

# Laminex® Appendix



## 1.1 GENERAL SITE WORK NOTES

### Storage

Always store sheets face to face with a sheet of protective paper between the faces.

Bulk stocks should be stacked flat and completely supported.

Avoid low humidity and extreme temperature.

### Handling

Keep work area clean to avoid marring and scratching.

Avoid contact with abrasive surfaces or grit. Lift sheets carefully, do not slide on the decorative surface. Do not use as a work surface.

### Preconditioning

Prior to fabrication Laminex® laminate and substrate material should be allowed to reach moisture equilibrium under the same conditions for 48 hours.

The recommended environment to achieve this is 24°C and about 45% relative humidity.

### Fabrication

Laminex® Decorative laminates can be bonded to a variety of substrates including particle board, medium density fibreboard, plywood, hardboard, corestock, paper honeycomb, aluminium.

Substrate surface must be of sound strength and free of sanding defects to ensure good adhesion to laminate and to minimise “telegraphing” of defects.

For the correct adhesive for your applications refer to the Adhesive Selection guide pages 6.13 and 6.14 or your nearest Laminex® Branch.

To obtain maximum dimensional stability, unframed panels should have Laminex® backing sheet bonded to rear surface.

Ensure sufficient adhesive and mechanical pressure is used to provide a first class bond. We recommend a minimum pressure of 3kg/cm<sup>2</sup> for contact adhesives and 6kg/cm<sup>2</sup> for hard setting glues.

### Hand Sawing

A panel saw gives the best result because of the relatively small set of the teeth.

The back stroke should be light and the cutting stroke at approximately 45° to the face of the board.

Keep the saw sharp.

### Machine Sawing

Circular saws with 3-4 teeth per 25mm with only a slight set and a saw blade tip speed of 3000 metres/minute will give a clean cut.

For long production runs tungsten carbide tipped blades 300mm to 350mm in diameter and operating at 3000 to 3500 RPM are recommended to achieve this. Always cut with face up to minimise surface chipping.

### Jigsawing

A clean cut can be achieved with a jigsaw using hardened blades with average teeth and slow feed speed. Non-carbide blades will dull quickly. Ensure sheet is adequately supported while cutting.

### Note:

Jigsaws cut with an upward stroke, therefore, in this instance cut from the back of the sheet.

Metal cutting band saws with 32 teeth per 25mm are ideal for shapes.

### Hand Planing

A perfect edge finish can be made with a hand plane. Specially hardened plane irons, such as the Titan high-speed type, require less sharpening than standard irons.

### Machine Planing

Vertical spindle moulding machines with tungsten-tipped cutters operating at 6000 RPM are ideal for edge finishing and for making perfect mitres without any edge chipping.

### Portable Routing

Portable routers with twin fluted tungsten carbide cutters and replaceable tips are recommended for on-site edge trimming or cut-outs for sinks, basins, etc.

## Drilling

High-speed twist drills, either hand or power operated, will cut clean holes.

Because of the hard melamine surface, a small pilot hole should be drilled for carpenter's bits.

Fast cut types give the best results. For larger holes, 18mm diameter and over, a centre bit should be used.

## Screwing

Where mechanical fixing of any laminate sheeting is required always use round head screws and cup washers. Drill the hole slightly larger than the shank of the screw to allow for laminate movement. Do not overtighten screws or fracture of the laminate surface may occur. Nails should never be used.

## CRACKING OF LAMINATE

Intermittent cracking of laminate on fabricated components, particularly with cut outs or internal L shape corners, has always been a problem which occurs particularly with changes in climatic conditions.

Laminates will grow in moist humid conditions and shrink in dry conditions. Shrinkage is accelerated if heat is also a factor, therefore rapid shrinkage may occur in hot dry conditions unless components have been preconditioned prior to fabrication.

Ragged edges with underside chip out or square cut internal corners provide excellent weak spots for cracking to commence as the laminate shrinks.

The main actions to prevent this type of cracking are:

- Laminate and substrate should be allowed to equilibrate for up to 72 hours before fabrication.

- All cut outs must have clean chip free edges and small (2-3mm) internal radius at corners.
- Ensure that machined edges of cut outs are sanded smooth and that the top edge of the laminate is arched to eliminate the possibility of stress.
- L-shaped sections must have a small (2-3mm) chip free radius at internal corner.
- Sufficient glue and pressure must be used to ensure a first class bond, or alternately use a hard setting glue such as urea or epoxy around perimeter of cut out or corners.

This cracking is a recognised characteristic of laminates and will never be totally eliminated therefore it is important that you and your customers understand why it occurs and wherever possible take the necessary precautions to reduce the chances of it happening.

## OPENING UP OF JOINS

As detailed under 'Cracking of Laminate', laminates will grow in moist humid conditions and shrink in dry hot conditions. This needs to be allowed for in fabrication where laminate sheets are being joined, particularly in areas subject to extreme climatic changes.

The main actions to be taken to minimise Laminex® movement are:

- Laminate and substrate should be allowed to equilibrate for up to 72 hours before fabrication.
- Sufficient glue and pressure must be used to ensure a first class bond, or alternatively use a hard setting glue such as urea or epoxy both sides of any join and around each laminate panel perimeter.
- If contact adhesive is used then the adhesive coverage must be in excess

of 85% on both laminate and substrate surfaces.

- If installing laminate on site allow it to acclimatise for up to 72 hours before fabrication. If site is to have air conditioning then this should be in operation before laminate is installed.
- Where two fabricated components are to be joined such as at a Mason's mitre, a complete spread of silicon sealant or Colorfill™ should be applied to one surface of the components before clamping them together.

## Oven and Hot Plate surrounds

Laminex® can be used on bench tops around ovens or hot plates, however it is recommended that any cut outs for hot plates should have an appropriate heat absorbing tape applied to the perimeter of the cut out to help avoid cracking as detailed in 'Cracking of Laminate'.

Regarding oven surrounds there are some basic requirements which need to be followed.

**Gas appliances:** The installation of gas appliances is covered by Plumbing code AG 601. Basically any vertical surface surrounding a cooktop extending from 10mm below the hob, to 150mm above, if closer than 200mm from the burner, must be non-combustible. Non combustible means products like metal, ceramic tiles etc. Laminates are combustible and therefore not permitted.

**Electric appliances:** There is no national regulation regarding the surrounds of electric appliances, however the appliance must conform to AS 3172 and part of this standard is the inclusion of installation instructions for each particular appliance. Therefore with electric appliances the

manufacturers installation instructions become the standard and must be adhered to at all times. The only requirement for surrounding surfaces is that they can withstand temperatures up to 90°C which means that Laminex® laminates are suitable for this application with electric appliances.

However, in all instances it is the customers' responsibility to ensure that all regulations are adhered to when installing Laminex® laminates in these applications.

**1.2 Decoral® SITE WORK NOTES**

Decoral® can be fabricated in the same manner as aluminium sheeting, but with a few precautions for the melamine surface. The cutting action must be into the melamine face to prevent chipping. It can be successfully routed, sawn, drilled and guillotined.

**1.3 CHEMICAL RESISTANCE**

**a. Durability**

Laminex® solid colour Chemical Resistant Redback™ and Chemical Resistant Premium Grade have at least twice the wear resistance of conventional high-pressure laminates.

**b. Resistance to Chemicals - Chemical Resistant Redback™ and Premium**

The chemicals listed below were placed in contact with Laminex® Chemical Resistant Redback™ and Chemical Resistant Premium Grade for 16 hours under a 25mm watch cover glass. Those marked (XX) showed some degree of damage after the test whilst those marked (X) showed only slight damage. All others have little or no effect, however it is recommended that all spillages be removed and washed down immediately after they occur.

<b>ACIDS</b>	
ACETIC 98%	
ACETIC 20%	
AQUA REGIA (75% Conc. Hydrochloric Acid and 25% Conc. Nitric Acid)	(XX)
CHROME TRIOXIDE	
FORMIC 90% (Redback™)	(X)
FORMIC 20%	
GLACIAL ACETIC	
HYDROCHLORIC CONC.	(X)
HYDROCHLORIC 32% (X) (R/B)	(XX)
HYDROCHLORIC 10%	(X)
HYDROFLUORIC CONC.	(XX)
NITRIC ACID	(XX)
NITRIC 25%	(X)
PHOSPHORIC CONC.	
PHOSPHORIC 75%	(R/BX)
SULPHURIC CONC.	(XX)
SULPHURIC 60%	(XX)
SULPHURIC 33%	(XX)
ACID CLEANING SOLUTION (Sulphuric Conc. and Chromic Acid)	(XX)
<b>CHLORINATED SOLVENTS</b>	
CARBON TETRACHLORIDE	
TRICHLORETHYLENE	
CHLORO BENZENE	
CHLOROFORM	
METHYLENE CHLORIDE	
<b>ALKALIES</b>	
AMMONIA CONC.	
AMMONIA 10%	
BARIUM HYDROXIDE	
CALCIUM HYDROXIDE	
POTASSIUM HYDROXIDE CONC. (Caustic Potash)	
POTASSIUM HYDROXIDE 42%	
POTASSIUM HYDROXIDE 25%	
TRISODIUM PHOSPHATE 10%	
SODIUM SILICATE	
SODIUM HYDROXIDE 46%	(X)

<b>PHENOLS</b>	
PHENOL CONC.	
PHENOL 10%	
CRESOL 100%	
CRESOL 2%	
CARBOLIC ACID	
TANNIC ACID	
DIHYDROXY PHENOLS	
RESORCINOL	
LYSOL	
EUGENOL	
THYMOL	
<b>SOLVENTS AND ESTERS</b>	
ETHYL ACETATE	
BUTYL ACETATE	
DIMETHYL PHTHALATE	
AMYL ACETATE	
<b>KETONES AND ALDEHYDES</b>	
ACETONE	
METHYL ETHYL KETONE (M.E.K.)	
FURFURAL	
FORMALDEHYDE	
DIOXANE	
ACETALDEHYDE	
METHYL ISOBUTYL KETONE (M.I.B.K.)	
<b>ALCOHOLS</b>	
METHANOL	
ETHANOL	
PROPANOL	
BUTANOL	

GENERAL CHEMICALS	
HYPOCHLORITE 5%	
HYDROGEN PEROXIDE 3%	
BLEACHING POWDER	
CUPRA AMMONIUM HYDROXIDE CONC.	
POTASSIUM PERMANGANATE 2%	(X)
VEGETABLE OILS	
MINERAL OILS	
SILVER NITRATE 10%	(XX)
ZINC CHLORIDE CONC.	
GENTIAN VIOLET	(X)
PHENOL PHTHALEIN	
METHYL RED	
METHYL ORANGE	
MERCURACHROME (Tinct)	
ZEPHIRAN CHLORIDE	
IODINE (Tinct)	
METHYLENE BLUE	
URIC ACID	
SILVER FLUORIDE	(XX)

ETHERS	
DIETHYL ETHER	
PHENOL ETHER	
GLYCOL ETHER	

AROMATICS	
BENZENE	
TOLUENE	
NAPHTHALENE	
XYLENE	

**Note:**

Some acids will become more concentrated if allowed to evaporate on the laminate. It is therefore recommended that all spillages be washed and rinsed off the laminate as soon as possible.

### c. Resistance to Chemicals - TopLab<sup>Plus</sup>

The chemicals below were placed in contact with TopLab<sup>Plus</sup> for 24 hours under a 25mm watch cover glass. Those marked with (XX) showed some degree of damage after the test whilst those marked (X) showed only slight damage. All others have little or no effect, however it is recommended that all spillages be removed and washed down immediately after they occur.

ACIDS	
HYDROCHLORIC ACID 10%	
HYDROCHLORIC ACID 37%	
SULPHURIC ACID 33%	
SULPHURIC ACID 98%	
NITRIC ACID 30%	(X)
NITRIC ACID 65%	
PHOSPHORIC ACID 85%	
HYDROFLUORIC acid 48%	(XX)
CHROMIC ACID 60%	

BASES	
AMMONIUM HYDROXIDE 28%	
SODIUM HYDROXIDE 46%	(XX)

SALT	
SILVER NITRATE 1%	
POTASSIUM	
PERMANGANATE 10%	
FERRIC(III)CHLORIDE 10%	
COPPER SULPHATE 10%	
SODIUM HYPOCHLORITE 13%	
SODIUM CHLORIDE 10%	

ORGANIC CHEMICALS	
FORMALDEHYDE 37%	
FURFURAL	(X)
FORMIC ACID 90%	
ACETIC ACID 99%	
PHENOL 88%	

SOLVENTS	
ACETONE	
ETHYL ALCOHOL	
ETHYLENE GLYCOL	
ETHYLENE GLYCOL MONOBUTYL ETHER	
METHYL ETHYL KETONE	
DICHLOROMETHANE	
ETHYL ACETATE	
ACETIC ANHYDRIDE	
N-BUTYL ACETATE	
N-HEXANE	
METHYL ACOHOL	
METHYL ISOBUTYL KETONE	
TETRAHYDROFURANE	
TOLUENE	
TRICHLOROETHYLENE	
XYLENE	

BIOLOGICAL STAINS	
ACRIDINE ORANGE 1%	
BASIC FUCHSIN 1%	
CARBOL FUCHSIN 1%	
MALACHITE GREEN OXALATE 1%	
METHYLENE BLUE 1%	
METHYL VIOLET 2B 1%	
WRIGHT STAIN 1%	
GENTIAN VIOLET (DYE) 1%	
MOST CONVENTIONAL CLEANING AGENTS	

All information is based on our current state of knowledge. It is intended as information concerning our products and their application possibilities, and is therefore not intended as any form of guarantee with regard to specific product characteristics. Test results differ per colour.