the slab in order to straighten the edges.
- Continue cutting the slab according to the plan.

⚠ After the slab is cut, check the colour match of the pieces to be seamed.

⚠ Use only water-cooled tools for cutting, drilling and polishing in order to prevent overheating and generating superfluous dust.

Use a silica stone to keep diamond cutting tools sharp.

8.1.1 Cutting Straight Lines

- Machine cut straight lines with a flat diamond disk mounted on a table-mounted saw or bridge saw.
- Cut straight lines manually with a flat diamond disk mounted on a suitable water-cooled angle grinder.

Be sure to use the correct diameter diamond disk for the machine and the material.

8.1.2 Cutting Curved Lines

- Machine cut curved lines by one of the following methods:
  - CNC with water-cooled diamond finger bit
  - Water jet cutter
- Cut curved lines manually by one of the following methods:
  - Router with water-cooled diamond finger bit
  - Grinding wheel with water-cooled concave diamond disk

8.1.3 Cutting Holes

- Machine cut holes by one of the following methods:
  - Drilling machine with water-cooled diamond core bit
  - CNC with water-cooled diamond core bit
  - Water jet cutter
- Cut holes manually with a carbide-tipped drill bit (for small holes) or a diamond core bit mounted on a suitable water-cooled angle grinder or manual drill (for larger holes).

8.2 Seaming

- Make a clean, straight cut on the pieces to be seamed, taking care that it is 90° to the surface. Slightly roughing the cut edges by hand or grinder, taking care not to affect the top edge, will increase the bonding of the adhesive. Clean the edges with alcohol before seaming with adhesive.
- Alignment of the top surfaces to be seamed is critical for a quality installation. This can be achieved using shims and/or seam setting clamps such as Gorilla Grips. Pull the edges together so that the seam is less than 1 mm, making sure that the adhesive squeezes out the top with no gaps. Clean excess adhesive according to manufacturers' instructions.

⚠ Methyl methacrylate type adhesives create a stronger seam than a knife grade polyester and sometimes come premixed to the Caesarstone colour palette.

⚠ For 20 mm and 30 mm thickness slabs, normal gluing is adequate. For 13 mm slabs, glue a lamination strip under the whole length of the seam.

⚠ Do not polish seams on Caesarstone surfaces.

Figure 1

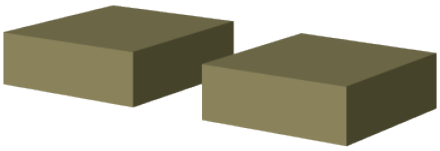


Figure 2

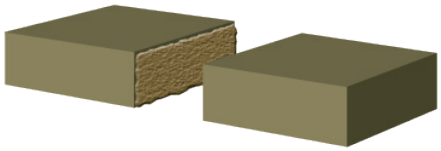


Figure 3

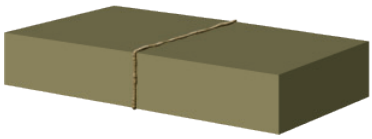
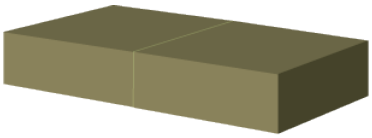
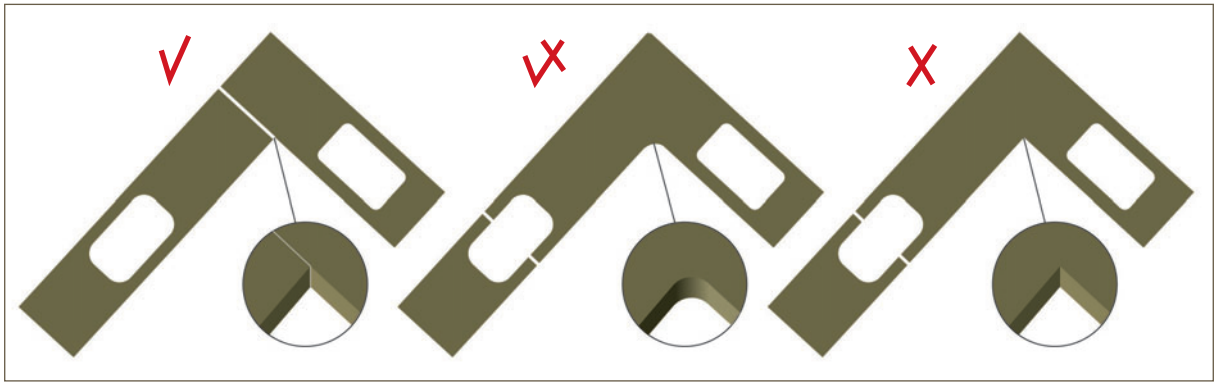


Figure 4



8.3 Inside Corners

- Transporting and installing L-shaped counters has inherent risks compounded by the overall size of the piece. The bigger the piece, the higher the risk of cracking or breaking.
- To minimize the likelihood of damage, the inside corner should have a minimum 10 mm radius and the short leg should not exceed 45 cm unless additional bracing is used during transportation and installation.



8.4 Cutouts

Cutouts are usually created in countertops for the installation of sinks, stovetops and other accessories.

- Fabricate cutouts according to the instructions of the manufacturer of the item to be installed.
- Fabricate a minimum radius of 15 mm for all corners in cutouts; see figure 1. The larger the radius, the stronger the corner.

⚠ In the event that fabricating a 15 mm cutout corner radius would prevent the proper installation of an item that requires a 90° angle corner, drill beyond the corner with a core bit; see figure 3.

⚠ Take care not to cut beyond the rounded edge in cutouts; see figures 2 and 4. Damage to the area may lead to the formation of hairline cracks.

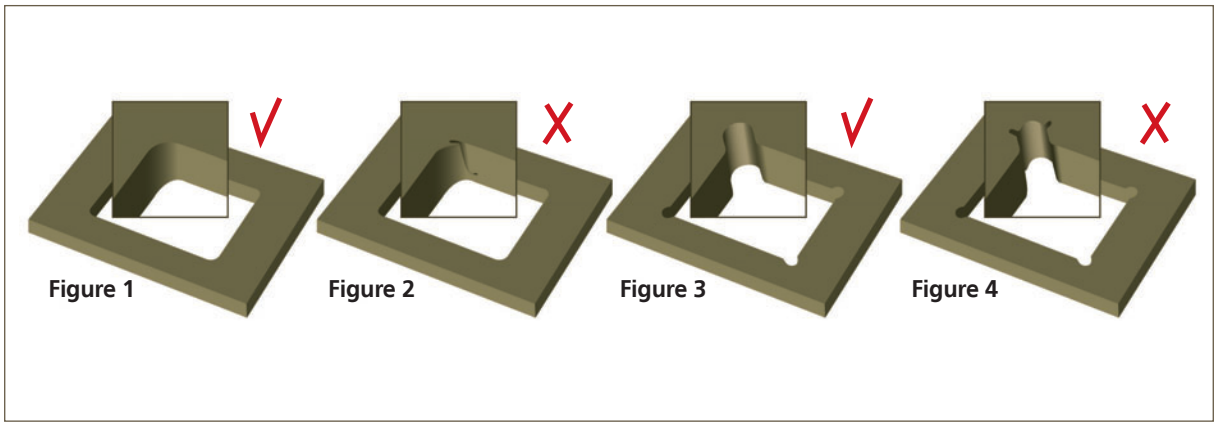
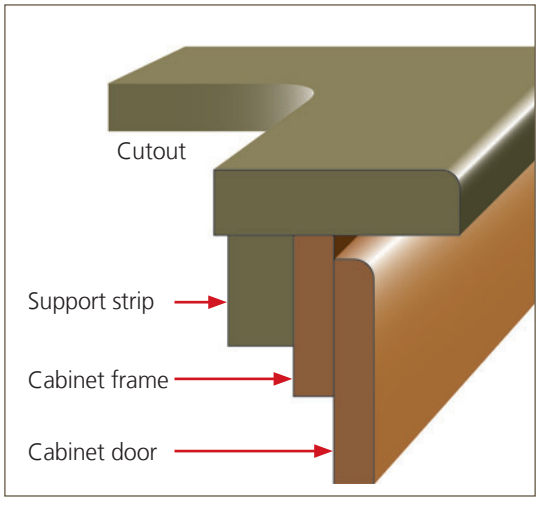


Figure 1 **Figure 2** **Figure 3** **Figure 4**

⚠ Do not reduce the thickness of the surface when preparing the cutout.

⚠ The minimum recommended distance between a cutout and an edge or seam is 60 mm wherever possible. The more material, the stronger the area.

⚠ If the distance between a cutout and an edge or seam is less than 150 mm, the area must be supported: Ensure that the area between the cutout and the edge or seam is located over the junction between the base cabinets; or fit a solid support strip under the area.

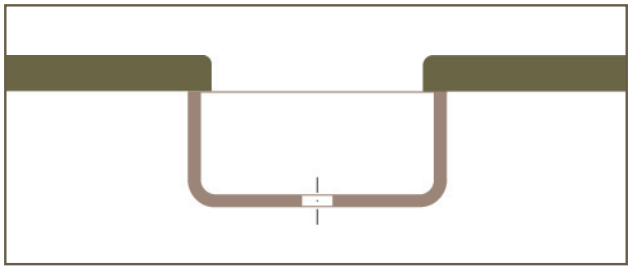


8.4.1 Methods of Fabricating Cutouts for Accessories

It is generally necessary to install accessories, such as sinks and stovetops, in countertops. There are three main methods of installing accessories in cutouts, each of which requires a different type of cutout fabrication:

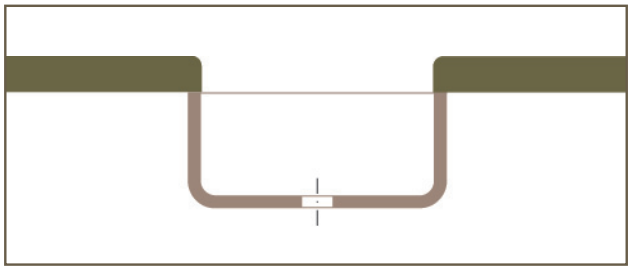
Overhang into Bowl Undermount Installation

- In undermount installation, the accessory is positioned underneath the surface.
- In typical ceramic vanity installations and some kitchen undermount installations, the counter protrudes into the space over the bowl in order to hide the bonded edges. The bottom edge of the counter must be rounded to prevent chipping.



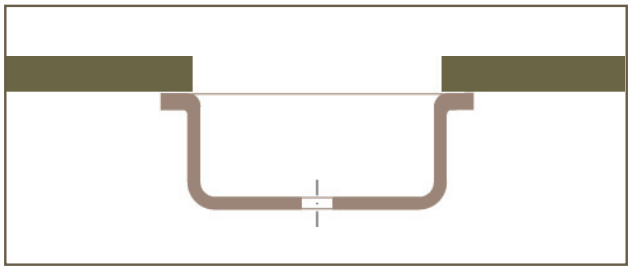
Typical Flush-to-Bowl Kitchen Sink Undermount Installation

- Some installations require a cutout that is flush to the inside wall of the sink. This typically reduces the exposure of the bonded edges but is difficult to produce exactly to match the sink.



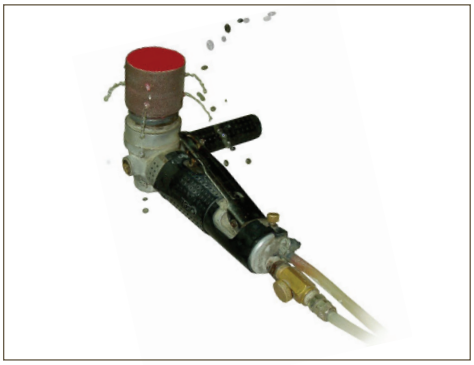
Stepped Back to Curve or Bevel of Bowl Installation

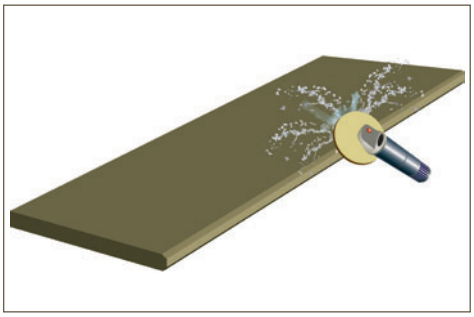
- Some installations and most templates provided by sink manufacturers have the finished edge of the counter set back to the edge of the rounded or bevelled top of the sink bowl with a minimum amount of flat deck on the sink showing.



8.5 Polishing Edges

Follow the guidelines below to achieve an edge polish equal to the factory surface polish.





⚠ Never polish the face of the surface, only the edge!

- Ensure that the area to be polished is clean of debris.
- Use water-cooled tools for polishing; dry polishing may overheat and damage the area.
- Use suitable diamond polishing pads with water.
- Use a polishing drum for polishing rounded or curved inside corners and small cutouts with exposed edges.
- Perform polishing by progressing through the various grit sizes from coarse (lower number) to fine (higher number).

  When a significant amount of material must be removed from the edge, a water-cooled diamond grinding wheel can be used before the coarsest pad.

- Each stage of polishing should remove the marks of the previous stage. When a uniform finish is achieved, progress to the next stage.

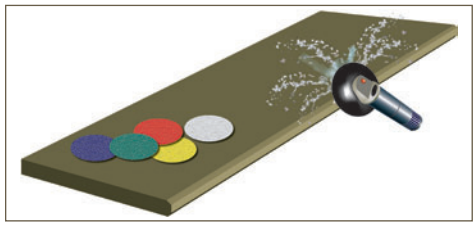
  It is recommended not to use polishing stones for manual polishing.

- Do not polish edge profiles in excess of the factory surface polish.
- Polish edge profiles in a progressive manner according to the tables opposite.

8.5.1 Polished Finishes

- Polished finishes are smooth and shiny.
- Create polished finishes by using diamond polishing pads.
- Avoid overpolishing, e.g., with a 3000 grit pad, as this will make the polished area more shiny and smooth than the surface.

Accessory	Grit Size
Green diamond polishing pad	60
Black diamond polishing pad	80
Red diamond polishing pad	120
Yellow diamond polishing pad	400
White diamond polishing pad	800
Blue diamond polishing pad	1500



8.5.2 Honed Finishes

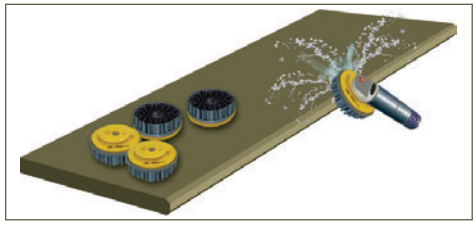
- Honed (matt) finishes are smooth but not shiny.
- Create honed finishes by using diamond polishing pads up to 400 grit.

Accessory	Grit Size
Green diamond polishing pad	60
Black diamond polishing pad	80
Red diamond polishing pad	120
Yellow diamond polishing pad	400

8.5.3 Textured/Viento Finishes

- Textured/Viento finishes are slightly coarse and have a low gloss.
- Create Textured/Viento finishes by using diamond polishing pads and diamond polishing brushes.
- Work with brushes at 600-1200 RPM with plenty of water.

Accessory	Grit Size
Green diamond polishing pad	60
Black diamond polishing pad	80
Red diamond polishing pad	120
Diamond polishing brush	60
	120
	400
	800
	1800



8.6 Fabricating Edges

- All exposed edges must be fabricated to the same finish as the surface.
- The top and bottom of edges must be rounded or bevelled. Do not create square edges.

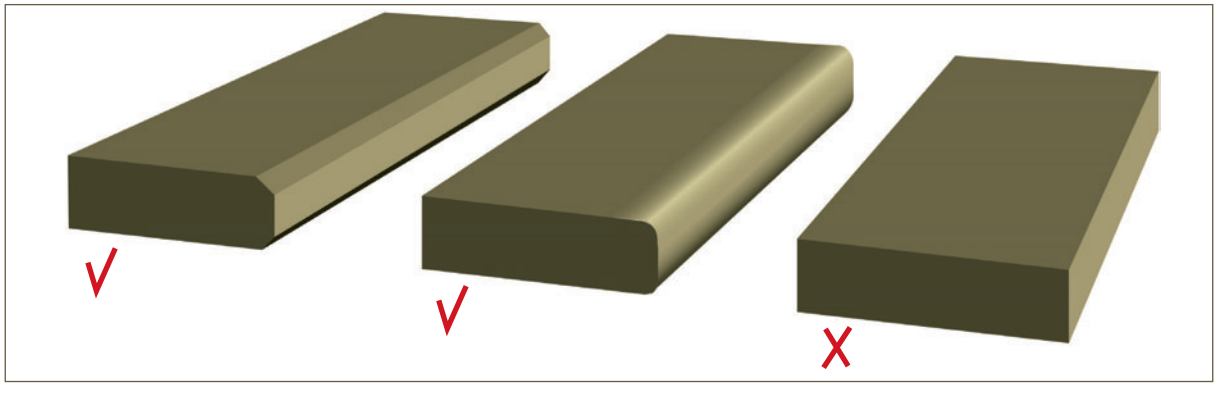
  All edges must have a minimum edge profile of 3 mm.

  The most common edge details are radius or 45° bevel; however, there is a very wide range of detail options.

  The larger the surface area of the edge, the more resistant it is to chipping.
- If required, it is recommended to fabricate a drip groove underneath the front edge of the countertop to prevent liquid that runs over the edge from coming into contact with the base cabinet. Position the groove approximately 13 mm from the cabinet.

8.6.1 Single Thickness Edges

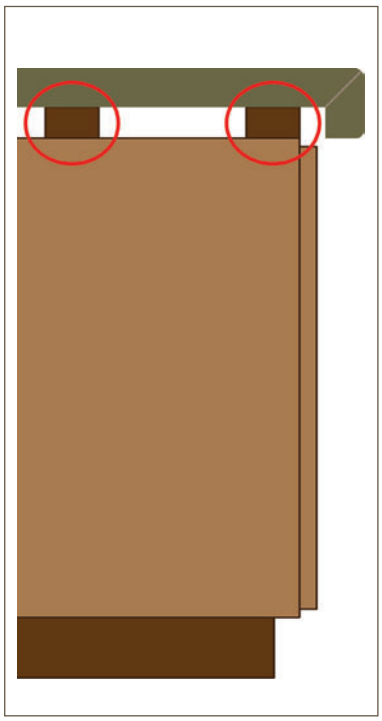
- Single thickness edges are the original thickness of the slab.
- Single thickness edges are easily and quickly fabricated.
- Most automated edge profiling machinery is designed to create single thickness edges.

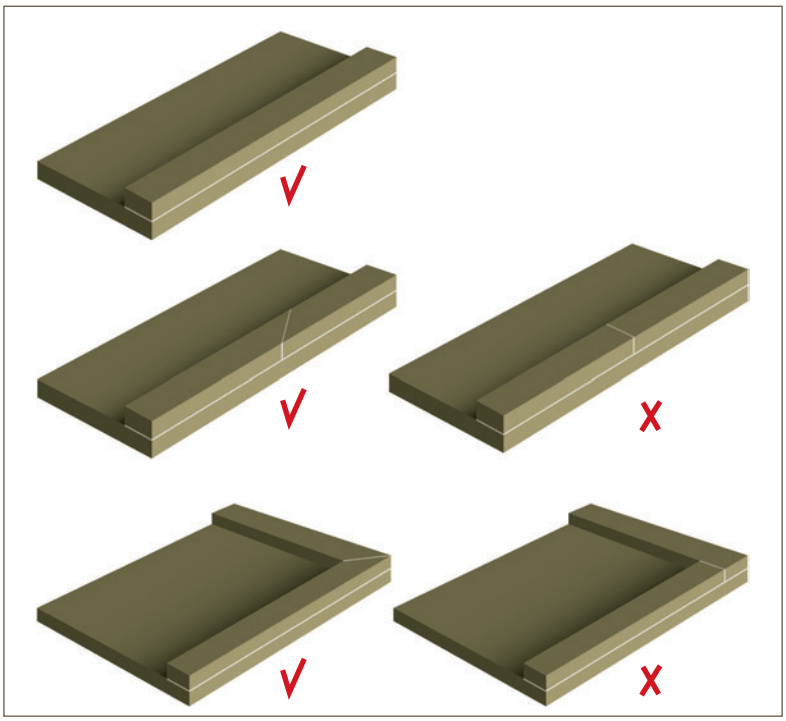


8.6.2 Laminated Edges

Lamination is the process of gluing one or more strips of Caesarstone surfaces along the bottom edge of another piece of Caesarstone surfaces in order to create the illusion of a thicker slab. This process is more complex and time consuming than fabricating single thickness edges; however, it produces a richer aesthetic effect.

- Cut lamination strips from the same slab as the countertop, and wherever possible from the same saw cut, to ensure a colour match.
- The lamination strip should be the same length as the piece of surface to which it is attached. Joins in lamination strips will, therefore, be aligned with the surface seams. If, however, it is necessary to create the lamination strip out of more than one piece, make a 45° angle diagonal join; see figure below right.
- Cut lamination pieces on outside corners at a 45° angle.
- If the lamination strip hinders the opening of the cabinet doors, raise the surface by the use of elevation/support strips along the whole length of the front and back of the cabinet. The strips must be 70 mm wide, and the same height as the part of the lamination strip that protrudes underneath the slab; see below left.
- The preferred method of laminating edges requiring longer edge skirts is the mitre cut; see section 8.6.2.1.





8.6.2.1 Mitre Edges

Characteristics of Mitre Edges

- Mitre edges allow the fabrication of edges of any height. The height of the edge is independent of the thickness of the slab.
- Mitre edges enable the continuation of a pattern around an edge.
- Mitre edges can be used to create edge profiles of various depths.
- Polishing the vertical part of the mitre is not required as the visible area is the polished surface of the slab.

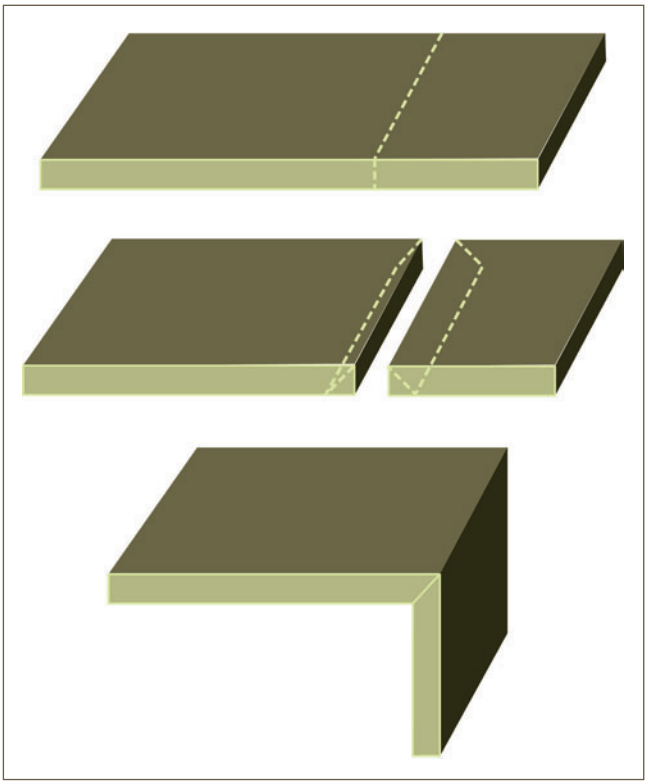
Fabrication of Mitre Edges

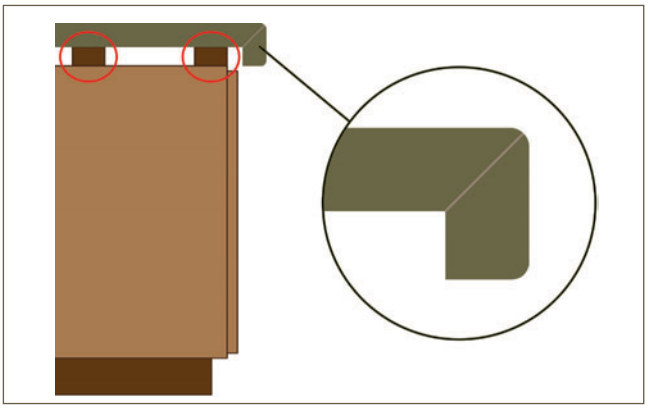
- Cut a strip from the slab. The width of the strip must be the same as the height required for the mitre edge.

  For mitre edges on Motivo or Concetto, cut the slab at the location planned for the mitre join to create continuation of the slab pattern.

- Fabricate mitre edges at a 45° angle to ensure maximum strength and enable a final edge angle of 90°. An angle of less than 45° makes the edge prone to chipping.
- After cutting the 45° angle, some fabricators reduce the angle slightly on the back part of the mitre with a manual tool to create space for the adhesive. This allows for a strong joint and flush closure on the visible part of the mitre.
- Distribute the adhesive evenly throughout the joint for maximum strength.
- Polish the mitre joint to a radius or bevel profile as required.

  A join in the middle of a small radius or bevel makes the edge prone to chipping. It is therefore recommended to create a large radius.





Cross-section of a mitre edge

It is recommended to use a mitre clamp in order to create an accurate 90° angle, to tighten the joint and prevent the adhesive showing. Caesarstone recommends the Mitreforma™ clamp, manufactured by Mitreforma International.

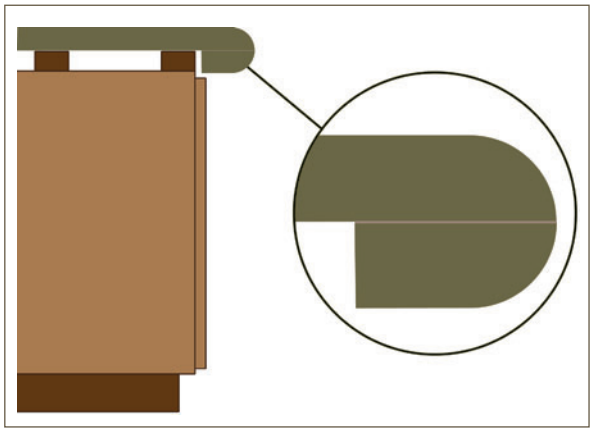
8.6.2.2 Multilayered Edges

Characteristics of Multilayered Edges

- Multilayered edges are fabricated by adding one or more lamination strips underneath the outer edge of the surface.
- Triple or more edges enable various design options such as using lamination strips of different thicknesses and/or colours, and by recessing one or more of the lamination strips.
- This is the method used for creating the popular double bullnose.

Fabrication of Multilayered Edges

- Glue the lamination strip to the surface.
- Clamp the strip to the surface from above and below in multiple places about 13 mm apart to create a flush finish and prevent the adhesive showing.
- After gluing the lamination strip to the surface, polish the entire visible area of the edge.



Cross-section of a laminated double edge

8.6.2.3 L-shaped Edges

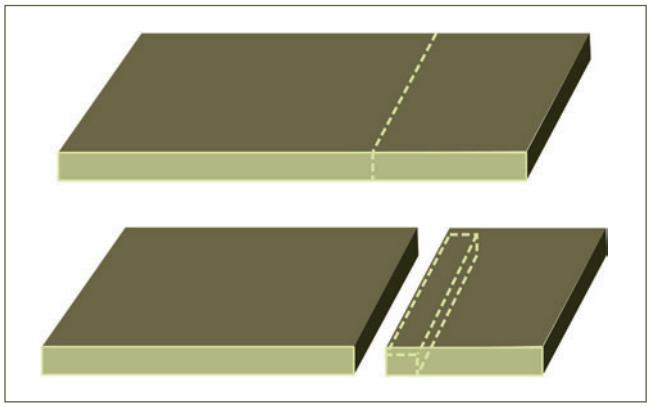
Characteristics of L-shaped Edges

- L-shaped edges have the following characteristics in common with mitre edges:
  - They allow the fabrication of edges of any height, shape and depth. The height of the edge is independent of the thickness of the slab.
  - They enable the continuation of a design around an edge.
  - Polishing the vertical part of the L-shape is not required as the visible area is the polished surface of the slab.
- L-shaped and mitre edges differ as follows:
  - The main difference between L-shaped and mitre edges is that L-shapes are easier to fabricate because the slab is cut at a standard 90° angle on one side only.

Fabrication of L-shaped Edges

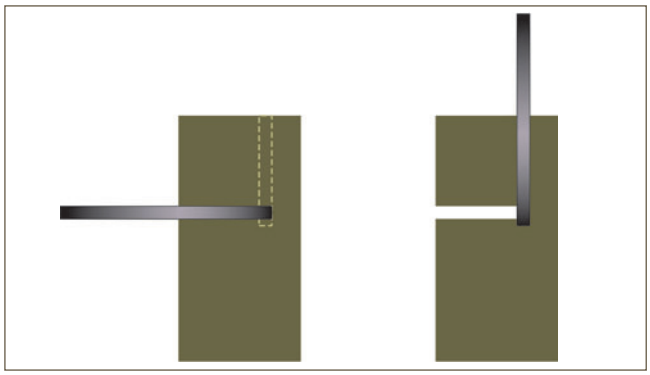
- Cut a lamination strip from the slab. The width of the strip must be the same as the height required for the L-shaped edge.

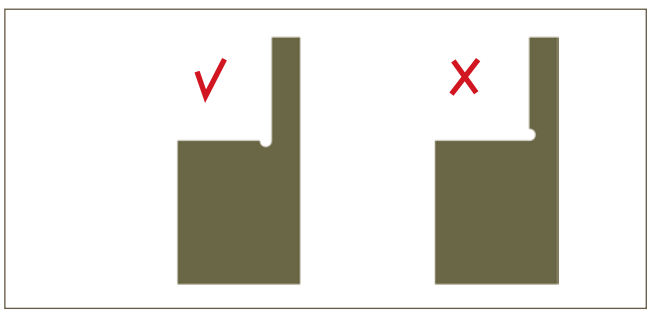
  For L-shaped edges on Motivo or Concetto, cut the slab at the location planned for the mitre join to create continuation of the slab pattern.



- Cut a square piece out of the strip to create a lip of at least 3 mm on the polished side, as follows:
  - Make a cut into the width of the strip so that the planned width of the lip remains (at least 3 mm), plus an additional 2 mm. For example, in a 20 mm thickness slab, the cut will be a maximum depth of 15 mm.
  - Make a cut into the length of the strip to a depth equal to the thickness of the surface plus 2 mm.

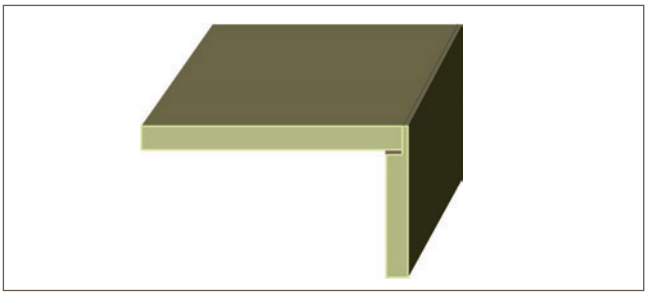
  The combination of the cuts above ensures a sharp 90° angle corner and that the lip is not weakened. The thicker the lip, the stronger the edge.

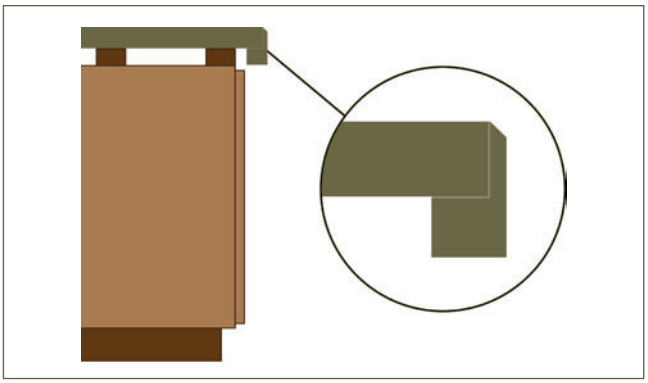




- Glue the lamination strip to the surface. Attach the strip to the surface by clamping in several places from the outer edge of the strip to the back edge of the surface. This will create a flush finish and prevent the adhesive from showing.
- Polish the L-shaped edge to a radius or bevel edge as required.

  Bevelled edges are preferred for L-shaped edges.





Cross-section of an L-shaped edge

8.7 Transportation of Fabricated Surfaces

Correct racking is essential for transporting fabricated pieces to the site in good condition.

- Ensure that there is a protective layer between the rack and the fabricated pieces to prevent scratching or other surface damage during storage or transit.
- Load the fabricated pieces onto a vehicle fitted with an A-frame rack with cross-braces suitable for the size and weight of the slab. Some A-frames can be hoisted off the vehicle.
- Arrange the fabricated pieces on the rack face-to-face and back-to-back with no gaps. Each piece must be fully supported by the adjacent piece. Place pieces with cutouts in the centre of the stack for protection by solid pieces.
- Strap the pieces securely to the rack to prevent movement during transportation. Take care to prevent the straps from being damaged or cut by the square slab edges.
- Securely fasten the whole stack with the rack to the vehicle.

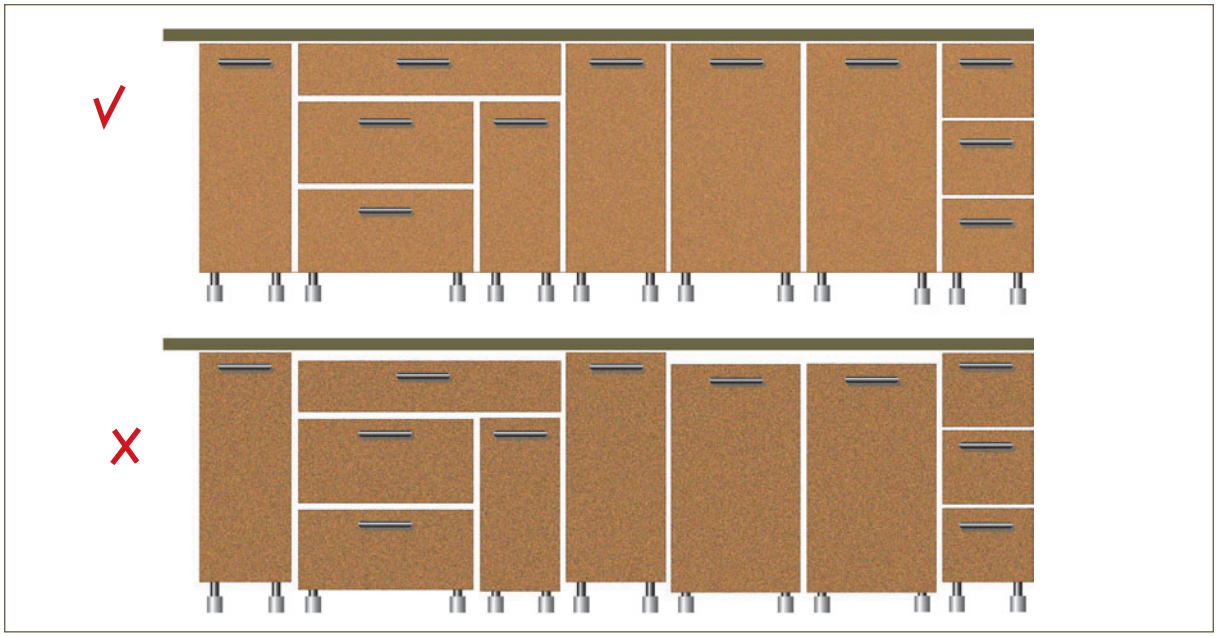
  Secure the slabs during loading to prevent falling due to movement or high winds.

9. Installation

9.1 Preparing the Base Units/Cabinets

Below are technical information and data related to some of the common applications of Caesarstone products. For any other application, you can consult with your local distributor.

- Caesarstone surfaces are installed on top of cabinets and are not fixed to the wall.
- Before installing the surface, ensure that cabinets are complete, stable, level and suitable for bearing the weight of the surface. The cabinets should be fixed to each other and secured to the back wall.



- Caesarstone surfaces must be supported on a strong perimeter frame or on a full deck support of plywood when required for extra support.
- Verify that the countertop is sufficiently supported in areas of seams, cutouts and over spaces for appliances such as dishwashers, ovens, washing machines, etc.
- Provide front-to-back support underneath the surface every 500-600 mm.

  Examples of support are: wooden beams inside cabinets; cabinet attached to the wall; upright countertop to floor panel.
- For cutouts longer than 600 mm, provide side-to-side support beams under the surface.

  Provide support under all countertop seams.

  Attach a wooden board between the cabinet tops on both sides of undercounter appliances that generate heat.
- For surfaces of 13 mm and 20 mm, if extra reinforcement of the cabinets or the surface is considered necessary, lay a plywood subtop at least 16 mm thick on top of the cabinets, or glue strips of Caesarstone under the surface. For surfaces of 30 mm a full subtop is not required.

9.2 Countertops

9.2.1 Preparation for Installation

- Place all the fabricated pieces of the surface in their final position on the cabinets without adhesive. Check that all the pieces are the correct size, shape and direction in relation to the cabinets and the walls.
- Check that all exposed edges and corners are fabricated and rounded as required.
- Check that the surface is straight and level with a spirit level and long ruler.
- Leave a space of 1 mm per linear meter between straight stretches of the surface and each wall for expansion and contraction, but not less than 3 mm in any event.
- Perform a final visual inspection to ensure that the surface is to your satisfaction.

9.2.2 Seaming

- Part the fabricated pieces of surface slightly at the seam.
- Place a layer of paper on the cabinet underneath the seam in order to prevent the adhesive from sticking the surface to the cabinet.
- Prepare a suitable colour-matched resin adhesive.
  - If necessary, mix the adhesive with pigments using a stainless steel or plastic spatula until achieving the required shade or use a precoloured methyl methacrylate type adhesive with a dispensing gun.
  - Discard about 5 cm of adhesive from the mixing nozzle to ensure proper mixing when using the precoloured methyl methacrylate type adhesive.
  - Use a plastic spatula for mixing light colours.
- Ensure that the seam is clean of debris.
- Spread a generous amount of the adhesive on both sides of the seam.
- Close, secure and straighten the seam with clamps or a professional seaming clamp to create a smooth, flush surface.
  - Do not glue large surfaces to the cabinets. Only small surfaces that may move should be glued to the cabinets with dabs of flexible adhesive, e.g., 100% silicone.
- After the adhesive is completely dry, remove the clamps.
- Remove any excess adhesive with a scraper.
- Perform final cleaning with alcohol on a clean white cloth.

9.2.3 Sealing Between the Surface and the Wall

- Clean the space between the surface and the wall.
- Fill the space generously with a flexible adhesive such as neutral 100% silicone.

  The silicone adhesive prevents water from entering the cabinet.

  For visible joins between the Caesarstone surface and a different material, use coloured silicone, a suitable acrylic mastic or paintable latex caulk.
- If the cabinets are supported on adjustable legs, ensure that all legs are evenly tensioned to ensure stability.

9.3 Sinks

- Install, glue and seal the sink as per the manufacturer's instructions after installing the surface.
- Glue and seal the sink to the surface with a suitable flexible adhesive.
- Ensure that the sink is fully supported inside the cabinet, e.g., by support rails or legs connected to the cabinet, in addition to being attached to the Caesarstone surface.

  Ensure that sufficient space remains underneath the hole for access and any parts installed underneath the surface, e.g., sink, bolts, soap bottle, etc.

9.4 Accessories & Fixtures

Accessories and fixtures can be attached to Caesarstone by mechanical anchoring, adhesive anchoring, or a combination of both.

- Use a combination of the methods below to attach heavy fixtures to Caesarstone.

9.4.1 Attaching Accessories Mechanically

- Drill a hole of the required size and shape through the material.

  Drilling can also be performed after the slab is installed.

- When the back of the slab is accessible (e.g., sink surrounds, countertops and vanities), slot the accessory through the hole and secure it to the back of the slab with the appropriate nut or fastener supplied by the accessory manufacturer.

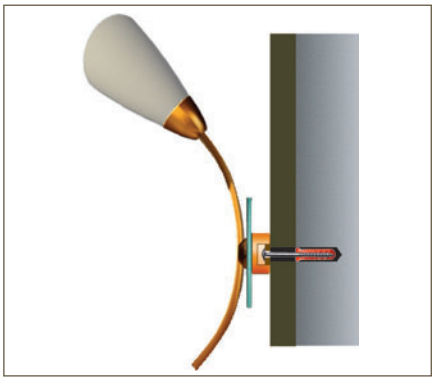
  Do not apply excessive pressure when tightening the nut as this may damage the surface.

  Use a washer or other pressure disperser to avoid creating pressure on a small area.

- When the back of the slab is inaccessible (e.g., flooring and wall cladding), attach the accessory to the substrate behind the material with anti-corrosive screws or bolts of the appropriate size and strength, with the screws or bolts slip-fitted through the material.

- For both types of mechanical attachment: For holes of up to approximately 40 mm, leave a minimum of 50 mm between the edge of the hole and the edge of the surface/ cutout to maintain the strength of the surface. For larger holes, the minimum remaining surrounding surface must be proportionately larger.

  Do not attach mechanical fasteners (screws, nails, etc.) directly to Caesarstone surfaces. If it is necessary to secure items to Caesarstone surfaces, use flexible adhesive only.



9.4.2 Attaching Accessories with Adhesive

- Most accessories are supplied with an integral self-adhesive pad, which can be attached directly to the surface.
- If the accessory is not supplied with a self-adhesive pad, attach the accessory to the surface with an appropriate adhesive, e.g., neutral 100% silicone.

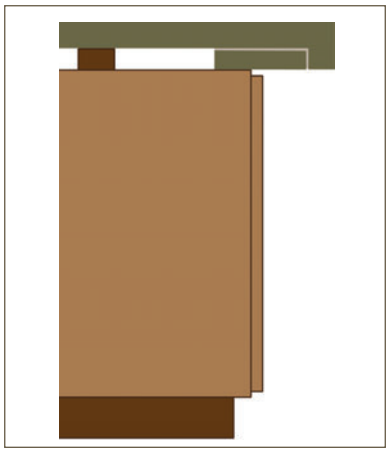
  The larger the area of adhesion, the stronger the bonding.

9.5 Overhangs

An overhang is a surface that is not directly supported by a construction underneath, e.g., a surface that extends past the edge of the supporting cabinet for use as a countertop.

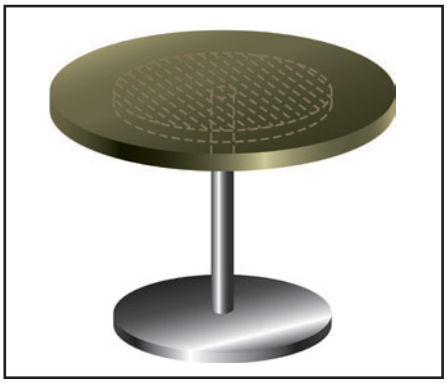
- Extra strength can be provided by laminating the edge of the overhang and attaching another slab of the same thickness underneath. In this case, the bottom slab is attached back to back underneath the surface so that the polished surface is exposed underneath the slab.
- The permitted overhang dimension must be determined by a professional. It is dependent on a number of factors, such as:
  - the complete length to width ratio of the surface relative to the length and width ratio of the overhang.
  - whether the overhang is supported on one or more sides by a wall or other supporting fixture.

  Overhanging surfaces of 13 mm require more support than those of 20 or 30 mm. Reinforce 13 mm overhangs with strips of Caesarstone or a metal frame.
- The table below provides approximate guidelines for support required for overhangs.



20 mm thickness slabs	30 mm thickness slabs	Support required
<300 mm	<400 mm	No additional support required
300-500 mm	400-600 mm	Support brackets at 600 mm intervals
>500 mm	>600 mm	Legs, columns or panels

9.6 Tabletops



- When installing a Caesarstone surface as a freestanding tabletop, design the base area of the leg or legs to securely support the table top.
- Spread neutral 100% silicone evenly on the top surface area of the supporting leg or legs. Ensure that the adhesive is spread on a sufficient area to secure the surface.

9.7 Finishing Touches

- Once installation is complete, ensure that the slab surface is clean and the work area tidy.
- If further construction work is to be performed at the job site after the installation of the surface is complete, ensure that the Caesarstone surface is properly protected by covering the entire top with corrugated cardboard or another protective material.
- Make the customer aware that any following tradesmen must NOT use the new countertop as a work bench, step or standing platform, and that any tradesmen using strong solvents or adhesive must exercise due care.
- Caesarstone strongly recommends that customers confirm in writing their satisfaction with the material and workmanship at the end of the job to cover the fabricator against damage caused by others.

10. Care & Maintenance

Tough, Yes – Indestructible, No

Caesarstone recommends using water and a mild detergent or a high-quality spray and wipe-type cleaner on a soft cloth or non-abrasive sponge for routine cleaning of Caesarstone surfaces. Consult with your distributor for specific products recommended in your local market.

- In general, it is recommended to use cleaning products between pH 5-9, as products outside this range may damage the surface.

  ⚠ If cleaning products outside this range are used, as recommended in section 10.4.2, check their effect in advance on a separate piece of the surface.

- It is recommended to leave cleaning products on the surface for no more than 5 minutes.

  ⚠ If it is necessary to leave cleaning products on the surface for more than 5 minutes, check their effect in advance on a separate piece of the surface.

- Do not use products that contain trichloroethane or methylene chloride, such as paint removers or strippers.
- If the surface is exposed to any potentially damaging products, rinse immediately with water to neutralize the effect.
- Do not allow dirt and residue to remain on Caesarstone surfaces for extended periods.
- Products containing oils or powders may leave a residue and should be rinsed off thoroughly.
- Thoroughly rinse cleaning materials off Caesarstone surfaces after use.

10.1 Heat Resistance

Caesarstone surfaces can tolerate moderately hot temperatures for brief periods of time. Prolonged exposure will result in discolouring or other types of damage. Excessive localized heat may damage the surface or cause hairline cracks.

⚠ Do not expose Caesarstone surfaces to temperatures higher than 100°C (212°F).

⚠ If the surface is exposed to temperatures higher than 70°C (158°F), support the surface from underneath to prevent warping.

⚠ Do not allow direct contact between Caesarstone surfaces and very hot pots or other hot cookware. Always use an insulator/trivet.

10.2 Scratch Resistance

Caesarstone surfaces are highly scratch resistant; however, avoid using sharp objects such as sharp knives or screwdrivers directly on the surface.

10.3 Honed, Textured/Viento and Motivo Finishes: Care & Maintenance

These finishes require more routine maintenance than polished finishes due to the different level of smoothness.

- Most marks can be easily removed with a little effort and a recommended cleaning product. For tough stains, gently rub the area with the cleaner and a mildly abrasive pad.
- To facilitate the care and maintenance of these finishes, and to help minimize the appearance of fingerprints and other marks that occur during normal use, a surface shield or stone colour enhancer can be used on the surface.

Due to the fact that these finishes are somewhat more sensitive to dirt and damage than the polished finish, it is recommended that the surface be covered with a protective layer during the fabrication process.

10.4 Stubborn Stains or Dried Spills

Caesarstone surfaces are highly stain resistant. If a stain occurs it can usually be easily removed.

- Before treating the stains as described below, try to remove the stain with a damp, soft cloth with water and soap, or a non-abrasive household cleaner.
- For stains with adhered material, such as food, gum, nail polish or dried paint, first scrape away the material with a plastic putty knife and then follow the instructions below.

10.4.1 Recommended Stain Removers

- Bar Keepers Friend® Power Cream
- Cillit Bang Bleach and Hygiene

Care & Maintenance

10.4.2 Treating Stains

Type of Stain	Cause/Source of Stain	Treatment/Remarks
Chemical	• Materials containing caustic soda pH 10-14 • Fat/grease removers, e.g., oven cleaners	Cannot be removed.
Heat source – direct/indirect	• Hot pressure cooker • Hot frying pan • Hot saucepan • Polishing burn • Toaster oven • Grill • Hot plate • Oven shelves and trays • Hot food spillage	The severity of the burn is indicated by its colour. Yellow stains can sometimes be removed with Cillit Bang Bleach and Hygiene. Brown stains generally cannot be removed.
Oil – natural	• Olive oil • Canola oil, etc.	• Cillit Bang Bleach and Hygiene • 10% bleach • Hydrogen peroxide, max. 30% • Mild, alcohol-based degreaser
Oil – synthetic	• Machine oils	• Cillit Bang Bleach and Hygiene • Mild, alcohol-based degreaser
Cosmetics	• Hair shampoo • Medical creams • Make-up	• Alcohol • Cillit Bang Bleach and Hygiene • Hydrogen peroxide, max. 30%
Metal	• Metal kitchen tools (e.g., knives) • Metal pots • Metal belt buckles	• Cillit Bang Bleach and Hygiene Metal stains may resemble scratches but they are actually metal residue and easy to remove.
	• Rust	• Oxalic acid Repeat use for stubborn stains.
Food and beverages	• Food colouring • Herbs and spices • Red wine • Pomegranates	• Cillit Bang Bleach and Hygiene • 10% bleach • Hydrogen peroxide, max. 30% • Mild, alcohol-based degreaser
Product imperfections	• Pigment irregularities	Drill out the imperfection and repair by plugging (see the Repairing by Plugging manual).
Colours	• Ink • Markers – water-based • Markers – oil-based (permanent) • Paint • Print from supermarket bags	• Alcohol • Cillit Bang Bleach and Hygiene • 10% bleach
Other	• Blood	• Cillit Bang Bleach and Hygiene • Hydrogen peroxide, max. 30%
	• Candle wax	• Alcohol • Cillit Bang Bleach and Hygiene • Mild, alcohol-based degreaser
	• Glue from adhesive tape	• Alcohol
	• Hard water deposits	• Scale remover • Vinegar
	• Soap stains	• Cillit Bang Bleach and Hygiene • Mild, alcohol-based degreaser
	• Shiny area caused by friction (only in Honed and Textured/Viento)	Rub the surface with an abrasive pad until achieving the same surface texture
	• Silicone	• Alcohol

*Do NOT use: Vim® Cream, Mr. Clean® Magic Eraser or other abrasive cleaners or pads.

11. Environment & Standards

At Caesarstone, minimizing our impact on the environment is a top managerial priority, involving all our employees and departments to assure our sustainability leadership.

We aim to create durable, low-maintenance products that support healthier environments and better use of material resources. We are committed to supporting voluntary programs and achieving independent certification for key initiatives.

Caesarstone quartz surfaces are compliant with the International Health and Safety Foundation sanitary standard NSF51, ensuring that our working surfaces are safe for use in all food environments. Our non-porous surfaces inhibit the growth of mildew and bacteria, thus creating a hygienic surface.

Caesarstone quartz facilities that supply Caesarstone products to the UK comply with ISO 14001, ISO 9001 and OHSAS 18001.

All Caesarstone quartz surfaces comply with American GEI (GREENGUARD Environmental Institute) certification, which verifies that Caesarstone products meet the most stringent indoor air emission standards. GREENGUARD Children & Schools standard evaluates the sensitive nature of school populations combined with the unique building characteristics found in schools, and presents the most rigorous product emissions criteria to date.

As a member of the United States Green Building Council (USGBC) we are a natural partner for green building projects worldwide.For more information, visit http://www.usgbc.org/.

Developed by the United States Green Building Council (USGBC), LEED - Leadership in Energy and Environmental Design - is an American accredited certification programme for the design, construction and operation of high-performance green buildings. As a member of USGBC, we are a natural partner for green building projects worldwide. For more information, visit http://www.usgbc.org/.

Caesarstone's recycled models are Scientific Certification Systems (SCS) certified for recycled content. SCS is a global leader in independent certification and verification of environmental and sustainable stewardship. Some of our products are made from pre-consumer recycled raw materials such as mirror and glass.

Caesarstone has earned the respected Good Housekeeping Seal from the Good Housekeeping Institute.

Caesarstone surfaces are kosher due to their low porosity.

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caesarstone®