

## Laminex® Redback™

Laminex Redback is a specially formulated laminate which may be readily heatformed down to a radius of 10mm without cracking or blistering. It will form around internal and external bends in any direction to as tight as a 10mm radius with no loss of durability or appearance.



### APPLICATIONS

Laminex® Redback™ is widely used for countertops, vanity units, partitions, store fixtures, sills, bars, benchtops, door and drawer fronts and other applications where good appearance, durability and resistance to stain and heat from ordinary sources are required.

### PRODUCT CHARACTERISTICS

Sizes	3600mm x 1500mm 3600mm x 1200mm 3600mm x 900mm 3600mm x 750mm
Thickness:	0.7mm (nominal)
Weight:	1.0kg/m <sup>2</sup> approx.
Finish:	Natural, Dimensions.
Colours and Pattern Range:	Refer to current Product Availability Chart.

### FIRE TESTS

(Typically achieved when tested to AS/NZS 1530.3)

Indices	Result *	Range
Ignitability	10	0-20
Spread of Flame	9	0-10
Heat Evolved	5	0-10
Smoke Developed	5	0-10

\* Laminate unadhered

Cone Calorimeter AS/NZS 3837 (Irradiance of 50kW/m <sup>2</sup> )		
Classification	Result*	Unit/Range
Group Number	2	1-3
Average Specific Extinction Area	105.5	m <sup>2</sup> / kg

\* Laminate unadhered

Laminex Redback conforms with AS/NZS 2924.1 for high-pressure decorative laminates.

### PROPERTIES

(AS/NZS 2924.1)	
PROPERTY	REQUIREMENT
Resistance to Surface Wear:	Initial wear not less than 150 cycles. Average wear not less than 350 cycles.
Resistance to Immersion in Boiling Water:	No deterioration other than slight loss of gloss. Gain in weight of no more than 14%.
Resistance to Dry Heat at 180°C:	No deterioration other than slight loss of gloss/colour.
Resistance to Steam:	Moderate change of gloss and/or colour.
Dimensional Stability:	Dimensional change of not more than 0.7% with grain and 1.2% across grain.
Resistance to Staining:	Reagents Groups 1 and 2 = No visible change. Reagents Groups 3 and 4 = Moderate change of colour/gloss.

Resistance to Colour Change in Artificial Light*:	Not more than slight colour change in Xenon arc light (minimum) 6 on Blue Wool
Resistance to Cigarette Burns:	No deterioration other than moderate change in gloss and moderate brown staining.

\* Laminex Redback laminate has good colour retention and dimensional stability in normal interior applications. However, prolonged exposure to sunlight may cause shrinkage and/or some change in colour. Laminex Redback laminate is therefore not recommended for external applications or interior applications with prolonged exposure to direct sunlight.

### WHEN SPECIFYING

Surfacing shall be Laminex Redback laminate as manufactured by The Laminex Group. Colours and/or patterns shall be ..... in ..... finish.

### GREENfirst PRODUCT

Laminex Redback is a Greenfirst™ product and is certified by Good Environmental Choice Australia as environmentally preferable.



## PROCESSING

### Board Substrate Bend Profile

Laminex Redback should be fully supported by substrate when glued. Do not bond directly to plaster, plasterboard or concrete. The correct profile on particleboard or medium density fibreboard can be obtained by using specially shaped router blades with a radius not less than 10mm. Profile should be uniform along the full length of the board with none of the following faults:

1. High spots
2. Bumps
3. Low spots
4. Ridges
5. No surface dust or chips.

The profile should be smooth and have a gentle taper leading into the profile from the board's surface.

### Gluing

Trade Essentials Sprayable Contact Adhesives are suitable for gluing the laminate to the boards in conjunction with static post-forming machines.

Glue line should be evenly applied to both contact surfaces avoiding lumps of glue, sawdust, chips, etc., as they may fracture the laminate when pressure is applied during bonding.

Refer to the adhesive manufacturer's directions for correct fabrication instructions.

### Forming

There are three main steps involved in bending Laminex Redback grade.

1. Heat the area to be bent to the required bending temperature.
2. Bend immediately while still at the correct temperature.
3. Cooling of laminate to set formed shape.

### Heater

The most common type of heater consists of a series of ceramic heater segments which are coupled together to form a continuous bar. In most cases

these heaters are set up in banks to allow three heat zones along the machine.

Temperature variations during heating can affect the heat up time range and lead to possible failures when bending. As a safeguard against this, regular heat up time checks should be undertaken at the centre and both ends of the machine. The most common method of heat up checking is by placing sample pieces of Redback laminate (say 250mm x 75mm) at the three stations mentioned above.

Apply Tempilaq to each piece, time to melt (should be approx. 30 seconds) and then time to blister. If there is a variation in blister time between any of the laminate samples of 5 seconds or more, then adjustment of the heater bar may be necessary. Refer to the machine manufacturer for guidance.

### Heater Set Up Procedure

1. Elements must be centred over the bend to be made.
2. Usually the heater elements are closer to the work surface at each end than at the centre. The reason for this situation is to compensate for the heat loss around each end of the machine.
3. Heater height above the laminate surface is determined by the time it takes the laminate surface to reach a temperature of 163°C which should be between 25-30 seconds.

This can be controlled by either adjusting the element's temperature, the height above the laminate's surface or speed of motor drive conveyor in the case of a continuous forming type machine.

The surface temperature can be determined by using a temperature indication crayon or liquid, eg. Tempilaq.

4. For a wide bend, the elements can be gently moved backward and forward to give a greater heat spread and maintain a surface temperature of 163°C in 25-30 seconds.

### Bending Time

Bending times in the order of 30-50 seconds are generally accepted as practical. To establish bending time, use the following method:

1. Taking an offcut from a part of the sheet adjacent to the area to be formed, determine the blister time (a bubble raised on the heated surface) with a stopwatch. (Normally around 45-60 seconds).
2. Bend time: (Time to obtain forming temperature.)  
Bend time = 60% of blister time, eg. if the blister time was 60 seconds then bend time would be 60 x 60% = 36 seconds.

If any tightness on bending is detected, there is the potential to increase the time to 80% of blister time without any problems.

### Note:

The pattern colour, sheet thickness, as well as room, board temperature or speed of movement of forming (continuous type machine) may affect the heating time due to the differences in heat absorption.

Bend range is normally around 25 seconds if all above steps have been performed.

If no offcut of the material to be formed is available, then the bend time can be approximated by heating the area to be bent to the required bending temperature of 163°C at a heat up time to Tempilaq melt of 30 seconds. Allow a further 5 seconds for the core material to reach temperature then make the bend.

Again, if any tightness is detected, extend time by a further 5 seconds.

The operating window can be widened if necessary by slowing the heating time such that a surface temperature of 163°C is reached in 40 seconds. The slower heating rate will lengthen the blister time and bending can be achieved at 47 seconds heat time.

## Making the Bend

Firstly, the ends of the laminate sheet 8cm either side of the centre line of the bend should be filed smooth to remove any edge chips or small cracks.

These may start larger cracks leading into the sheet when bending.

The laminate should then be glued flat and pressed down and rolled, leaving the laminate for the bend clear of the boards.

If using a contact adhesive, ensure adhesive is sufficiently dry and all solvents evaporated before making the bend.

The laminate and board should then be accurately located in the forming machine so that the bend is made in the correct position, not pulling the laminate around the profile under too much tension.

The sheet is formed immediately after the correct heat up procedure is completed and is then held in position while the area of the bend is allowed to cool down. Usually 15-20 seconds is sufficient to permanently set the laminate in position and shape.

1. Temperature should have reached bend temperature along full bending length.
2. If too much bar tension (ie. the benchtop core is placed in the machine too far forward) on the bend, tension cracks along both top and bottom radius may occur. This cracking is usually evident immediately after the top is removed from the machine.
3. Too little pressure will leave a gap between the laminate and the board, leaving this susceptible to impact cracking.

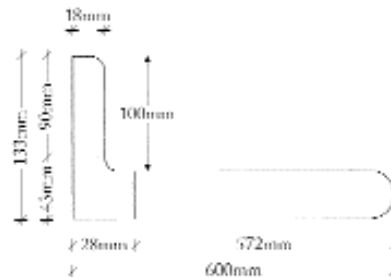
Use of a hand roller may be required to press the moulded laminate onto the boards so that contact adhesive can bond properly.

## Coved Splashbacks or Up-Stands (also refer to appendix 6.2-6.3 regarding proximity of splashbacks to heat sources)

When splashback or up-stand is required, it is necessary to lay out the top to determine the correct dimensions for each section of the benchtop.

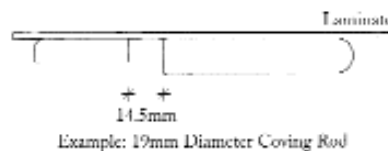
Assume the total width of the benchtop including splashback is 600mm with the overall height of the splash-back being 100mm from the top of the benchtop.

Fig. 1.



Having determined the dimensions of each component, prepare the blanks of laminate and bond together ensuring that a spacer block 14.5mm wide (for 19mm diameter coving rod) is used to guarantee an exact dimension between benchtop blank and splashback component.

Fig.2.



After bonding of both components to the laminate, care should be taken when rolling to ensure edge cracking does not occur between the splashback and top component. Should the splashback be of a different thickness to the benchtop, then accurate packers

must be employed to ensure an even thickness between both components.

The top is now ready for post-forming. It is important that all other forming functions are completed prior to the coving operation. Premature forming of the cove section may result in insufficient room in the machine to carry out the front edge forming.

## FORMING THE COVER SECTION

Once all other forming sections have been completed, heat up the cove rod on your machine.

- a. Invert the benchtop and align the 14.5mm grooved section with the machine indexers provided in the recessed aluminium channel, so the section to be coved will fall directly over the coving rod. Pull firmly so as to align the back edge of the benchtop component with the inside of the coving rod. This will ensure correct alignment of the benchtop.

Remove the indexers before applying platen pressure.

- b. Lower the top platen of the press. Apply 163°C Tempilaq to a section of the groove, ensuring that a melt time of around 30 seconds is achieved.

Once the Tempilaq commences to melt, slight hand pressure should be applied to the splashback component, it will usually fall down under its own weight. When the splashback component has formed to 90 degrees and is hard against the machine frame, clamp splashback in position with clamps provided with the machine.

This total operation should take no more than 45 seconds. Should the time be faster or slower, then adjustment of the heat setting on the coving rod will be required.

- c. Now fit the timber coving profile in position and fix in both directions with screws or staples ensuring the cover section remains hard against the machine frame.

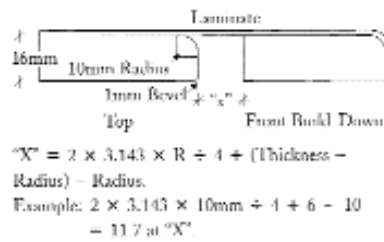
**Warning:** Speed is essential during the fixing of the timber coving profile as extensive delay in removing the benchtop from the machine may result in scorching or blistering of the laminate. Should large tops be required for fabrication where long delays would be obvious, then it is suggested that a special table be constructed to enable the fixing of the timber coving profile away from the post-forming machine.

- d. Once coving profile has been fixed into position it will be required to check that the splashback is square to the benchtop. Usually the cove section will want to fall away. Avoiding this will require the fixing of temporary plates to each end of the blank to hold it square until the adhesive dries along the timber coving profile and the laminate cools.

### Extended Drop-Fronts Benchtops

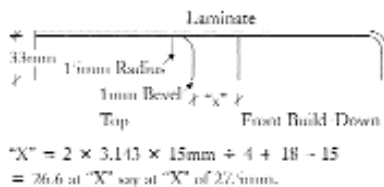
Some specifications require the fabrication of extended drop-down front edges usually between 200mm and 250mm deep. These applications are usually used in motel and hotel vanity units, reception counters, etc. It is therefore important to be aware of the formula required to achieve this result. Details of the mathematical specification for 16mm and 33mm thickness benchtops are as follows:

#### a. 16mm thickness benchtop with 10mm radius



Then allow 0.5 to 1mm for additional clearance which would give a suggested dimension at "X" of 12.5mm.

#### b. 33mm thickness benchtop with 15mm radius



In all cases it is important that the 1mm bevel be applied to the bottom of the front edge of the benchtop section. This bevel enables additional clearance for the drop-down component to clear when being bent into position.

The most common problems in post-forming are normally caused by:

Cracks	Dirty and/or uneven cores. Rough cores. Cold cores. Insufficient heat. Uneven heat distribution. Element too far from laminate. Wrong heat up rate.
Blisters	Uneven heat distribution. Warped material. Too much heat.
Delamination	Insufficient heat. Not enough glue. Insufficient pressure.

#### Note:

- a. The rate of forming depends primarily upon the amount of energy fed in, the thickness of the high-pressure laminate, the radius of curvature to be formed and whether the laminate is to be formed parallel to, or across, the direction of its sanding.

But when a laminate must be formed around a 10mm radius across the direction of sanding, the bend time (of 60% of the blister time) should be adhered to. The laminate will always bend more easily in a direction parallel to the direction of sanding.

- b. The formed laminate must be cooled in its shape to prevent it from springing back. In electrically heated equipment this is achieved with a draught of cool air or by a wet sponge.
- c. Providing it is not exposed to extremes of temperature or high humidity, Laminex Redback should have a shelf life of up to 12 months, however, it is strongly recommended that stocks be rotated as often as possible.
- d. This information is intended as a guide and should not necessarily be regarded as applying to all situations. It is therefore advised that if problems arise which are not covered, then the technical services section of Laminex should be contacted through your local branch.
- e. The data here in is believed to be accurate to the best of our knowledge, but users should carry out their own assessment of the product to satisfy themselves that it is suitable for their requirements.

#### General Site Work Notes

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

#### Laminate Product: Care & Maintenance

Appendix 2. General Care and Maintenance  
Section 9:2

#### Greenfirst

Section 3:1