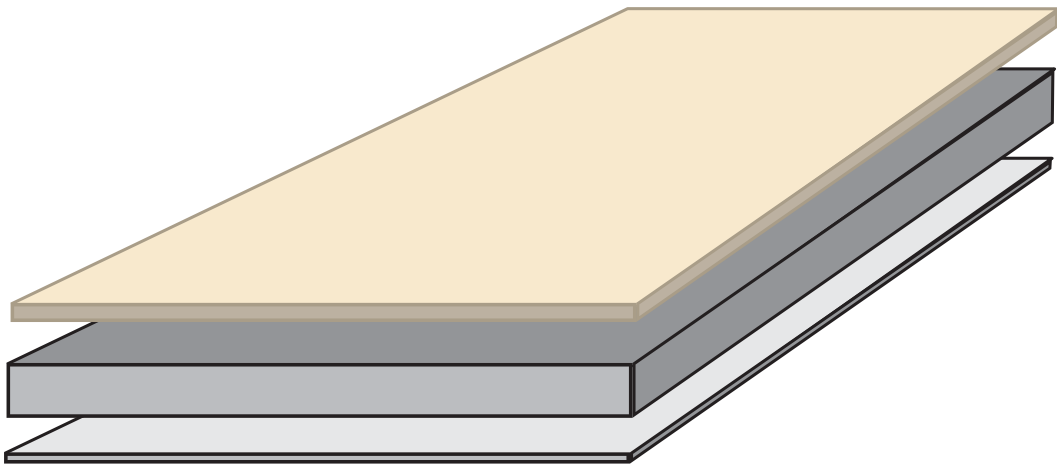


# AVONITE ADVANC3 INSTALLATION GUIDE



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## ADVANCE™ SURFACE: INTRODUCTION

ADVANCE™ is an enhanced acrylic product made from natural minerals blended with man-made resins for superior strength and stain resistance.

ADVANCE™ is bonded on a substrate and used predominately for commercial applications. ADVANCE™ incorporates all the sophistication of traditional solid surfacing in a material that is versatile, lightweight and cost effective. The finished product is indistinguishable from conventional solid surfacing. ADVANCE™ cannot be used where direct or indirect heat from heat producing appliances are present.

This fabrication manual has been produced to assist the ADVANCE™ fabricator and installer in methods of seaming, polishing and handling the ADVANCE™ product.

ADVANCE™ building and surfacing material is warranted to be free from defects at time of manufacture. Any materials found defective will be replaced promptly.

Information or references to application, code compliance or specific standards are provided for convenience only. The accuracy or suitability of any recommendations in this manual must be verified by the user and therefore Aristech Acrylics LLC disclaims any legal responsibility.

Enquiries relating to any product herein should be addressed to Aristech Acrylics LLC.

## PRODUCT DESCRIPTION

The information relating to the definition of terms and included in this brochure apply to ADVANCE™

ADVANCE™ is a polymethyl methacrylate resin with a mineral filler which is manufactured into flat sheets. They can be used for both functional and decorative applications and for panelling horizontal and vertical surfaces in the interior finishing sector.

The product type ADVANCE™ is generally applied to a base material as in the case of a laminate. The material is water-repellent, can be refurbished and produces an inconspicuous watertight connection between joints which virtually matches the strength of the sheets themselves.

## HANDLING

Always carry ADVANCE™ sheets vertically. Handle full-size sheets carefully to avoid breakage or injury. It is recommended that two people carry full-size sheets.

Be careful when moving ADVANCE™ material so as not to strike it against anything which would damage the decorative surface or the edges.

Always lift a ADVANCE™ assembly from one point to another. Never slide the panel on its decorative surface.

## STRESS CRACKING

### Causes of Stress Cracking

Stress cracking of ADVANCE™ material is caused by the concentration of stresses greater than the ADVANCE™ material can withstand.

These stresses can be caused by external forces such as loading or impacts, but are generally created by the normal dimensional movements of the ADVANCE™ assembly as it reacts to the surrounding environment.

### Controlling Stress Cracking

Controlling stress cracking can be easily accomplished by using fabricating techniques which recognize and moderate the dimensional movement and associated stresses in a ADVANCE™ assembly.

Allow the ADVANCE™ material and substrate to acclimate for at least 48 hours to the same ambient condition prior to fabrication. Optimum conditions are 75°F (24°C) and 45 to 55% relative humidity.

### Substrate Selection

The recommended cores for ADVANCE™ surfacing material fabrication are 45# density, industrial-grade particle board or medium density fiberboard (MDF).

**Do not use plywood, drywall (gypsum), plaster, concrete, solid laminate or underlayment.**

## PRODUCT APPLICATION

ADVANCE™ is recommended for commercial applications such as reception desks, dental labs, nurses' workstations etc. Due to its light weight, it is ideal for vertical commercial applications. ADVANCE™ is not warranted for benchtop applications where heat emitting appliances are installed. E.g. dishwashers, cooktops.

## SAWING/MILLING/DRILLING

When processing sheets only use approved, sharp carbide-tipped tools. Ensure that manual and stationary milling machines have an output of at least 1½ HP. For cutting rough contours circular saws with trapezoidal f at teeth (e.g. d = 300, 96 teeth) can be used.

### Do not use a jig saw!

**Drilling:** Ø ≤ 10 mm carbide-tipped bit 60°, pitched in shape  
Ø > 10 mm carbide-tipped bit, cylindrical head with short side heels

### Do not use screw or spade bits!

## TOOLS

Basic equipment necessary:

- Veneer press
- Glue roller with sponge cylinder
- Router/bench milling machine
- Carbide-tipped milling tools
- Carbide-tipped saw blades (trapezoidal f at tooth)
- Spring clamps/screw clamps
- Edge clamps
- Heat-set adhesive gun
- Orbital disc sander
- Light-colored clean cloths (lint-free)
- Denatured alcohol (non-oily)
- Sandpaper/abrasive web

## INSIDE CORNER FABRICATION

Radius inside corners as large as possible (1/8" (3.2mm) minimum). Inside corners required for cutouts, grills, electrical outlets, etc., must contain the stresses generated by the normal movement of the ADVANCE™ material. Radiusing the cutouts greatly reduces these stresses. The corner created by a 1/4" (6.4mm) diameter router bit should be sufficient.

## ADHESIVE BOND

The strength of the bond between the ADVANCE™ surfacing material and the substrate determines the amount of stress that may be transmitted to the substrate. Contact adhesives are the weakest of all recommended adhesives because of their elastomeric nature. PVAc (white or yellow glue) adhesives distribute much more of the stress to the substrate, making these assemblies more crack resistant.

When using contact adhesive, stress crack performance will be greatly improved if PVAc (white or yellow glue) is used at all inside corners.

## ADHESIVES

Two types of adhesives are used for bonding ADVANCE™ surfacing material to substrates: PVAc (white glue) and contact adhesive.

Of the two, PVAc is preferred. It dries clear and strong and results in thinner glue lines than contact adhesive, but it does require maintaining uniform pressure over the entire area until the glue is dry. (See *SURFACE BONDING*)

Contact adhesive or waterproof PVAc (yellow glue) is recommended where water resistance is required; however contact adhesive generally results in a more obvious glue line. Non-pigmented contact adhesive, such as ITW Sta'Put SPH Spray Grade Adhesive is recommended.

## FIRST AID PROCEDURES

ADVANCE™ material is non toxic and does not contain carcinogens; however, during fabrication such as sawing, routing and sanding, dust consisting of cured resin and filler is generated. This dust is classified as 'Nuisance Dust'.

### **Emergency and First Aid Procedures**

If the ADVANCE™ Adhesive resin or hardener contacts your skin, wash thoroughly with soap and warm water for 15 minutes. For eyes, immediately wash thoroughly with plenty of water for 15 minutes and consult a physician. In case of accidental ingestion, do not induce vomiting. Rinse mouth out with water, then sip 2 glasses of water. If vomiting occurs spontaneously, keep head below hips (if sitting) or to the side (if lying down). Immediately consult a physician or your local poison control center, identifying the contents of the joining adhesive.

### **Skin or Eye**

Nuisance dust may cause irritation. Wash skin and flush eyes with water for at least 15 minutes. Contact physician if irritation persists.

**Inhalation**

Overexposure to nuisance dust may cause irritation of the respiratory tract. Should this happen, remove the affected individual to an area of fresh air. If symptoms persist, consult a physician.

During thermoforming the material will release some traces of methyl methacrylate and butyl acrylate. This may also happen during extensive routing, where friction will create a build up of heat.

**Exposure Control Methods**

Provide sufficient ventilation and dust pick-up at saw, sander, drill or router to keep dust level below 10 mg/m<sup>3</sup> TWA (Time Weighted Average) for total dust, or provide and make mandatory the wearing of approved fitted dust respirators. Wear protective leather or cotton gloves, safety glasses and safety shoes when installing or fabricating ADVANCE™ material.

**Disposal Procedures**

Dust from fabrication operations is non-hazardous. Collect in impervious bags. Dispose of dust and scrap in accordance with local, state and federal regulations.

ADVANCE™ can easily be recycled and off-cuts can easily be renewed by joining and sanding to other works.

• FOR MORE COMPLETE INFORMATION REQUEST THE MATERIAL SAFETY DATA SHEET.

**CHECKLIST FOR PROCESSING****Base Material**

Standard particle sheets (density > 650 kg/m<sup>3</sup>), MDF. Only use base materials with a minimum thickness of 22mm. The use of thinner bases has to be tested before use.

**Reverse of Base Material (Backer)**

A laminated reverse is necessary to act as a vapor barrier for the base.

**Recommendation:** a thin non-decorative HPL phenolic resin core sheet approximately 0.7mm. Similar vapor barrier materials have to be tested before use.

**Adhesives and Glues**

Surface bonding: Franklin Quickset 1000 DEV and WA 3001

Edge bonding: Ultra-Bond G

This glue bonds: Solid Surfacing to Solid Surfacing

Solid Surfacing to wood

wood to wood

**Conditioning**

ADVANCE™ sheets have to be conditioned to the appropriate room climate before processing (temperature corresponding to base and future environment). The sheets are not sensitive to humidity.

**TRANSPORT AND STORAGE**

No special precautions need to be taken for transport and storage. According to the transport regulations the materials described here are not categorized as dangerous goods so no labelling is required.

For storage we recommend a stiff firm base (pallets) which allow the sheets to be laid down flat. Vertical storage on the longitudinal edge is possible when leaned against a flat surface (any curvature should be avoided). Caution: risk of breakage.

**SURFACE BONDING OF ADVANCE™**

Franklin Quickset 1000 DEV and WA 3001 can be used for bonding surfaces (face) and backer (reverse side). Quickset 1000 DEV and WA 3001 can be applied by spraying, by mechanical roller spreader or on small parts, by fine-toothed trowel. Coverage should be uniform across the entire surface to be laminated, and should be spread at 190 to 230 g/m<sup>2</sup>. Spread should be the same on both sides of the sheet, for face and backer gluing. Always use a backer sheet so that both face and back side of panel are covered with a moisture barrier to maintain flatness.

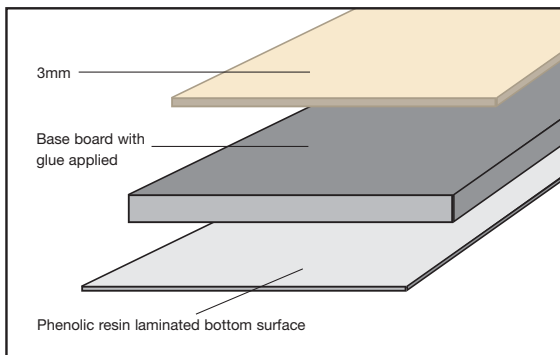
**Open time:** Should not exceed 5 minutes at 20° C.

**Compression temperature:** Ambient – take care to allow core sheet to acclimate to room temperature before gluing.

**Press:** Pressure should be 3.5 kgf/cm<sup>2</sup> (50 PSI)

**Compression time:** Press 30 minutes minimum. Transport horizontally, do not allow parts to bend or flex or the bond will be irreversibly disrupted.

Allow laminated parts to rest a minimum of one hour before further processing so adhesive can postset.


**ADVANCE™ ONLY PRE-BONDED PANEL BONDING PROCESS: ADHESIVE APPLICATION**

**Bonding ADVANCE™ with Cold Press PVAc Adhesive**  
ADVANCE™ can be bonded with cold press PVAc adhesives under specified conditions and with the recommended equipment. The approved procedures are listed below. In all cases, the substrate should be limited to Industrial grade HMR particle-board or MR MDF.

To ensure proper bond of ADVANCE™ to substrate, reference the technical data sheet for adhesive being used. A proper time frame for material handling is critical for optimum glue line performance.

Adhesive may be applied using a glue spreader. The spreader should be configured to apply an adhesive with a viscosity of approximately 2,000 cps to a wet film depth of 0.15 to 0.22mm.

A pinch roller may be used to laminate ADVANCE™ face to core sheet with pre-bonded backer.

- Apply adhesive on raw side of pre-laminated sheet using glue spreader.
- Index the ADVANCE™ face to the substrate.
- Pass the assembly through the pinch roller as soon as possible but not longer than one minute after the adhesive has been applied.
- Place the laminated material on a flat surface for at least two hours before moving the assembly in any manner that could result in the panel flexing and disrupting any portion of the developing bond.
- NOTE: Lifting of the sheet that causes flexing before the glue has set will irreversibly separate the bonded materials resulting in a bond failure.

**COLD PRESS LINE**

- The cold press pressure should be adjusted to 60 kPa/cm<sup>2</sup> (56 psi) across the panel surface.
- The panel should be pressed for 60 minutes. Panels can be removed from the press and handled after pressing.
- The adhesive should reach full strength in 24 hours. For best results, machining should occur after this interval.

**PRE-BONDED PANEL BONDING PROCESS: PERFORMANCE TIPS**

- “Open time” is the interval between the time the adhesive is spread and the time when the overlaminated is laid onto the adhesive. Allowable open time should not exceed 5 minutes at ambient temperatures with a spread of 190-230 g/m<sup>2</sup>. Check the adhesive technical data sheet for open time limits.
- Both substrate and ADVANCE™ should be stored indoors at room temperature for at least 48 hours before lamination. Storage or assembly in other conditions may later cause these materials to expand or contract.
- For best results, bonded materials should be installed in enclosed structures brought to room temperature.
- If ADVANCE™ adhesives are used properly, they will provide strong bonds. Improper techniques can cause bonds to fail.
- Please review Safety Data Sheets for proper handling instruction.

**PRE-BONDED PANEL BONDING****PROCESS: QUALITY CONTROL****Adhesive Bond Line**

The adhesive bond line should be measured on every press load. The glue line should be measured and recorded on the end, middle and opposite end of the panel. Panels should be tested on the bottom, center and top of the press load. The wet thickness specifications listed in the Adhesives Technical Information will assist the panel laminator in applying the correct amount of adhesive to the panel. The panel laminator might consider recording the results and forwarding them along with each press load shipment.

**Moisture Content of Substrate**

Most panel bonding stations have moisture content meters that measure the moisture content of substrates. This test can help minimize warpage of panels. The results of this test might be recorded and shipped with each press load.

**Press Time and Dead Stack Time**

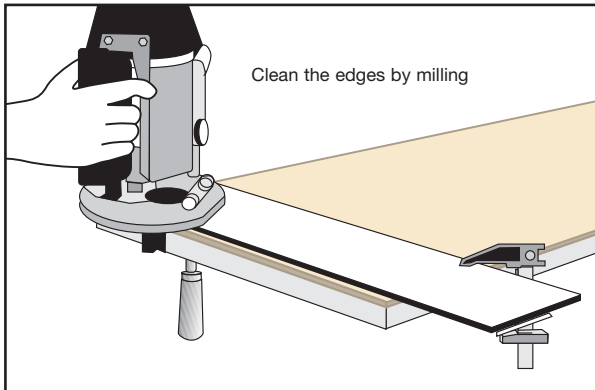
This information is critical to the success of the adhesive bond and could affect the glue bondline strength if a panel is removed from the press or handled prematurely. This could result in failure of an installation. The result for each press load should be recorded and filed with the panel laminator and/or reseller.

**Warpage Issues**

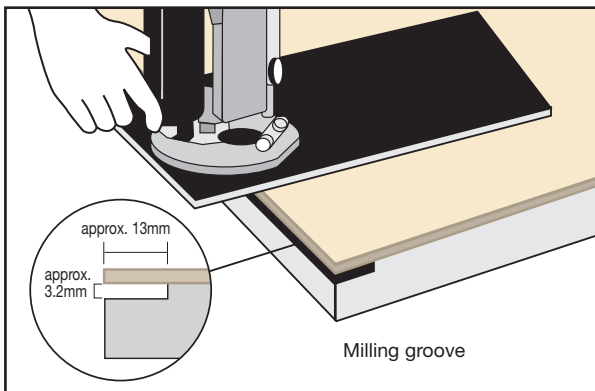
Each pre-bonded panel should be measured for warpage. Place the bonded panel on a flat table and inspect the ends of the panel. Next, measure the height from the table top to the bottom edge of the panel. This test should be done periodically to assure that a laid-up panel will stay flat in your market.

## SPLINE JOINT FOR ADVANCE™ SHEETS

When making joints it is essential to take the basic differences between the products 3mm and 12mm into account.



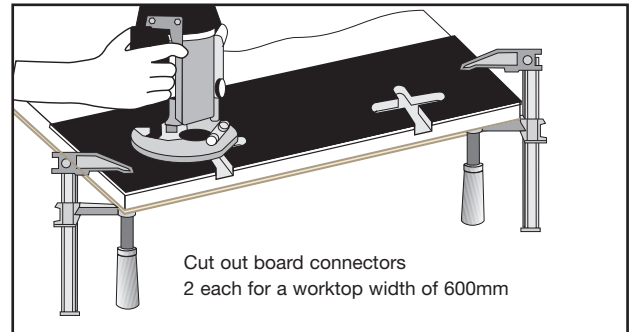
1. The element edges to be bonded together have to first be milled at right angles and then straight.



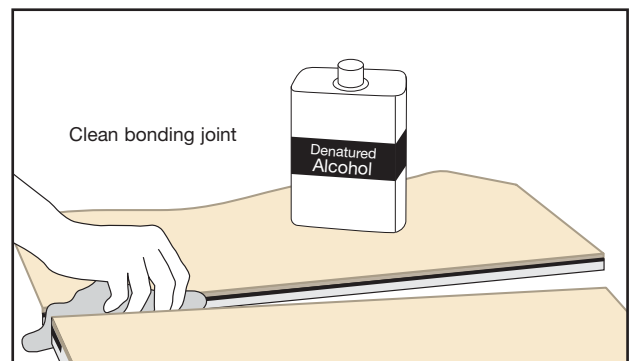
2. Use a grooving saw to make a groove (approximately 3.2mm) about 13mm in depth directly underneath the 3mm. When doing so no traces of surface glue should remain on the underside of the 3mm. Make a spline from excess 3mm. Splines should be 24mm wide. Dry fit the joint to insure adequate clearances.

*Tip: Mill from the top side to compensate for thickness tolerances and to reduce sanding to a minimum when joining together.*

**ADVANCE™ hard seams require spline reinforcement 2nd panel bolt connectors.**



3. Cut out the recesses for the worktop sheet connectors

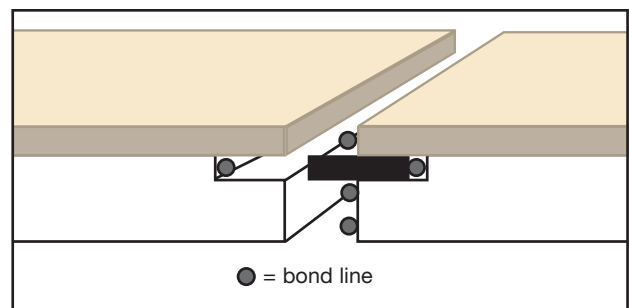


(2 each per worktop 600mm in width).

4. Clean the surfaces to be joined using denatured alcohol and allow to dry. Prepare worktop sheet connectors.

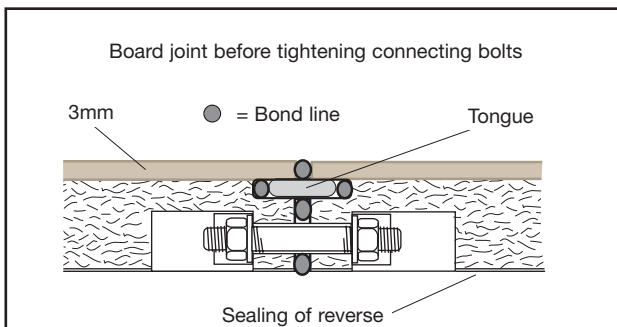
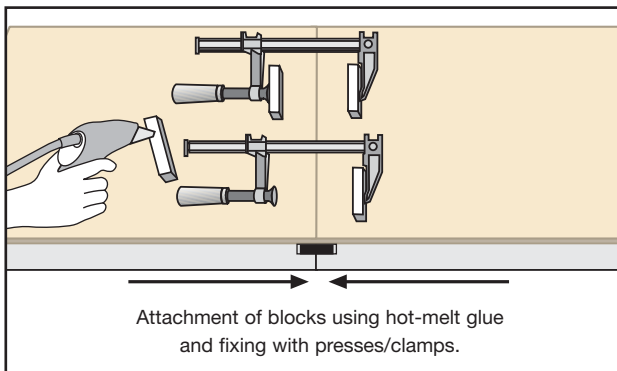
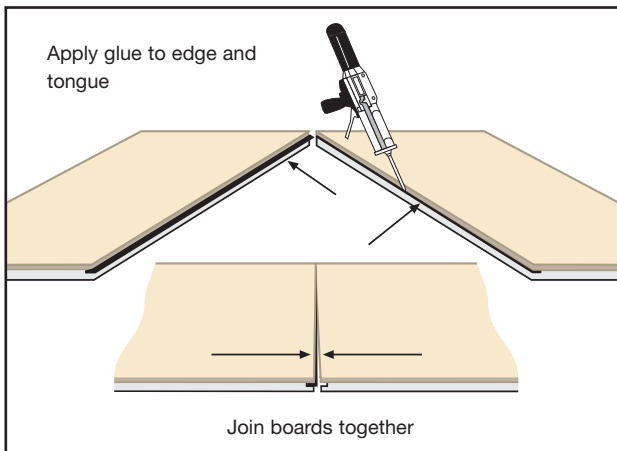
5. Apply glue as follows:

- Apply Ultra-Bond G Adhesive to one of the grooves
- Insert tongue and slide backwards and forwards slightly to distribute glue
- Apply Ultra-Bond G to edge of particle sheet and to second groove
- Apply extra strand of glue to top side so that an inconspicuous joint can be created
- Join sheets together



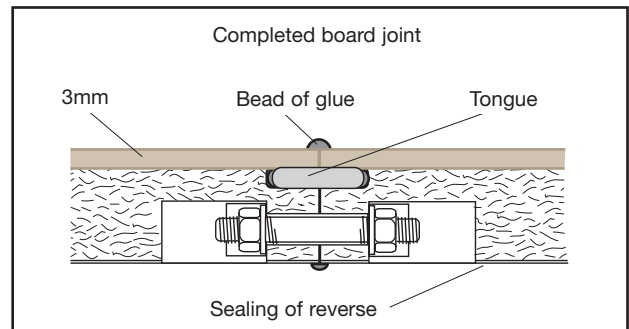


**PLEASE NOTE:** Accurately meter the amount of Ultra-Bond G in the grooves and leave sufficient space for the tongue so that the glue or the tongue does not hinder the joining process.

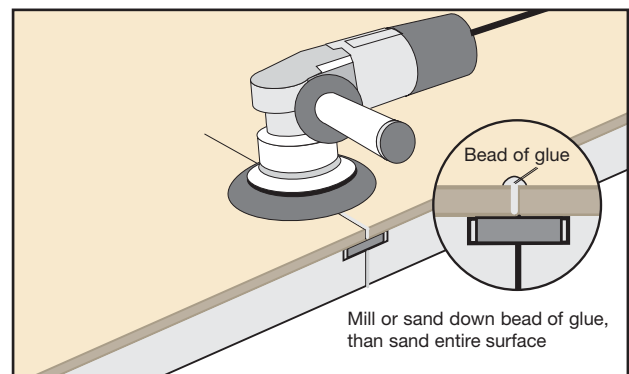


6. Insert sheet connectors and draw elements together. Under no circumstances should you do without the connectors, but the bonding can be additionally fixed as follows for support:
- Attach blocks made of wood to surface of sheets using melt adhesive.
  - Then fix connection in place using screw clamps or cramps.

**PLEASE NOTE:** Only fix in place, i.e. only hand-tighten (no compression force).

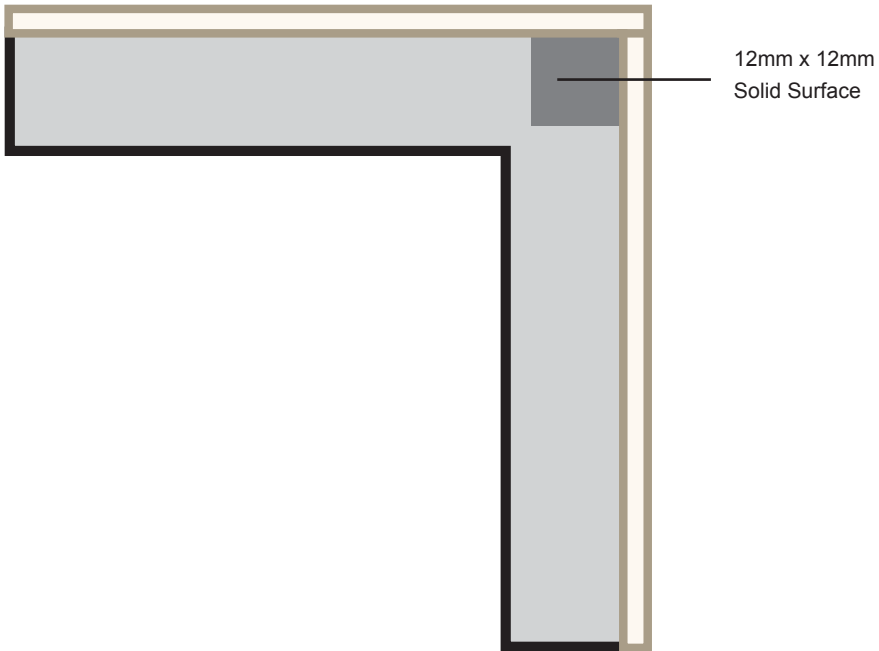


7. Allow glue to harden (approximately 30 to 45 minimum, fingernail test) and only then remove fixing devices.

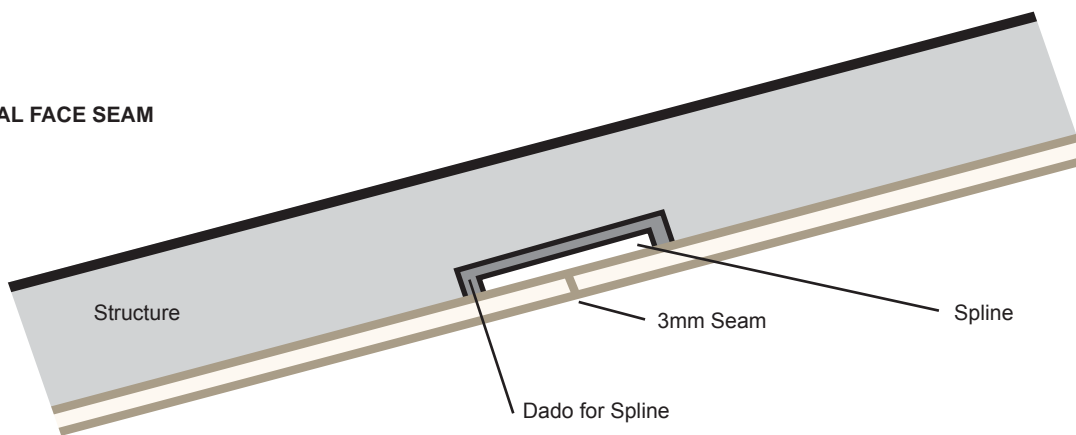


8. Mill or sand down edges so they are neat and flush. Finishing of the surface is preferably not carried out until the edges have been fitted including profiling.

## STRUCTURAL OUTSIDE CORNERS



## VERTICAL FACE SEAM



## CORNER CONNECTIONS

### General Information

1. First of all, clarify your customer's requirements and select the corner solution according to his wishes.
2. 3mm provide for different variants involving varying amounts of work and complying with differing aesthetic and visual requirements.
3. In regards to the amount of work involved, you should specifically keep in mind the following aspects:
  - required level of prefabrication (total costs, economic efficiency)
  - annual volume required (competitiveness!)
  - competency of fitters on site (e.g. milled cutouts)
  - transport facilities (e.g. size of L-shaped parts)
  - scope of installation (pure assembly or processing on site?)
  - customer's acceptance of dirt and soiling during processing
  - possibility of reusing installed parts (house removal, permanently elastic connection)

### Soft Seam: Permanently elastic connection (with silicone or polyurethane sealing compound) with ADVANCE™

#### Benefits:

- assembly as simple as laminate counters
- high level of prefabrication
- possibility of dismantling
- little processing required on site
- solution offering greatest economic efficiency
- high-quality aesthetic solution
- no waiting time while glue hardens (compared to Ultra-Bond G)

#### Consider:

- aesthetic requirements
- competency of fitters (milling of cutouts)

### Hard Seam: Bonded connection using Ultra-Bond G with ADVANCE™

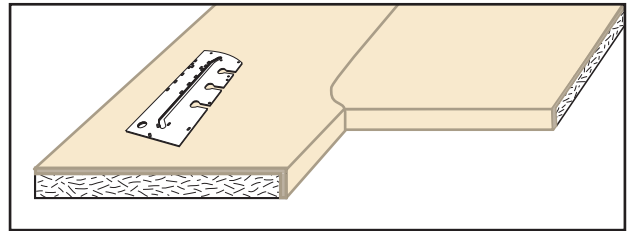
#### Benefits:

- inconspicuous joint connection
- very high-quality aesthetic solution

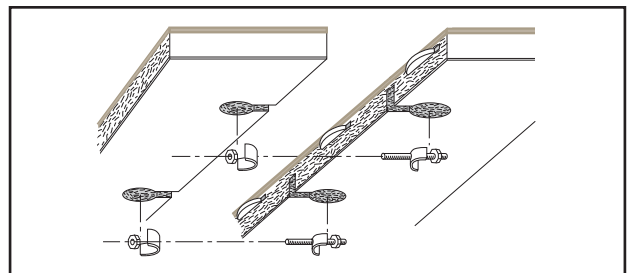
#### Consider:

- possibility of dismantling
- amount of work required on site
- skills of fitters (including bonding, cutouts, sanding)

### PERMANENT ELASTIC CORNER CONNECTION WITH ADVANCE™ SOLID SURFACING SHEET

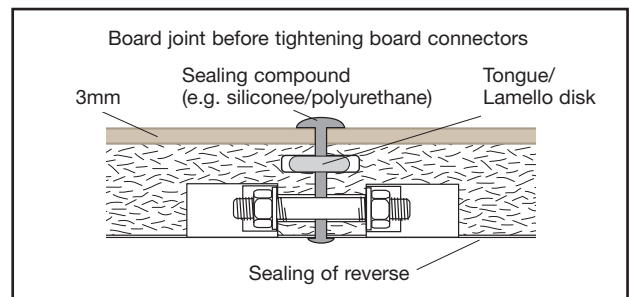


1. Create the corner connection using a template according to the measured angle as for a laminate worktop.



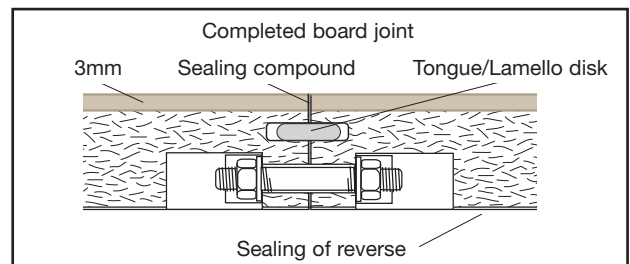
2. Cut out Biscuit Lamellos or tongue connections for an exact transition between surfaces.

3. Cut out worktop sheet connectors (2 each for 600mm width).



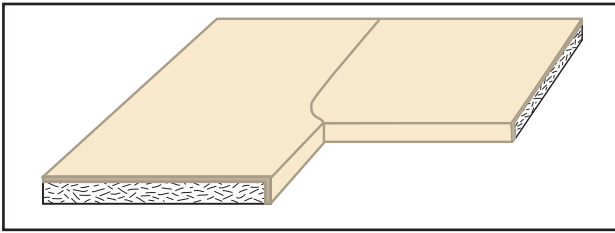
4. On site assembly is carried out using a sealing compound to seal the open edges of the particleboard (e.g. high-quality mould-free silicone or polyurethane sealing compound).

**Tip:** Good protection can be provided for the edge of the particleboard by also impregnating the open edge with clear varnish.

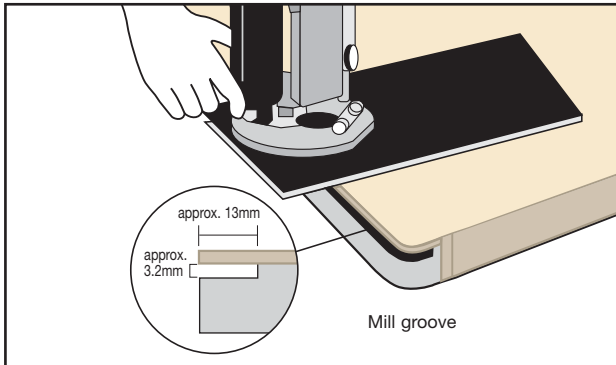


5. Remove surplus sealing compound and clean surface after hardening including after-treatment using a Scotch-Brite® sponge for matte and satin finishes.

## BONDED CORNER CONNECTION WITH ADVANCE™ SOLID SURFACING SHEET



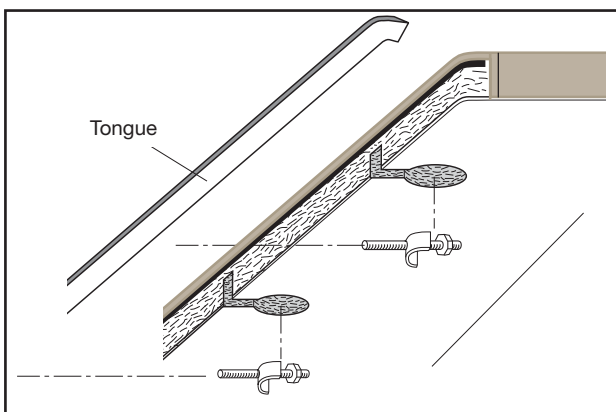
1. Create the corner connection using a template according to the measured angle as for a laminate worktop.



2. Rebate a groove (approximately 3.2mm) with a depth of approximately 13mm directly underneath the 3mm. It is important to ensure that no trace of surface glue remain on the 3mm sheet.

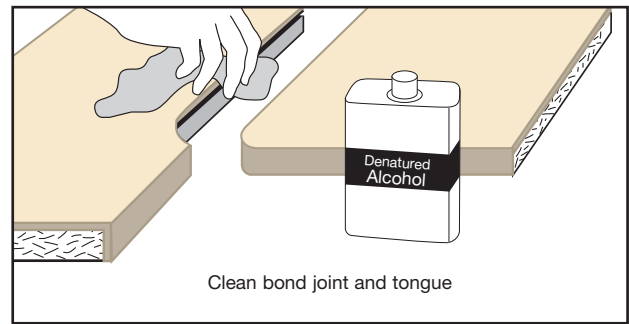
**PLEASE NOTE:** Allow the tongue to taper off towards the front edge to prevent a visible transition.

*Tip: Mill from the top side to compensate for thickness tolerances in the 3mm and to reduce sanding to a minimum when joining together.*



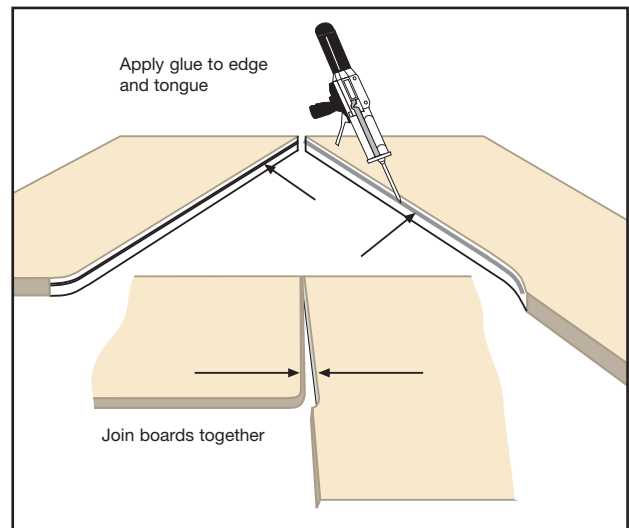
3. Make curved tongue from 3mm. Cut out worktop jointing bolts (2 each with 600mm width).

*Tip: The color of the tongue should match the surface side.*



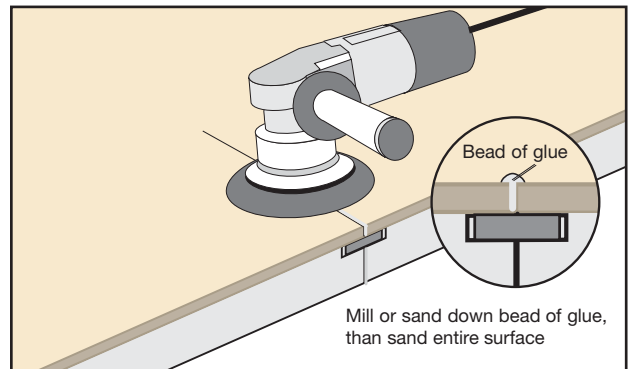
Clean bond joint and tongue

4. Clean the surfaces to be joined using denatured alcohol and allow to dry. Prepare worktop bolt connectors.



5. Apply glue as follows:

- Apply Ultra-Bond G to one of the grooves
- Insert tongue and slide backwards and forwards slightly to distribute glue
- Apply Ultra-Bond G to edge of particleboard and to second groove
- Apply extra strand of glue to top side so that an inconspicuous joint can be created
- Join sheets together



Mill or sand down bead of glue, than sand entire surface

**PLEASE NOTE:** Accurately apply the amount of Ultra-Bond G in the grooves and leave sufficient space so that the glue or the tongue does not hinder the joining process.

## GENERAL INFORMATION

- First of all bond the 3mm ADVANCE™ and only then start edging to ensure that a neat and inconspicuous joint is produced.

All edges of the workpiece have to be chamfered or rounded off to prevent any notching effects.

### Work area:

- Flat work surface.
- Keep work area clean, or clean in between milling and bonding processes.
- Ensure good ventilation.
- Comply with safety instructions and regulations.

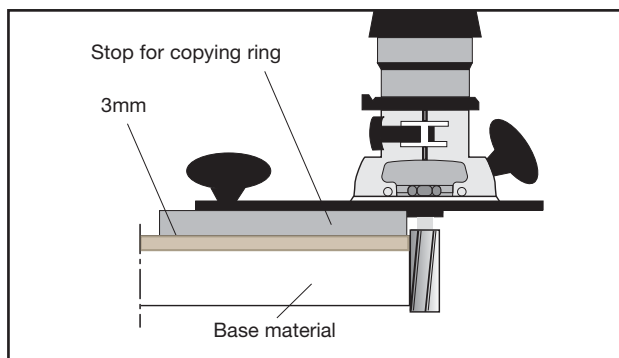
### Tools:

- Router (minimum 1½ HP) and flush milling tool or suitable alternative tools (copying ring)
- Glue gun and edge glue
- Denatured alcohol and lint-free cloths
- Wood spring clamps or screw clamps or clips or plastic adhesive tape
- Pieces of backing wood

## EDGE BAND (DESCRIPTION OF WORK STEPS)

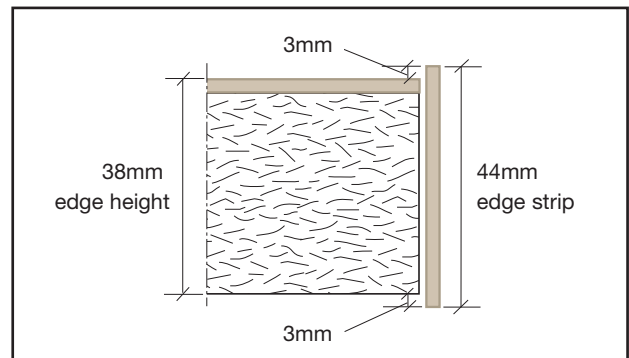
In general the edge band is very suitable for producing a 3mm edge strip as the prefabricated elements can be easily milled flush on benchtop machines and are therefore ready for bonding.

Keep in mind that with inaccurate bonding the glued joint will



be positioned on the top side of the element.

1. Mill the edge of the connection element (3mm/particleboard/laminated bottom surface) so it is neat and flush.



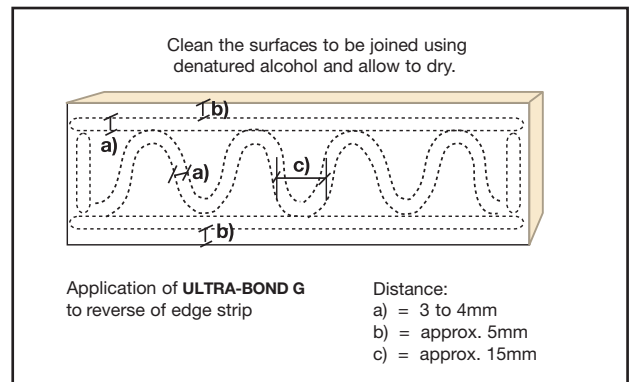
2. Take an edge strip from a spare 3mm sheet.

*Practical tip: Cut the 3mm strip approximately 6mm wider than the actual height of the edge.*

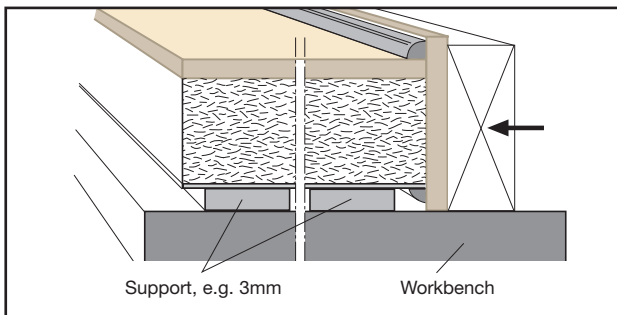
3. Prepare backing wood and screw clamps.



4. Clean the surfaces to be joined using denatured alcohol and allow to dry.

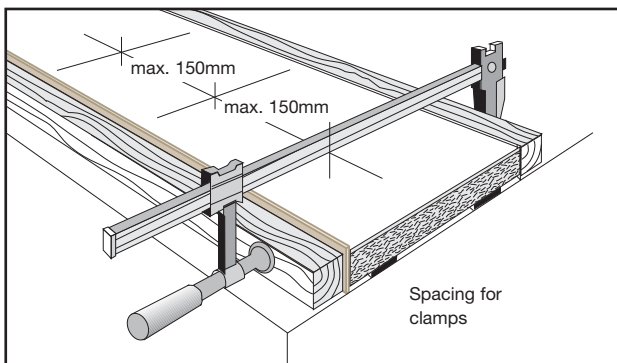


5. Apply the glue as shown in the drawing to the spare edge strip. Leave open for maximum 15 minutes depending on the room temperature.



6. Press the edge strip onto the connection element until the glue Ultra-Bond G squeezes out of the joint over the entire length.

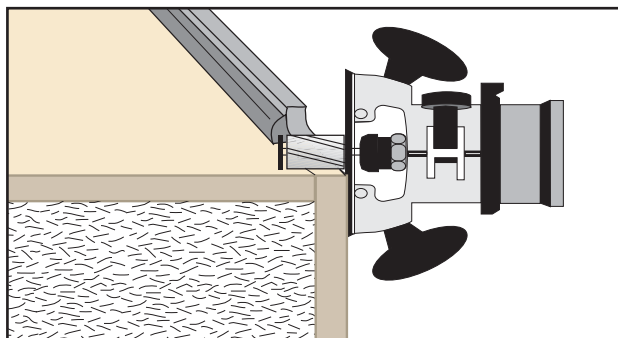
*Tip: Use a plastic laminate top as the working surface, as the glue Ultra-Bond G does not bond to a smooth surface. A narrow 3mm tongue used as a support also helps to simplify positioning of the edge.*



7. Fix edge (spacing approximately 10 to 15cm) including backing wood over the entire length.

**PLEASE NOTE:** Only fix in place, i.e. only hand-tighten (no compression force).

8. Allow glue to harden, approximately 30 to 45 minutes (finger-nail test) and only then remove fixing devices.

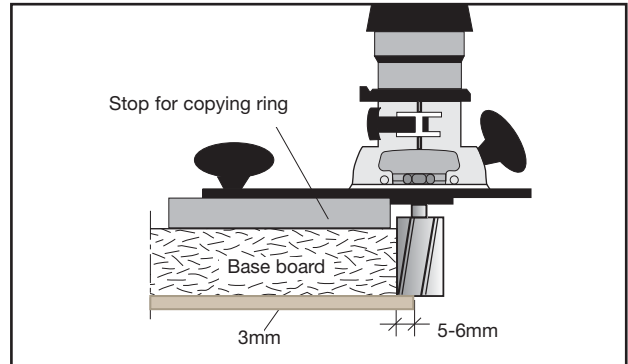


9. Mill down edges so they are neat and flush, profile (profile depth maximum 3mm) and sand entire surface.

#### INSET EDGE BAND (DESCRIPTION OF WORK STEPS)

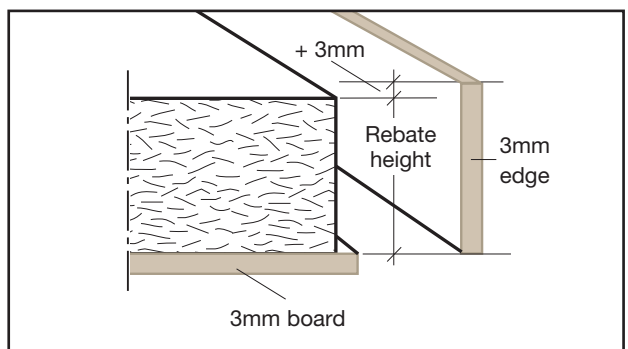
The inset edge band is also suitable for producing a 3mm edge strip. This bonding method offers the specific advantage that the bonded joint is positioned in the front edge, making it easier to disguise any inaccuracies during processing.

The preparations are slightly more complex as a rebate has to be made for bonding.

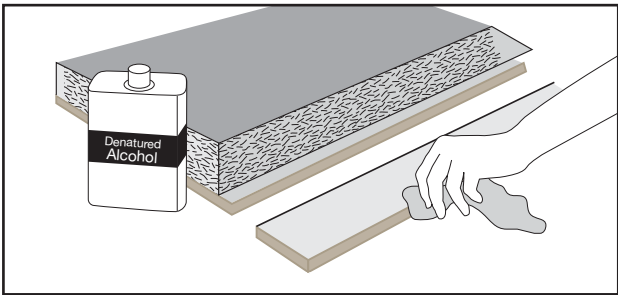


1. Mill the edge of the connection element (3mm/particleboard/ laminated bottom surface) so it is neat and flush.
2. Mill rebate approximately 5-6mm deep.

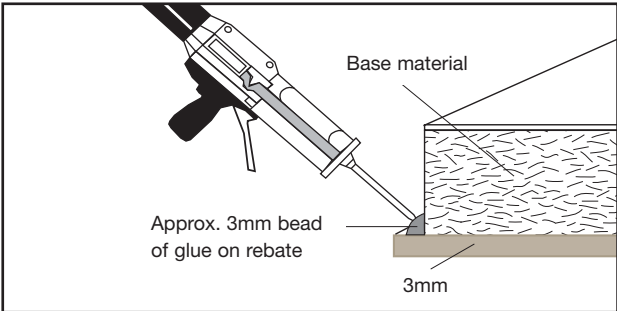
**PLEASE NOTE:** Make sure that the reverse of the 3mm does not show any traces of surface glue after milling.



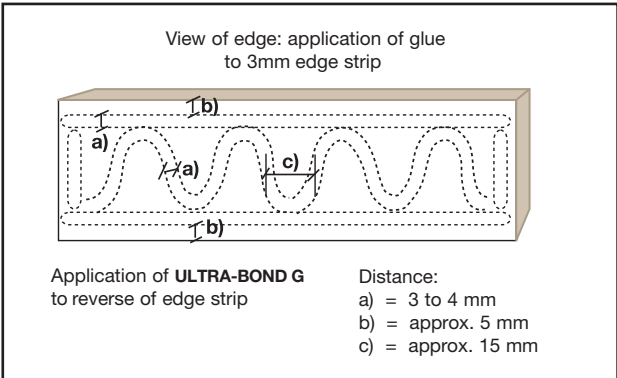
3. Take an edge strip from a spare 3mm sheet\* and cut approximately 3mm wider than the rebate height.
4. Prepare clamps, backing wood and screw clamps.



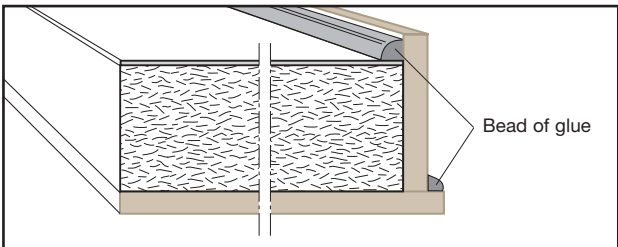
5. Clean the surfaces to be joined using denatured alcohol and allow to dry.



6. Apply glue as shown in drawing to spare edge strip and position on rebate. Leave open for maximum 15 minutes depending on room temperature.



7. Press the edge strip in the rebate and onto the connection element until the glue Ultra-Bond G squeezes out of the joint over the entire length.

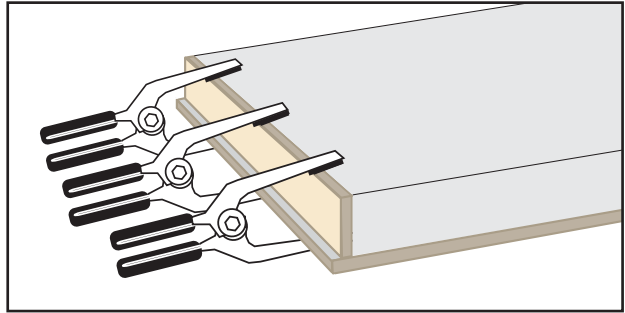


8. Fix the edge in place using clamps spaced at a distance of 10 to 15cm.

Tip: Use additional screw clamps and backing pieces to fix and stabilize the edge longitudinally.

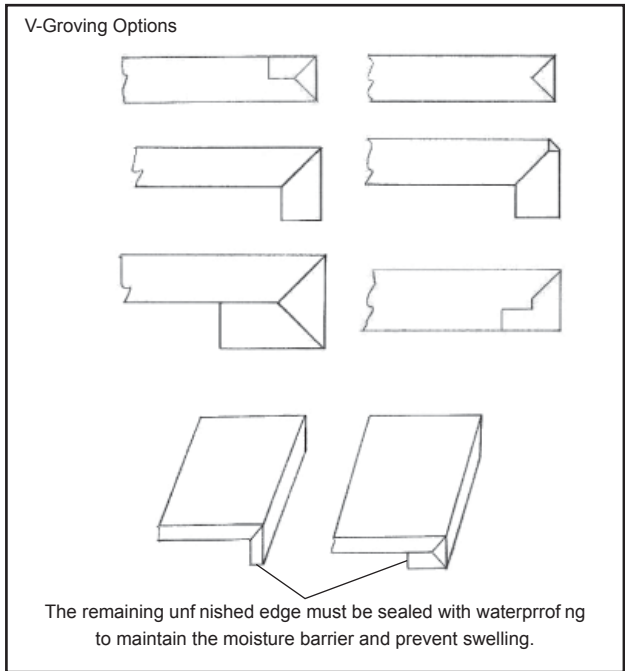
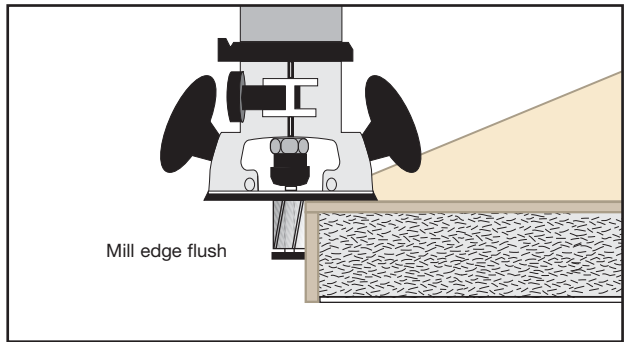
PLEASE NOTE: Only fix in place, i.e. only hand-tighten (no compression force).

9. Allow glue to harden, approximately 30 to 45 minutes



(finger nail test) and only then remove fixing devices.

10. Mill down edges so they are neat and flush, profile (profile depth maximum 3mm) and sand entire surface.



## GENERAL INFORMATION

**Tip: With large workpieces an additional tempering process (heating up to forming temperature and cooling down without forming) can help to reduce the stresses occurring in the workpiece.**

The parts to be formed have to be completely heated over their entire surface.

ADVANCE™	
Forming temperature <sup>1</sup>	140-160 °C
Heating time <sup>2</sup>	5-15 minutes
Minimum radius of curvature <sup>3</sup>	25mm
Forming of	
Surfaces with:	male/female moulds
Edges with:	Adhesive paper strip (crepe) Clamping belts Edge clamps with backing
Cooling temperature <sup>4</sup>	approximately 75 °C

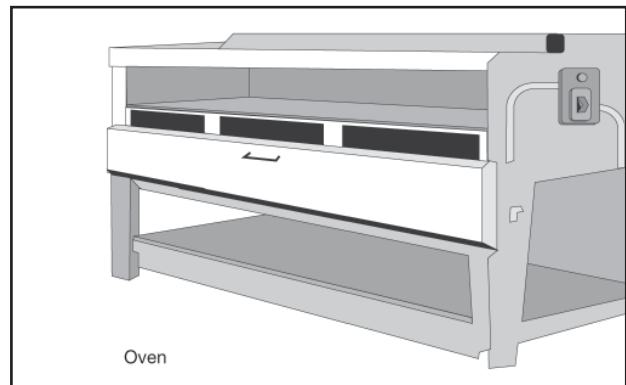
<sup>1</sup> You should preferably use a temperature measuring tape to check the values. It is not the surface temperature that is critical: an even heating temperature must be ensured through the entire thickness of the material.

<sup>2</sup> The heating time varies according to the source of heat: Parts that are too cold may result in tears or fracture. Parts that are too hot may result in blisters, discolouration, fracture or tears.

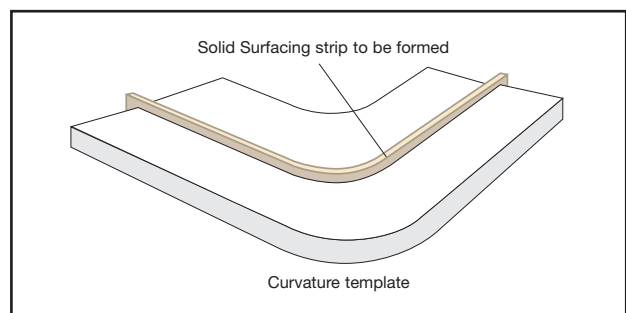
<sup>3</sup> Smaller bend curvatures may affect the mechanical properties and/or result in the phenomena listed above.

<sup>4</sup> The workpiece should only be removed from the mould when the cooling temperature has been attained. Further processing (e.g. bonding of edges etc.) should only be carried out once the workpiece has cooled right down to the normal working temperature.

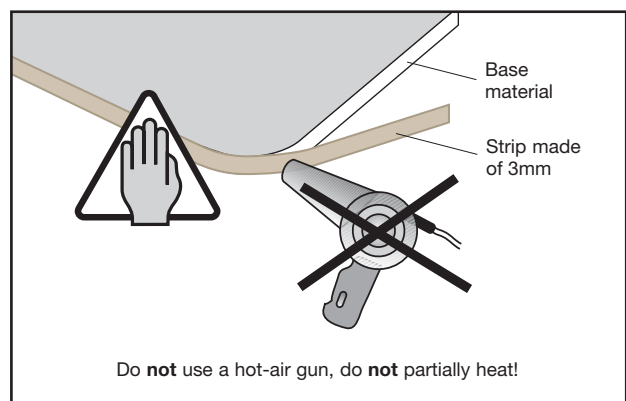
First of all try out your oven and note down the most important parameters such as the thermostat setting and heating time. Determine the parameters described using samples of material.



1. Convection ovens or infrared provide the best results.



2. Working with positive and negative moulds



3. Partial heating is not possible as this will cause stresses in the material between the heated part and the cold part.



**PRE-BONDED PANEL:****EDGE MATERIAL THERMOFORMING**

Anneal the ADVANC<sup>3</sup>™ material prior to forming as follows:

- Heat entire piece of material to thermoforming temperature.
- Let cool until able to hold in hand.
- Reheat to forming temperature and form material.

*Note: Material will shrink up to 1.5% of length and width*

The minimum bending radius for ADVANC<sup>3</sup>™ material is 25mm.

*Note: Bending sheets to a smaller radius can result in crazing, whitening, cracking, or reduction in impact resistance.*

**COOL DOWN**

Allow the thermoformed sheet to cool down in the mould to less than 76.6°C before removing from mold. Depending on the surrounding room temperature, cool down for ADVANC<sup>3</sup>™ material will take from 5 to 15 minutes.

**SEAMING**

All seaming must be done after thermoforming. Material should be completely cool before seaming.

Full sheet material can only be thermoformed by an authorized ADVANC<sup>3</sup>™ Thermoformer.

All thermoforming other than a ADVANC<sup>3</sup>™ authorized fabricator is undertaken at fabricator risk, and is not covered by ADVANC<sup>3</sup>™ warranty.

## FINISHING

The final finish of your application must be specified and understood by the end user. Most customers choose the Satin or Polished finish.

All ADVANCE™ Surfaces sheets come from the factory with minor linear sanding lines. These lines are 60 micron or a 280 grit finish on the face. To obtain any of the possible finishes these sanding lines must be removed. This is accomplished by starting the sanding process with 60 micron.

Using a 6" (152mm) or 8" (203mm) random orbital sander will reduce your sanding time by HALF over conventional vibrating sanders, and will achieve a more uniform finish.

## SANDING PROCESS

1. Move the sander in a back and forth direction. NOT CIRCULAR.
2. Overlap each pass by 50%.
3. Sand at a slow and even pace, approximately 1" (25.4mm) per second.
4. Keep micron paper clean from sanding dust. This is easily done by putting the sanding pad on a piece of carpet while running and hold it down for a few seconds (check paper frequently).

\*Each sheet of micron paper will sand 10 sq. ft (about 1 sq. m) of ADVANCE™ Surfaces material.

### Abrasive Grade Comparison

Micron Grade	Industrial U.S. Mesh	FEPA or P-Grade	Japanese J15 Grade	Emery
100u	#150			
80	180			
60	220	P240	#240	
	240		280	
40	280		320	
	320	P360	360	
	360	P500	400	1/0
30	400		500	2/0
	500	P1000	600	3/0
15	600		1000	
	800		1200	
12		P1200		
9	1200		2000	4/0
5			2500	
3			4000	
2			6000	
1			8000	
0.3				

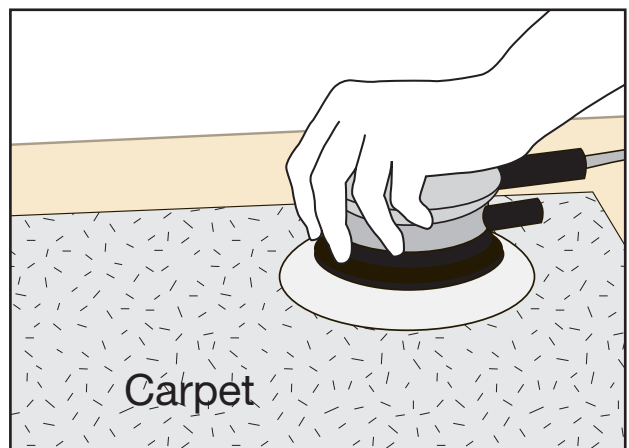
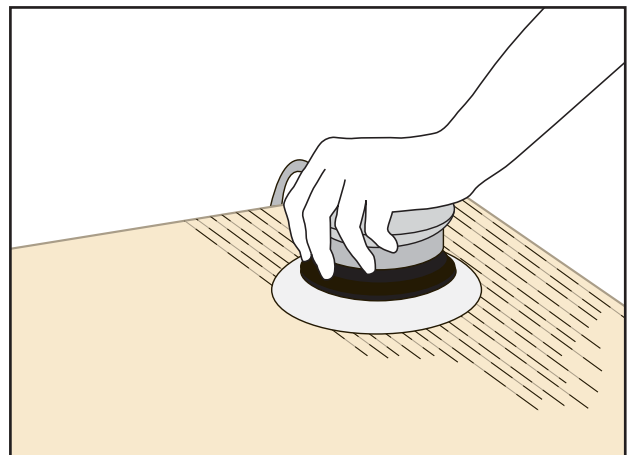


ARO # 8446-B6

Porter Cable # 7336



Festool # RO150E



**MATTE FINISH**

After removing the linear sanding lines with 60 micron paper, place a Scotch-Brite® pad, (#7447 Red) under the sanding pad to even out the finish. The matte finish is easily maintained and is usually the most suitable for lighter colors. Make sure the customer understands the required maintenance for the finish they have chosen. **Most solid surface samples are Satin finished and likely will be what the customer is expecting.**

**SATIN FINISH**

Sand with 60 micron paper, repeat sanding process with 30 micron paper. Place Scotch-Brite® pad (#7448 light gray) under sanding pad. Sand with Scotch-Brite® #7448 and soapy water. Homeowners may maintain this finish using a white Scotch-Brite® and Soft-Scrub.®

**POLISHED FINISH**

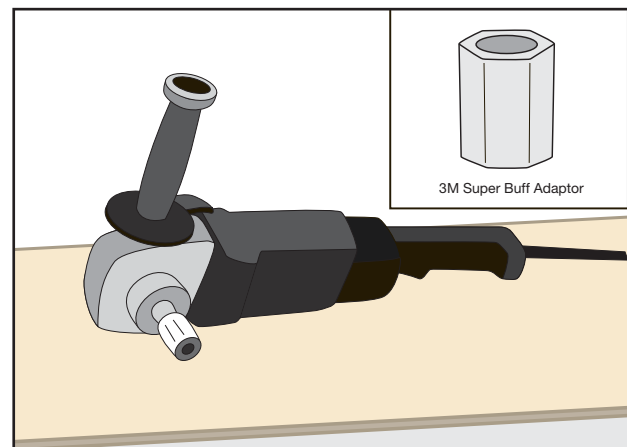
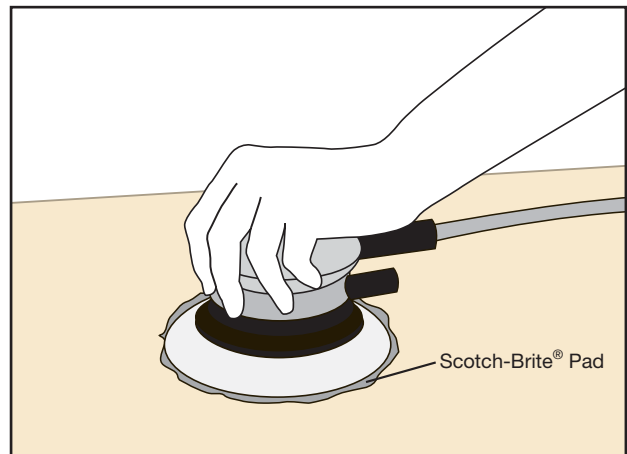
After sanding with 60 micron paper, repeat the sanding process with 30 micron paper. Use a 3M Super Buff adaptor to prevent the arbor of the polisher from damaging the surface. Dark colors with a high gloss finish show wear very quickly. A dark color is not recommended for heavy use areas.

Coppermine K3-8490 and Goldmine K3-8495 are dark colors that may require polishing for full impact. The brilliance of the shine comes from the fact that these products use real nonferrous metal in the ingot. The nonferrous metal will:

1. Have no effect on your tooling.
2. Cause some oxidation during polishing, as exemplified by blackening of the polishing pads. This is normal for polishing metals.

**FINISHING GUIDELINES**

You should become familiar with the different colors and options you present to your clients. Most customers are expecting the gloss level they have on the sample they are choosing from.

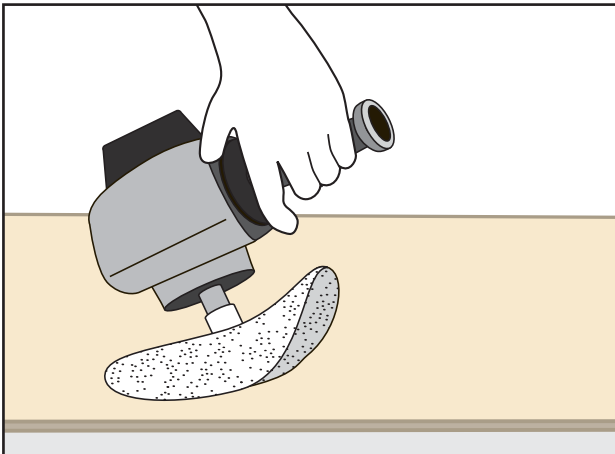


The buffer should be variable speed between 1000-3000 RPM. Best results are achieved at lower speeds.

## POLISHING ADVANCE™ SOLID SURFACE POLISHING PASTE METHOD

### Step One

The first step of the polishing process uses 3M's Marine Paste Compound (White) #06039 with 3M's Super Duty 2+2 pad (White). The Marine Paste Compound will remove 30 micron sanding swirls. It may be necessary to repeat this step to remove all 30 micron swirls. Apply enough pressure to deflect the pad as shown.



### Step Two

Remove any compound residue by reversing the white pad. DO NOT mix the compounds on the same pad. Repeat polishing the surface with 3M's Finishing Material #81235 (Quart) with 3M's Super Buff Polishing Pad (Yellow). This will remove the swirl marks left by Step One and will produce a high gloss. Step Two takes about half the time as Step One. Reverse the yellow pad for final clean up.

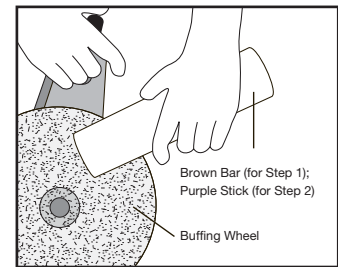
**PLEASE NOTE:** Keep the polisher moving to prevent overheating, and assure that the buffing pad does not dry out.

**A matte finish is not recommended for dark colors, a satin finish provides a more even appearance.**

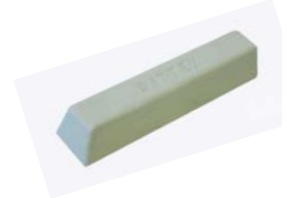


**THE DRY CUT SYSTEM AS SECOND AND ALTERNATIVE METHOD VS. POLISHING PASTE**

Another effective polishing method involves the use of the ADVANCE™ Surfaces Dry-Cut Finishing System abrasive bars. This is a three step system that quickly and easily removes sanding scratches. Since the compound is a solid it can be cleaner to use than 3M Marine Paste. Apply sparingly to the buffing wheel and it stays there to efficiently create a high luster finish.

**Step 1: (Brown Bar)**

The first step in polishing with the ADVANCE™ Surfaces Dry-Cut Finishing System is to use the brown bar (SM4036-A) with a 3M Super Duty 2+2 pad (white). Start with the ADVANCE™ Surfaces material sanded to a 30-micron finish. The brown bar must be applied directly to the buffing pad. With the buffing pad turned up and buffer running, press the bar firmly against the pad allowing it to buildup on the pad. Add material to the buffing pad if you feel you need more to ensure you do not build up excessive heat by using a dry pad. Repeat Step 1 as necessary to remove all of the 30-micron swirls.

**Step 2: (Purple Stick)**

This step will remove any marks left by the more aggressive cutting brown bar. Reverse the white pad and apply the purple stick compound (SM4036-B) to the pad. The purple stick must be applied directly to the buffing pad. With the buffing pad turned up and buffer running, press the stick firmly against the pad allowing it to build up on the pad. Add material to the buffing pad as you feel is needed to ensure you do not build up excessive heat by using a dry pad. Repeat Step 2 as necessary until you have removed the buffing swirls resulting from Step 1. To achieve a high gloss finish, complete Step 3.

**Step 3:**

This is the final step in achieving a high gloss finish. Remove any residue from the previous steps by buffing lightly with a clean 3M Super Duty 2+2 pad (white). Use at the lowest power setting, gliding across the material until all the material from Step 2 is removed. Repeat polishing the surface with 3M's Finesse-it Finishing Material (#81235) with 3M's Super Buff Polishing Pad (yellow) at the lowest power setting. This step will remove any swirl marks that may have resulted from Step 2, and produce a high gloss finish. Reverse the yellow pad for final clean up.

**WET VS. DRY**

We have found this polishing method to give equivalent results to the Finesse-it system, however the Finesse-it system is a little more forgiving and it is easier to control surface temperature. The ADVANCE™ Surfaces Dry-Cut Finishing System will give you a good polish if you are experienced and you will save some cleanup time.

All data contained herein applies to the 3mm solid surface sheet alone. Technical data relative to the finished, laid-up product is not included here and will vary based on the substrate and assembly methods used.

PROPERTY	TYPICAL VALUES	TEST METHOD
General:		
Thickness	0.125 in (3.17mm)	
Specific Gravity	1.60	ASTM D-792
Water Absorption	0.04%	ASTM D-570
Mechanical:		
Tensile Strength	4,000 psi	ASTM D-638
Tensile Modulus	1,070,000 psi	ASTM D-638
Tensile Elongation	1.5%	ASTM D-638
Flexural Strength	7,600 psi	ASTM D-790
Flexural Modulus	940,000 psi	ASTM D-790
Izod Impact (Un-notched)	1.17 ft-lbs/in	ASTM D-4812
Notched Izod Impact	0.48 ft-lbs/in	ASTM D-256
Rockwell Hardness (M)	73	ASTM D-785
Barcol Hardness	59	ASTM D-2583
Thermal:		
DTUL @ 264 psi (1.82 MPa)	195 °F	ASTM D-648
Coefficient of Linear Thermal Expansion	$2.3 \times 10^{-5}$ in./in./°F	ASTM D-696
Boiling Water Resistance		
	No Effect	ISSFA SST 8.1-00
High Temperature Resistance		
	No Effect	ISSFA SST 9.1-00
Flame Spread Index	<80	ASTM E-84
Smoke Generation Index	<200	ASTM E-84
Combustion Toxicity		
	Solid Colors - 98	Pittsburgh Protocol
	Patterns - 67	(LC <sub>50</sub> Test)
Surface:		
Consistency of Color (Same Sheet)	Passes	ISSFA SST 2.1-00
Light Resistance	No Effect	ISSFA SST 7.1-00
Cleanability/Stain Resistance	13/No Effect	NEMA LD3-3.4
Stain Resistance	Passes	ANSIZ-124.3
Fungi Resistance	No Growth	ASTM G-21
Food Zone Use	NSF 51 Approved	NSF

ADVANCE™ is not to be used in a kitchen environment where hot cooking appliances or dishwashers are used.

ADVANCE™ can be restored. Visible damage to finishes caused by impacts or scratches and chemicals can easily be removed using a Scotch-Brite® sponge. Stubborn changes in finishes can be removed by sanding.

For cautions and other information relating to handling of an exposure to this product, please see the applicable material safety data sheet published by Aristech Acrylics LLC.