Unistone Design Guide

Product Information

The actual usable slab surface is slightly less per side due to the bevelled perimeter

Length	3000mm +/-10mm (some sizes available in Jumbo please check with office)
Width	1400mm +/-10mm (some sizes available in Jumbo please check with office)
Thickness	30mm,20mm **+/-1.5mm**
Weight	20mm = 210kg per slab (50kg m2)
	30mm = 315kg per slab (75kg m2)

Understanding Unistone Slabs

Unistone slabs are made with approximately 93% natural mineral quartz. The quartz gives the Unistone its strength, but being a natural material, it also means there are some important factors that should be considered.

As the slabs are largely composed of natural minerals, each slab is unique, even though it will have the same common quartz structure, colour and overall look for the series.

Inclusions

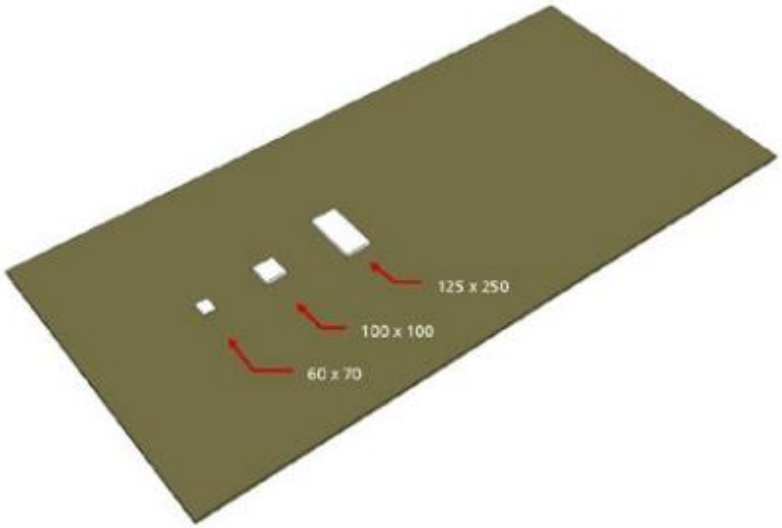
The raw quartz materials are screened to remove impurities and graded by colour and size before proceeding to manufacture. However, it is impossible to remove 100% of the irregularities in the colour of the quartz. This means that small black chips might appear in a lighter coloured material, or small white chips in a dark coloured material. This is not a flaw, but just a result of using natural materials.

Colour Matching

There might be slight colour variations between each production batch of slabs. This can be evident when comparing a sample in the showroom, which may be several years old, and the actual slab what will be used for manufacturing the worktops, which is from a more recent batch.

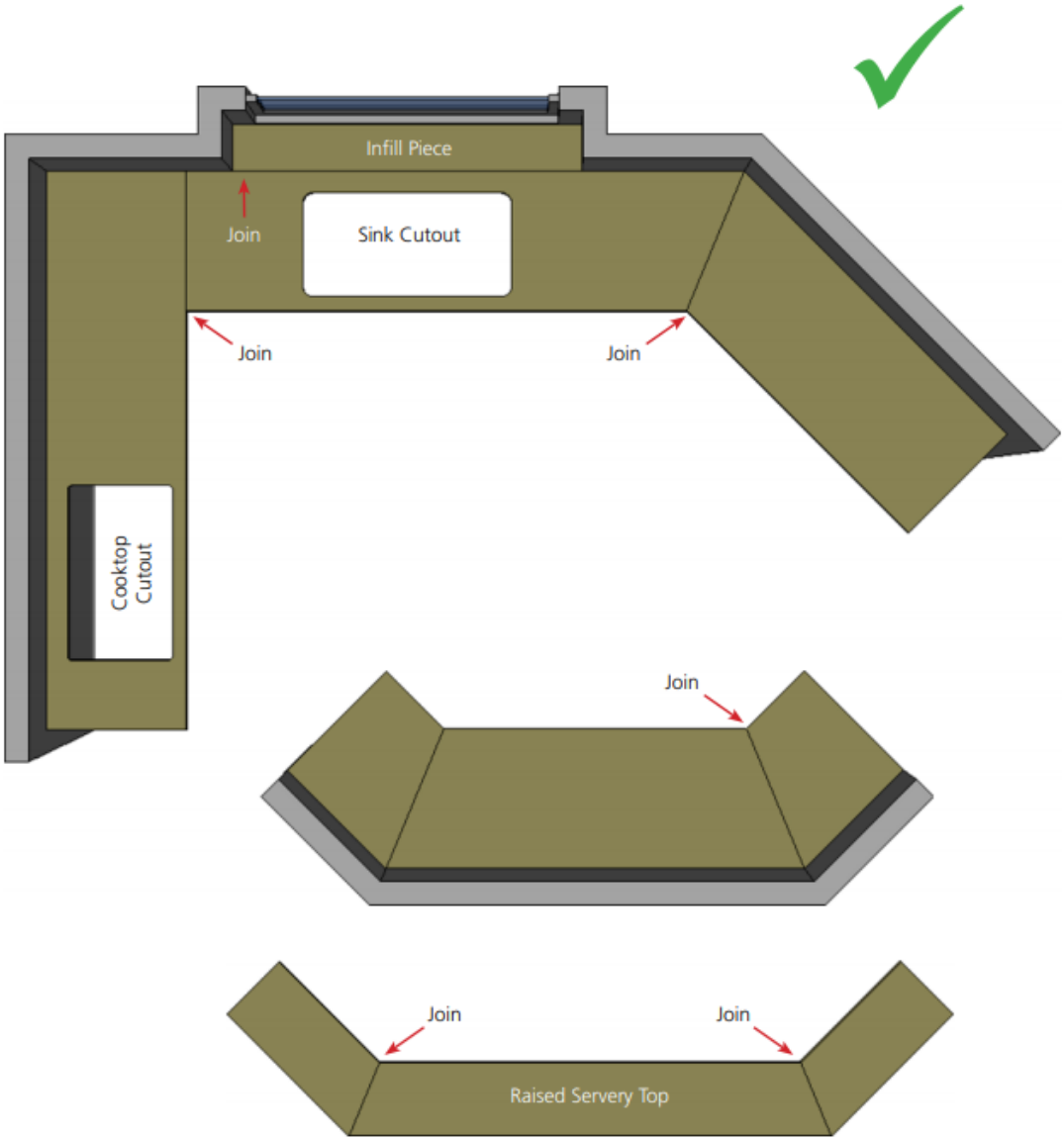
Sample Vs Full Slab

A Sample only tells part of the story, below you can see the size of samples in relation to the size of the slab. While a sample gives a good idea of the look and feel of the slab, it is not a complete indicator of the overall effect of the full size of slab. We always recommend that the customer views larger images on the website, or inspects the slab prior to fabrication to ensure that It meets expectations



Placement of joints

When designing worktops, it is recommended that there are joins every change of direction in a worktop as L shape cut-outs should be avoided



Joints

Maximum length of a piece with sawn cutout in 30mm thick 3000mm

Maximum length of a piece with a sawn cutout in 20mm 3000mm

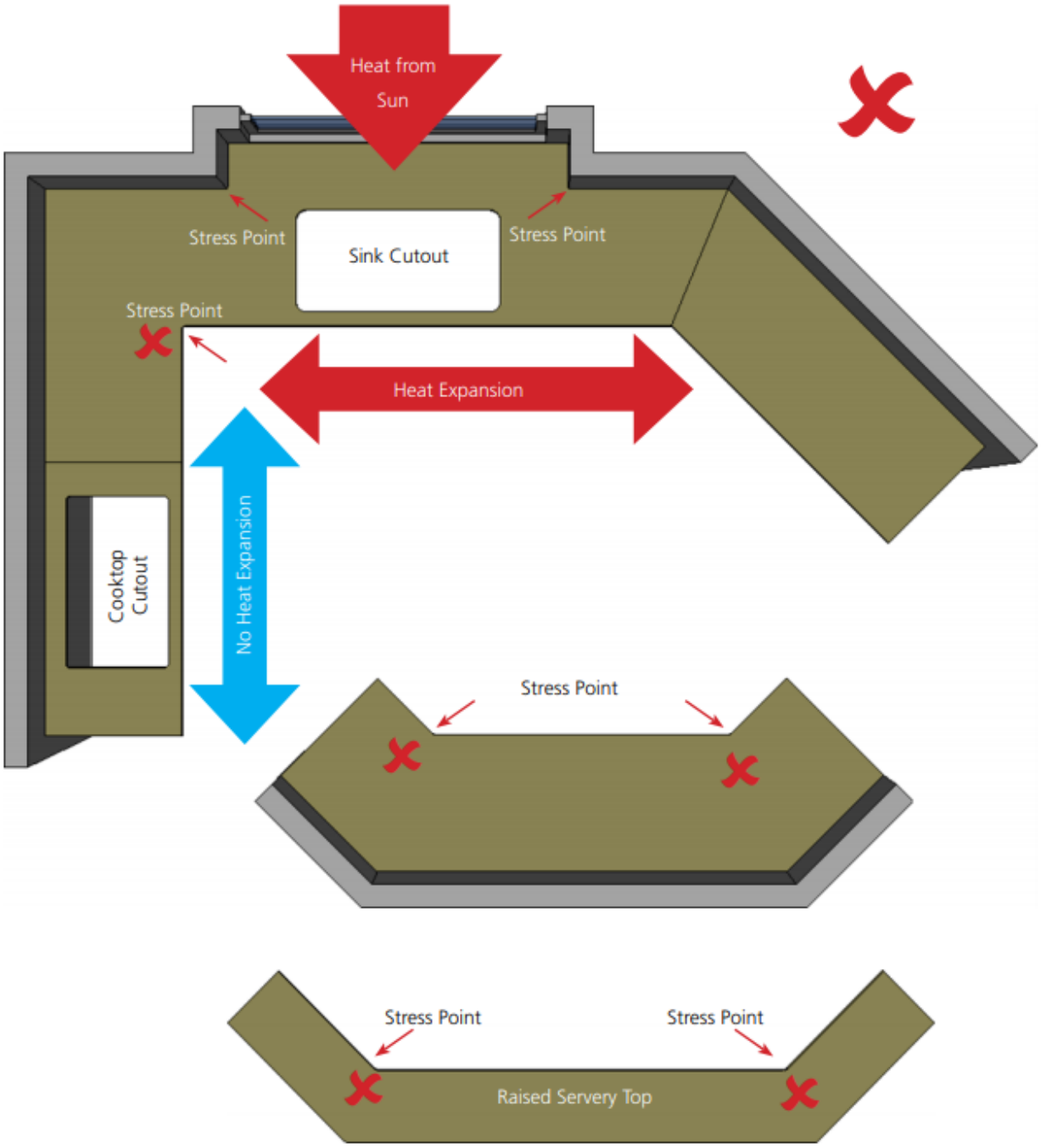
Maximum length of a piece with polished cutout in 30mm 3000mm,

Maximum length of a piece with polished cutout in 20mm is 3000mm

Upstands are 20mm thick and maximum length 2500mm, **Minimum height of upstand 50mm**

Expansion Gaps

A 5mm expansion gap is required with stone worktops against a wall, this is normally covered with upstands, tile or glass, but will be an issue if the customer requires nothing against the wall, to do less than the 4-5mm recommended will void any warranty so should be taken into consideration when designing



Although these worktops can be cut as one piece from a slab, we do not recommend this as it is important to consider the risks of cracking that can happen after installation.

Cracking does not indicate a material fault or even a fault with the fabrication or installation. Often it may be the result of externally induced or mechanical stress, on the worktops. The two most common sources are heat (thermal shock) causing expansion or contraction, and high load points. These could be the result of something that the consumer has done unknowingly or accidentally.

It is best to avoid this situation in the first place by using joins and avoiding L shape cut-outs

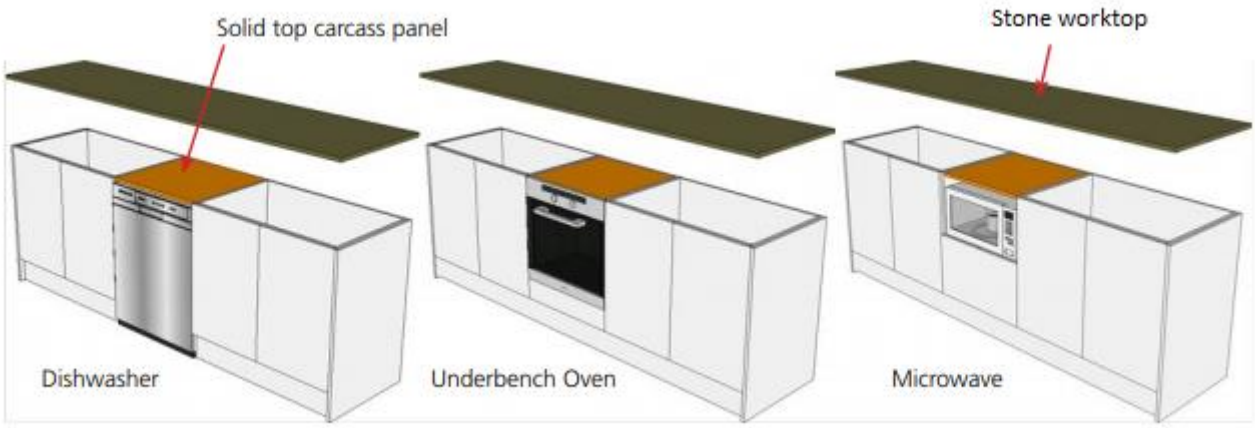
Cutting

Please take into account we operate to industry standard tolerances of +/-2mm, so a 5mm minimum overhang is always recommended, asking us to supply it flush, means when it is cut it could be -2mm overhang i.e. showing the door or carcase

Under worktop Appliances

Appliances such as ovens, dishwashers, washing machines and microwaves can generate heat in a very confined area. To protect the worktops from this we do recommend that a solid top is installed above these appliances made from the same material as the cabinet carcasses.

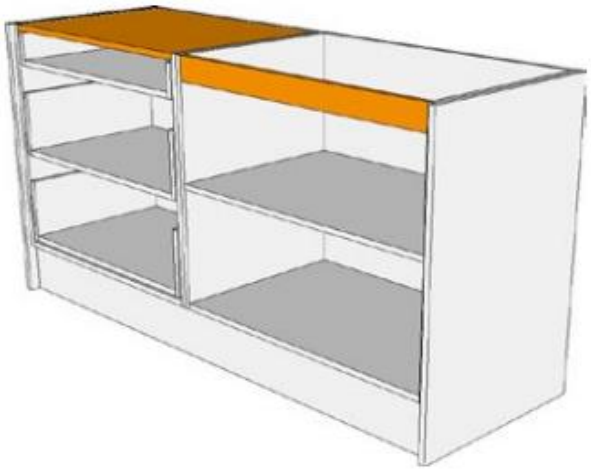
This will provide both support and insulation for the worktops, also a heat defusing pad can be used.



Solid Tops are not a replacement for vertical rails a flat panel, although add strength, does not negate the need for solid vertical rails in cabinets where there will be cutouts

Ideally cabinets should have a solid timber vertical rail to provide maximum strength

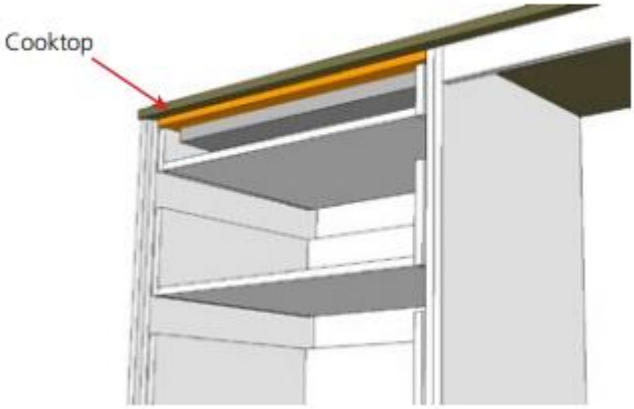
Draw cabinets should have a solid top as vertical rails are not practical

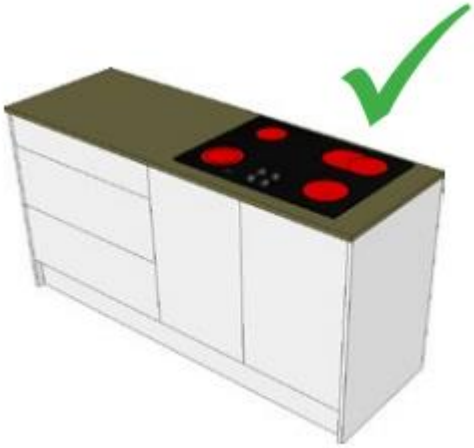


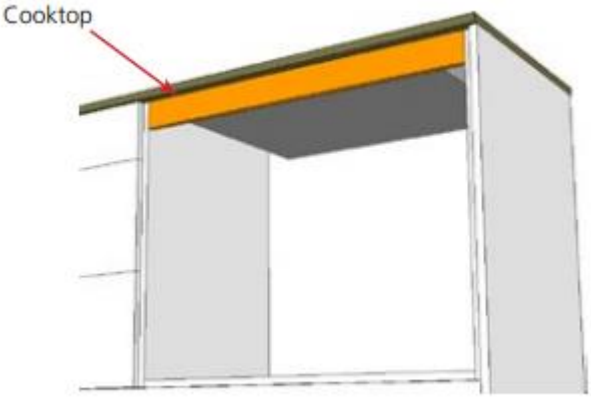
Vertical rails over under bench ovens provide additional support, especially important when the cooktop cutout is above the oven.

Hob/Cooker Locations

Avoid having a hob located above drawer units, this may restrict the use of vertical rails and potentially weaken the support structure under the worktop.







Horiontal rails under a sink or hob cutout tend to have a large portion cutout. This leaves the support inadequate for the worktops. Keep in mind that the worktops also have a cutout for the appliance, resulting in a weak section of worktop without adequate support below (see RIGHT)

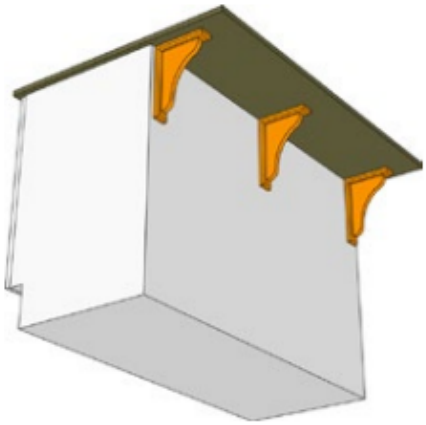
Therefore vertical timber rails or similar stronger, vertical supports are always recommended.

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 cabinetry like a breakfast bar overhang

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.
- The table below provides approximate guidelines for support required for overhangs. Supports are dependent on the application, if the overhangs will be subjected to high loads, then supports should be used regardless of the recommendations below.



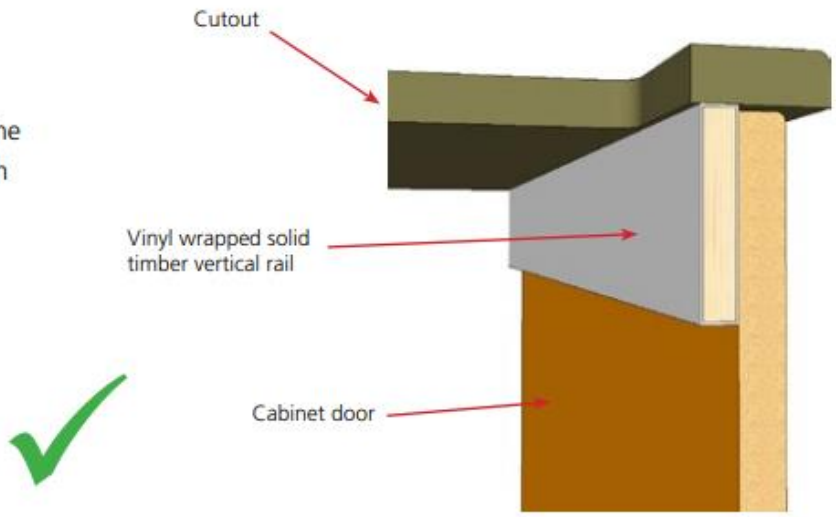
Types of Overhang	13mm Thickness Slabs	20mm Thickness Slabs	30mm Thickness Slabs	Comments
Unsupported Overhangs	Equal or less than 100mm	Less than 250mm overhang	Less than 350 mm overhang	No additional support required
Supported Overhangs		250 mm to 500mm	350 mm to 600mm	Support brackets at 600mm intervals
		Greater than 500mm	Greater than 600mm	Legs, columns or panels required

Cut out Supports

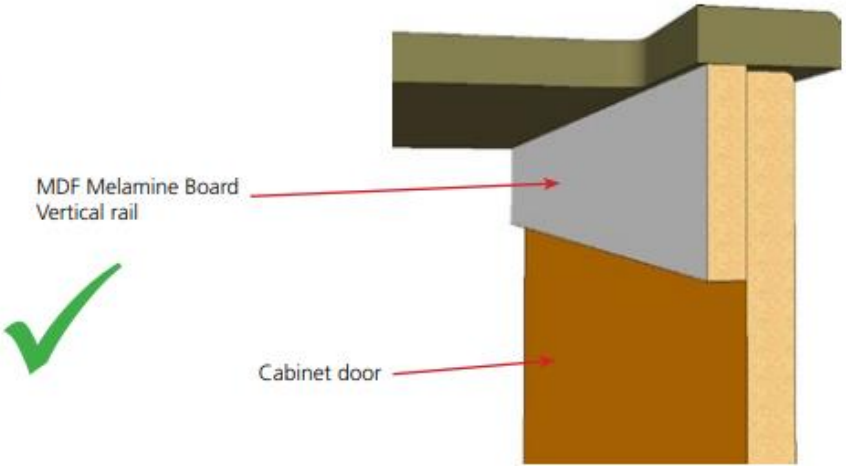
Cut-outs within worktops for sinks or hobs should always be supported to ensure the worktop is not bearing the direct weight of any applied heavy loading placed on the worktops.

For this reason, we recommend the use of vertical rails that will fully support the weight of the worktop and any additional heavy loads further placed on the worktop. Any rail support must not flex or sag regardless of span, which could place stress on the worktop material.

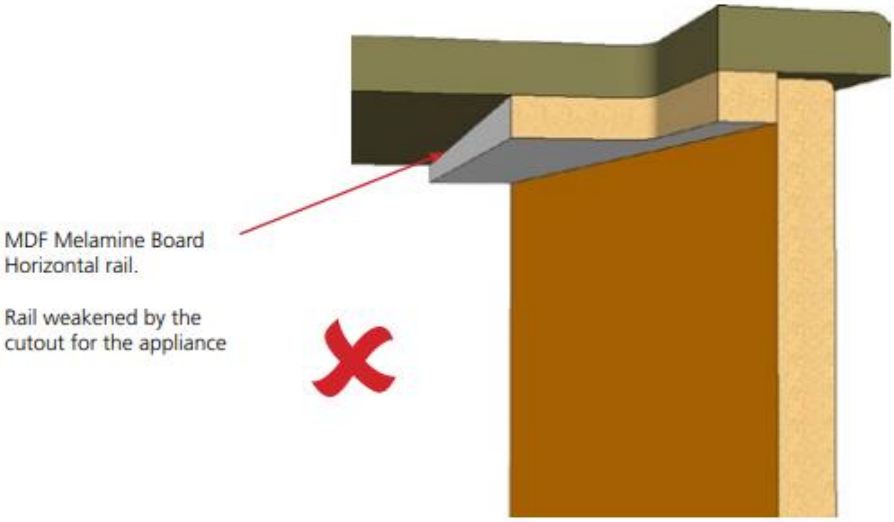
The use of a vinyl wrapped, solid timber vertical rail has the advantage of greater strength and better support.



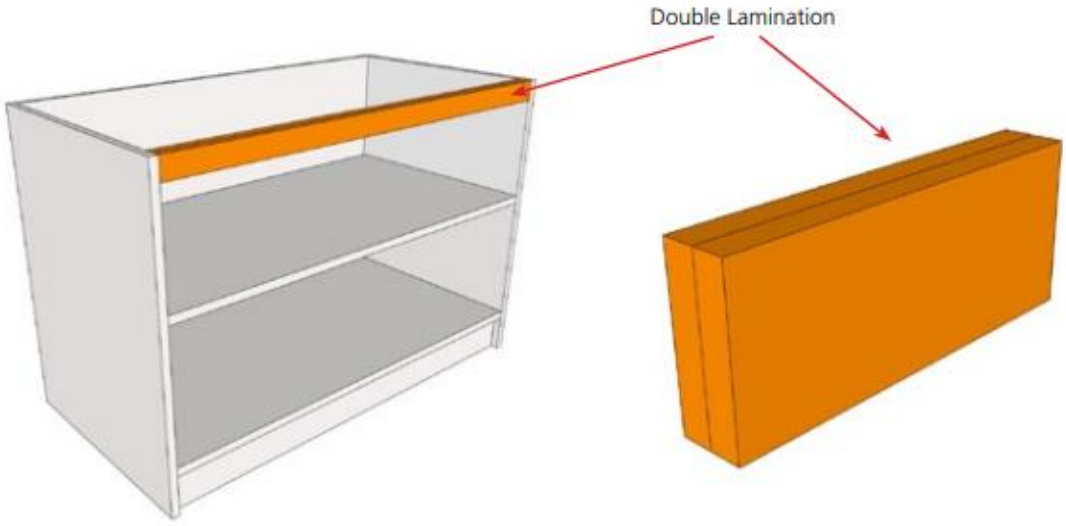
The use of a MDF vertical rail is still better than having a flat rail.



Horizontal rails are not recommended, the installation is dependant on the quality of structure and support that the worktops are being installed onto.

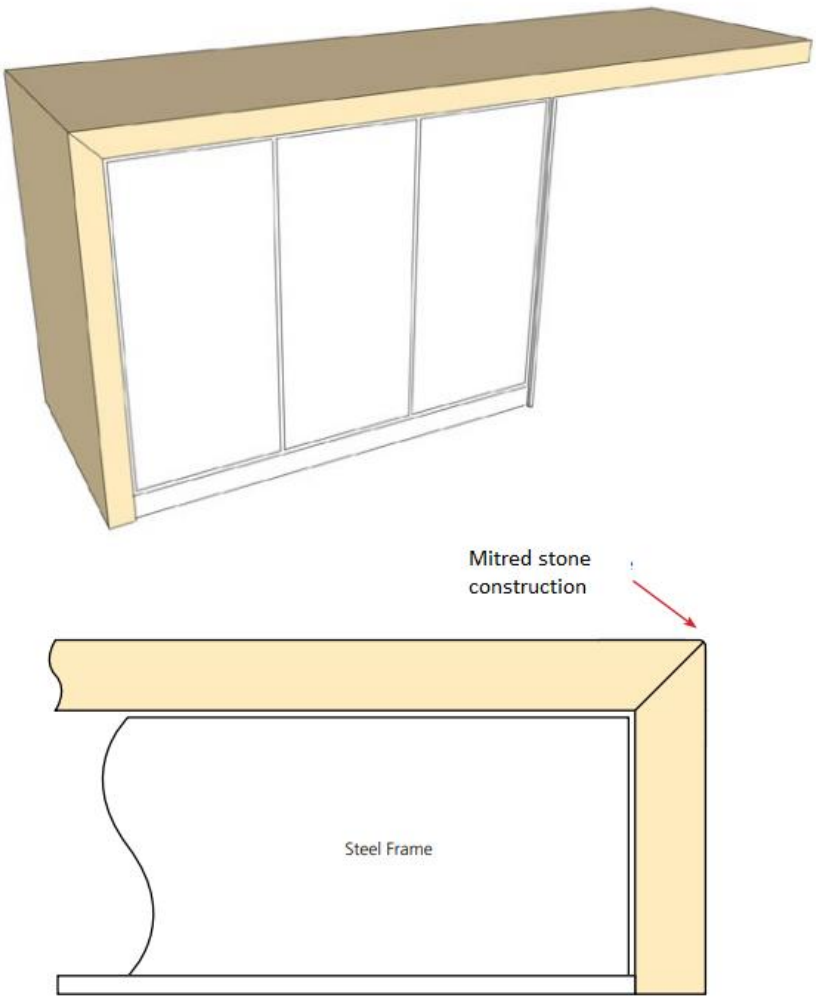


For carcasses with large spans, it is essential that the rear and especially the front rail are constructed from strong materials that are rigid and will not flex under load. In these circumstances a double laminated, vinyl wrapped, solid timber rail or one made from aluminium or steel may be necessary.



Cantilever islands

Slabs must be installed on a rigid frame or base that cannot flex or bend. Cantilever islands should be constructed from a steel frame and must be capable of supporting the full weight of slabs negating any movement or sagging.



Worktop Cut-outs

The following information must be considered when designing the incorporation of sinks, hobs etc into worktops

Cut-outs are usually creating in worktops for the installation of sinks, hobs and other accessories

Cut-outs must be prepared according to the instructions of the manufacturer of the item to be installed

A Minimum radius of 10mm is recommended for all internal corners in cut-outs (figure 1) the larger the radius the stronger the corner

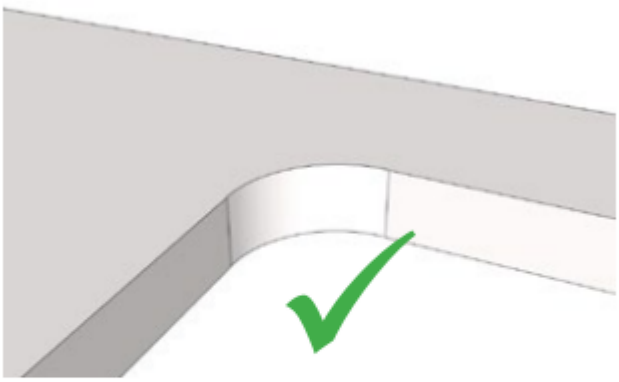


Figure 1

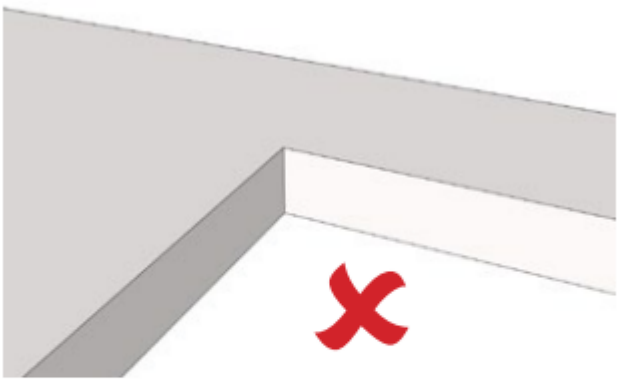


Figure 2

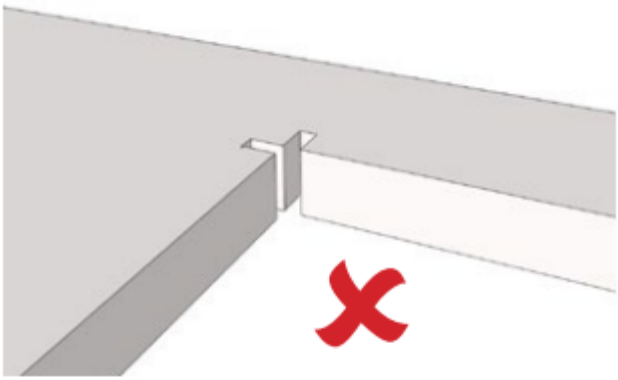


Figure 3

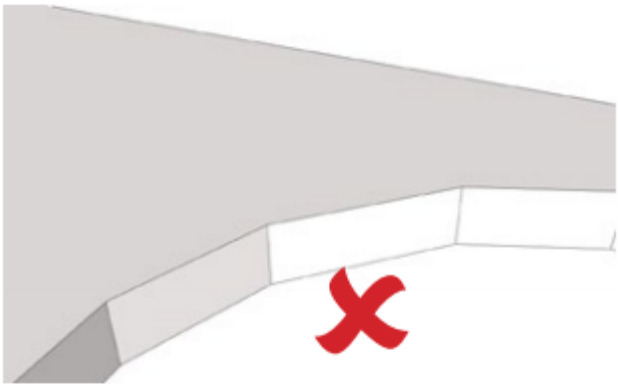
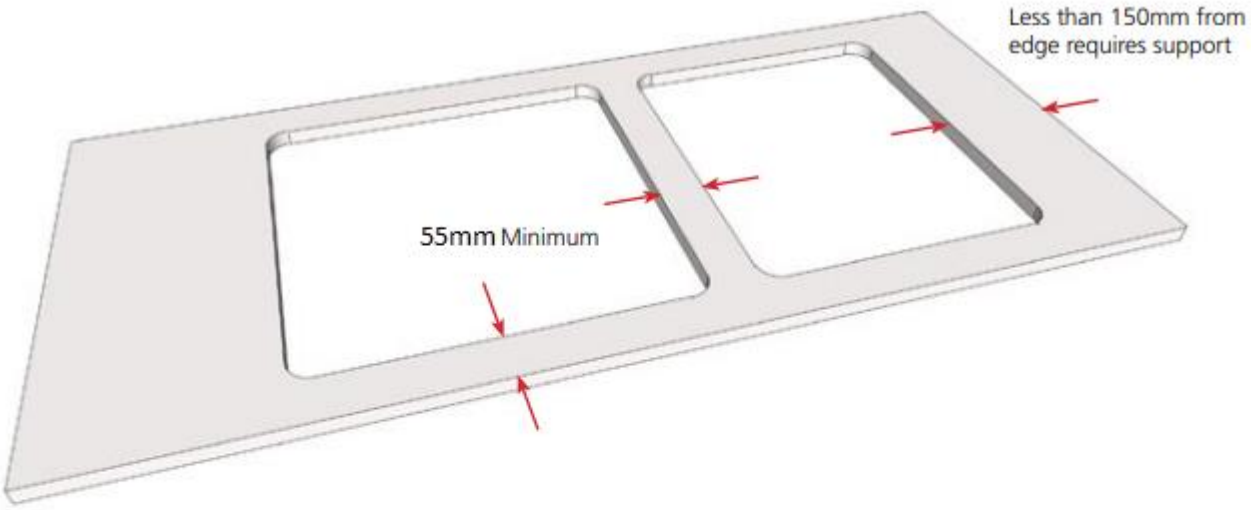


Figure 4

- Do not square cut (Figure 2) or cross-cut (Figure 3) corners.
- Do not cut large radius in sections (Figure 4), these need to be one continuous smooth radius.
- Do not reduce the thickness of the surface when preparing the cutout.
- The distance between a cutout and an edge or join must be no less than 60mm. The greater the distance, the stronger the area.
- If the distance between a cutout and an edge or join is less than 150mm, the area must be supported. Ensure that the area between the cutout and the edge or join is located over the junction between the base cabinets or fit a solid support strip under the area.

cut-out Surrounds

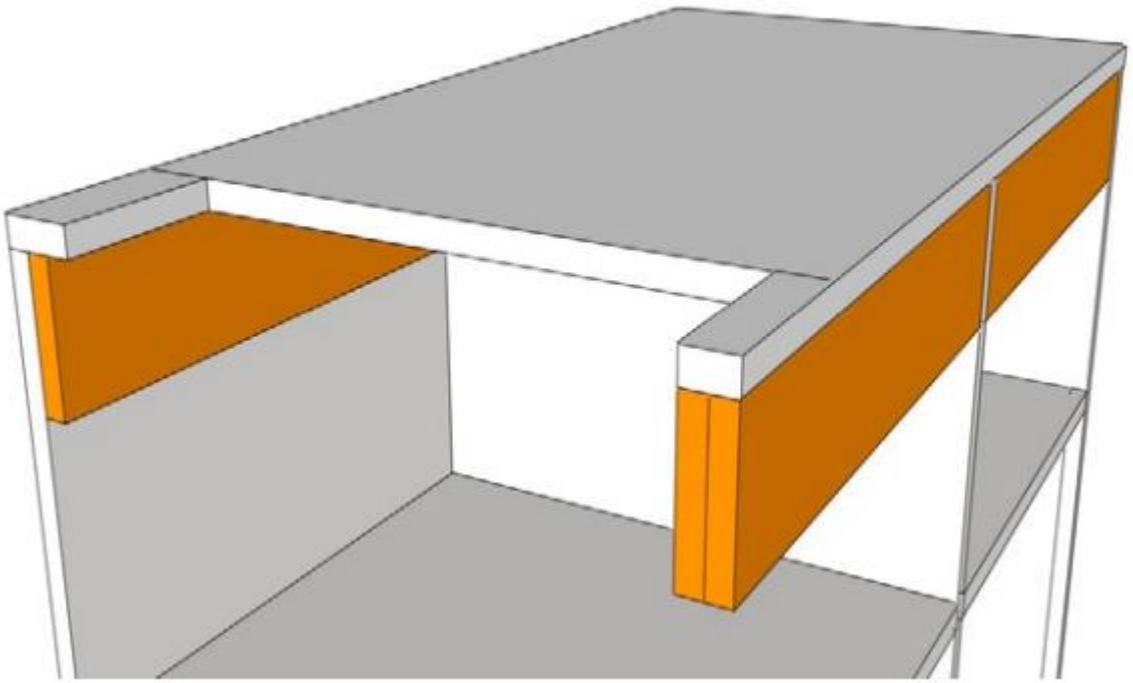
Consider the minimum recommended dimensions when designing cut outs for appliances and sinks



Large Cutouts

If a cutout will leave front and back benchtop rail widths of less than 55 mm, consideration should be given to making these rails from separate pieces to avoid problems with cracking.

If less than 55 mm from edge, then it is recommended that separate rails be abutted to the end of the benchtop.



Sink Drainers

Sink Drainage grooves and recesses are often cut into the surface of the material when under mounted sinks are used. There are several fabrication considerations that need to be addressed.

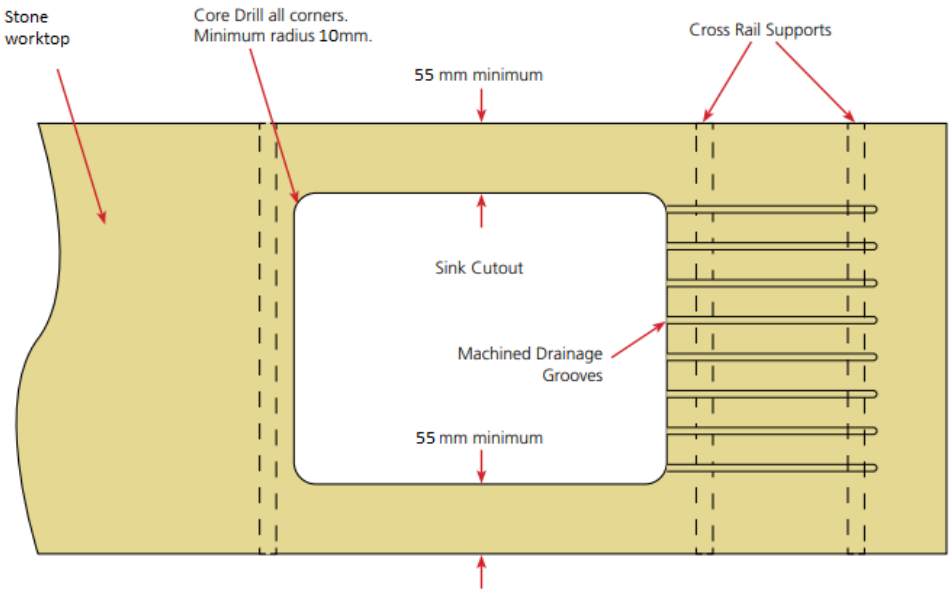
Undermount Sink Installation

1) On Recess and Grooves, it is not always possible to get the same finish as the surface of the worktop, it will often be more of a matt finish.
2) Any groove/recess should not be too deep as it may seriously affect the strength of the worktop around that area.
   If you have 20mm worktops you can have either GROOVES **OR** RECESS,
   in 30mm material GROOVE **AND** RECESS
3) Drainage Grooves may need to be cleaned with a soft bristle brush
4) We recommend that square corner undermount sinks are not installed as we recommend minimum 10mm Radius in all internal corners

Any square corners either in a sink, hob or other worktops are not covered under any warranty

Note – the recommended edge profile for under mounted sink cut outs should be 5mm radius top and bottom edge, to minimise the risk of chipping or damage. The greater the profile the more durable the edge will be.

As standard we overhang the sink all around by 10mm, this means the silicone is out of sight, we recommend the minimum is 5mm overhang, but if a customers requires less than this they need to take into account cutting tolerances of +/- 2mm so if you for example ask for flush i.e. no overhang once it comes off the machine it could be -2mm overhang



Kitchen Splashbacks

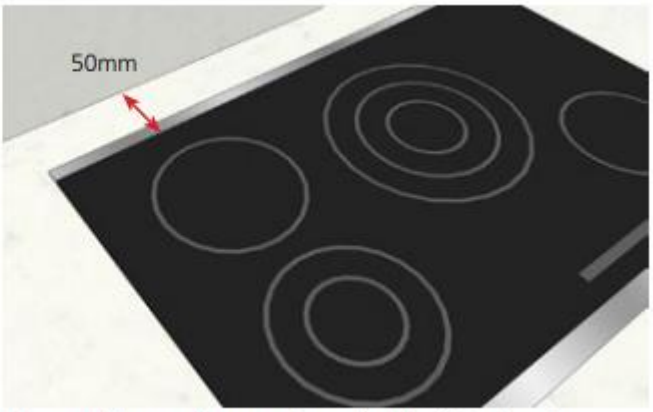
Stone splashbacks offer low maintenance, easy to clean, grout free surface with continuity of worktop colour and are ideal behind sinks and hobs. In addition, they offer reduced lead times with the same day installation as the worktops.

Where can stone be used

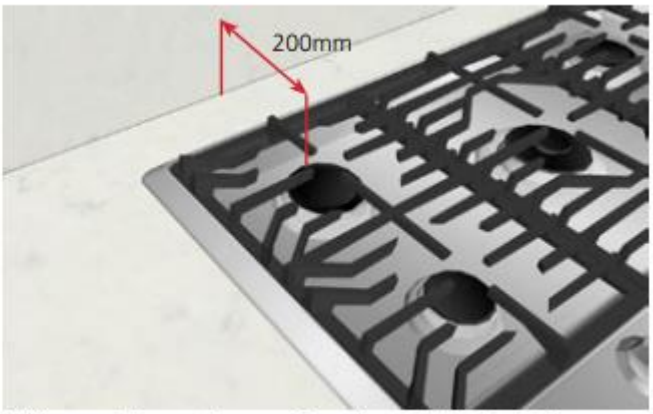
Where can stone be used ?

Electric cook tops (both freestanding or inset) and induction tops
* for both electric and induction we recommend a minimum 50mm clearance from th eback edge of the hob to the stone splasback

Gas Cook tops (both freestanding or inset) for Gas hobs a minimum of 200mm from the periphery of the gas burner to the stone splashback is recommended
When desiging worktops check with the manufacturers recommended installation details as they may require more than our minimum, always follow the manufacturers installation instructions



50mm minimum clearance from splashback for electric cooktops



200mm minimum clearance from the splashback to the gas burner element

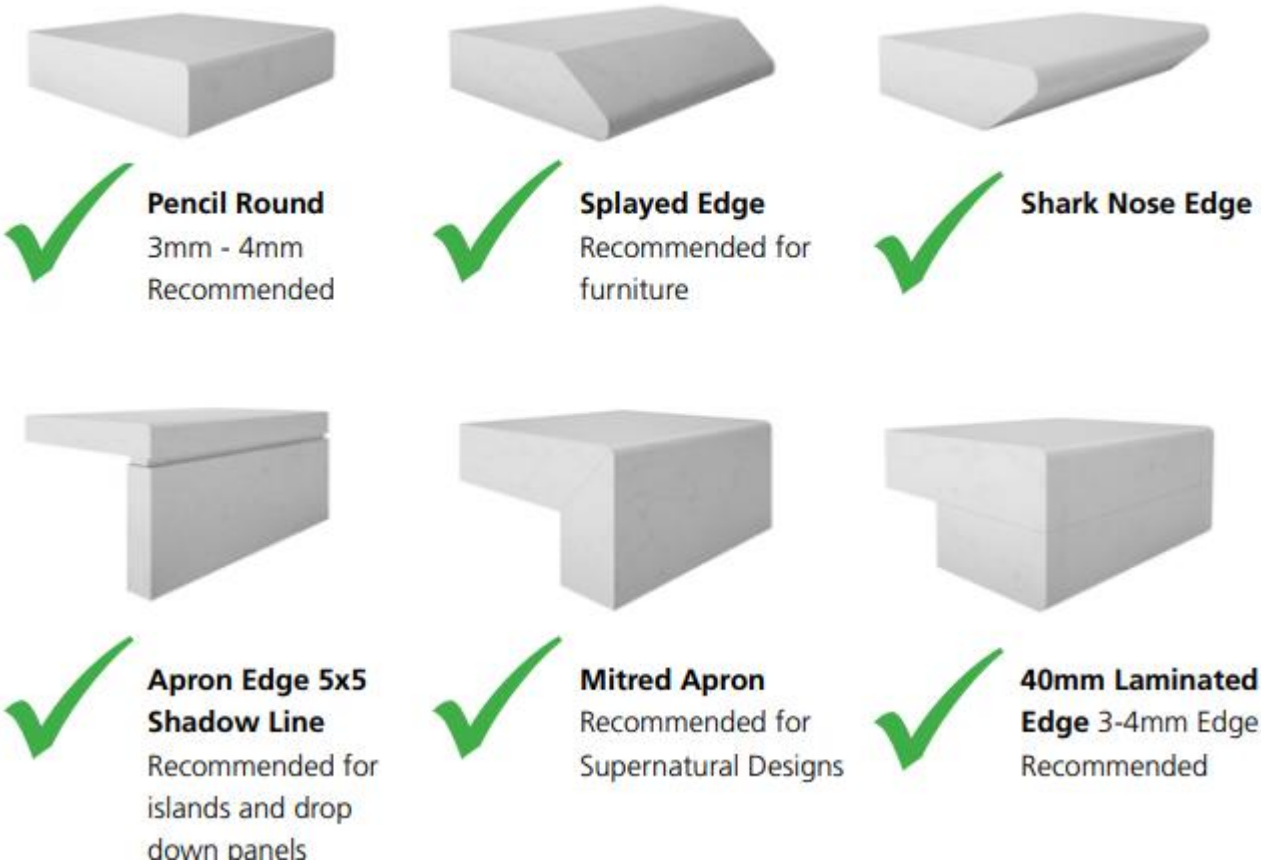
Edge Profiles

There are many edge profiles that can be achieved using stone worktops, and it is important to take the following factors into consideration.

All exposed edges should be cut then polished

The top and bottom edges must have a minimum of a 3mm arris top and bottom but recommended 5mm pencil round top and bottom to reduce the chipping. The larger the radius of the edge the more resistant it is to chipping.

Examples of some of the edges available please visit the showroom to see all of them



Chipping

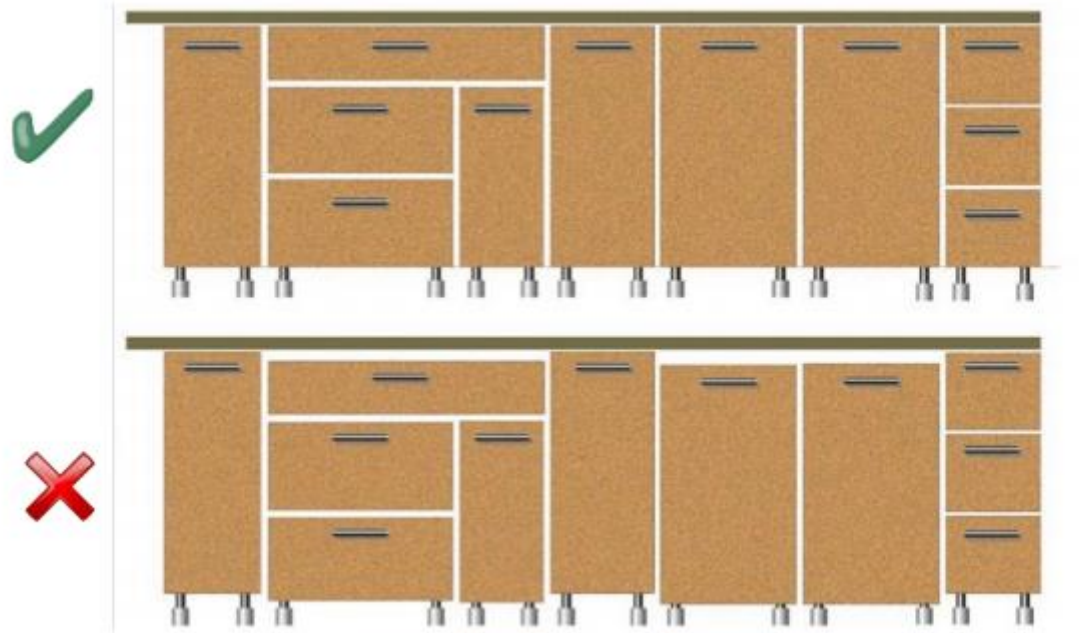
If you knock 2 hard materials together, on the leading edges there is a risk of chipping, this is not covered by the warranty, we advise to change the edge as discussed above to reduce the risk of chipping

Preparing the Base units and Cabinets

Natural stone surfaces are installed on top of cabinets and are not fixed to the wall. Before installing the worktops, ensure that cabinets are complete, stable, level and suitable for bearing the weight of the surface and any other heavy applied loading including sinks filled

Stone worktops must be supported on strong, weight supporting perimeter frame or on a full solid carcase

Ensure the worktops are supported sufficiently in areas of joins, cut-outs and over spaces for appliances such as dishwashers, ovens, washing machines etc.

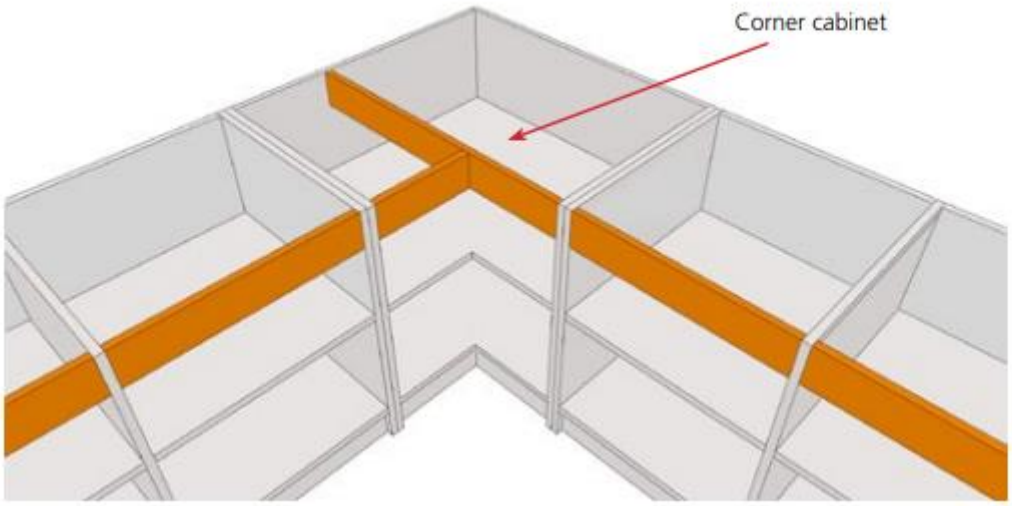


For cut outs longer than 600mm provide side to side support beams under the surface

Provide support under all worktop joints

Attach a board between the cabinet tops on both sides of under worktop appliances that generate heat

For surfaces of 12mm or 20mm if extra reinforcement of the cabinets or the surface is considered necessary, incorporate a full carcass panel in the top of the cabinets



Finishing Touches

Once installation is complete, the installer will ask you to check the worktops all over, please be careful about the first 24 hours as glues and silicones take time to dry, do not use the sink in this time.

If further works are required in your kitchen for example appliance installation, decorating etc please ensure you protect your worktops by covering them once the silicones and glues have dried with corrugated cardboard or another protective material.

Please ensure the worktops are not used as a work bench, step or standing platform, and any person using strong solvents or adhesives must show due care.

Below are some examples of kitchens after the worktops have been signed off, on each occasion customer had scratches and damage to the worktops caused by trades working after the kitchen installation

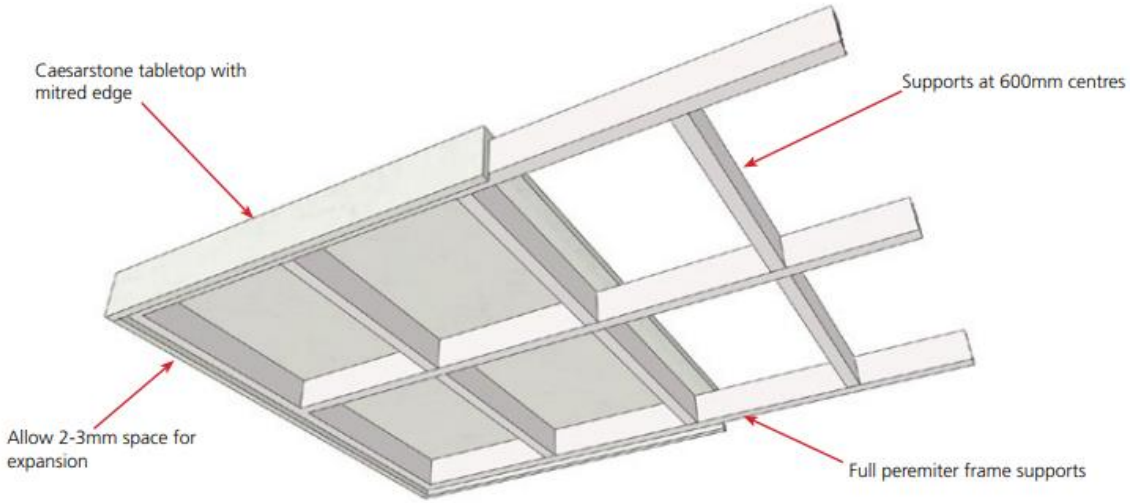
Table tops and larger overhangs

When installing a stone surface as a freestanding table top or where a larger overhang, the base must fully support the weight of the stone table top. All edges should be arrised to 3mm top and bottom to reduce the risk of damage from chairs etc.

The stone should be bonded to the substrate with epoxy or neutral cure silicone and then screw fixed to substrate.

Table top Frames

Natural stone is an ideal surface for furniture, large benches etc. When using stone in these applications, it is important that the perimeter and internal supports do not sag or move from the weight of the stone or any additional applied surface loading.

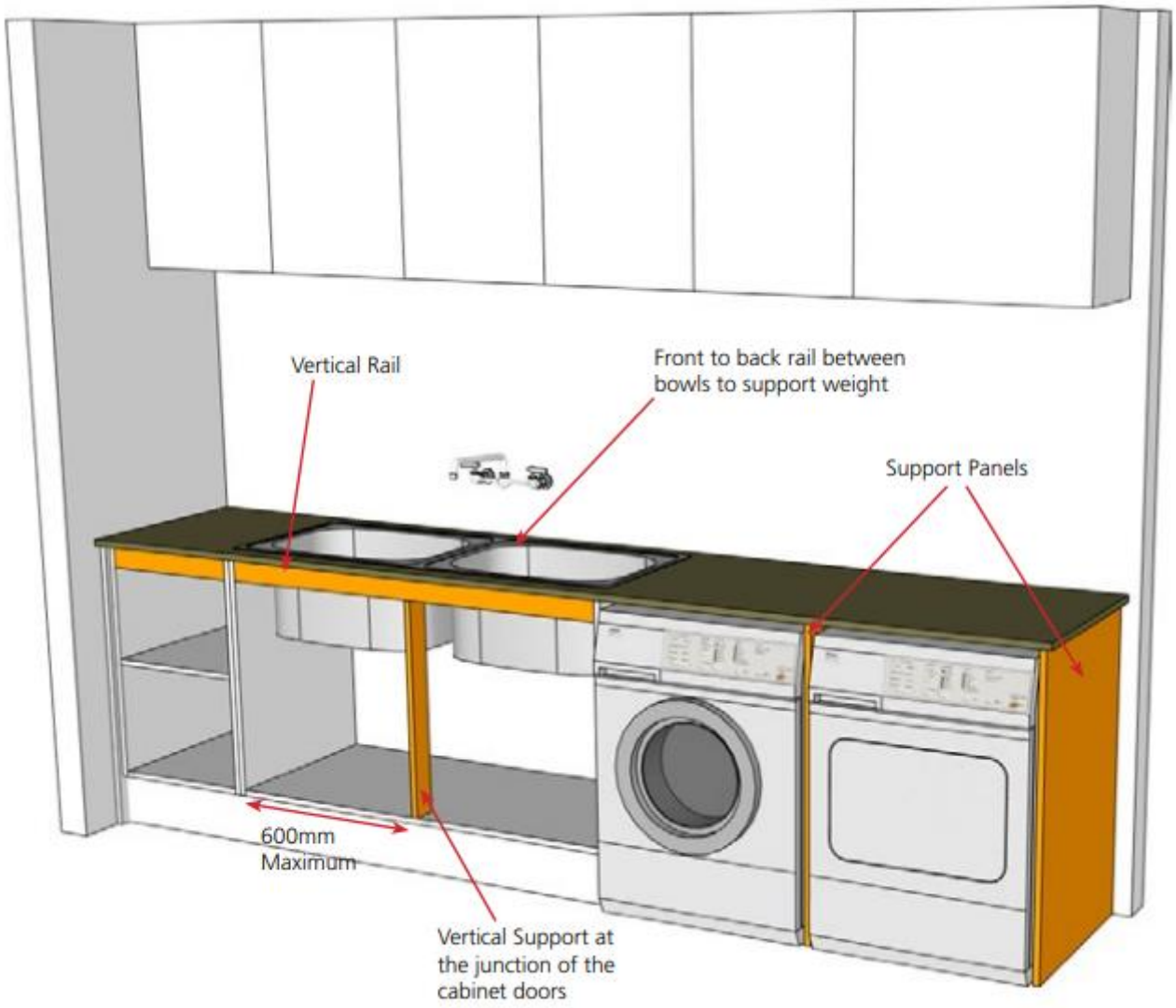


Vanities

Stone can be used in several ways to create a vanity unit

Where the material itself forms the receptacle that will hold water or where water is running directly onto the surface of the Stone. Boiling water must be avoided due to the risk of thermal shock.

Utility/Kitchen



Installing large bowls into utility and increasingly kitchens requires additional consideration, as for example above is a dual sink which requires a wide cabinet to accommodate it

The total capacity is 90L with each litre of water weighing 1kg, so it could potentially have a weight of approximately 90kg if both sinks were filled with water. If there are two bowls, then we recommend adding a rail between the bowls.

This is equivalent to a person standing on the top in an area with a large cut-out. Unless the cabinets are reinforced and can adequately support this weight, then there is a high risk of a worktop failure.

Washing Machine/Dryer/Dishwasher

Where these appliances are installed below the worktops, care needs to be taken with providing additional support.

It is advisable that a vertical support panel is placed between the appliances and either a support panel or cabinet be placed either side this will ensure that the tops have adequate support.

The Other consideration is with the heat generated by these appliances, especially the dryer. Some of these exhaust through the front while others through the back, some may also need to be ducted.

If required a panel/ heat defuse may need to be installed below the tops to protect them from heat

Heat Resistance

Stone surfaces can tolerate moderately hot surfaces for brief periods of time. Prolonged exposure will result in discolouring or other types of damage

Do not expose stone to excessive heat, the rule of thumb is that if cookware is too hot to hold then don't place it directly on your stone worktop use a trivet

Always use an insulator trivet, chopping board or heat pad. Never place hot cookware directly onto the surface of any stone worktop

Do not allow direct contact between Stone surfaces and very hot pots or other hot cookware.

Example of concentration of heat on one area of the bench top due to pot with a high thermal load. The use of a heat pad eliminates this problem. There is no heat transfer to the tops.

Heat can cause a worktop to expand rapidly but in a very localised area while the rest of the worktop remains cold. This thermal expansion is opposed by the cold, non-expanding adjacent material as well as any adhesive used to fix the worktops.

A pot placed on the worktop directly creates two issues firstly there is a sudden change in temperature of the top (thermal shock) and secondly the thermal load, that is the amount of heat present.

Cracking in this situation many not happen the first time, although they may develop over time if the proper precautions are not taken. Below is an example using a crayon to highlight that heat has been placed on the worktop

Care and Maintenance

Kitchen tops in Unistone®

For kitchen tops in Unistone®, generally the same rules apply as for kitchen tops in natural stone. Unistone® is more compact, and therefore on a polished surface, impregnation products are harder to apply. On honed and 'rougher' surfaces, an extra impregnation product is recommended as a preventive protection against stains.

ATTENTION:
Do not use bleach, strong solvents, strong alcaline products (pH > 10), products based on tri-chloroethane or methylene chloride (strippers, paint removers) on Unistone® surfaces.

1. First cleaning

After installation, it is wise to clean the surface of the kitchen tops with a strong cleaner (for example Lithofin MN Power Clean - Akemi Stone Cleaner or Akemi Quartz Intensive Cleaner - HMK R155 Intensive Cleaner or HMK R185 Quarz Compound Cleaner) before applying any impregnating product.
With aceton, the surface can be cleaned from greasy stains or stains from installation products. (silicones, remnants of glue,...).

ATTENTION:
Do not leave a cloth soaked with acetone for longer periods on the surface of Unistone®! Only rub with acetone on a cloth/paper tissue and rinse with clear water after cleaning!

2. Protective products

Impregnation products enter into the superficial pores of the surfaces and create a water-repellent (hydrophobic) surface. Some impregnation products also create a water- AND oil-repellent surface (hydro- and oleo phobic).The protective treatment needs to be applied in a homogeneous manner and on a dry and clean surface..

- For **polished Unistone®-surfaces,** an extra protective treatment is usually not necessary/not recommended since the surface is so compact. Lithofin recommends only a product on alcohol-base that will refresh the shine of a polished quartz-surface, Lithofin MN Refresh (it will also protect lightly the surface, but is no impregnation product). Akemi recommends a product on a silicone-oil base that will refresh the shine of the polished quartz surface and also gives an extra protection: Akemi Quartz Polish (is no impregnation product!). Moeller Stone Care (HMK) recommends regular maintenance with HMK P305 Composite-Quartz spray cleaner to create an extra protection to the polished quartz surface.

- For **Letano/Egg Unistone®-surfaces** following products can be used Lithofin Protector S *(only apply once by the stone mason after cleaning of the surface and after production, not for use by private persons)* - Akemi Stain Repellent Super or Akemi Darkener Super (only apply by the stonemason after cleaning) - HMK S246 Composite-Quartz Stain Protection or HMK S748 Stain Protection Premium Colour.

For such very compact surfaces it is very important that the surplus of impregnation product is removed from the surface (see also instructions from the manufacturers).
It is important that the surface is completely saturated. This can be easily tested 24 hours after applying the impregnation product by pouring some water on the surface. If the surface become more dark after 15-20 minutes, the surface is not yet completely saturated and needs to be treated extra with the impregnation product.

3. Cleaning of stains and regular maintenance

Lots of "stains" on Unistone®-surfaces are rather stains ON the surface (since the surface is so compact). Such stains can be usualy cleaned with CIF Cream or VIM (not for polished surfaces!), or with for example Lithofin MN Power Clean - Akemi Stone Cleaner or Akemi Quartz Intensive Cleaner - HMK R155 Intensive Cleaner or HMK R185 Composite-Quartz Intensive Cleaner.
CIF Cream cannot be used too intensively, since it might remove the protection from for example an impregnation product from the surface. Always rinse well with mild dew water after CIF Cream applied.
For more stubborn stains: please consult the guideline for stains from the manufacturers (see attached).

Lime-rich water may cause the formation of lime-residues on Unistone®-surfaces, and therefore it is recommended to clean the surface periodically with a mild acid product (for example Lithofin KF Ceramic-Clean - Akemi Acid Cleaner - HMK R183 Cement Film remover for natural stone).

On polished surfaces with a minimal absorption it is not recommended to use greasy products for the regular maintenance (for example soaps for the dishes,...). These might create a greasy superficial layer on top of the Unistone®-surface, where imprints from glasses,... will be visible as "stains". If such a greasy, superficial layer is present, it can be removed with for example Lithofin MN Power Clean - Akemi Stone Cleaner or Akemi Quartz Intensive Cleaner - HMK R155 Intensive Cleaner or HMK R185 Composite-Quartz Intensive Cleaner.

The regular maintenance of kitchen tops can be done with for example Lithofin Easy Clean - Akemi Crystal Clean (daily use) or Akemi Quartz Clean & Care (periodical use) - HMK P305 Composite-Quartz Spray Cleaner, special sprays for the maintenance-protection-cleaning of kitchen tops.

Points of attention

- Spilled liquids and/or food must be removed and cleaned from the surface as quickly as possible. Especially coffee and tea which create stains that are harder to remove due to their strong/aggressive colouring properties and also when these products are left on the Unistone® - surface for a longer period and dry-out.
- Stains that are hard to remove with just clear water and a sponge, can mostly be removed with CIF Cream (white, neutral) and a soft sponge. For NON-POLISHED surfaces, VIM can also be used.
  Rub well and rinse afterwards with clear warm water.
- Products which harden after drying (chewing gum, mustard, grease, ...) must be firstly removed as much as possible with a bold plastic scraper. After this, clean with CIF Cream (white, neutral) or a mixture of vinegar and water.
- NEVER put hot pots, pans, ... directly on a Unistone®-surface.
- NEVER use bleach products or products based on ammonia, products with a pH-value higher than 10 or strong solvents on a Unistone®-surface. Certain aggressive chemicals, such as oven cleaners, can result in permanent damage of the surface. NEVER use products that contain trichloorethane or methyl chloride, such as paint removers or strippers.
- Avoid contact with marking or printing inks.

- A Unistone®-surface is harder than metal (for example a knife, buckle of a belt, ...). Metal-marks can stay on the surface when cutting on Unistone®-materials. Always use a chopping board when cutting vegetables,... to avoid metal-marks on the Unistone®-surface. Metal-marks can be removed with CIF Cream (white, neutral) and a soft sponge (for NOT-POLISHED surfaces, VIM can also be used).
- LOOK OUT with abrasive products (strongly scratching components) on a polished surface. Always use a soft sponge, no steel wool.
- Due to the great hardness of this material, a certain impact (falling/bouncing hard object, ...) can cause a small pit in the surface. This can be repaired with a special repair-kit for kitchen-tops in compound material/quartz surfaces (for example "RepairLux®" from König).
- NEVER use colour enforcing products or multiple layers of impregnation products on a Unistone®-surface. A film will be created that is hard to remove.
- NEVER use waxes, oils, greasy soaps or shine-improving products on a Unistone®-surface. A film will be created.
- After cleaning, ALWAYS rinse well with clear water! Even volatile cleaning products like acetone can leave a thin film on the surface.
- Direct sunlight (UV-rays) can alter the colour of Unistone®-surfaces. Never install this product outside! It is no problem to use the Unistone® behind a window, since glass is a sufficient UV-filter.