

COMPOSITE SOLID SURFACES

INSTALLATION & FABRICATION MANUAL

 **minerelle**[™]
the finishing touch



Introduction

The purpose of this manual is to assist the fabricator or kitchen installer who has experience in installing laminate worktops, to be successful in the installation of Composite Solid Surface work surfaces and components.

This short booklet and guide is designed to cover the installation and fabrication of “Composite” type worktops which are supplied in “blank” standard lengths and bonded to a core.

Products from various manufacturers which are sold under different brands such as “Artis – Smartstone”, “Bushboard – Encore”, “Resaccs – Minerelle”, “Sylmar – Maia” and “Westag – Getacore”, are well known brands and accepted products in the kitchen and bathroom markets. These products are similar in their final composition and although each manufacturer has their own installation and fabrication guide, the following techniques are tried and tested with Minerelle Solid surface worktops and can be used as a sensible guide to all of the above brands. Apologies to brands that have been left off this list!

I hope that you take the time to read this installation and Fabrication Manual and that its contents help you in gaining the knowledge needed to install Solid Surface worktops and products.

Health & Safety

Solid Surface materials pose no identified hazards to health & safety; however it is important to follow all safety rules and apply good safety techniques when working with tools, adhesives and other products to make sure that workers remain safe. Sanding creates a “nuisance dust” and causes more of a mess than anything else. Employers have a duty of care to ensure that they have completed a risk assessment and that their employees are aware of potential risks and hazards. Material Safety Data Sheets are available for all items such as solid surfaces, adhesives, polishes etc. and will be supplied by the respective manufacturers.

Carrying & Product Weight

These products can be very heavy and therefore care needs to be taken when carrying these items. Some 4.1mtr lengths of Composite Solid Surface with a chipboard core can weigh as much as 100kgs.

Care should be taken when carrying sheet material in winter as the cold makes the products more brittle and prone to damage when flexed.

Always carry on their sides to minimise flexing, as they are rigid products and may snap if carried horizontally.



Preparing the Site



Solid Surfaces are batch produced therefore; **check the colour match of all tops to be joined.**

Butt tops to be joined against each other, lightly sand a small area on both worktops and wipe with a clean wet cloth. Check the colour in good lighting conditions. Manufacturers will generally replace mismatched products, provided they have not been cut or installed – this could be a worthwhile and money saving check!

Ensure that everything is available to complete the installation. Unpack the worktop units and check that site dimensions are corresponding with any drawings. Ensure that the carcass components are not only installed

properly but they are also joined to the wall. Check that the units are plumbed and are leveled in both the directions. Check to ensure that any cut-outs are accurate and in the correct place to ensure a great fit.

It's always a good idea to check with the Solid Surface supplier if there are any questions regarding product installation.

Securing the site

The temperature at the installation area should be adjusted accordingly. If the temperature is cold then it will take longer to cure the adhesive but if the temperature is too high the curing process may happen too quickly to use. Keep the temperature between 15°C & 23°C

Joint placement and Layout

When ready to install worktops it is important to know where appliances are placed to locate position of joints. Solid Surface is fantastic way to obtain a seamless look to the worktop, which is why it is very important to take accurate measurements. If the length is longer than the worktops, butt joints may be used to accommodate the customized length.

Before installing the worktops make sure that all joints are located. To ensure a perfect fit, all joints must be located before installation and you must have a minimum offset of 100mm from cut-outs, including dishwasher space



Tools Required

In order to prepare for a successful installation, keep the following list of tools on hand. All of the tools listed are general tools required when installing laminate worktops, except for the random orbital sander with a separate dust extraction and the specified jointing adhesive systems.

- Random Orbital sander with dust extraction unit
- Router & Cutters
- Hand drill
- Worktop Jig, If a mitered joint is specified
- Sand paper and sander based on the finishing and seaming instructions
- Jig saw
- Dust mask & Safety glasses
- Dust sheets
- Heat Reflective Tape & Heat reflective Foil Sheet / Dishwasher heat reflective plate
- Seaming adhesive & applicator gun
- Masking tape
- Silicone sealant
- Jointing bolts, (3 per 650 mm joint)
- Joining biscuits, (4 per 650 mm joint)
- Denatured alcohol & Clean white rags / Denatured alcohol wipes
- Clamps, 'G' & 'A'

Routers & Cutters

When installing Solid Surface worktops, a durable and sturdy router that can cope with the generated dust is required. To have sufficient power and complete tasks such as butt & scribe joints, edge dressing, hob and sink cut-outs requires around 1600 – 2100 watts with a minimum rotation speed of 18,000 rpm. It is advisable to have dust extraction capability.

Router cutters should be top-quality tungsten carbide double fluted blades with a 12mm shank. 6mm grooving saws need to be at least 4-wing with solid arbour support. The support should have a 12mm shank which will prevent any “chatter” in use.

Sanders & Finishing

Sanders must be “Random Orbital” to ensure a good finish. Sanders must have a minimum speed of 10,000 rpm with a 3/32 inch orbit and a 150mm diameter sanding pad. There are several grit sizes to choose from but for the majority of installations, the main considerations should be that you use perforated discs which match the extraction and dimension features of the backing pad: Although different manufacturers suggest different grits and grades, the following works extremely well

- 180 grit for getting rid of deep marks and adhesive bead
- 240 & 320 grit for the finishing
- Grey Scuff pads & finishing compound for the surface finishing

The sander needs to have dust extraction as this will enhance the cutting ability of the sanding discs and ensure a uniform finish. Festool sanders and extraction units are recommended for their durability and performance by almost all Solid Surfaces manufacturers.

Table & Circular Saws

It is preferable to cut to “near length” using a sliding table saw to crosscut and create a fresh length. The saw will provide a chip free cut that is required in order to have a fine edge dressing provided that a triple chip, tungsten-carbide tipped (TCT) blade is used and that the worktop is cut slowly. A 260mm/300 mm diameter with 60/72 teeth is recommended. A circular saw (hand held) led along a dead straight line on the edge, held by a clamp to the Solid Surface worktop can be used onsite. Allow for the process of end capping when cross cutting worktops to length.

Jig Saws

A jig saw can be used to customise the Solid Surface worktops. To ensure that the rest of the surface does not become scratched while using the saw, cover the entire area to be cut with good quality masking tape, which will also help to stay on the right line. Jig saw blades will need to be replaced more frequently when cutting Solid Surfaces due to the hard composite structure.

Note: Ensure that the blade used to cut the surface is very sharp to lessen the chances of chipping the other part of the surface. Hand held saws (irrespective of what type) are not for the final finishing edge, the router does that.

Edge Bonding & Formation of Radius Corners

Edging, re-edging and formation of radii should all be completed before worktops are cut to final length and installed.

For special edges that are not “standard” corners, it is possible to form some Solid Surface edging strips into a radius edge to fit. For tight corners up to 250mm radius, heat the edge strip for 45- 60 seconds in boiling water before quickly clamping to the edge to form the curve. In most cases, it is only possible to do this once.

The clamping needs to be done quickly before the material loses its heat and flexibility.

Once cooled, the edge strip will remain in the shape of the curve ready for bonding in the same way as a straight edging strip. To bond edging strips, ensure that you have cleaned the Solid Surface with the appropriate cleaner & wipe. Do not use substitutes – which may contain dyes and oils.

It's important to keep a note and record of the adhesive colours and batch numbers that are used. Ensure that they are the correct match for the pattern of the worktops to be installed. It is recommended to ensure sufficient adhesive is applied, therefore as a rule of thumb guide; every 50ml cartridge will seam one 650mm - 900mm joint or edging strip. Always remove the mix tube and replace the cap after every application if you intend to use the cartridge more than once.

Exude some adhesive onto spare card / paper into a bead of around 50-75mm to ensure even mixing. Apply 3 adhesive beads to the edging strip and ensure even coverage by spreading with a spatula. Press the edge strip into its position and clamp securely with “A” clamps every 10cm.

Edge Bonding & Formation of Radius Corners

Ensuring there is an overhang on top and bottom of the worktop and that there is an adhesive bead expelled along the length of the joint. Leave until set which in normal conditions should be around 45 minutes. When the adhesive has hardened, the excess amount of material can be trimmed with a laminate trimmer and or sanded. The underside should be sanded flush with 180grit sandpaper. A radius edge will need to be formed which matches the profile of the factory fitted edge(s). This can be done with a hand held router / profiler or sanded by hand.

Note: The top surface and front edge should be finished in the same manner as the sequence described in the “Butt & Scribe Joints” section.

Hob & Sink Cut outs

Cut outs are done in generally the same manner as would be completed with a laminate worktop. The main exception is that the Solid Surface on the cut out edge should be chamfered smooth and rounded slightly with a piece of 180grit sandpaper.



There are a few things to keep in mind:

- Care should be taken when handling worktops after a cut out has been formed to prevent “snapping”
 - Do not allow a joint seam to expand into a cut out. You must set this off from all the cut outs by a minimum of 100mm
 - A jig saw can be used for the initial rough cut, but use a router to create the final dimension of the cut out
 - For All cut outs, ensure all corners have a minimum 8mm radius and that there are no sharp angles or cuts, by sanding the edges.
- Sanding and polishing around the cut outs is best performed at this stage before any items are inserted.
 - For Hob cut outs, apply an aluminium heat reflective tape the entire rim. Ensure there is an equal rim on the top and bottom edge of the worktop.
 - Seal the hob to the surface with good quality heat resistant sealant, Some sponge type seals supplied with hobs do not provide heat or moisture protection and if used on their own, could cause later problems.

For Sink cut outs,

- Ensure that all core materials are sealed with good quality silicone sealant – PVA does not make a long lasting seal.
- Use a spatula to spread the adhesive and ensure even and complete coverage
- Sinks should have a good bead of sealant around the edge where it is in contact with the Solid Surface
- Seal any core material at the back edge of the worktop behind the sink with good quality silicone sealant and spread evenly to ensure an even and complete coverage



Butt & Scribe Joints

When Solid Surface worktops are customized at the final length it is worth-while to lay out the worktop in order to verify the final length. When the directions specify a butt & scribe joint, standard worktop butt & scribe jig can be used. Router in the dog-bone recesses to a ½ depth of the worktop plus an addition 5mm. This will allow level pull by the dogbolts on the entire surface. You will also need to use 4 evenly spaced dados that can be made with a biscuit joiner and a #20 biscuit to help align and strengthen the joint. These should be cut at ½ the depth of the worktop thickness and aligned on either side of the dogbolts.

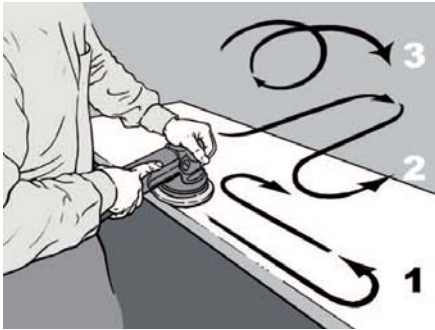
There are a few things to keep in mind:

- If using a new router cutter - rub the oil film off (using prescribed cleaning method) so as not to contaminate the joint
- Check for a good “dry fit” before bonding the surfaces
- Clean any dust, markings, and remove the grease (using prescribed cleaning method) so as not to contaminate the joint. Ensure no pencil marks are present - If not cleaned properly they can add dark shadow to the joint.
- Once edges have been cleaned do not touch them.

Apply 3 Beads of adhesive in the same manner as described in the “Edge bonding and formation” section. Insert biscuits into recesses and *where required, apply spacersⁱ over biscuits and cover with adhesive (*see manufacturers guidance). You will have between 5 & 7 minutes to bolt the joint together and carry out any final alterations necessary before it is complete. When drawing the joint tighter, ensure that you align the front profile correctly. Ensure that the surface is flat and level before leaving it to cure. There needs to be a bead of excess adhesive along the joint, however you should remove it from the 90 degree joint on the front inside corner by scraping off with a piece of square card, plastic or wood. Leave until set which in normal conditions should be around 45 minutes.

Finishing

To sand off the adhesive in the joint, use the random orbital sander with 180grit sanding disc. Sand the adhesive until it is almost flat to the worktop. Clean the area with a dry cloth and repeat using a 240grit sanding disk to flatten the adhesive to the same level as the worktop surface.



Clean the area with a dry cloth and repeat using a 320grit sanding disk to remove sanding marks and then continue over the entire surface of the worktop to ensure an even finish. Sanding should be completed in a north south then east west direction over the entire surface. Be sure to keep a light but even pressure on the sander and keep the sander moving to prevent heat buildup and localised patching. At this stage sand out any scratches caused during installation.

Next you need to buff with the random orbital sander using the grey abrasive pad and polishing compoundⁱⁱ. Spread the compound lightly and evenly over a 2 linear metre length and then buff with random orbital sander and pad in the same manner as the 320grit sanding stage, until the polish leaves a dull dry residue on the worksurface. Continue in 2 linear metre sections until the entire worktop has been polished. Repeat the buffing stage with a clean dry grey abrasive pad over the entire worksurface until an even finish is achieved.

The finishing touch is to apply the surface spray, which will help make cleaning easier for the consumer. After the polishing stage is complete, wipe down the surface with a damp cloth to remove any polishing residue. Buff up with a dry cloth and leave a short while to dry. Apply a mist coat of finishing spray; rub in with a Microfibre cloth and then buff up with a dry microfiber cloth. The surface should have a silky smooth finish and the installation process is complete.

Splashbacks & Upstands

Matching Splashbacks and Upstands are available to compliment the look of the work surfaces. These will need to be sanded and or finished to the same standard as worktops. They should in general need no more than finishing from 320grit stage if they have not been scratched prior to installation. Follow the finishing procedures until a satisfactory finish is achieved. If an exposed edge is to be seen, sand this and round off as desired prior to installation. A good quality PU adhesive is recommended for splashbacks and should be available from your distributor. A good quality Silicone sealant is sufficient for upstands.

Splashbacks

- Walls must be dry and dust free before installing splashbacks and upstands.
- Apply a vertical bead of adhesive every 300mm over the back of the splashback and “spot” in between before pushing flat against the wall to install.
- Use 12mm splashbacks behind hobs to minimize heat transfer through the splashback which will most likely affect the adhesive bond.

Upstands

- It is advisable due to the complex nature of finishing, that the use of seaming adhesive and “fixing” of upstands to the work surface should not be done. This is a method used by Corian® fitters and can be quite complex
- A simpler and effective method is to apply a bead of silicone along the back of the worktop and a “zigzag” pattern along the length of the upstand before pushing flat against the wall to install.

Repairing of damaged Solid Surfaces

Solid Surfaces are capable of being repaired in the event that they are somehow damaged. Any repairs should be conducted by a competent installer who can purchase a repair kit from the supplying distributor. The repair kit will provide all of the materials to match the solid surface pattern of the installed products. Full instructions are provided with the repair kit

Installation Kits

This manual, along with the correct sanding discs, polishing pads, heat reflective tape, cloths and finishing spray can be supplied in a Solid Surface Installation Kit which is available from the supplying distributor or directly from Minerelle Composites - www.minerelle.co.uk

Consumer After Care Kits

Finishing products including the correct finishing spray, cloths, scuff pads and detailed after care instructions can be supplied in a Consumer Care Kit which is available from the supplying distributor or directly from Minerelle Composites - www.minerelle.co.uk

Author

This manualⁱⁱⁱ has been written and edited by David Baxter of Minerelle Composites Limited who has over 30 years experience in supply of composite materials including the raw material selection and development of Solid Surface products. As a Senior Account Manager with Europe’s largest resin producer, he supplied raw materials and worked for Macy Panel Products, Macie Industries, Adcolim and Resaccs over a 6 year period, further developing the processes involved in the manufacturing and installation^{iv} of Minerelle until production ceased in late 2010. Minerelle was the first Composite Solid Surface product to be sold in the UK, which led the market in terms of unique design and colours, which were unmatched by any other supplier. Minerelle is a well established and known brand and although no longer in manufacture, Minerelle Composites was formed in January 2011 with the aim of offering support products and services to the Solid Surface Industry.

Details of products & services from Minerelle Composites Limited can be found at www.minerelle.co.uk

ⁱ This method was used with Minerelle worktops from January 2008 and almost eliminated all problems with “blown joints”.

ⁱⁱ This method is not used by all solid surface manufactures but is worth-while and provides a good base for the finishing spray

ⁱⁱⁱ Pictures and some text used in this manual have been used in previous Minerelle Installation and Fabrication manuals.

^{iv} The installation and fabrication techniques described within this document have been successfully used by the author when installing worktops, breakfast bars, inset and undermount sinks, gas and electric hobs, splashbacks, upstands and forming curved edges.