

technical & fabrication manual

essaSTONE®

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1. introduction

introduction

1.1. purpose of the manual

A key purpose of this manual is to guide fabricators of the **essastone** product in ensuring the finished article is compliant with the 15 year limited **essastone** warranty.

Throughout this manual the symbol (W) will appear against any specific instructions that are linked to compliance or voiding the essastone warranty.

essastone quartz surfaces are manufactured by a group of the world's leading manufacturers of engineered stone, made from the finest natural quartz and silica, using the latest and most advanced manufacturing techniques. **essastone** is a non-porous surface material that is stain and scratch resistant.

This manual has been developed to allow designers, fabricators and installers who work with **essastone** to achieve excellent performance standards and meet the expectations of the purchaser for both domestic and commercial applications.

There are many brands of engineered quartz surfaces on the market and each brand has its own individual product characteristics, so it is important to note that all fabrication techniques described in this manual are those recommended for use with **essastone**. Any variation from these guidelines may create unexpected performance problems and may void the limited warranty.

Users of this manual should adhere to all recommendations specified. All health and safety guidelines must be understood before commencing any work with **essastone**. Fabricators should also ensure that they are aware of and comply with all local, state and federal health and safety regulations.

essastone has been developed for a wide range of applications using a variety of design methods. Any method of design, fabrication or installation not detailed in this manual must be discussed with Laminex prior to fabrication. In this situation, approval must be sought in writing from Laminex or the limited warranty may be void.

To make this manual easy-to-use and navigate, information is provided in sections. Each section can be read independently and some repetition will be evident. Each section provides comprehensive information on different aspects of the design, measurement, fabrication and installation of **essastone**; however, this manual should be viewed as a complete document.

While every precaution has been taken in the preparation of this document, Laminex assumes no responsibility for errors or omissions, or for damages resulting from the use of information contained in this document. In no event shall Laminex be liable for any loss of profit or any other loss or damage caused or alleged to have been caused directly or indirectly as a result of any person relying upon any information contained in this document.

The information contained in this manual is provided as a guide for the design, measurement, fabrication and installation of **essastone**. Except as required by law, no warranty, however expressed or implied, is given in relation to the procedures outlined in this document.

Content in this manual is subject to change at any time without notice. Consult with your local **essastone** representative for access to the latest technical updates.

This manual is not for general distribution. It has been developed for **essastone** fabricators and **essastone** installers.

Other **essastone** information available includes:

- Product Sample folder
- Product brochure
- Material Safety Data Sheets (MSDS) - attached in this manual in section 15.

1.2. the company behind essastone

essastone is the most colour and design relevant brand of quartz surfaces on the market. **essastone** was developed in Australia for Australian preferences using the knowledge and colour leadership of Laminex, Australia's leading marketer, distributor and manufacturer of decorative surfaces.

Laminex conducted extensive research into market trends and manufacturing technology before entering the engineered quartz surface market and continues to engage in wide consultation across the design and construction industry to ensure the **essastone** range remains market relevant. The result is a product that reflects all the beauty of nature, without some of the complexities of natural stone. The latest advancements in both the manufacturing process, produce a virtually maintenance-free surface.

As an industry leader, Laminex is well aware of the need to offer both the fabricator and customers clear guidelines for the design, fabrication, installation and ongoing care and maintenance of **essastone**.

For more information, or to contact your local sales representative, please call **132 136** or visit www.essastone.com.au

2. safety guidelines

safety guidelines

general guidelines

essastone should be handled with care to ensure the safety of staff and others who may be in the vicinity of the work area. When handling **essastone** products, ensure all relevant safety procedures are followed and appropriate personal protective equipment, such as gloves, safety footwear, glasses, respiratory and hearing protection is used. Always consider foreseeable hazards and adhere to all applicable regulations regarding occupational health and safety.

When handling the product always consider its weight and dimensions. Always follow the recommendations provided by manufacturers of lifting equipment. If unsure, check with the equipment manufacturer before commencing work.

Engineered quartz products are safe and are not hazardous as shipped from the manufacturing plant. However, operations such as cutting, shaping or grinding will generate silica dust. Exposure to silica dust in quantities exceeding exposure standards can cause adverse health effects.

Ⓜ When working with **essastone**, the use of WET cutting, shaping and polishing is essential. It is also important to ensure adequate cross-flow ventilation to minimise the exposure to airborne dust contaminants. Mechanical extraction units and dampeners may assist to maintain airborne concentrations within exposure standards.

Note: Refer to the MSDS for the additional information on the correct storage, fabrication and handling requirements in section 15 of this manual.

2.1. personal safety equipment

All personnel involved in handling or fabricating **essastone** materials must be equipped with the adequate safety equipment, including:

- steel capped rubber soled boots or shoes (AS/NZS 2210)
- respiratory particle filter dust mask to approved (AS/NZS 1715 and 1716) when processing/fabricating
- safety glasses (AS/NZS 1337) when processing/fabricating
- ear plugs/ear muffs (AS/NZS 1269) when processing/fabricating
- heavy duty protective gloves for general handling
- any additional site specific safety equipment.

2.2. general safety protocols

- Read all of the applicable MSDSs prior to commencing any work. The **essastone** MSDS is available from your sales representative, from any of the Laminex branches, or call **132 136** or visit **essastone.com.au**. A copy is also contained within this manual (see section 15).
- Use all safety protocols and equipment.
- Identify potential hazards, evaluate risks and follow safety control plans.
- Always use approved safety methods for lifting and handling materials and ensure adequate pedestrian escape zones are maintained between stored materials and within operational crane and forklift zones.
- Never exceed the lifting equipment capacity, and always consider equipment manufacturer's recommendations.
- Slabs and other **essastone** products must be unloaded from the transport vehicle "A Frame" with an appropriate lifting device. Always consider product weight.
- Always store the slabs on an "A Frame" with a 15° angle (See Fig. 1a) – ensuring each slab is placed hard against the adjacent slab, to ensure there is no gapping between the slabs – or store in a secure vertical slab racking system specifically designed for stone handling (See Fig. 1b).
- **(W)** Slabs must be stored under cover away from exposure to UV and weather conditions. Storing slabs outside may promote colour variation.
- Maximum "A Frame" centres to be 1800mm.
- Never carry or transport slabs or fabricated sections of **essastone** horizontally.
- **(W)** Always machine the product using water-cooled equipment.
- For transport, place support bars or sheet material for slab sections with cut-outs.
- When transporting sections, ensure the products are well strapped to the "A Frame", and enough people are assigned to the delivery. Always consider material weight.
- Ensure all the people involved in the transport, fabrication and handling of the material are adequately trained and experienced in handling the product and are equipped with the adequate personal safety equipment.
- Always check and comply with site-specific safety requirements.

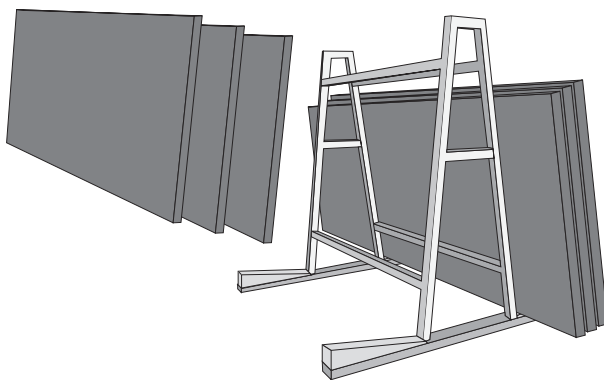


Fig. 1a

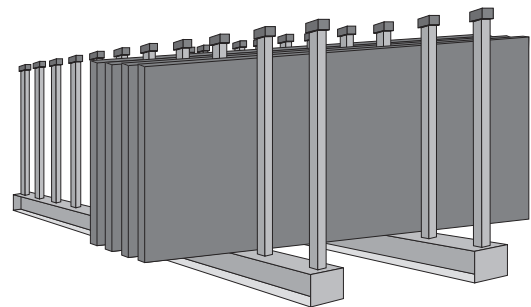
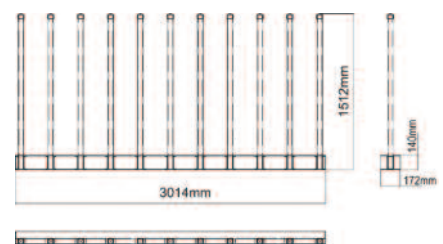


Fig. 1b



The Abaco Slab Rack is ideal for shops with limited storage, as it can handle many pieces of different sized materials. The rack consists of two steel base rails and twenty 50 x 50 x 1500mm poles. This rack is available with poles with or without rubber lining. The rack without rubber lined poles comes with rubber caps to protect stored material.

Note: Abaco is a brand name for the supplier of the racks. The name 'Slab Rack' is also not definitive – these are known within the trade as 'upright racks' and a variety of other names.



3. applications

applications

applications

3.1. interior applications

Ⓜ **essastone** is suitable for interior applications. Exposure to direct sunlight for extended periods can cause colour fading which is a condition excluded from the **essastone** limited warranty.

essastone can be used for: kitchen and vanity benchtops, splashbacks, furniture components, internal cladding, wet-area partitioning, flooring, stairwells, fireplace surrounds, and many other interior vertical and horizontal applications.

Note: When used for splashback applications, the installation must conform to the minimum Australian/New Zealand Standards for installation behind gas cook tops, for clearances in relation to appliances generating heat. Please refer to AS/NZS 5601 Gas installations and AS/NZS 4386 Domestic kitchen assemblies – Installation. In flooring applications ensure that the slip requirements relate to your state or territory are understood and met.

3.2. exterior applications

Ⓜ **essastone** quartz surfaces are not recommended for use in exterior applications where the product is exposed to direct sunlight outside the roof area, and its use in these applications will void the limited warranty (See Fig. 2). Direct roof area is that which is covered by the formal roofline of the property. Vergola or similar opening roof applications, acrylic sheeted roof products, sail &/or textile coverings are not considered a formal roof for this application.

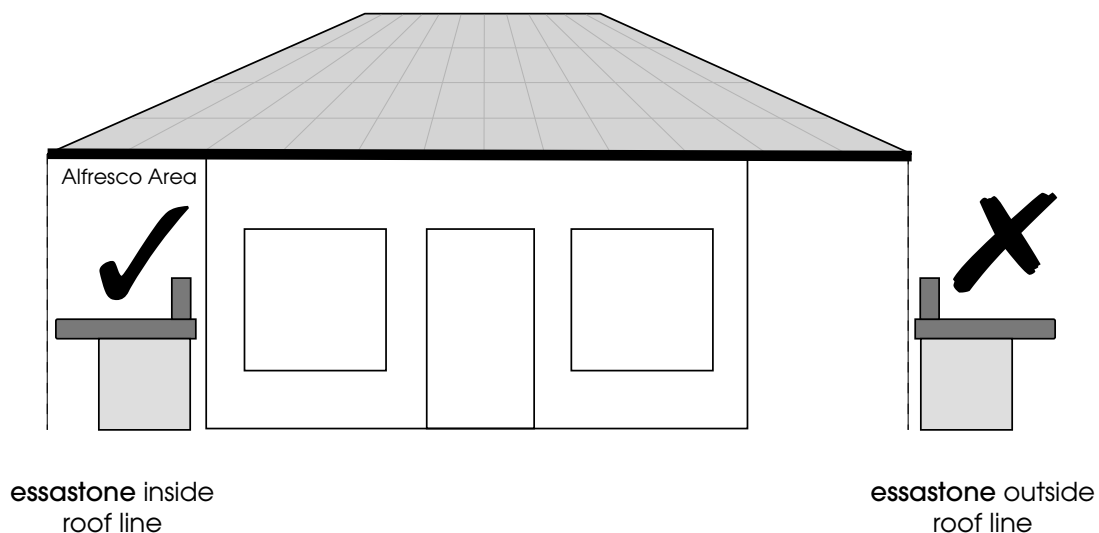


Fig. 2


4. product specifications

product specifications

4.1. product composition

essastone quartz surfaces are composed of natural quartz and silica based aggregates, high quality resins and pigments to provide a non-porous homogeneous material.

Note: The actual composition of each stone slab will vary marginally between colours due to the quartz particulate design and dimensions.



5. inspection identification/logistics

inspection identification/logistics

5.1. visual inspection

Prior to delivery, all **essastone** products are subjected to many visual and mechanical inspections to ensure the highest quality standards are met. **However, it remains the responsibility of the fabricator to conduct their own visual and other quality control inspections before accepting the material.** If collecting **essastone** from Laminex or receiving a delivery from Laminex, it is essential that before the goods are accepted a visual inspection is carried out. This visual inspection should be carried out in good light conditions.

Goods should be inspected with any protective plastic film removed before processing. **(W)** Small defects can be disguised with the plastic film intact and will not be recognised as a claim if the plastic is not removed for inspection. The protective film should not be left on the surface of the **essastone** for extended periods particularly if exposed to UV conditions through adjacent window as this may cause discolouration of the stone surface.

Before commencing the fabrication, check for the following:

- Correct items (size, colour, thickness, etc)
- Consistent colour match (ensure that colours for the same fabrication have the same batch/lot number, and inspect for colour compatibility)
- Defects, such as: chips, scratches, quartz particulate irregularities, excessive pigmentation spots, unacceptable product deflection (length and width), evidence of transport cracks, general quality of the surface finish and quality of the edge.

It is extremely important to check each slab prior to the commencement of fabrication for correct batch numbering, colour compatibility or for any visual defects that may be outside the written specification, **(W) as replacement or compensation for area loss will not be considered once the slabs have been cut.**

When inspecting each slab, please keep in mind that **essastone** products are manufactured from natural quartz. **Variations in colour, pattern and shade will exist**, and are unique characteristics that are inherent in natural quartz. **(W)** Small blotches or "off-colour" particulate or irregular particulate distribution will also occur with engineered quartz surfaces, and are not considered to be imperfections or defects, and therefore are not covered under the limited warranty criteria.

However, if it is considered that any of the above surface variations are evident and are excessive, then consultation with a representative of Laminex must be undertaken prior to the commencement of fabrication. **(W)** No claims will be honoured for partly or fully fabricated slabs which are found to have visual defects.

5.2. batch/lot identification

Laminex has established a unique batch numbering system that makes it easier for fabricators to conduct the slab selection, and manage possible slab colour variation. The batch number is detailed on the label of each slab and printed continuously along the back of the slab.

5.3. colour matching from different batches/lots

For applications where stone pieces are joined together to complete an installation, material from different batches should not be used.

Ⓜ Note: Visual/colour variation between batches will not be recognised under the essastone limited warranty.

Whilst the slab grading at the plant is highly regulated in both colour matching and quality inspection, the fabricator is still required to check for any colour variance between slabs prior to the commencement of any fabrication.

The agglomerate will also vary to some degree in each slab & within each slab & therefore we do not recommend adjacent installation of opposite sides or ends of the slab.

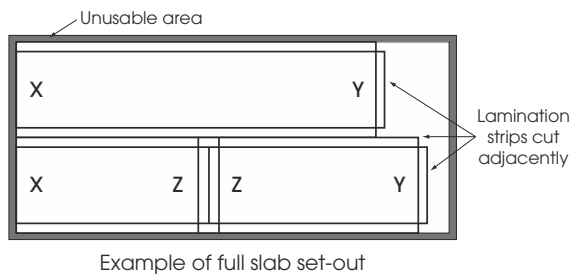


Fig. 5a

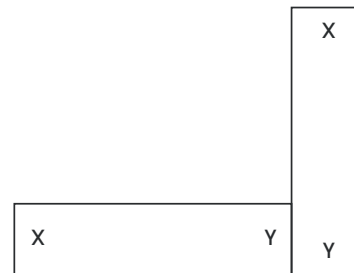


Fig. 5b

- **Y** edges should be kept together (labelling of slab edges prior to cutting is recommended)
- **X** edges should be kept together (labelling of slab edges prior to cutting is recommended)
- **Z** edges should be kept together (labelling of slab edges prior to cutting is recommended)
- **X** to **Y** or **X** to **Z** or **Y** to **Z** adjacent butting may not always match with consistent colour or agglomerates.
- **X** to **X** or **Y** to **Y** or **Z** to **Z** adjacent butting is preferred and recommended.

5.4. material handling and storage

Laminex is committed to supplying **essastone** products in good order and condition; however, it is equally important that all personnel involved in the handling of material take the necessary precautions to ensure its integrity during all phases of the project.

This includes all **essastone** slabs (& offcuts if to be reused) must be stored undercover away from UV light whilst awaiting fabrication. Material noted as stored outside at customer's premises will not be subject to the **W** **essastone** warranty once cut and installed.

- Ensure product surfaces and edges are well protected when transporting, storing, fabricating and installing **essastone**.
- Take all relevant safety precautions when handling **essastone**.
- **essastone** slabs must be transported and stored vertically, ensuring the slabs are well supported at the top and bottom of the storage and racking system. At all times each slab must be positioned hard against the adjacent slab. Failure to comply with these requirements may lead to the slabs bowing or cracking.
- Slabs and components should be loaded and unloaded from transport vehicles with appropriate lifting devices (See Fig. 6).
- Whilst unloading or handling slabs or components using clamps (See Fig. 7) or any other device, always follow equipment supplier's recommendations and ensure relevant safety procedures are followed.

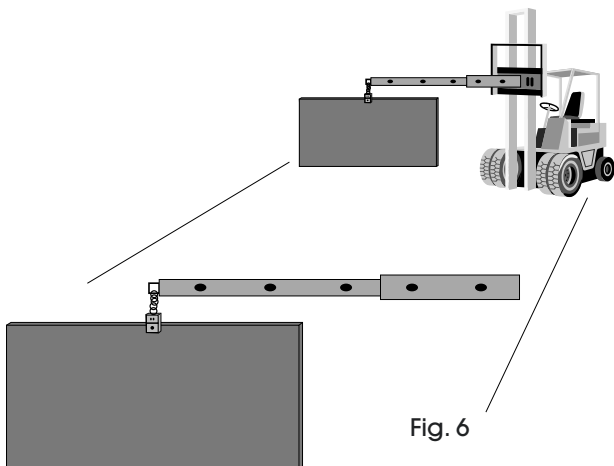


Fig. 6

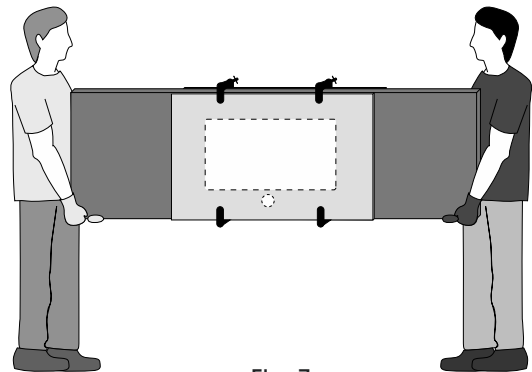


Fig. 7

essastone products must be stored under cover away from direct sunlight and external weather conditions, on a storage system that is perfectly level and provides full support to the entire length and width of the slab (See Fig. 8). This should prevent any warping or edge damage to the slabs whilst in storage.

- The slabs should be stored on a series of "A" frames or vertical racks designed for stone storage.
- Slabs must be aligned against each other in the rack.
- When storing products consider ease of access to slabs to enable adequate visual inspections.
- The surface of the slabs should not be exposed to direct sunlight.
- Avoid extreme weather or temperature conditions in excess of 55°C.
- Slabs should be stored back-to-back or face-to-face to avoid damage to the polished surface.

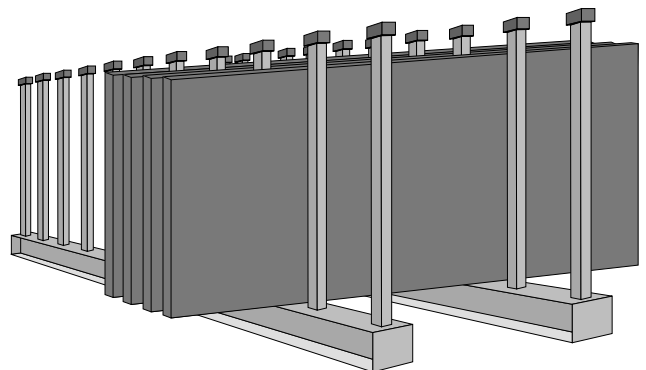


Fig. 8

5.5. material transport

It is extremely important to take precautionary measures when handling and transporting **essastone** slabs and fabricated items.

Consider the following points:

- Always follow recommended safety procedures when handling **essastone**.
- Where possible use, mechanical equipment, such as a fork lift or a gantry crane to move **essastone**. Always consider the material weight (minimum of 55kg per m²) and follow the recommendations of lifting equipment manufacturers.
- Secure all **essastone** slabs with approved strapping before transportation. When collecting material from Laminex, Laminex will not be held responsible for securing the load. Ensure the load is properly strapped and secure.
- It is the responsibility of the transport driver to ensure the load conforms to the legal carrying capacity, and restraining requirements of the vehicle. As a guide, the weight of each **essastone** slab is approximately 235kg for 20mm thick and 330kg for 30mm thick, plus any additional framing and packaging equipment, or other unrelated goods that may be on the vehicle.
- All straps and protective devices must remain grit & burr free and be suitable for direct contact with the polished surface of **essastone**. **(W)** Claims for damage due to unsuitable transport straps/chains abrading the surface of **essastone** slab will not be recognised.

6. design guidelines

design guidelines

6.1. cabinet requirements

The successful installation and performance of any **essastone** benchtop will be influenced by the design and construction of the cabinets and benchtop supports.

Installation of an **essastone** benchtop should only proceed if all aspects of the design and construction conform to all relevant product guidelines and the minimum requirements as described in this manual.

- The cabinets must be constructed from solid panels (16mm thick minimum), ensuring the weight transfer from the benchtop to the floor is carried out through each end or division.
- Cabinets should be installed directly to concrete or other solid floor, not onto floating floors to ensure stability and load transfer.
- Rail support is imperative, with both the front and back rails having minimum dimensions of 90mm wide x 18mm thick.
- All cabinets must be level to ensure that the **essastone** benchtop is installed flat and level. **(W)** Failure to level the benchtop will void the warranty.

6.2. benchtop support

In addition to adequate cabinetry, **essastone** benchtops require a level and sturdy surface area to support the weight of the material. The benchtop support will reduce the risk of the stone warping or cracking under load during normal use. A maximum out-of-level tolerance is 1.5mm per 3000mm.

The top support must be able to take the material weight (55kg per m² for 20mm, 80kg per m² for 30mm) plus any additional load the benchtop could be subject to. Typical loads applied to benchtops could exceed 100kg per m². Any appliance weighing more than 5kg should not be supported directly by the **essastone** but be adequately supported by the cabinet frames. **(W)** Cracks occurring in the **essastone** product will not be recognised where inadequate support of an appliance is found.

When placing a fabricated **essastone** benchtop onto cabinets, there are two main methods that can be used to provide substrate support: Full Perimeter Support and Full Substrate Support.

6.2.1. full perimeter support (rails) - 20mm and 30mm

The perimeter support method requires the use of rails around the front and back edge of the cabinet and every 600mm in centres. A board of suitable length should be used for these rails. These can be made from 19mm MR (moisture resistant) Plywood, particularly where there is a likelihood of water penetration. However, if the application does not have the potential for water ingress, then the use of 18mm MR Particleboard or MR MDF of the same rail width is acceptable.

6.2.2. full substrate support - 20mm

The full substrate support method involves the placement of a substrate under the complete surface area of the **essastone** benchtop. **essastone** recommends the use of 19mm Plywood, 18mm MR MDF or Particleboard. Full substrate support is not required for 30mm.

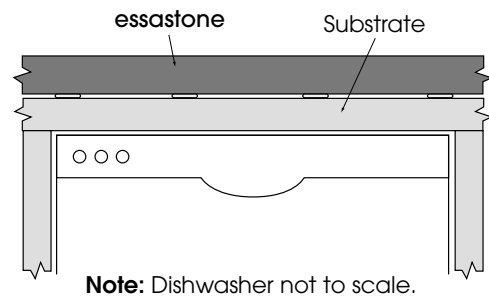
6.3. span and overhang support

6.3.1. spans

Depending on the design and dimension specification for the base cabinets, where the cabinet width exceeds 1000mm, the inclusion of a full MR Plywood, MR Particleboard or MR MDF substrate is recommended.

6.3.2. dishwashers

To protect against both heat transfer from the appliance and possible movement, a full width substrate of MR Plywood, MR Particleboard or MR MDF substrate or similar must be employed over dishwasher openings (See Fig. 9). Thermal shock cracks in the **essastone** benchtop above the dishwasher may occur due to direct contact/heat transfer to the stone.



Note: Dishwasher not to scale.

Fig. 9

(W) Failure to correctly install the dishwasher may result in a non compliant installation finding on any resulting thermal damage, where the **essastone** warranty will not apply.

6.3.3. overhang support

Depending on the project, the design may call for the provision of an overhanging top, such as a breakfast bar. The following chart provides guidelines for designing overhanging benchtop sections.

overhang size 20mm material	guidelines
Less than 300mm	No additional support required
300mm and larger	The fitting of vertical support to the floor, such as legs or similar, or steel bracing beneath the benchtop.

Any overhang exceeding 300mm shall require 10mm thick, 70mm wide steel flat bar or equivalent placed underneath the bench-top. These should be placed at 600mm centres.

overhang size 30mm material	guidelines
Less than 450mm	No additional support required
450mm and larger	The fitting of vertical support to the floor, such as legs or similar, or steel bracing beneath the benchtop.

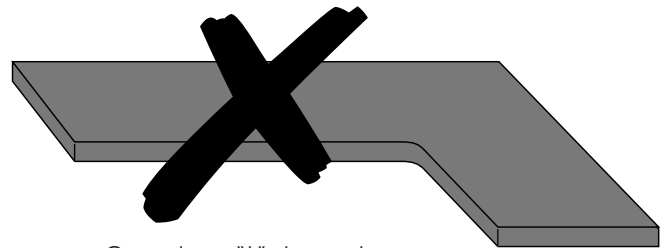
Any overhang exceeding 300mm shall require 10mm thick, 70mm wide steel flat bar or equivalent placed underneath the bench-top. These should be placed at 600mm centres.

(W) Cracks occurring where overhangs are greater than the tolerances specified and not adequately supported will not be recognised under the **essastone** warranty.

6.4. internal corners

6.4.1. benchtops

When designing the benchtop layout plan, it is *not* permitted to incorporate any one piece "L" or angle-shaped sections, as any undue movement or stressing at the corner bi-section may lead to stress cracking (See Fig. 8. Installation of any L shape benchtop, which includes any benchtop with a 90 degree or square cut out from any external edge will void the **essastone** warranty. **(W)** Cracks that may occur in the vicinity of the L shape cut out will not be recognised as a claim.



One piece "L"-shaped or angle sections not permitted.

Fig. 8

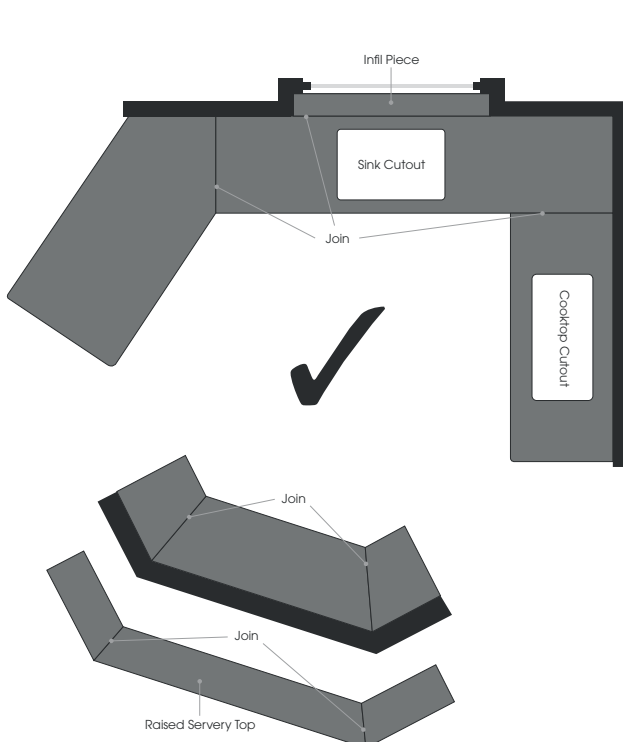


Fig. 9

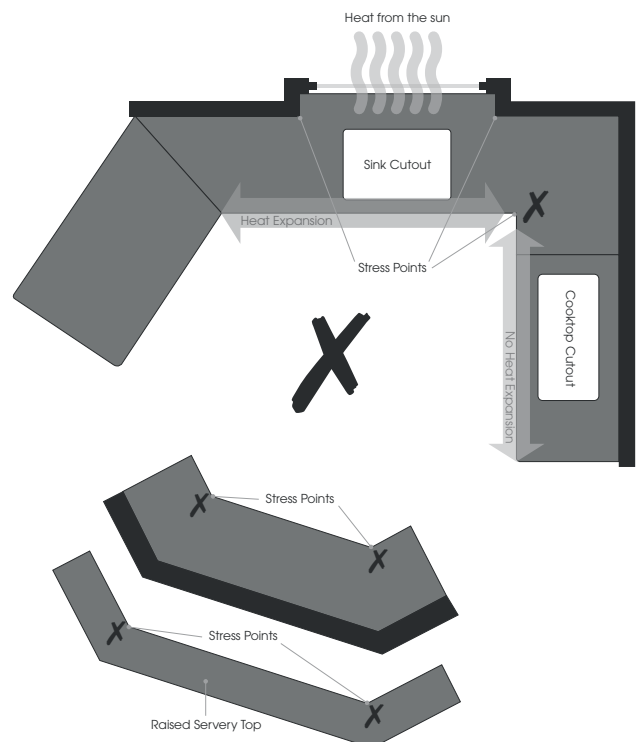
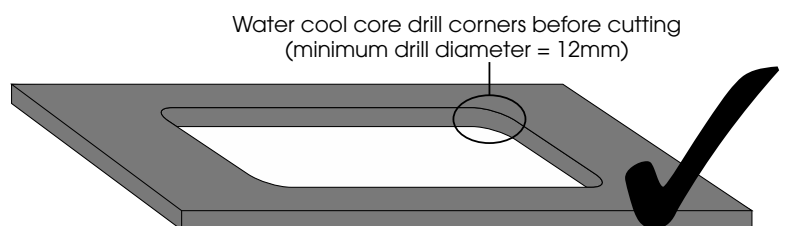


Fig. 10

6.4.2. cut-outs

The internal corners in cut-outs, must be **radiused**, and fabricated with the largest radius possible (diameter), as this is a safeguard against the possibility of stress cracking (See Fig. 11). Any cracks occurring from an appliance cut out will be checked for a smooth edge, free of jags and with a suitable radius. **(W)** Failure to adhere to these requirements may result in a non-compliant finding and no warranty will apply.



Water cool core drill corners before cutting
(minimum drill diameter = 12mm)

Fig. 11

6.5. joint location

6.5.1. “U”, “L” and angle-shaped fabrications

The placement of joins in any benchtop should be planned carefully to ensure optimum performance of the material and protection against fracturing.

For angle-shaped corner fabrications, such as “L” or “U” shapes, the use of a single piece of stone is not permitted, as the risk of cracks appearing in the surface increases. **(W)** No **essastone** warranty is offered for any application where an L shape or U shape piece of stone is installed in one piece.

The preferred method for all internal corner intersections involves individual butt-joined benchtop lengths (See Fig. 12).

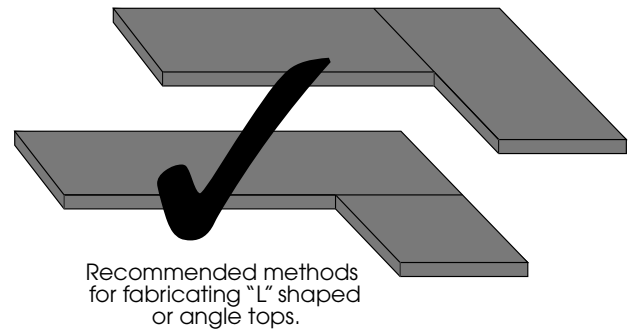


Fig. 12

6.5.2. joint locations for sink and appliance cut-outs

Consideration of the appliance and sink locations is required when evaluating the project plans. This should be carried out prior to the commencement of template manufacture.

Consider the following recommendations:

- In an application where the appliance will generate heat (under bench, oven, hot plate, dishwasher), the deck joint is ideally located not less than 150mm from the cut-out (See Fig. 13). Joins are not permitted to be located through any cutout or immediately above a heat generating device (hotplate underbench oven, oven, dishwasher). **(W)** To do so will void the warranty for any heat related cracks occurring in the vicinity of the join.
- In an application where an appliance does not generate heat, such as a top mounted sink, joins may be placed in the cut-out area.
- Irrespective of the appliance to be used, cut-outs should be designed to have a front and back rail. The dimension of the front and back rail should be no less than 70mm. Therefore where an appliance requirement makes this dimension less than 70mm, consideration should be given to designing deeper benchtops in these locations (See Fig. 13) or the addition of stronger rail support (e.g. steel or aluminium). Failure to leave a min of 70mm stone rail front and back of any appliance voids the warranty as the area is not sufficiently supported. **(W)** Any appliance weighing in excess of 5kg shall also require additional support rails around the opening.

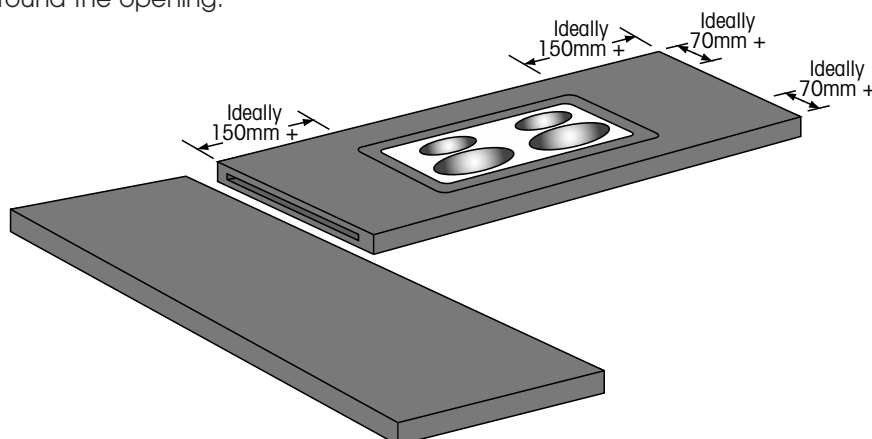


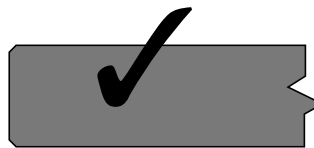
Fig. 13

6.6. exposed edge profiles

The type of end use proposed for **essastone**, whether domestic or commercial, must be taken into consideration at the design stage. It should be noted that the more rounded the edge profile used, the less risk of edge chipping.

For all commercial installations it is strongly recommended the largest edge profile possible is used. Detailed below are the minimum requirements for all end applications.

Bevel: The minimum bevel recommended is 2mm profiled at an angle of 45° (See Fig. 14).



Minimum Bevel/Arise is
12mm at an angle of 45°

Fig. 14

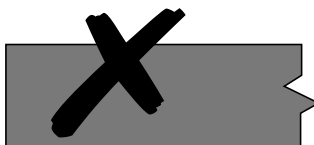
Pencil Round: Whilst a radius of 3mm is the minimum allowed, a slightly larger radius will assist greatly in the overall edge performance (See Fig. 15).



Minimum 3mm Pencil Round.
The higher the radius, the
higher the strength.


Fig. 15

Square Edge Profiles: Exposed sharp edges are not permitted at any time (See Fig. 16).



Exposed Square Edge profiles are not
covered by the limited warranty.

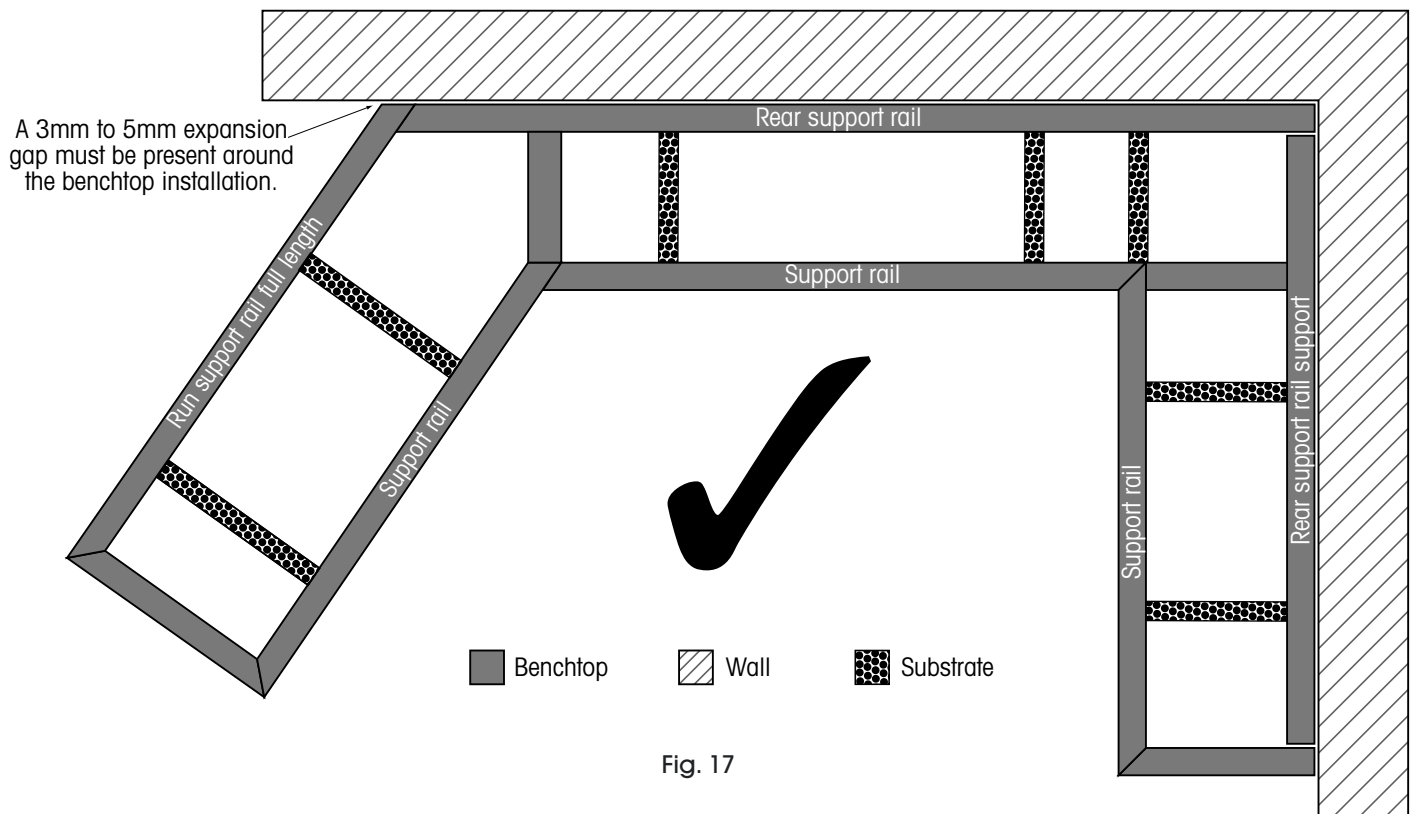
Fig. 16

Note:  Warranty claims relating to edge damage where an incorrect edge profile is used will not be accepted.

6.7. expansion gap and dimensional tolerances

Variations in ambient temperature will cause wall and cabinet materials to expand and contract.

An expansion gap between the wall and the benchtop is required (See Fig. 17). As a rule, a 3mm to 5mm gap will be sufficient for normal installations. **W** Expansion gaps of less than 3mm will void the warranty.



6.8. splashbacks - design considerations

When designing an area where **essastone** will be used as a splashback, there is a requirement to conform to the minimum Australian/New Zealand Standards for splashback installation behind gas cook tops. Refer to AS 5601 Gas Installations and AS NZS 4386.2 Domestic Kitchen Assemblies-Installation.

The following points should also be considered during the design phase.

- Correct distance from a heat-generating appliance to the splashback surface, minimum 200mm from the edge of a gas burner to the splashback surface.
- Correct wall cladding to be installed behind the splashback fixing locations.
- Joint line between the benchtop and the splashback should be designed with the use of silicone adhesive in mind.
- All cut outs for GPO's (electrical outlets) must have radiused internal corners and must not occur less than 150mm from any finished edge of the stone. Cracks occurring from square cut internal corners will not be recognised under warranty.

6.9. splashbacks - installation

Please note: When installing **essastone** as a splashback material you must always follow the appropriate Australian/New Zealand Standards in regard to clearances, especially when installed behind cooktop appliances.

Please refer to the following standards:

- AS 5601 Gas Installations
- AS/NZS 4386.2 Domestic Kitchen Assemblies - Installation
- Specific installation requirements as provided by the cooktop appliance manufacturer
- Any wall or other construction methods should be conducted in accordance with the relevant industry guidelines and building codes.

6.9.1. splashback installation requirements

- **Electric Cooktops and Induction Cooktops** - Installation of **essastone** as a splashback must be installed with a minimum distance of 50mm from the back edge of the cooktop to the front of the **essastone** splashback and also in accordance to any specific installation instructions from the appliance manufacturer (*See Fig. 18*).
- **Gas Cooktops** - **essastone** splashbacks must be installed at a minimum of 200mm from the back edge of the rear burners (as per AS 5601) and according to any specific installation instructions from the appliance manufacturer (*See Fig. 19*).
- **All wet areas (kitchens, laundries, bathrooms etc)** - install as per your required design and according to AS/NZS 4386.2 Domestic Kitchen Assemblies - Installation. Ensure all joins are adequately sealed with silicone for waterproofing requirements.

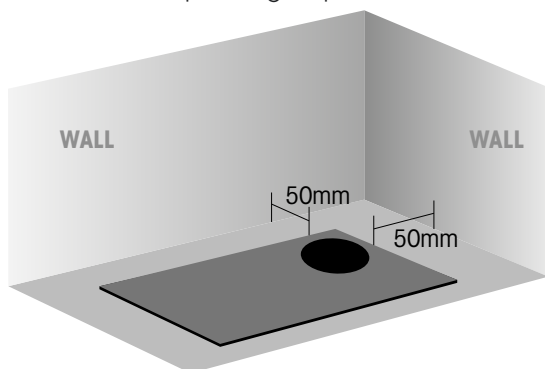


Fig. 18

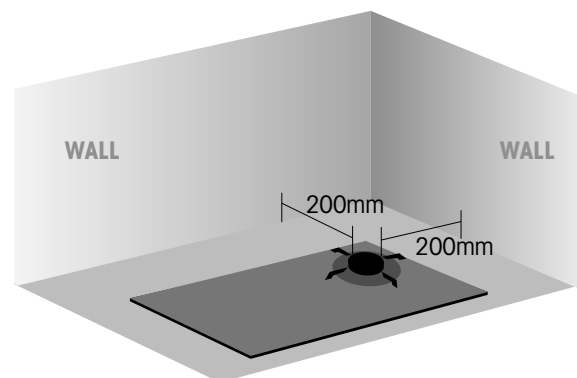


Fig. 19

6.9.2. splashback installation guidelines

All wall and other construction methods should be as per relevant industry guidelines and building codes.

- Timber-framed wall construction should use fibre cement sheeting behind **essastone** splashback applications.
- Brick wall construction should use cement-based render behind **essastone** splashback applications.

"L" shapes should not be fabricated in one solid piece, as this does not allow for movement due to thermal expansion. Cracks occurring from L shape sections will not be recognised under warranty. **(W)** This includes check outs around window posts and overhead cabinets.

6.9.3. powerpoint installation

Powerpoint and other item cut-outs must be core drilled to produce radius internal corners minimum of 12mm diameter. Cross cutting should be avoided at all times (See Fig. 20). **(W)** Cracks occurring from square cut internal corners will not be recognised under warranty. Cut outs for GPO/Powerpoint outlets must be at least 150mm from the nearest edge of the stone.

Water cool core drill corners before cutting
(minimum drill diameter = 12mm)

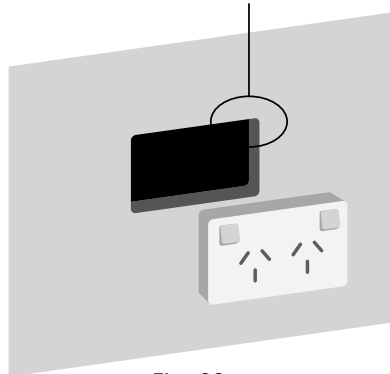


Fig. 20

The use of silicone is recommended for bonding the splashback to the wall cladding for sealing the joints.

7. preparation, templating and measurement

preparation, templating and measurement

7.1. general guidelines

Before any templating, fabricating or installation is considered, it is important that the tradesperson is suitably experienced and well aware of the product design requirements. In addition, all relevant information for the installation site should be confirmed. It is also important to consider all relevant safety requirements before commencing any work.

The initial site inspection should confirm that all cabinets have been adequately installed and fixed. Cabinets must be level in a true plane in every direction.

To eliminate costly errors, the location of electrical, plumbing and any other obvious obstructions that will have an influence on the installation of the **essastone** benchtop or splashback should be noted on the fabrication plans and templates.

When inspecting the site consider the following:

- Accessibility to the construction site, paying particular attention to any obstacles that may create handling problems during the installation.
- Cabinet construction and clearances (refer to section 6 for further details).
- All surrounding areas where installation is to occur, particularly where the cabinets have been installed on existing timber floors. Floors must be stable, rigid and capable of accepting the weight of the **essastone** benchtop. The weight of the stone will be 55kg per m² for 20mm or 80kg per m² for 30mm plus any additional loads. Typical loads may exceed 100kg per m².
- All cabinets must be adequately fixed to the walls (where free-standing island units are installed they must be adequately fixed to the floor and any other part of the rooms' construction which is to support the finished installation). Ensure that there is absolutely **no movement** within the total cabinet installation.
- **(W)** The installation over floating floors is inherently unstable and is not permitted under the **essastone** warranty.
- Electrical and plumbing positioning is located as specified on the working drawings and allows for the installation of the **essastone** benchtop and or splashback. Please check that planned tap holes and cut outs meet the minimum distances described in this manual.
- Cabinets and benchtop substrate/support meet the minimum **essastone** specifications as described in section 6 of this manual.
- Availability of sink(s), cook tops and any other appliances that are to be installed into the benchtop.

7.2. levelling

During the site preparation, either at the time of templating or installation, one of the most important tasks is to ensure all the cabinets are levelled. Do this by using a long straight edge. Accurate levelling will help prevent stress cracking of the **essastone** benchtop.

- Cabinets must be installed on a true (same) plane.
- Cabinets must be levelled to a maximum variation of 1.5mm over a 3000mm run.

Note: Variations up to 1.5mm can be corrected by packing the benchtop to the cabinets, preferably with a dense material (See *Fig. 21*). Should a level variation exceed 1.5mm over a 3000mm run, or if any other cabinet installation problem is detected at this stage, ensure this is rectified well before the bench-top installation.

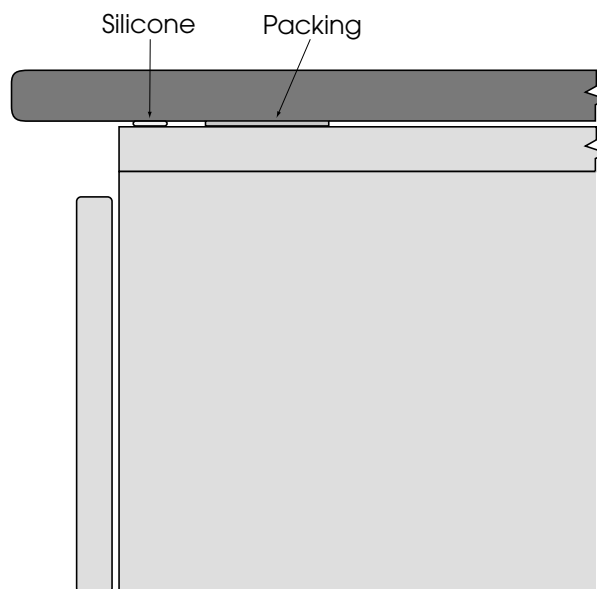


Fig. 21a

7.3. key considerations

Once design templates have been produced, it is important to check that all the major requirements have been met, including:

- Accessibility to the construction site.
- Cabinet construction, fixing and levelling meets the minimum requirements.
- Electrical and plumbing positioning is acceptable.
- Substrate and overhang supports are adequate.
- Appliance cut-out specifications have been confirmed and cut-outs align correctly.
- Where splashbacks or vertical panels are to be installed, ensure correct wall cladding has been fitted, and comply to the relevant standards.

Ensure that the benchtop support meets all design requirements listed in section 6. Installation should not proceed if support for the benchtop is inadequate.

Ⓜ Warranty claims will not be recognised where insufficient support mechanisms contribute to the failure of the **essastone** material.

8. adhesives

adhesives

adhesive method to substrate

8.1. substrate - benchtops

Due to the requirement for the slab to move with materials affected by atmospheric change or exposure to heat from appliances or utensils, the use of a flexible glue line is required for bonding between the substrate and the **essastone** benchtop components.

Therefore the only adhesive recommended for this application and the application of splashbacks is neutral cure silicone, ensuring there is an adhesive thickness of approximately 1.0mm to allow easy movement between the substrate and the benchtop slab once cured (See Fig. 22).

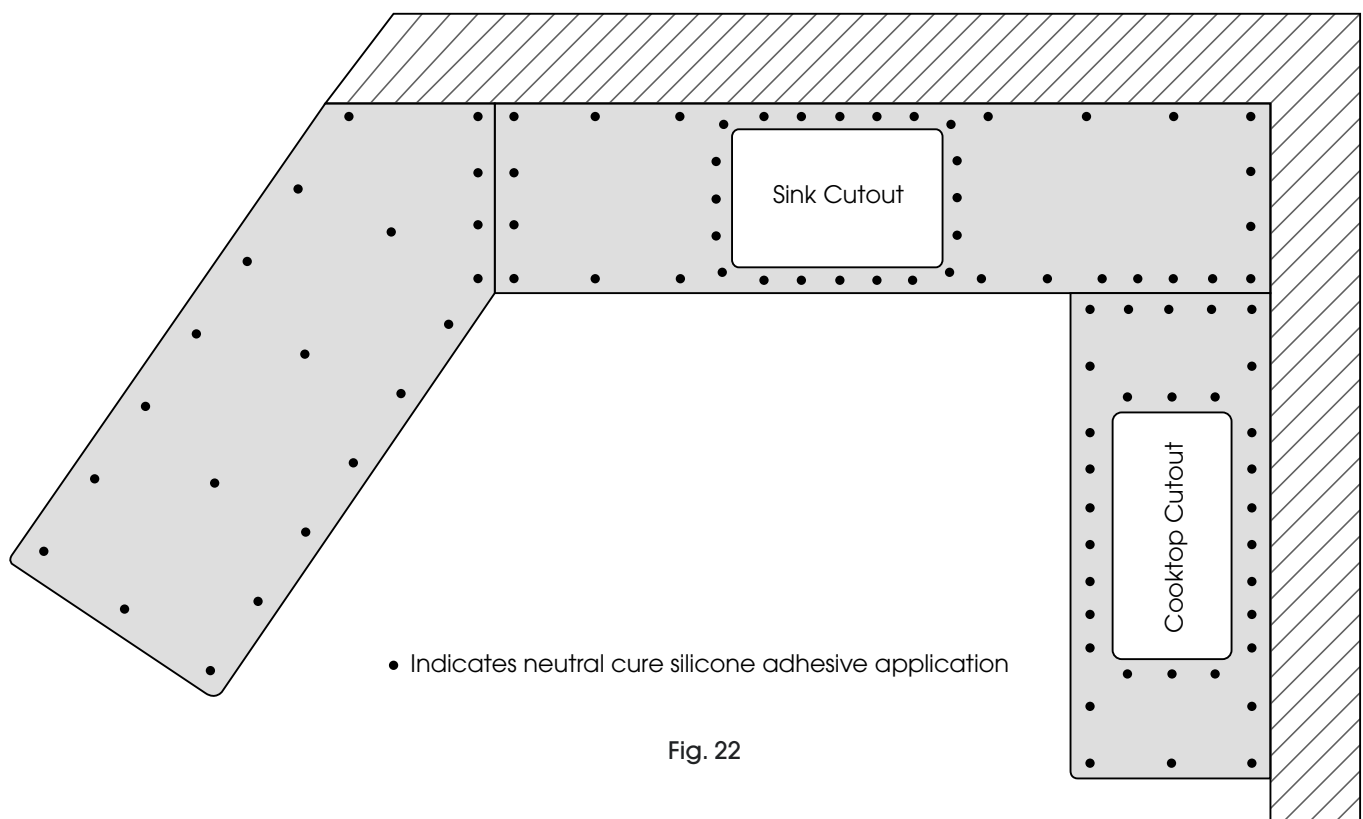


Fig. 22

9. fabrication

fabrication

fabrication

9.1. basic guidelines

Failure to comply with the standards set out in this manual will void warranty claims. However, if you are required to fabricate a design or application not covered in this manual, consult with your **essastone** representative to obtain advice on the proposed fabrication techniques that could satisfy the design/fabrication requirements, and retain the 15-year limited warranty.

Always consider safety guidelines when fabricating **essastone**.

9.2. cutting

As with all products, it is advisable to consult with your machinery and tool suppliers to obtain the best cutting tools for your specific stone working machinery, and conduct testing with these suppliers before commencing any new and untried fabrication applications.

Cutting must be carried out using water-cooled equipment. **(W)** Evidence of dry cutting will void the **essastone** warranty. For cut outs that are unavoidable at the site of installation, it is essential that these are water cooled. Dry cutting leads generates excess heat within the cutout area and may lead to cracking. Evidence of dry cutting failures will not be supported by the **essastone** warranty.

9.3. cut-outs

All cut-outs for sinks and appliances should be completed in the factory environment where a water-cooled process can be employed. Water-cooled cutting is essential.

9.3.1. cut-outs - factory made

- Determine the cut-out dimensions, ensuring there is at least 3mm clearance around the entire appliance perimeter.
- Depending on the appliance flange allowance, allow for the internal corner radius to be as large as possible. A 6mm radius (12mm diameter core drill) should always be the smallest radius (See Fig. 23).
- The finished machined cut-out edges should be as smooth as possible.
- Any appliance installed into the **essastone** material weighing greater than 5kg will require additional support rails around the underside of the opening.
- **Ⓜ** Evidence of cross cutting, square non radiused corners or jags left behind that contribute to cracks occurring from within the cutout will not be recognised under warranty.

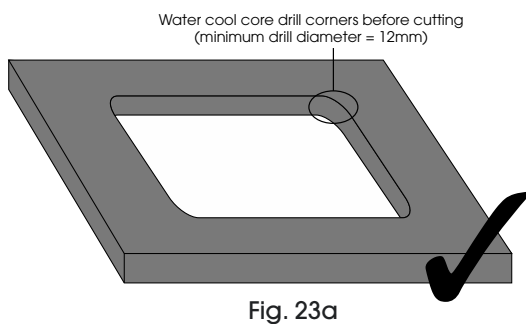


Fig. 23a

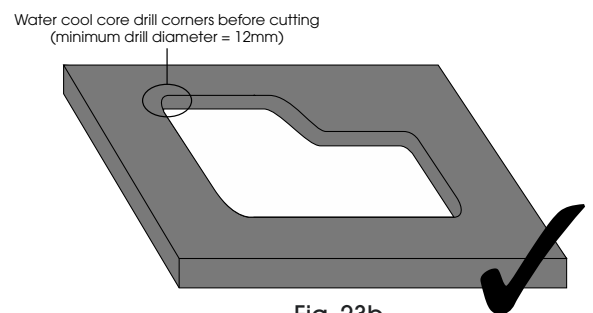


Fig. 23b

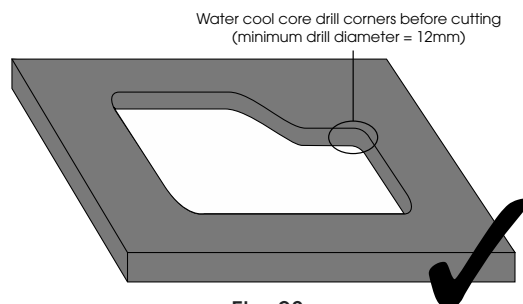


Fig. 23c

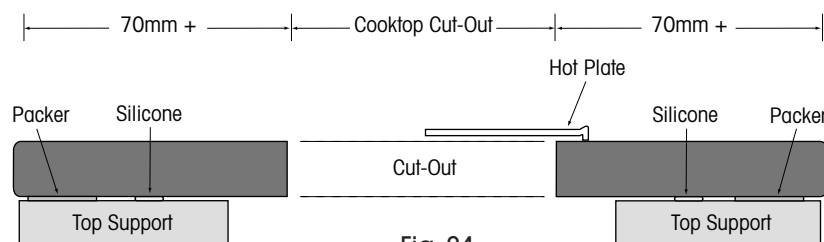


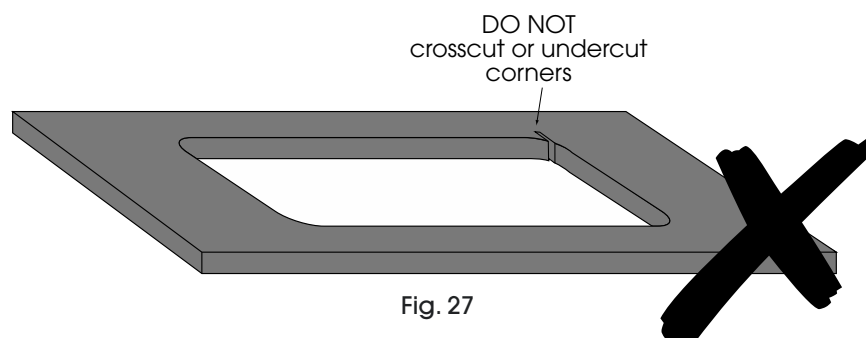
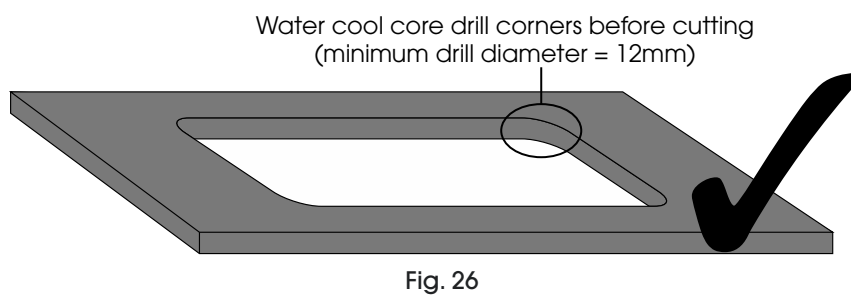
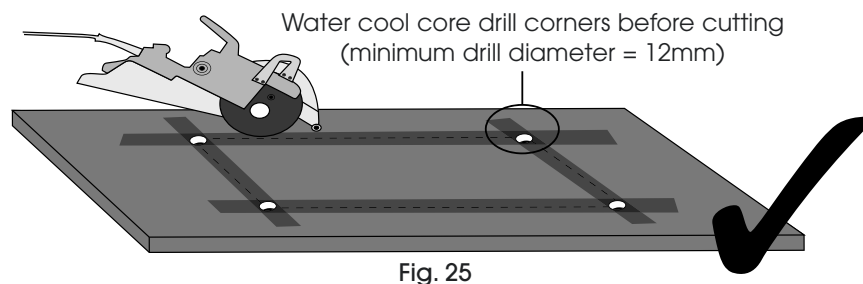
Fig. 24

9.3.2. cut-outs - on-site

It is suggested that the following points are taken into consideration before performing on-site cut-outs.

- Cutting on site should be kept to a bare minimum and if possible avoided.
- Use all the necessary safety equipment and take all the necessary precautions.
- Only experienced installers should perform on-site cut-outs.
- It is essential to use water-cooled tools to avoid overheating of the slab and to avoid dust.
- Place fully on support, such as old slab/off-cut and drill/cut completely through top piece.
- Determine the location for the cut-out and affix masking tape to give a clear line at the cut location; the tape will also assist in reducing the chance of edge "chip out" (See Fig. 25).
- Select the largest diameter core drill and drill the four internal corner locations. (Minimum 6 mm radius) (See Fig. 26).
- Cut along the marked lines with the water-cooled appropriate stone tool, ensuring the cut is made towards the internal core hole.
- Smooth out any rough cutting along the cut-out edges (See Fig. 26).

(W) Note: Ensure that the saw cuts do not run past the internal corner radius. Stress cracks linked to cross cuts, jags or roughly sawn uneven edges will not be accepted under the **essastone** limited warranty (See Fig. 27).



9.4. internal corners

9.4.1. benchtops

When designing the benchtop layout plan, it is **not permitted** to incorporate any one-piece "L" or angle-shaped sections as undue movement or stressing at the corner bi-section may lead to stress cracking. The corner radius must be 6mm or more (See Fig. 28). No check outs around window posts, upright cabinets, high tops or similar resulting in a 90 degree or L shape cut out are permitted in one piece. **(W)** Cracks occurring from the corner of any such installation will not be recognised under warranty.

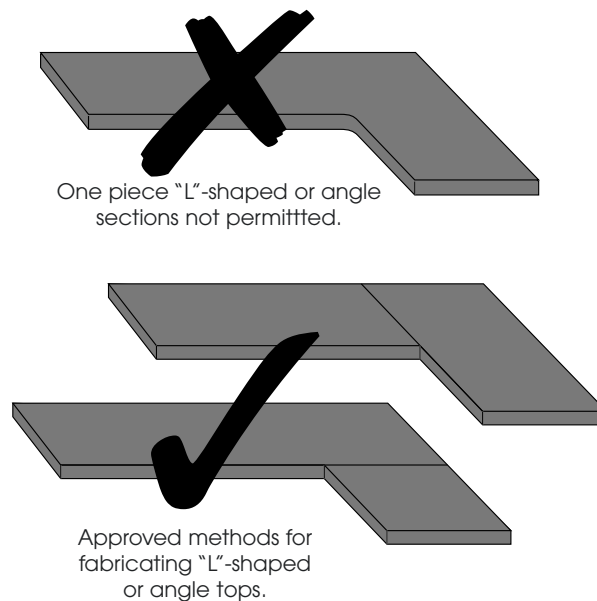


Fig. 28

9.4.2. cut-outs

The internal corners in cut-outs **must be radiused** and fabricated with the largest radius possible (minimum 6mm radius), as this is a safeguard against the possibility of stress cracking.

Note: When core drilling for internal cut-out corners, the use of water as a cooling agent is required (See Fig. 29).

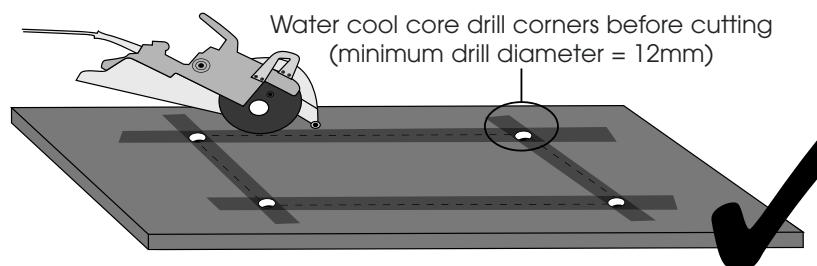


Fig. 29

9.5. edge profiles

9.5.1. laminations

When the design of the edge is larger than 30mm in thickness, there are strict guidelines to follow in both the join design and location. These are detailed below.

- Ensure the strip to be laminated is obtained from the same slab batch, preferably obtained from an off-cut from the same slab (See Fig. 30).
- Always use 45° mitres for all corners (See Fig. 31).
- To reduce the chance of joint detection, where possible, all lamination should be of the same length as the benchtop section.
- If the lamination has insufficient length to the benchtop, whilst not preferable, any butt joint must have a 45° mitre (See Fig. 32).

Joins not recommended are:

- Corner butt joins – corner mitre joins are recommended (See Fig. 33).
- Butt joins along the length of the build-down – mitre joins along the length (See Fig. 34).

When the edge profile design allows, we strongly recommend a mitred edge build-up in place of any laminations exceeding 40mm (or 60mm if using 30mm thick material) in depth.

- Where the lamination edge is to be bonded on its edge to the benchtop, then the edge and face component should be mitred at 45° profile. The edges to be bonded must be machined smooth to reduce the chance of detecting the glue line after fabrication.
- **W** Variations in the colour, thickness or appearance of the glue line in a laminated edge, or failures in bonding are related to fabrication and are not recognised as a product fault in the **essastone** warranty.

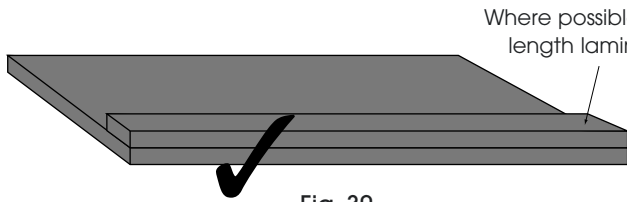
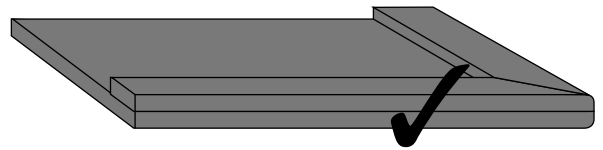
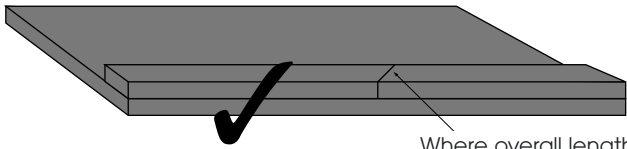


Fig. 30



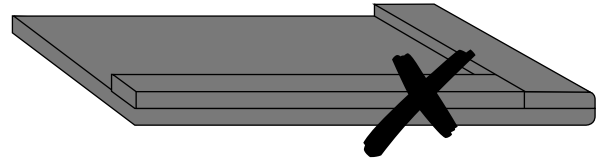
Exposed end detail. Use mitre joints for all corners.

Fig. 31



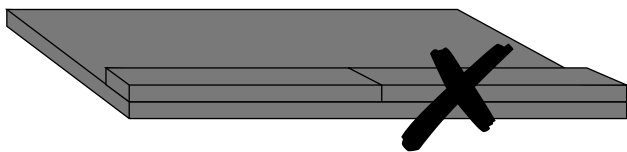
Where overall length is in excess of 31/m, laminated edge must be mitred at butt join.

Fig. 32



Not recommended

Fig. 33



Not recommended

Fig. 34

9.5.2. waterfall ends

essastone is not self supporting on the vertical axis. No waterfall end in stone not affixed to the cabinets should be used as a support mechanism for a benchtop.

This is the method for the fabrication of waterfall ends.

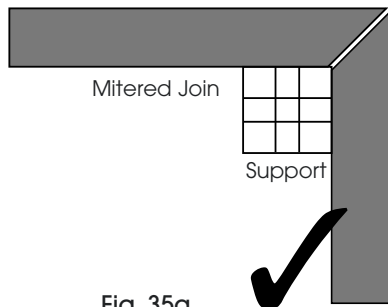


Fig. 35a

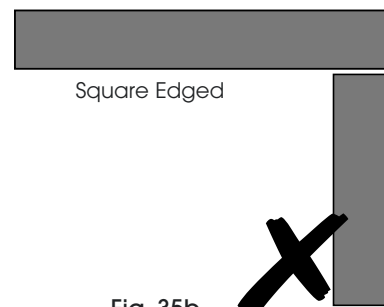


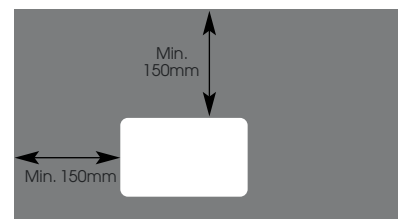
Fig. 35b

Both methods require accurate measurements to ensure tensioning of the joint is prevented. The waterfall end must be glued to the side of the cabinet and the load transferred fully to the floor.

Waterfall ends cannot be installed on floating floors due to the potential of movement, which may result in opening of the joints or cracking of the benchtop. Waterfall ends must only be glued to the floor using neutral cure silicone to allow for flexibility. (W) Evidence of hard set epoxy style adhesives will void any claims for cracking occurring due to rigid installation.

Any GPO (electrical outlet) cutouts in a waterfall end must have a radius in all 4 internal corners, and be set at least 150mm from the top (horizontal) edge and 150mm min from all vertical edges.

(W) Cracks which occur where these minimum standards are not employed will not be recognised as a claim.



9.6. edge polishing

The use of water-cooled polishing tools is essential, as any excessive heat generated will weaken the physical structure of the material, as well as giving a dull, flat and/or chalky appearance to the finished polished edge profile and avoid generation of dust particles.

In general, the quality of the machined profiles will ultimately determine the grit sequences to be used, but conduct a trial first with a full set of grits, to ensure finish is acceptable.

Finished profile must be within acceptable tolerances, size and finish.

Note: It is essential to gradually process through the grits listed above. If short cuts are employed by jumping over grit size sequence, the final polished finish will show scratches and appear dull. Consult with machine and polishing disk manufacturers for further advice.

For edge polishing of non gloss essastone surfaces please refer to technical bulletins and updates issued by Laminex for this purpose.

10. sinks, cook tops,
appliances and
washing machine/dryers

sinks, cook tops,
and appliances

sinks, cook tops, and appliances

10.1. sinks

Before the commencement of the fabrication it is important to have the sink that will be installed in the final installation available, to obtain the cut-out dimensions, and to confirm that the sink can be located in the designated cabinet.

(W) Regardless of the square corners of some sink designs, the cut out must employ the radius corners as detailed below. Failure to do so will void any claims for cracking from the sink precinct.

Drop in or under-mount sink openings of 600mm wide or greater must employ additional under-bench rail support on all 4 sides. Support rails must be minimum of 19mm MR Plywood

10.1.1. drop-in sinks

- Cut-out rail width dimensions should not be narrower than 70mm at both the front and rear of the benchtop (See Fig. 37 a and b).
- The quality of the machined cut-out must be smooth and have a minimum internal corner radius of 6mm (See Fig. 38).
- Care must be taken with the sink clip design, as mechanical fixing into the underside of the slab is not permitted.
- Any holes for independent taps, water filters or similar devices must be a minimum of 50mm from the closest side of the hole to the closest edge of the sink opening.
- **(W)** Cracks occurring where these minimums are not met will not be recognised.

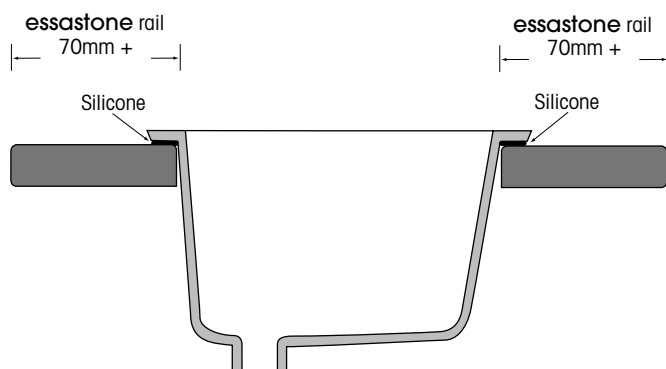


Fig. 37a

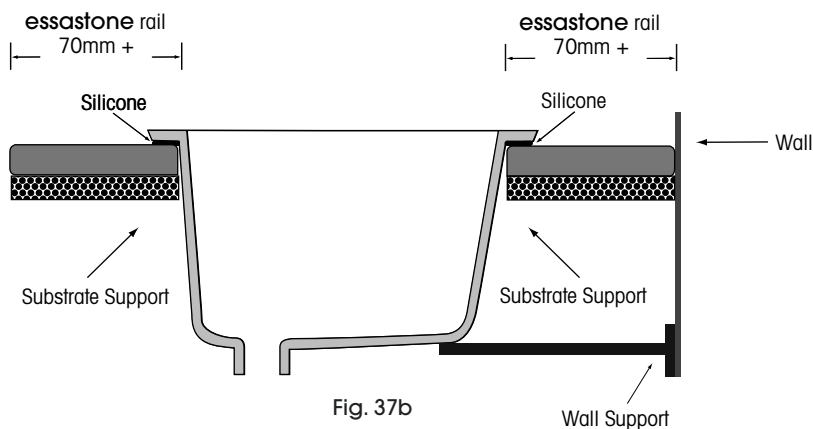


Fig. 37b

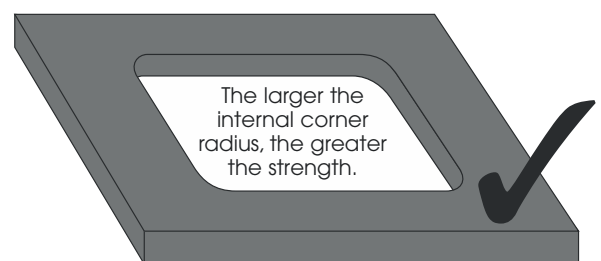


Fig. 38

10.1.2. under-mount sinks

Whilst the installation instructions are very similar, there are three additional requirements for the installation of an under-mount sink (See Fig. 39b).

- With under-mount sinks, there is usually a requirement to machine the tap hole or holes through the slab, therefore sufficient room must be designed into the sink back rail to ensure adequate strength. A minimum set back of 50mm between the sink cut-out and the closest edge of the tap hole is required to maintain structural integrity of the benchtop. If more than one hole is to be machined, then it is preferable to fabricate additional strengthening support under the benchtop.
- The exposed edges of the sink cut-out must be machined and polished to the quality of the fabricated edges and slightly arched around the bottom face.
- Prior to locating and bonding, place locating blocks around the sink perimeter with hot melt adhesive, to ensure the sink does not slip out of position when clamped.
- Any holes for independent taps, water filters or similar devices must be a minimum of 50mm from the closest side of the hole to the closest edge of the sink opening.

Note: All drilled holes and exposed edges must have clean smooth edges.

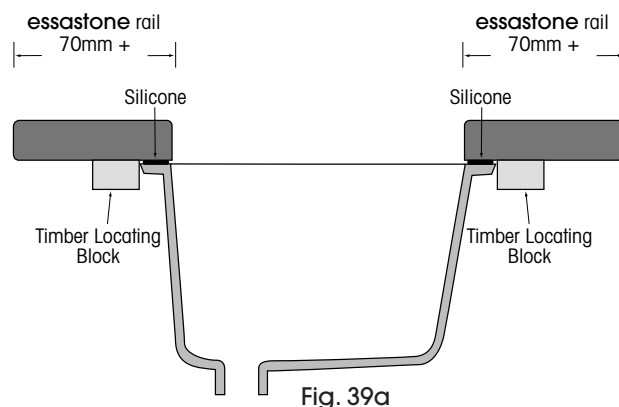


Fig. 39a

10.2. laundry tubs & taps

Applications in laundry installations vary widely. There is a typical use of 45 litre tubs which when filled weigh 50kg approx. **essastone** surfaces are not a construction material and are not designed to support this weight without the cabinets being reinforced. Supporting cabinet rails must be employed around all laundry tub/sink openings to assist the weight distribution.

Where double bowls/tubs are installed, front to back vertical support rails underneath the bench-top must be used to support the weight. 19mm MR plywood is recommended.

Where the **essastone** is required to span across an opening greater than 600mm (eg across under-bench appliances or double tubs), additional upright vertical support rails in the cabinet must be used. **(W)** Failure to support the material adequately will result in no recognition of claims from cracks occurring in the area.

All stone rails between and in front and behind laundry tub cut-outs must be a minimum of 70mm wide.

Independent tap holes must be a minimum of 50mm from the sink edge to the closest edge of the tap hole and a minimum of 70mm from the closest edge of the bench-top. **(W)** Cracks occurring from fixtures not employing these minimum widths will not be recognised.

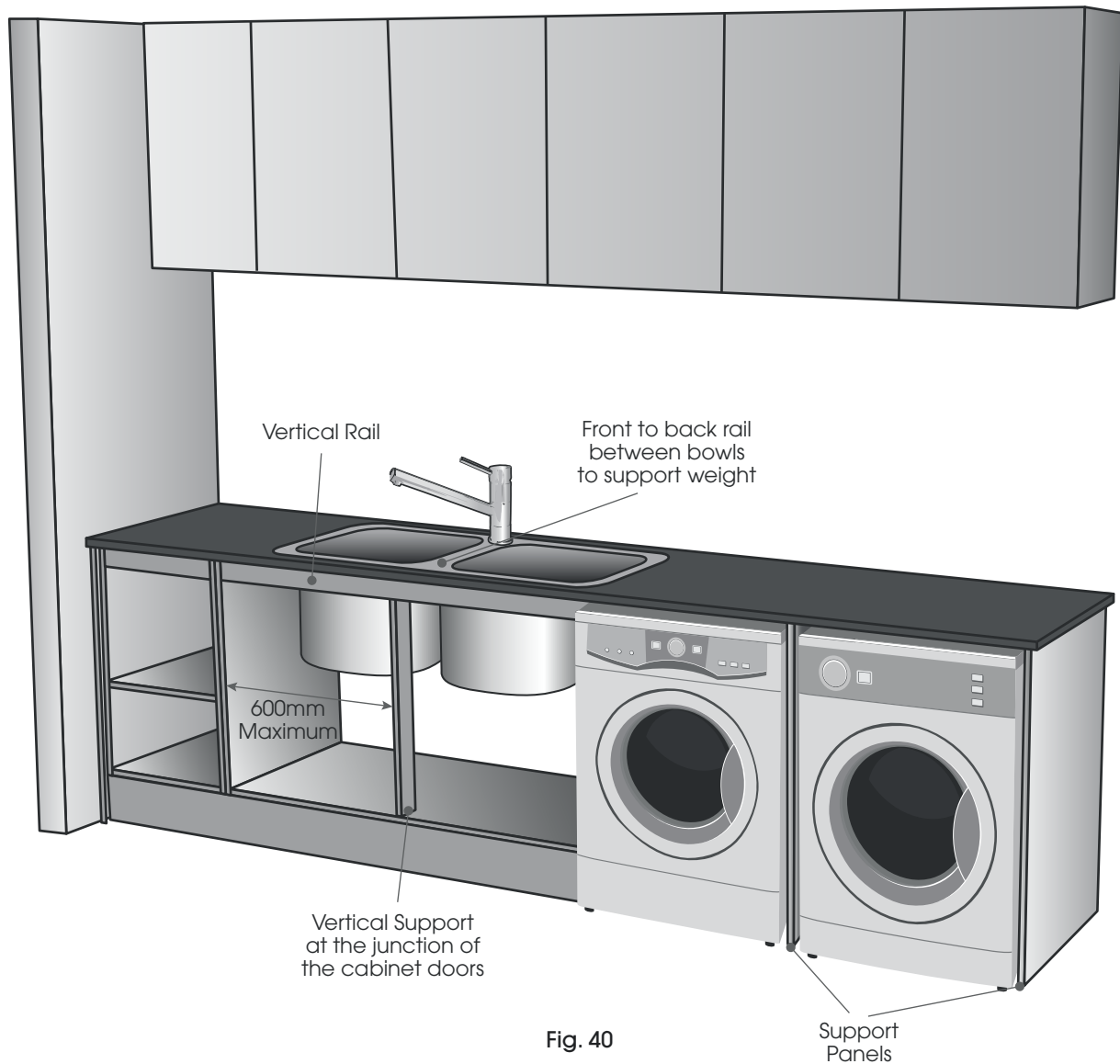


Fig. 40

Support Panels

10.3. washing machine/dryer installation

essastone is not suitable to be used as a support to on-bench appliances due to excessive weight and heat generated.

Wall Fixed Dryers should be wall mounted well away from the **essastone** bench-top – a minimum distance of 450mm is required.

Under-bench Dryers need to be considered carefully as substantial heat generation occurs when in use. Some appliances exhaust heat from the front of the unit, whilst others are from the back or ducted.

The use of under bench washing machine and/or dryers requires a substrate to be employed above the appliance to protect from direct heat and thermal load underneath the **essastone** bench top in the same manner as for a dishwasher. ⚠ Thermal shock may occur if protection is not provided, and resulting cracks from this condition are not recognised under the **essastone** warranty.

10.4. external use barbeques

essastone can be used in external applications where a gas or electric inbuilt BBQ is used, with strict adherence to the following requirements:

- The installation must not be in direct sunlight outside the roof area, it is only permitted in alfresco applications inside the roof line (See Fig. 2)
- All makes and specifications for BBQs are different, and the heat output will vary with the manner in which they are used, the energy output from the burners and whether the BBQ has a hood or not. No BBQ, Plate, Grill or heating apparatus can come into direct contact with the **essastone** benchtop. The BBQ must be mounted using isolated metal mounting points supported entirely by the cabinet frame, not from the benchtop.
- A minimum air gap of 10mm must be observed around all BBQ installations to prevent conduction of energy into the **essastone** and to allow for adequate ventilation. Failure to maintain this gap may result in heat cracks, which are not covered by warranty.
- A stainless steel or ceramic trim (minimum width 25mm) should be installed around the perimeter of the BBQ (without direct contact to the BBQ itself) to assist in reflecting or reducing radiated heat away from the **essastone** benchtop.
- Heat protective mats (ceramic trivets, wooden cutting boards etc) must be used to rest hot platters or cast iron grills. These should be positioned on the surface of the stone immediately adjacent to the cooking surface to protect against thermal shock. **(W)** Damage due to thermal shock around a BBQ is not warranted.
- No temperature exposure to **essastone** should exceed 70° above ambient temperature.
- **essastone** may not be used underneath the BBQ or heating/cooking device and may not be used to line the upright sides adjacent to either side of the BBQ unless a min gap of 100mm is employed from the front face of the **essastone** to the closest edge of the BBQ.
- Where multiple cut outs are required for side by side grill/cooking panels, a minimum rail of 70mm must be left between each cut out. Additional rail supports must be provided for any individual appliance weighing greater than 5kg.

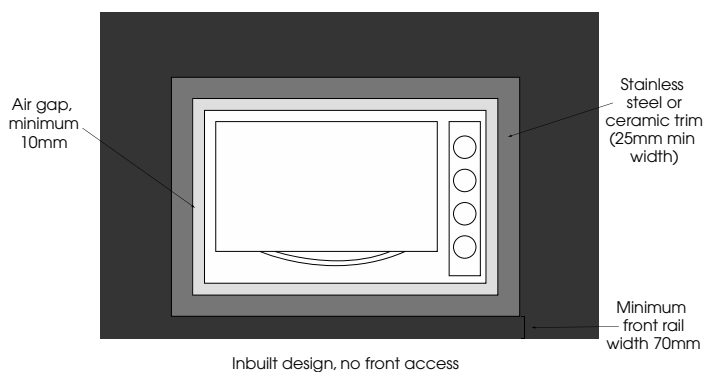


Fig. 41a

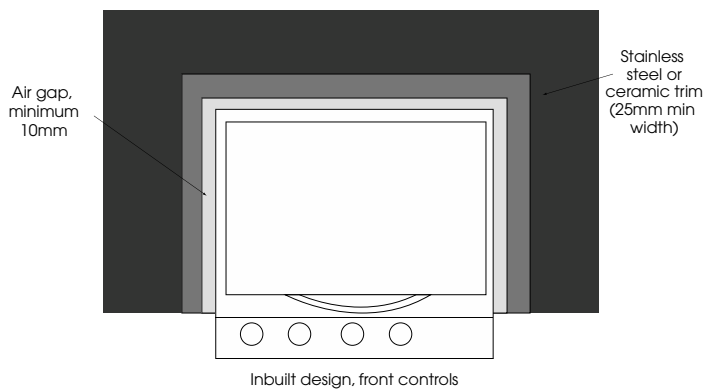


Fig. 41b

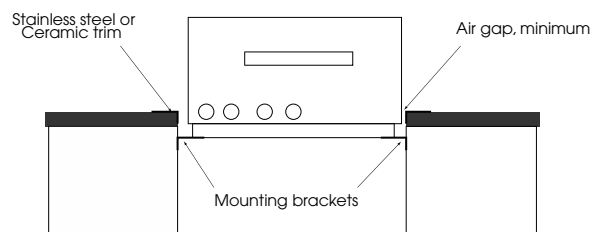


Fig. 42

11. installation

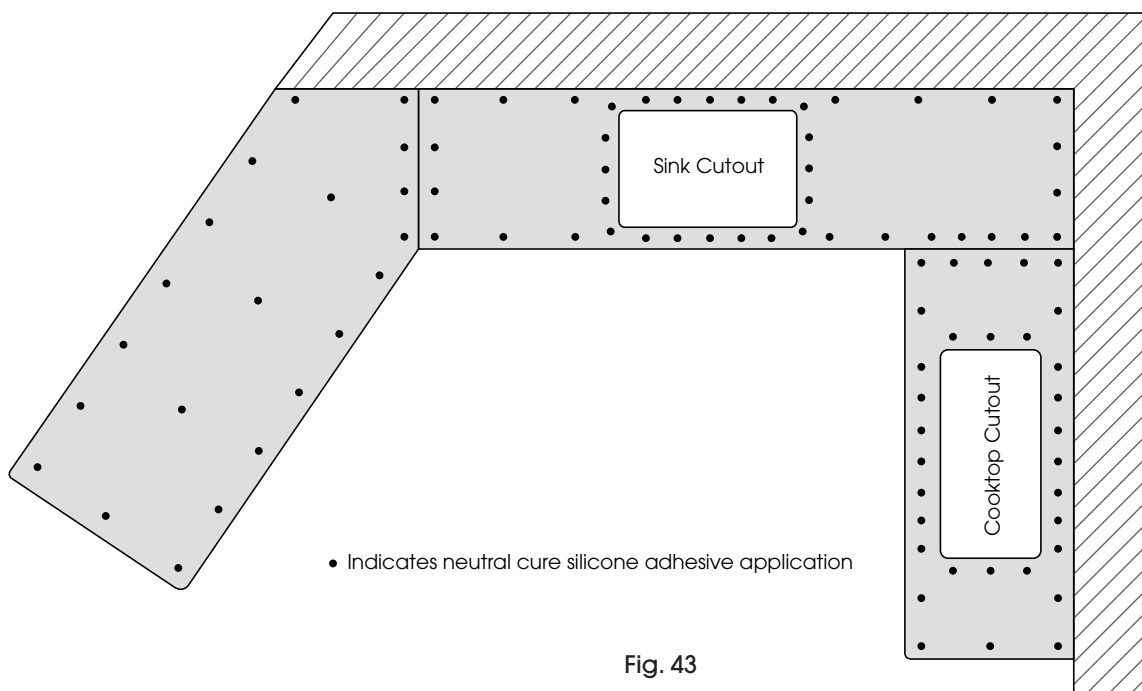
installation

The following should be carried out prior to installation:

- Check, measure and ensure the correct cabinets are in their correct locations.
- Ensure all cabinets are level and on a true (same) plane.
- Ensure good weight transfer from the top through the ends (gable) or divisions to the floor.
- All cabinets must be firmly attached to the wall/s, and island cabinets must be well fixed to the floor.
- Cabinet rails meet the minimum specifications.
- Adequate benchtop support is in place.

(W) Note: Should the benchtops be installed on evidently non-complying cabinets and the stone installation fails, no post-installation warranty claims will be recognised by Laminex. Check sections 6 and 16 of this manual for further details.

Installation to be completed with silicone blobs as per Fig. 43.



12. repairs

repairs

Whilst handling the material during the fabrication, transportation and installation, there is the risk of minor damage occurring. Therefore, it is important to take all the necessary precautions to eliminate this risk. Should minor handling damage occur, the following points may assist in carrying out minor repairs, which are only authorised on the fabricated edges and faces of the **essastone**. (W) No repairs, fill or repolishing to the factory supplied (original finished **essastone** surface as supplied by Laminex) is authorised and to do so without consultation will void any claims under warranty arising from the result.

Laminex maintains an endorsed group of specialist technicians (non stone masons) that are used for minor repairs and repolishing under warranty conditions. Please report any non standard condition of the original finished **essastone** surface before cutting and processing to your local **essastone** representative.

13. care and maintenance

care and maintenance

routine care and maintenance

For routine cleaning, use small quantities of non-bleach, non-abrasive cleaners together with warm water and a damp cloth or sponge. Liquid spills including fruits, vegetables, food colourings and curries, should be wiped up immediately and cleaned with a mild detergent and water immediately after detection.

preventing heat damage

Protective trivets and heat pads must always be used underneath cookware such as skillets, saucepans, pots or dishes when removing hot items directly from any heat source (oven cooktop or microwave) and placing onto the **essastone** surface. Prolonged or sudden extreme temperature changes can create thermal shock cracks which are excluded from the **essastone** warranty.

It is recommended that stone fabricators inform all trade customers, builders and consumers of the risk of thermal shock as it is a common misconception that stone can withstand high temperatures.

Additional care should be taken around hotplates as oversize cooking accessories (eg extra wide frypans) can overhang the appliance and conduct radiant heat directly onto the surface of the stone, risking thermal damage.

preventing scratches

The use of cutting boards and taking care not to drop or move heavy objects on the surface will help to ensure the long lasting beauty of **essastone**. The resilient surface of **essastone** has been designed to withstand normal daily use. Whilst it is resistant to scratches, cuts and chipping, do not cut directly on the **essastone** surface. Scratches and chips to the edge or primary surface of **essastone** are not protected under warranty.

preventing chemical damage

There are some strong chemicals and solvents that can cause damage to **essastone**. Paint remover, paint and stain strippers, nail polish removers, concentrated bleach (such as undiluted Domestos), furniture cleaners, oil soaps, permanent markers or inks, oven cleaners, drain cleaners and chemicals with high alkaline pH levels are examples of products that could damage the surface. If a strong chemical or solvent comes into contact with your **essastone** surface, rinse immediately with plenty of water then follow with normal cleaning procedures. Evidence of chemical damage or colour change is not protected under warranty.

removing difficult spills and stains

For gloss surfaces, if routine cleaning procedures do not remove stubborn or dried spills/stains, use a non-abrasive cleaning pad such as a household sponge, along with a glass and surface cleaner. Should chewing gum, nail polish, or similar substances adhere to the surface, they can be removed with a plastic scraper. Gently scrape off the substance, then follow the routine cleaning procedures listed above.

Please note: many cream cleansers have been found to contain abrasives that may damage the polished surface of **essastone** and are not endorsed for use.

For matt/honed/textured surfaces (NOT GLOSS), if routine cleaning procedures do not remove stubborn or dried spills/stains, the careful use of '*Jif Cream Cleanser with micro-particles*' can be used in conjunction with the following procedure. The **essastone** surface must be wet with water and a small amount of '*Jif Cream Cleanser with micro-particles*' applied with a damp soft cloth. Only use light pressure and clean with a swirling motion. Keep the area wet with small amounts of water to allow the fine cleaning particles to gently remove the stain. Wash and wipe the surface to remove the cleaning agent and dry with a soft cloth.

For all surface finishes, red wine and other tannin based stains can be removed with a diluted bleach solution (a 50:50 mix of '*Domestos Regular cleaner*' and water). Do not allow the bleach to remain on the surface for longer than one minute. Wash with water to remove the diluted bleach and dry with a soft cloth. Repeat the process with the diluted bleach if not successful.

For all surface finishes, should paint spots/stains persist after following the above procedures then, as a last alternative, the spot use of acetone may be successful. However, colour change or surface damage resulting from the use of acetone is not recognised under warranty, so this should be used as a last resort. Testing on an inconspicuous area first is highly recommended.

General comments **essastone** requires no sealing or special cleaning products. **essastone** is made from natural quartz, therefore variations in colour and patterns may occur. Small surface spots and blotches are typical in engineered quartz surfaces.

For more information visit essastone.com.au or call 132 136.

14. key considerations for your essastone project

Key considerations for
your essastone project

key considerations for your essastone project

- If you are in the planning and design stage of your essastone project there are some important points that you should consider to ensure your beautiful essastone installation meets the compliance requirements for the **essastone** warranty.
- 'The Design Guidelines for **essastone**' is a separate document found on the essastone website www.essastone.com.au which provides a more detailed set of information to assist.

A quick checklist:

- Are my cabinets built suitably for a stone surface? Minimum support rails and maximum unsupported overhangs on breakfast bars apply.
- Is there a substrate panel installed over my dishwasher opening to ensure the thermal load from the appliance does not damage the stone?
- Is the minimum distance (50mm) used between any tap holes and the nearest sink or basin opening?
- Is the minimum distance (70mm) used for any front/back rails of my sink or hotplate cut out?
- Has the countertop been designed to avoid any "L" Shape Benchtops installed in one piece? A join should be used wherever the countertop changes direction.
- Have I got cut outs around my windows in the kitchen that form an "L" shape or 90 degree cut out in the stone? (These should be avoided and an extra join used).
- Correctly placed joins in your stone surface act as expansion joints and will protect against cracks forming.

15. warranty

warranty

warranty

essastone is covered by a 15-year limited warranty. This provides peace of mind to the customer that their important investment is protected for years to come.

essastone is manufactured from natural quartz and silica. Variations in colour, pattern and shade will exist, and are unique characteristics inherent in natural quartz. Small blotches or off-colour particulate (chips) or irregular particulate distribution will occur in engineered quartz surfaces, and are not covered under the product limited warranty.

15.1. typical responsibilities of the stone fabricator

Ⓜ The following is a non-exhaustive list of items that will void the **essastone** limited warranty. These are areas outside of the control of Laminex. The stone fabricator is cautioned that these areas remain their responsibility and failure to comply with the **essastone** fabrication requirements will not be recognised in warranty claims.

- Colour variation due to the use of slabs from different lots/batches in the same fabrication.
- Obvious faults in the finished fabricated items that were visible in the **essastone** slab at the commencement of the fabrication. It is the fabricator's responsibility to inspect the products before commencement of any job.
- Any re-polishing or repair of the original supplied surface finish.
- Where insufficient perimeter clearance of at least 3mm on all sides of a bench-top abutting a wall or solid fixture, including joining to another benchtop.
- Failure of the product due to inadequate support of the material.
- Installation onto cabinets where the finished **essastone** surface is out of level by more than 1.5mm per 3000mm length.
- Performance issues as a result of design or applications not recommended in this manual or not approved in writing by Laminex.
- Reduced performance as a result of any mechanical reduction in the slab thickness performed by the stone mason.
- Claims for visual appearance of the join line or for inadequate selection/application of adhesives.
- Claims for the failure of any adhesive or caulking, whether as a join or otherwise.
- Design/applications outside relevant national or local building regulations or that do not comply with relevant Australian Standards.
- General damage through poor fabrication or installation techniques.
- The installation of "L"-shaped benchtops, or "L"-shaped cut outs or L shaped sections, or sections installed in one continuous piece.
- The use of cut-outs for any application that do not employ the designated corner radius.
- Tap holes installed less than 50mm min from the edge of the sink or laundry tub.
- Non-compliance with the **essastone** fabrication requirements as set in this manual and technical literature as supplied by Laminex.

15.2. 15-year limited warranty general terms and conditions

- 1 Subject to the conditions and limitations set out in this warranty below, Laminex Group Pty Limited, trading as Laminex, warrants to the original purchaser of **essastone** products for interior residential and commercial use that Laminex will, at its option, repair or replace that product without charge if it fails directly as a result of a defect in its manufacture or material used in its manufacture, during the first 15 years after initial installation (proof of purchase will be required). Subject to paragraph 9, this limited warranty terminates at the expiration of 15 years from the date of installation of the **essastone** product.
- 2 This limited warranty does not cover any defect/damage caused by:
 - (a) any act of God, any natural occurrence or any other circumstance beyond Laminex's control; or
 - (b) physical abuse, negligence, vandalism, misuse, accidents, exposure to excessive heat, exposure to excessive moisture, the use of solvents or inappropriate cleaning products/materials, improper maintenance, exposure to chemical products, and/or normal 'wear and tear', including, without limitation, fractures, burns, scratches, stains, chipping, cuts, wipe marks and scuffs on the product; or
 - (c) failure to follow the Care and Maintenance instructions of the product; or
 - (d) exposure to direct sun light including general fading and discolouration;
 - (e) variations in colour, pattern and shade of the material against the sample material, displays and/or printed illustrations; or
 - (f) thermal shock, excessive heat, or excessive weight;
 - (g) failure to follow any procedures recommended by Laminex for the fabrication and installation of **essastone** products;
 - (h) failure of any adhesive, caulk, or other accessory, or failure of any caulked or filled joints or seams;
 - (i) faulty workmanship by any person subsequent to the supply of the **essastone** product from Laminex.
- 3 This warranty also does not cover:
 - (a) anything which has been disclosed as a feature or limitation of the **essastone** product in any literature published or distributed by Laminex; or
 - (b) outdoor application; or
 - (c) where the defect is trivial or insubstantial; or
 - (d) where, as at the date of notification of the defect to Laminex, the type or colour of the alleged defective product no longer forms part of Laminex's standard stock range and the person complaining of the defect does not agree to the supply of a replacement which is as close a type or colour match as is possible for Laminex's then prevailing stock range.
- 4 This limited warranty applies only to **essastone** colours from the 2010 range which:
 - (a) have been purchased from Laminex after 1 March 2010, for interior residential or commercial use in Australia;
 - (b) have not been moved from their original place of installation;
 - (c) have been designed, fabricated and installed according to procedures recommended by Laminex in the **essastone** Technical & Fabrication Manual and related literature; and
 - (d) have been installed, maintained, used and protected in the manner recommended by Laminex in its published literature concerning those products, a copy of which may be obtained, free of charge, from the fabricator named below or by writing directly to Laminex at the address given below; and
 - (e) where Laminex has been notified of the defect within seven days of the first person to become aware of it.
- 5 This limited warranty will cover reasonable labour charges, which are necessary for the repair or replacement of any **essastone** product covered by this warranty.
- 6 Laminex may determine that a replacement product may not be reasonably available in the same colour or shape as the original **essastone** product covered by this limited warranty. If Laminex determines that a replacement product of the same colour or shape is not reasonably available, Laminex reserves the right to provide a replacement product of as close a shape and colour match as is reasonably possible from Laminex's then current stock range in satisfaction of its obligations under this limited warranty.
- 7 Please fill out the attached registration card and mail directly to Laminex at the address given below.
- 8 Except as expressly provided in paragraphs 1 and 9, all terms, conditions, warranties, undertakings, inducements and representations, whether expressed or implied, statutory or otherwise relating to any **essastone** product are excluded. Without limiting the generality of the preceding sentence, Laminex will not be under other liability in respect of any loss or damage (including consequential loss or damage) however caused (whether by negligence or otherwise) which may be suffered or incurred or which may arise directly or indirectly in respect of any **essastone** product.
- 9 Where any applicable legislation implies any term, condition or warranty in Laminex's relationship with a person who has acquired any **essastone** product, or otherwise gives that person a particular remedy against Laminex, and that legislation or any legislation voids or prohibits any provision excluding, or modifying the application of, or the exercise of, any liability under such term, condition, warranty or remedy shall be deemed to be in or, as the case may be, apply to that relationship. However, Laminex's liability for any breach of such term, condition, warranty, or under such remedy, shall be limited, at Laminex's option, in any one or more of the ways permitted by the legislation where so permitted:
 - (a) if the breach relates to any **essastone** product:
 - (i) the replacement of that **essastone** product or supply of similar product; or
 - (ii) the repair of that **essastone** product; or
 - (iii) the payment of the cost of replacing that **essastone** product with similar product; or
 - (iv) the payment of the cost of having the **essastone** product repaired; and
 - (b) if the breach relates to services:
 - (i) the supply of the services again; or
 - (ii) the payment of the cost of having the services supplied.
- 10 Please note that the law may confer on you rights arising out of the **essastone** products in addition to those set out in this limited warranty. This limited warranty should therefore not be read as an exhaustive statement of the rights of the original purchaser or any person.
- 11 The warranty does not cover any other product used or installed in connection with the **essastone** product.
- 12 This warranty is not transferable or assignable.
- 13 Any questions regarding this warranty should be addressed to Laminex at the address given below:

Laminex
essastone Warranties
PO Box 407, Doncaster, VIC, 3108.

16. MSDS – material safety data sheets

MSDS – material
safety data sheets

essastone

Laminex Group Pty Ltd

Chemwatch: 22-9931

Version No: 9.1.1.1

Safety Data Sheet according to WHS and ADG requirements

Chemwatch Hazard Alert Code: 2

Issue Date: 03/03/2016

Print Date: 03/03/2016

Initial Date: **Not Available**

S.GHS.AUS.EN

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Identifier

Product name	essastone
Synonyms	Not Available
Other means of Identification	Not Available

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Use according to manufacturer's directions. Quartz surfacing product.
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Details of the supplier of the safety data sheet

Registered company name	Laminex Group Pty Ltd
Address	90-94 Tram Road Doncaster 3108 VIC Australia
Telephone	+61 3 9848 4811
Fax	+61 3 9840 6513
Website	www.laminexaustralia.com.au
Email	Not Available

Emergency telephone number

Association / Organisation	Not Available
Emergency telephone numbers	Not Available
Other emergency telephone numbers	Not Available

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

NON-HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.

CHEMWATCH HAZARD RATINGS

	Min	Max	
Flammability	1		0 = Minimum 1 = Low 2 = Moderate 3 = High 4 = Extreme
Toxicity	0		
Body Contact	0		
Reactivity	0		
Chronic	2		

Poisons Schedule	Not Applicable
Classification	Not Applicable

Label elements

GHS label elements	Not Applicable
SIGNAL WORD	NOT APPLICABLE

Hazard statement(s)

Not Applicable

Supplementary statement(s)

Not Applicable

CLP classification (additional)

Continued...

Not Applicable

Precautionary statement(s) Prevention

Not Applicable

Precautionary statement(s) Response

Not Applicable

Precautionary statement(s) Storage

Not Applicable

Precautionary statement(s) Disposal

Not Applicable

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS**Substances**

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
14808-60-7	70-95	<u>silica crystalline - quartz</u>
		may also include
14464-46-1		<u>crystalite</u>
Not Available	5-15	polyester resin
100-42-5		<u>styrene</u>
Not Available	<5	pigments and additives

SECTION 4 FIRST AID MEASURES**Description of first aid measures**

Eye Contact	If this product comes in contact with the eyes: <ul style="list-style-type: none">▶ Wash out immediately with fresh running water.▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.▶ Seek medical attention without delay; if pain persists or recurs seek medical attention.▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	If skin or hair contact occurs: <ul style="list-style-type: none">▶ Flush skin and hair with running water (and soap if available).▶ Seek medical attention in event of irritation.
Inhalation	<ul style="list-style-type: none">▶ If fumes or combustion products are inhaled remove from contaminated area.▶ Lay patient down. Keep warm and rested.▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.▶ Transport to hospital, or doctor.
Ingestion	<ul style="list-style-type: none">▶ Immediately give a glass of water.▶ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 FIREFIGHTING MEASURES**Extinguishing media**

- ▶ There is no restriction on the type of extinguisher which may be used.
- ▶ Use extinguishing media suitable for surrounding area.

Special hazards arising from the substrate or mixture

Fire Incompatibility	None known.
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Advice for firefighters

Fire Fighting	<ul style="list-style-type: none">▶ Alert Fire Brigade and tell them location and nature of hazard.▶ Wear breathing apparatus plus protective gloves in the event of a fire.▶ Prevent, by any means available, spillage from entering drains or water courses.▶ Use fire fighting procedures suitable for surrounding area.
Fire/Explosion Hazard	<ul style="list-style-type: none">▶ Solid which exhibits difficult combustion or is difficult to ignite.▶ Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion.▶ Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust (420 micron or less) may burn rapidly and fiercely if ignited; once initiated larger particles up to 1400 microns diameter will contribute to the propagation of an explosion.▶ A dust explosion may release large quantities of gaseous products; this in turn creates a subsequent pressure rise of explosive force capable of damaging plant and buildings and injuring people. Combustion products include; carbon monoxide (CO) carbon dioxide (CO2) silicon dioxide (SiO2) metal oxides other pyrolysis products typical of burning organic material

Continued...

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Minor Spills	<ul style="list-style-type: none"> ▶ Remove all ignition sources. ▶ Clean up all spills immediately. ▶ Avoid contact with skin and eyes. ▶ Control personal contact with the substance, by using protective equipment.
Major Spills	<p>Moderate hazard.</p> <ul style="list-style-type: none"> ▶ CAUTION: Advise personnel in area. ▶ Alert Emergency Services and tell them location and nature of hazard. ▶ Control personal contact by wearing protective clothing.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	<ul style="list-style-type: none"> ▶ Hazard relates to dust released by cutting, grinding, trimming or other shaping operations. ▶ Avoid generating and breathing dust ▶ Avoid contact with skin and eyes. ▶ Wear nominated personal protective equipment when handling. ▶ Use in a well-ventilated area. ▶ Use good occupational work practices. ▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.
Other information	<ul style="list-style-type: none"> ▶ Store in original containers. ▶ Keep containers securely sealed. ▶ Store in a cool, dry, well-ventilated area. ▶ Store away from incompatible materials and foodstuff containers.

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▶ Polyethylene or polypropylene container. ▶ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	None known

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	silica crystalline - quartz	Silica - Crystalline: Quartz (respirable dust) / Quartz (respirable dust)	0.1 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	crystalalite	Silica - Crystalline: Cristobalite (respirable dust) / Cristobalite (respirable dust)	0.1 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	styrene	Styrene, monomer	213 mg/m3 / 50 ppm	426 mg/m3 / 100 ppm	Not Available	Not Available

EMERGENCY LIMITS


Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
silica crystalline - quartz	Silica, crystalline-quartz; (Silicon dioxide)	0.025 mg/m3	0.025 mg/m3	0.025 mg/m3
crystalalite	Cristobalite	0.075 mg/m3	0.41 mg/m3	41 mg/m3
styrene	Styrene	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
silica crystalline - quartz	N.E. mg/m3 / N.E. ppm	50 mg/m3
crystalalite	N.E. mg/m3 / N.E. ppm	25 mg/m3
polyester resin	Not Available	Not Available
styrene	5,000 ppm	700 ppm
pigments and additives	Not Available	Not Available

Exposure controls

Appropriate engineering controls	<p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.</p> <p>The basic types of engineering controls are:</p> <ul style="list-style-type: none"> Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.
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Continued...

Personal protection	
Eye and face protection	No special equipment required due to the physical form of the product. However when cutting or sanding, safety glasses may be required.
Skin protection	See Hand protection below
Hands/feet protection	No special equipment needed when handling small quantities However when cutting or sanding, light weight rubber gloves may be required Wear safety footwear.
Body protection	See Other protection below
Other protection	<ul style="list-style-type: none"> ▶ Loose fitting protective clothing, eg overalls/ long sleeve shirts. ▶ When working above head height, use head covering, dust mask and goggles. ▶ Minimise dust generation by using sharp hand cutting tools if possible. ▶ Powered tools (eg saws etc.) should only be used if fitted with dust extraction and containment equipment.
Thermal hazards	Not Available

Recommended material(s)**GLOVE SELECTION INDEX**

Glove selection is based on a modified presentation of the:
"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection:
essastone

Material	CPI
PE/EVAL/PE	A
PVA	A
TEFLON	A
NATURAL RUBBER	C
NITRILE	C
NITRILE+PVC	C
PVC	C
SARANEX-23	C

* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

Respiratory protection

Type A-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	A P1 Air-line*	-	A PAPR-P1 -
up to 50 x ES	Air-line**	A P2	A PAPR-P2
up to 100 x ES	-	A P3	-
		Air-line*	-
100+ x ES	-	Air-line**	A PAPR-P3

* - Negative pressure demand ** - Continuous flow

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO₂), G = Agricultural chemicals, K = Ammonia(NH₃), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES**Information on basic physical and chemical properties**

Appearance	Polished solid sheets and shaped articles.		
Physical state	Solid	Relative density (Water = 1)	Not Available
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Applicable
pH (as supplied)	Not Applicable	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Applicable	Viscosity (cSt)	Not Applicable
Initial boiling point and boiling range (°C)	Not Applicable	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	Not Applicable	Taste	Not Available
Evaporation rate	Not Applicable	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Applicable	Surface Tension (dyn/cm or mN/m)	Not Applicable
Lower Explosive Limit (%)	Not Applicable	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Applicable	Gas group	Not Available
Solubility in water (g/L)	Immiscible	pH as a solution (1%)	Not Applicable

Continued...

Vapour density (Air = 1)	Not Applicable	VOC g/L	Not Available
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SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	<ul style="list-style-type: none"> ▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable. ▶ Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of dusts, or fumes, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress. Acute silicosis occurs under conditions of extremely high silica dust exposure particularly when the particle size of the dust is small. The disease is rapidly progressive and spreads widely through the lungs within months of the initial exposure and causing death within 1 to 2 years. Effects on lungs are significantly enhanced in the presence of respirable particles. <ul style="list-style-type: none"> ▶ Hazard relates to dust released by cutting, grinding, trimming or other shaping operations.
Ingestion	The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. Not normally a hazard due to the physical form of product. The material is a physical irritant to the gastro-intestinal tract
Skin Contact	The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.
Eye	There is some evidence to suggest that this material can cause eye irritation and damage in some persons.
Chronic	Harmful: danger of serious damage to health by prolonged exposure through inhalation. This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Crystalline silicas activate the inflammatory response of white blood cells after they injure the lung epithelium. Chronic exposure to crystalline silicas reduces lung capacity and predisposes to chest infections. Overexposure to respirable dust may cause coughing, wheezing, difficulty in breathing and impaired lung function. Chronic symptoms may include decreased vital lung capacity, chest infections. Repeated exposures, in an occupational setting, to high levels of fine- divided dusts may produce a condition known as pneumoconiosis which is the lodgement of any inhaled dusts in the lung irrespective of the effect. This is particularly true when a significant number of particles less than 0.5 microns (1/50,000 inch), are present. Lung shadows are seen in the X-ray. <ul style="list-style-type: none"> ▶ Hazard relates to dust released by cutting, grinding, trimming or other shaping operations.

essastone	TOXICITY	IRRITATION
	Not Available	Not Available
silica crystalline - quartz	TOXICITY	IRRITATION
	Not Available	Nil reported
cristobalite	TOXICITY	IRRITATION
	Not Available	Not Available
styrene	TOXICITY	IRRITATION
	dermal (rat) LD50: >2000 mg/kg ^[1]	Eye (rabbit): 100 mg/24h - moderate
	Inhalation (rat) LC50: 11.8 mg/L/4h ^[2]	Eye (rabbit): 100 mg/24h - moderate
	Inhalation (rat) LC50: 24 mg/L/4h ^[2]	Skin (rabbit): 500 mg - mild
	Inhalation (rat) LC50: 2770 ppm/4h ^[2]	Skin (rabbit): 500 mg - mild
Oral (rat) LD50: 2650 mg/kgd ^[2]		
Legend:	1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. * Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances	

CRISTOBALITE	Inhalation (human) TLo: 16 mppcf/8H/17.9y-I * Millions of particles per cubic foot
STYRENE	The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.
SILICA CRYSTALLINE - QUARTZ & CRISTOBALITE	WARNING: For inhalation exposure <u>ONLY</u> : This substance has been classified by the IARC as Group 1: CARCINOGENIC TO HUMANS The International Agency for Research on Cancer (IARC) has classified occupational exposures to respirable (<5 um) crystalline silica as being carcinogenic to humans . This classification is based on what IARC considered sufficient evidence from epidemiological studies of humans for the

Continued...

essastone

carcinogenicity of inhaled silica in the forms of quartz and cristobalite. Crystalline silica is also known to cause silicosis, a non-cancerous lung disease. Intermittent exposure produces; focal fibrosis, (pneumoconiosis), cough, dyspnoea, liver tumours.

Acute Toxicity	⊖	Carcinogenicity	⊖
Skin Irritation/Corrosion	⊖	Reproductivity	⊖
Serious Eye Damage/Irritation	⊖	STOT - Single Exposure	⊖
Respiratory or Skin sensitisation	⊖	STOT - Repeated Exposure	⊖
Mutagenicity	⊖	Aspiration Hazard	⊖

Legend: ✘ – Data available but does not fill the criteria for classification
✔ – Data required to make classification available
⊖ – Data Not Available to make classification

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

Ingredient	Endpoint	Test Duration (hr)	Species	Value	Source
styrene	EC50	96	Algae or other aquatic plants	0.72mg/L	4
styrene	LC50	96	Fish	0.0040203mg/L	4
styrene	EC10	96	Algae or other aquatic plants	=0.13mg/L	1
styrene	EC50	48	Crustacea	4.7mg/L	5
styrene	NOEC	168	Crustacea	0.00006mg/L	2

Legend:

Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

For Silica:

Environmental Fate: Most documentation on the fate of silica in the environment concerns dissolved silica, in the aquatic environment, regardless of origin, (man-made or natural), or structure, (crystalline or amorphous).

Terrestrial Fate: Silicon makes up 25.7% of the Earth's crust, by weight, and is the second most abundant element, being exceeded only by oxygen. Silicon is not found free in nature, but occurs chiefly as the oxide and as silicates. Once released into the environment, no distinction can be made between the initial forms of silica.

For Metal:

Atmospheric Fate - Metal-containing inorganic substances generally have negligible vapour pressure and are not expected to partition to air.

Environmental Fate: Environmental processes, such as oxidation, the presence of acids or bases and microbiological processes, may transform insoluble metals to more soluble ionic forms.

Environmental processes may enhance bioavailability and may also be important in changing solubilities.

Aquatic/Terrestrial Fate: When released to dry soil, most metals will exhibit limited mobility and remain in the upper layer; some will leach locally into ground water and/ or surface water ecosystems when soaked by rain or melt ice. A metal ion is considered infinitely persistent because it cannot degrade further.

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
styrene	HIGH (Half-life = 210 days)	LOW (Half-life = 0.3 days)

Bioaccumulative potential

Ingredient	Bioaccumulation
styrene	LOW (BCF = 77)

Mobility in soil

Ingredient	Mobility
styrene	LOW (KOC = 517.8)

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal	<ul style="list-style-type: none">▶ DO NOT allow wash water from cleaning or process equipment to enter drains.▶ It may be necessary to collect all wash water for treatment before disposal.▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.▶ Where in doubt contact the responsible authority.▶ Recycle wherever possible.▶ Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.▶ Dispose of by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or Incineration in a licenced apparatus (after admixture with suitable combustible material)▶ Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.
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SECTION 14 TRANSPORT INFORMATION

Labels Required

Marine Pollutant	NO
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HAZCHEM Not Applicable

Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS****Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS****Transport in bulk according to Annex II of MARPOL and the IBC code**

Source	Ingredient	Pollution Category
IMO MARPOL (Annex II) - List of Noxious Liquid Substances Carried in Bulk	styrene	Y

SECTION 15 REGULATORY INFORMATION**Safety, health and environmental regulations / legislation specific for the substance or mixture****SILICA CRYSTALLINE - QUARTZ(14808-60-7) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

Australia Exposure Standards Australia Hazardous Substances Information System - Consolidated Lists	Australia Inventory of Chemical Substances (AICS) International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
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CRISTOBALITE(14664-46-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards Australia Hazardous Substances Information System - Consolidated Lists Australia Inventory of Chemical Substances (AICS)	International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft
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STYRENE(100-42-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards Australia Hazardous Substances Information System - Consolidated Lists Australia Inventory of Chemical Substances (AICS)	International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft
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National Inventory	Status
Australia - AICS	Y
Canada - DSL	Y
Canada - NDSL	N (styrene; silica crystalline - quartz; cristobalite)
China - IECSC	Y
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	Y
Korea - KECL	Y
New Zealand - NZIoC	Y
Philippines - PICCS	Y
USA - TSCA	Y
Legend:	Y = All ingredients are on the inventory N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)

SECTION 16 OTHER INFORMATION**Other information****Ingredients with multiple cas numbers**

Name	CAS No
silica crystalline - quartz	122304-48-7, 122304-49-8, 12425-26-2, 1317-79-9, 14808-60-7, 70594-95-5, 87347-84-0

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:
www.chemwatch.net

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Definitions and abbreviations

PC – TWA: Permissible Concentration-Time Weighted Average
PC – STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit,
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level

Continued...

LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index

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