

## Laminex® Stainless Steel

Laminex Brushed Stainless Steel and Steel Wave are high-pressure laminates manufactured with genuine stainless steel metallic foils. They are resistant to solvents, chemicals and household reagents and have an extremely hard wearing surface. Laminex Brushed Stainless Steel laminate is also post formable. Special fabrication conditions apply as a consequence of the physical properties of stainless steel foils.



### APPLICATIONS

Laminex® stainless steel laminates are suitable for both vertical and horizontal applications such as feature panelling, benches, table tops, bar tops, doors, exhibition stands, shopfitting or any area where a decorative metal look is required. They are not suitable for exterior applications.

### PRODUCT CHARACTERISTICS

| Sizes:          |                                   |
|-----------------|-----------------------------------|
| Brushed         |                                   |
| Stainless Steel | 2400 mm x 1000 mm                 |
| Steel Wave      | 2400 mm x 1200 mm                 |
| Thickness:      |                                   |
| Brushed         |                                   |
| Stainless Steel | 0.8 mm                            |
| Steel Wave      | 1.0 mm                            |
| Weight:         |                                   |
| Brushed         |                                   |
| Stainless Steel | 1.7 kg per m <sup>2</sup> approx. |
| Steel Wave      | 1.9 kg/m <sup>2</sup> approx.     |

\* Steel Wave laminate has a seam join down the centre of the sheet

### FIRE TESTS

| (Typically achieved when tested to AS/NZS 1530.3) |        |       |
|---|--------|-------|
| Indices   | Result | Range |
| Ignitability                                      | 0      | 0-20  |
| Spread of Flame                                   | 0      | 0-10  |
| Heat Evolved                                      | 0      | 0-10  |
| Smoke Developed                                   | 0      | 0-10  |

| Cone Calorimeter AS/NZS 3837 (Irradiance of 50kW/m <sup>2</sup> ) |         |                     |
|---|---------|---------------------|
| Classification  | Result* | Unit/Range          |
| Group Number  | 1       | 1-3                 |
| Average Specific Extinction Area                                  | 80.3    | m <sup>2</sup> / kg |

\* 0.8mm Laminate unadhered

### WHEN SPECIFYING

Surfacing shall be Laminex Metallic laminate as supplied by The Laminex Group. Colour/Finish shall be .....

### CARE AND MAINTENANCE

Although Laminex stainless steel laminates are resistant to most common household chemicals and solvents, it is good practice to always clean up spills as they occur. Avoid the use of abrasive cleaners for routine maintenance, even those in liquid form.

Laminex stainless steel laminates should only be cleaned with a soft, moist cloth or moist chamois leather and then dried with a soft, dry cloth. For more persistent marks, use a blue window cleaner such as Extra Strength Windex™ or methylated spirits. Proprietary stainless steel cleaner can also be used if necessary.

Do not place hot objects on stainless steel laminate benchtop surfaces – always use insulating mats. Laminex stainless steel laminates should not be exposed to temperatures in excess of 80°C.

Just as for solid stainless steel sheeting, Laminex stainless steel laminates will scratch under certain conditions. Never cut on the surface and use protective mats in high traffic areas to minimise the likelihood of scratching. Always lift objects on or off the surface, do not slide or drag.

Keep strong chemicals away from the surface – even stainless steel can corrode if exposed to the wrong reagents. Apart from the cleaning recommendations given above, a good rule of thumb is that if the substance in question doesn't go into food, then it should not come into contact with the laminate surface.

### SITE WORK NOTES

Special machining requirements are necessary for fabricating Laminex stainless steel laminates (see information contained within the following pages) therefore it is not practical to carry out on-site fabrication. It is critical that the design for any particular application relies on shop machining, with only minimal on site finishing to be employed.

Laminex stainless steel laminates are supplied with a protective film on the surface. This should be left intact during transport, handling and fabrication. In the case of Brushed Stainless Steel, the protective coating can be left on during post forming.

**Warning:** do not expose the stainless steel laminate with protective film to prolonged periods of direct UV exposure, as this will cause the film adhesive to harden, making removal difficult. If for any reason the film becomes firmly adhered to the laminate surface, removal may be facilitated by the gentle application of hot air to soften the adhesive. It is only necessary to heat the laminate so that it feels warm at the back – care must be taken not to heat the laminate above 80°C. Residual adhesive may be removed using acetone or petroleum based solvents.

## FABRICATION

Laminex stainless steel laminates can be bonded to a range of suitable substrates such as MDF, particleboard or plywood using conventional adhesives such as cross linking PVA, contact or epoxy adhesives.

**Note:** Urea-formaldehyde adhesives are not suitable.

Laminex Stainless Steel should be fully supported when glued. Do not bond directly to plaster, plasterboard or concrete.

See also other general site work notes in Appendix 1, section 9.1.

## MACHINING

The tools, cutters and methods that are normally used to process high pressure laminates are not designed to be used with such a hard surface as stainless steel, and if applied to stainless steel laminates it will result in damaged equipment, burring of the edges of the stainless steel foil, and delamination of the stainless steel foil from the phenolic impregnated kraft backing.

Machining of stainless steel laminates can be carried out using point-to-point or similar routing equipment and cutters designed for use with stainless steel (see below).

### Required parts:

300 x 300 Z96 Saw Blade Leitz Part No. 68800

16mm Spiral roughing cutter Leitz part No. 42507

18mm Up and down spiral cutter Leitz part. No. 42538

or Leitz equivalent part.

### Notes:

1. The cutters detailed above are designed for the trimming function only. All components must first be cut to a dimension no greater than 4 mm oversize to the finished dimensions. It is recommended that a waste board be clamped to the laminate surface prior to saw cutting to obviate saw "chatter" that might lead to delamination of the foil surface. Use a feed speed of 7m/min. and a blade speed of 3000 RPM.
2. Where the product is to be fabricated into a post formed component with a Mason's Mitre joint, then this joint section must be machined to an undersize dimension before applying the stainless steel laminate, once again ensuring a dimension of 4mm is left on for final machining.
3. The stainless steel laminate is to be cut to the same dimensions as the oversize board blanks, ensuring that any excess laminate is removed from the area of the Mason's Mitre joint location.
4. Fabricate stainless steel laminate to substrate in the normal manner.

## MACHINING CRITERIA

### For use with point-to-point or similar routers.

1. Programme the head in the Z direction to enable the cutter to continually and gradually pass vertically through the panel during each machining leg, from say 1mm to 10mm, depending on the panel thickness and the cutter length. This action considerably increases cutter life.
2. Cutter speed 2500 RPM (Twist direction of the tool so that the cutting edge always presses the stainless steel laminate against the substrate.
3. Feed speed 2 lineal metres per minute.
4. Initial cutting by 16mm spiral roughing cutter to remove 2-3 mm of waste.
5. Final machining of 1 mm (maximum) with 18mm up and down spiral-finishing cutter.

## POST FORMING

Laminex Brushed Stainless Steel laminate can be post formed down to a 10mm radius, in both longitudinal and cross direction, using conventional post forming equipment.

It is important to be aware that the bending temperature for stainless steel laminate is much lower than conventional laminates.

## THE BENDING TEMPERATURE FOR LAMINEX BRUSHED STAINLESS STEEL LAMINATE IS BETWEEN 110 AND 120 DEGREES CENTIGRADE.

Higher temperatures will result in delamination of the surface foil from the kraft backing. The use of 114°C temperature indicating crayon, available from The Laminex Group, is recommended.

**Note:** Due to the lower forming temperatures for this product, bonding failure may be experienced when forming on continuous post forming machines where cross linking PVA adhesives are used. It may therefore be necessary to consider other adhesive forms, such as sprayable contact adhesive.

### **COLD FORMING**

Stainless steel laminates with non-embossed surfaces and a thickness of 1mm or less, can be cold formed to the following radii:

- Convex bend, lengthwise or cross direction 80mm minimum.
- Concave bend lengthwise or cross direction 130mm minimum.

These figures are based on test material strips 50mm in width, and represent radii which can be achieved under normal conditions, where constant pressure is distributed uniformly over the entire surface.

Factors such as the degree of moisture in the laminate, temperature, method of bending, and uneven pressure or substrate profile can all have an effect on these results.

### **EDGING**

It is possible to produce edge laminate strips from off-cut product, but it is important to ensure that chattering of the laminate does not occur as the laminate passes through the saw blade. If chattering occurs then minor delamination of the stainless steel foil may result.

It is preferable that any edging be produced using a guillotine. Small tools such as the Virutex hand guillotine can be used for this function. Care should be taken in determining the dimensions of the laminate to be guillotined due to the extremely hard nature of the stainless steel foil, therefore it is suggested that minimal over trim be used, to enable a fast and clean finishing off of the laminate edge to both faces of the panel.

Slight burring may be removed by careful use of a fine file, only applying pressure on the downward stroke in the direction of the laminate surface to prevent delamination.

### **COLOUR CONSISTENCY**

By their nature, the metal foils used in the production of Laminex stainless steel laminates may vary slightly in colour from batch to batch.

Where colour consistency between adjacent panels is important, it is critical that manufacture dates or batch numbers (printed on the back of the laminate) are checked to ensure that they are the same. This will avoid the need to remove protective film to check colour or to take special steps where shop/warehouse lighting conditions are not ideal.