

Formica® Decorative Laminate

Formica® Decorative Laminate is a postforming high pressure decorative laminate. Internal or external curves can be formed down to a recommended minimum radius of 10mm for solid colours, while patterns and woodgrains can be formed to a radius of 6mm in the machine direction.

Benchtops, breakfast bars, special shapes and other products can be manufactured by independent fabricators to individual specifications.



APPLICATIONS

Formica® Decorative Laminate can be used in a variety of applications. These include: counters, bench and table tops, store fixtures, office furniture, vanity units, display work, reception areas, wall panelling, toilet partitions, and door and drawer fronts.

It is also suitable for medical, dental and food preparation areas.

PRODUCT CHARACTERISTICS

Sheet Sizes:	1800mm x 1500mm
(Velour)	1800mm x 750mm
	3600mm x 1500mm
	3600mm x 700mm
Thickness:	0.7mm (nominal)
Mass:	0.9kg/m ²
Finish:	Velour

Tolerances comply with Australian/New Zealand Standard AS/NZS 2924.1:1998

SUBSTRATES

Formica Decorative Laminates should be bonded to a suitable substrate such as high moisture-resistant and standard particleboard, high moisture-resistant and marine grade ply or medium density fibreboard. A smooth surface is important. Rougher substrates such as large-chip particleboard may result in a visually unacceptable product.

LIMITATIONS

Do not use externally or in areas where prolonged exposure to temperatures exceeding 135° may occur. Must be supported by recommended substrate over entire surface area. Do not bond directly to plaster, concrete walls or gypsum wallboard.

PROPERTIES

Composition

Formica Decorative Laminate consists of several base layers of phenolic resin-impregnated kraft paper. A layer of melamine-impregnated paper in a solid colour or printed design is applied to the decorative side of the base. Printed designs are covered with a transparent overlay containing melamine. The layers are bonded under heat and pressure. The back of the laminate is sanded to permit good bonding.

FIRE HAZARD INDICES

(Typically achieved when tested to AS/NZS 1530.3:1999)			
Indices	Result Solids	Result Prints	Range
Ignitability	9	9	0-20
Spread of Flame	8	9	0-10
Heat Evolved	3	4	0-10
Smoke Developed	5	5	0-10

Cone Calorimeter:

Typical values for Formica laminates when tested to Australian/New Zealand Standard AS/NZS 3837:1998.

AS/NZS 3837:1998	Solids Prints	
	Heat Release (kW/m ²)	56.8
Specific Extinction Area (m ² /kg)	74.5	64.3
Building Code of Australia Group Classification (1-3)	2	2

Tests on Formica Decorative Laminate were conducted by the Australian Wool Testing Authority Ltd at Flemington, Victoria. The laminate was unadhered.

Specification:

AS/NZS 2924.1:1998, Type HGP: High Pressure decorative laminates - sheets made from thermosetting resins.

Finish:

Average gloss level using a Gardner 60° meter of 11 for velour finish; and 104 for glossy finish.

Thickness Tolerance:

A variation of no more than ±0.10mm.

Appearance:

Minimal defects permissible when inspected in accordance with Australian/New Zealand Standard AS/NZS 2924.1:1998.

Resistance to Surface Wear:

Average wear resistance of not less than 350 taber cycles. Initial wear point not less than 150 taber cycles.

Resistance to Immersion in Boiling Water:

No more than 19% increase in weight and 21% increase in thickness for nominal 0.7mm laminates. No more than a moderate change in gloss and/or colour.

Resistance to dry heat

No more than a slight change in gloss and/or colour after 20 minutes in contact with a container holding glycerol tristearate at 180°C for velour finish, or a moderate change for glossy finish.

Resistance to Scratching:

Resists a force of 2 Newtons when scratched with a diamond stylus. Gloss has a scratch resistance of no less than 0.5 Newtons.

Dimensional Stability:

After exposure to controlled high and low humidity conditions, a dimensional change of no more than: 0.75% with the grain and 1.25% across the grain.

Resistance to Impact:

No visible damage when subjected to an impact of 20N from a 5mm steel ball mounted at one end of a spring-loaded bolt.

Resistance to Staining:

No staining by 34 specified reagents. Moderate staining by 15 additional specified reagents is permitted, but a mild abrasive creme cleanser should easily remove the stains. Highly abrasive cleaners are not recommended for stain removal.

Resistance to Colour Change in

Artificial Light:

No more than a slight colour change in Xenon arc light (minimum 6 on Blue Wool Scale).

Formica Decorative Laminates comply with the colour fastness requirements of the Australian/New Zealand Standard AS/NZS 2924.1:1998. They have good colour retention under normal conditions of internal use.

Prolonged exposure to sunlight may cause some change in colour. For this reason, Formica Decorative Laminates are not recommended for external use.

Resistance to Cigarette Burns:

No more than a moderate change in gloss and/or moderate brown staining.

Formability:

Will satisfactorily postform after reaching 163°C without cracking, blistering or

delaminating when fabricating in accordance with the guidelines of this document.

Resistance to Blistering:

After the sample temperature has reached 163°C at the specified heat up rate, a minimum time of 15 seconds should elapse before blistering occurs.

Resistance to Steam:

No more than a moderate change of gloss and/or colour.

DESIGN AND SPECIFICATION NOTES

Formica Decorative Laminate can be formed by specialist fabricators to a recommended minimum internal or external radius of 10mm of the substrate profile in the machine direction only.

Formica patterns and woodgrains can be formed to a 6mm radius in the machine direction only.

Any requirements for smaller radii postforming or cross directional postforming needs to be negotiated between specifier and fabricator, and will not be covered by the Formica Laminates 7 Year Limited Warranty.

STATIONARY FORMING

Postforming (P/F) Laminate bonded with suitable adhesive to pre-shaped core.

Area to be formed must reach 163°C before forming.

This temperature can be controlled and monitored by the use of "tempilaq" (heat sensitive liquid).

Apply tempilaq on the area to be heated. Allow heat up time to elapse.

The tempilaq will melt at the prescribed temperatures and give an immediate, accurate visible indication of the temperature on the laminate surface.

Heat up and bending must be completed before the laminate blisters,

- Tempilaq must melt across the entire area to ensure tight forming.
- Heat up time is 20 to 28 sec. before forming.
- Blister time is in excess of 34 sec.

Any cracking along the top or bottom of the postformed edge is a clear indication of insufficient heat either on top or along the bottom of the bend.

Tempilaq will indicate the area affected by insufficient heat. Adjust the heat accordingly.

Settings for best post forming will vary from machine to machine. It is the fabricator's responsibility to optimise settings using the guidelines supplied.

Common Problems Encountered During Postforming

1. Factors affecting changes in heat up time:

- a. Pattern
- b. Colour
- c. Sheet thickness
- d. Room temperature
- e. Board temperature
- f. Relative humidity
- g. Draughts from doorways or other openings

2. Main factors contributing to cracks when postforming are:

- a. Rough substrate profile preparation
- b. Wrong heat up rate
- c. Insufficient heat
- d. Very cold substrate and laminate
- e. Uneven heat distribution
- f. Element too far from laminate
- g. Heating element too cold

3. Main factors contributing to blistering when postforming are:

- a. Heating the laminate for too long
- b. Uneven heat distribution
- c. Warped material
- d. Heating element too hot

4. Main factors contributing to delamination when postforming are:

- a. Insufficient heat
- b. Insufficient glue
- c. Insufficient pressure

Remember

- Temperature must be uniform along the postformed length and across the depth of the laminate to be postformed. Uniform heat spread over the depth of laminate to be postformed becomes more critical as the depth of laminate increases.

- Too much tension can cause “tension cracks” as the laminate cools.
- Insufficient heat and pressure will leave a gap between laminate and substrate, creating a hollow area which is susceptible to cracking on impact.
- Use a hand roller to press down along bend to ensure proper adhesion to substrate.
- Condition laminate and substrate together for at least 48 hours prior to fabrication. Ideal environment is 24°C and 45% relative humidity.

Cooktops

When using Formica Decorative Laminate as a splashback, please refer to the appliance manufacturer’s installation recommendations for cooktops around combustible materials.

WHEN SPECIFYING

Surfacing shall be Formica Postforming Grade laminate as supplied by The Laminex Group. Colours and/or patterns shall beinfinish. Sheet size shall be.....

DESIGN CAPABILITIES

Formica Decorative Laminate can have a 180° rounded edge. It has a heat resistant surface up to 135°C.

PRODUCT DATA

Storage

Sheets should be stored flat and face-to-face to reduce the possibility of damage. Bulk stocks should be stored flat on supports and covered to protect from dust. Sheets should be withdrawn in pairs with a sheet of paper between.

Handling

To avoid scratching or marking the surface, work areas should be kept clean. Contact with any abrasive surface should be avoided. Sheets should be lifted carefully and care should be taken not to slide them on the decorative surface.

Cutting

Formica® Decorative Laminate should always be cut with the working face up to minimise surface chipping.

Hand Sawing

A sharp panel saw gives good results due to its small teeth. The cutting

stroke should be held at approximately 45° to the sheet and the back stroke should be light.

Machine Sawing

Bench-type circular saws, with a pitch of 6mm to 8.5mm and only a slight set, provide a clean cut of the decorative surface. Metal band saws are ideal for cutting shapes.

Planing

An excellent edge finish can be achieved with a hand plane.

Hand Planing

Specially hardened plane irons, such as “Titan”, require less sharpening than standard iron plane knives.

Machine Planing

Vertical spindle moulding machines with tungsten-tipped cutters are ideal for edge finishing and for making mitres.

Drilling

Hand or power operated high-speed twist drills will cut clean holes. Due to the hard melamine surface, a small pilot hole should be drilled for carpenter’s bits. Fast cut types give the best results. For large holes 20mm diameter and over; a centre bit should be used.

Bending

Forming is accomplished by applying infra-red heat to the laminate in the area of the bend. Once it has reached the required temperature of 163°C, the sheet is formed with the aid of a mandrel. The sheet is allowed to cool and bond whilst held in the desired shape. Due to the high degree of control needed to bend Formica Decorative Laminate, this work is usually carried out in the workshop by an experienced fabricator using special postforming equipment.

Bonding

Ensure that the surface to which the Formica Decorative Laminate is to be bonded is clean, dust-free and without irregularities.

Formica Decorative Laminate can be bonded with several types of adhesive; the choice depends on the particular

application. Refer to the adhesive manufacturer for details of particular adhesive types.

All adhesive on the decorative surface should be removed immediately.

JOINING

Waterproof mastic should be used to prevent the ingress of water into the substrate or glue line at butt joints. Selleys Bath Tub Caulk-White or 781 clear silicone, or Dow Corning 732 RTU clear silicone are recommended, used in accordance with the manufacturer’s instructions. This should also be done when extruded aluminium or PVC joint strips are used.

Corner joining methods include: Full Mitre, Mason’s Mitre and Aluminium joining strip. Full mitre is the only means of joining a cove top or specially shaped components.

Each of these joining methods can be pre-cut by the fabricator for assembly on site.

The use of *Radiused* corners in cutouts is the recommended way of reducing stress by distributing it over a wider area rather than directing it to a 90° corner. It is important to smooth the edges of the radius cutout with a fine tooth file as this will further reduce any stress in the construction. Over-cutting inside corners should be avoided as this may increase the risk of stress cracks.

GREENfirst PRODUCT

Formica Decorative Laminate is a Greenfirst™ product and is certified by Good Environmental Choice Australia as environmentally preferable.



General Site Work Notes

Appendix 1. Handling & Product Application Guidelines
Section 9:1

Greenfirst

Section 3:1