# Laminex® XR Grade Compact Laminate

**Laminex® XR Grade Compact Laminate is an extra resilient decorative panel made from thermosetting resin, homogeneously reinforced with cellulose fibre and manufactured under high pressure and temperature. The panels are strong, self supporting, chemical resistant and moisture resistant.**

Laminex XR Grade Compact Laminate is a general purpose compact laminate suitable for interior use in both vertical and horizontal applications. Laminex XR Grade Compact Laminate is suited to a wide range of applications including use in chemical laboratory environments.

## XR GRADE COMPACT LAMINATES

| | |
|---|---|
| Finish | Carbide |
| Colours | 6 Standard Colours |
| Thickness | 13 mm |
| Decorated | Double Sided |
| Core | Black |
| Panel Dimension | 3600x1500mm |
| Applications: | Shower & Toilet Cubicles, Office Worktops, Interior Wall Cladding, Lockers, Kitchen Benchtops & Cabinetry, Educational Furniture, Durable Furniture, Laboratory Worktops & Laboratory Furniture |

## CHEMICAL RESISTANCE

The chemicals and reagents listed below were rated for Laminex XR Grade Compact Laminate in a covered method (watch glass cover) with exposure for a period of 16 hours at 20 to 22°C. Reagents listed over do not damage Laminex XR Grade Compact Laminate.Those reagents marked with an asterisk (*) may cause slight change in gloss and/or colour, depending upon the duration of exposure whereas those marked with two asterisks (**) will cause severe damage and/or severe colour change. Prompt cleanup of all spills using water, a cloth and mild detergent is recommended. It is always a good idea to obtain laminate samples and perform in-situ tests with chemicals most likely to be in contact with the product prior to purchase.

## PROPERTIES

| Property or Attribute | Unit | Requirement | Standard |
|---|---|---|---|
| **Physical Properties** | | | |
| Specific Gravity (minimum) | $Kg/m^3$ | 1350 | EN ISO 1183-1 |
| Weight 13mm thickness | $Kg/m^2$ | 18.5 | |
| **Panel Tolerance** | | | EN 438-4 |
| Length | mm | ± 5 | |
| Width | mm | ± 5 | |
| Thickness 13mm | mm | ± 0.60 | |
| Flatness | mm/m | ≤ 3 | |
| **Optical Properties** | | | AS/NZS 2924.1* |
| Colour Stabilities | Grey Scale | Minimum 4 | |
| Blue | Wool Scale | Minimum 6 | |
| Stain Resistance Groups 1 and 2 | Rating | Pass | |
| Stain Resistance Groups 3 and 4 | Rating | Pass | |
| **Mechanical Properties** | | | |
| Modulus of Elasticity | Mpa | > 9000 | EN ISO 178 |
| Tensile Strength | Mpa | > 60 | EN ISO 527-2 |
| Flexural Strength | Mpa | > 80 | EN ISO 178 |
| Craze Resistance | Rating | Pass | AS/NZS 2924.1 |
| Impact Resistance | cm | Pass | AS/NZS 2924.1 |
| Immersion in Boiling Water | - | Pass | AS/NZS 2924.1 |
| Scratch Resistance# | N | Pass | AS/NZS 2924.1 |
| Stability at elevated temperature | % | Pass | AS/NZS 2924.1 |
| Wear Resistance | Cycles | Pass | AS/NZS 2924.1 |
| Wet Heat Resistance at 100°C | Rating | Pass | EN 438-4 |
| Steam Resistance | Rating | Pass | AS/NZS 2924.1 |
| **Thermal Properties** | | | |
| Thermal Conductivity Coefficient | W/mK | ± 0.3 | DIN 52612 |
| Cigarette Burns | Rating | Pass | AS/NZS 2924.1 |
| Dry Heat at 180°C | Rating | Pass | AS/NZS 2924.1 |

* AS/NZS 2924.1: compact general – purpose standard grade (CGS material type).
# Minimum if 1N for dark colours

**Acids**
Acetic Acid (Glacial), 98%
Chromic Acid, 10%
Citric Acid, 10%
Dichromate Cleaning Solution*
Formic Acid, 90%
Hydrochloric Acid, 37%
Hydrofluoric Acid, 40% **
Nitric Acid, 30%
Nitric, 65%**
Perchloric Acid, 60%*
Phosphoric Acid, 85%
Sulphuric Acid, 33%
Sulphuric Acid, 98%**

**Alkalis**
Ammonium Hydroxide, 28%
Potassium Hydroxide, 15%
Sodium Hydroxide, 46%

**Salts**
Copper Sulphate, 10%
Ferric Chloride, 10%
Potassium Permanganate, 1%
Silver Nitrate, 1%
Sodium Chloride, 10%
Sodium Hypochlorite, 16%

**Organic Chemicals**
Formaldehyde, 10%
Furfural
Phenol, 90% *

**Most conventional cleaning agents**
Resistant to most common cleaning agents. Avoid the use of highly alkaline, highly acidic or abrasive cleaning agents.

**Solvents**
Acetone
Dichloromethane
Ethyl Acetate
Ethyl Alcohol
Ethylene Glycol
Ethylene Glycol Mono Butyl Ether
Isopropanol
Methyl Alcohol
Methyl Ethyl Ketone
Methyl Isobutyl Ketone
N-butyl Acetate
N-hexane
Tetrahydrofuran
Toluene
Trichloroethylene
Xylene

**Biological Stains**
Carbol Fuschin, 1%**
Crystal Violet, 0.5%
Gentian Violet, 1% solution
Hydrogen Peroxide, 3%
Iodine Tincture, USP, 2%**
Malachite Green Oxalate, 1%
Methylene Blue, 1%
Methyl Orange, 0.04%
Methyl Red, 0.1%
Methyl Violet 2B, 1%
Sudan III
Wrights Stain, 1%

**Note:** Some chemical reagents 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.

## WHEN SPECIFYING

Materials shall be Laminex XR Grade Compact Laminate of nominal thickness of ..... mm, as supplied by The Laminex Group. Colour shall be .....

## SITE WORK NOTES

### Fabrication

Laminex XR Grade Compact Laminates can be cut, drilled and machined with standard woodworking equipment fitted with tungsten carbide edges. Surface mounted objects should be secured using self-tapping screws in pre-drilled holes.

Screws into the edges should be avoided.

Metal brackets are recommended for securing the panels together. Mitring of edges should be avoided as they are vulnerable to damage.

Standard tools for hardwood can be used for machining or processing such as sawing, drilling and routing. Neither the surface nor the sawn edges need to be protected or sealed. Panels will present a distinctive black edge.

## CUTTING DOORS OR PANELS

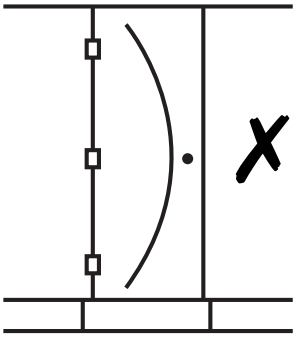
Compact Laminate is a wood based product and it's movement is influenced by humidity absorption.

Similarly to other laminates; Compact Laminates will expand more in the width than in the length due to the grain direction of the cellulose fibres in the paper-paper core.

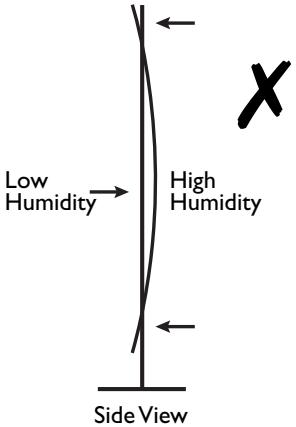
To minimise warpage of doors and panels it is recommended that panels must be cut with the long edge parallel to the length of the sheet. Warpage occurs when both sides of a door or panel are not exposed to the same humidity level.

The longer a sheet is, the larger the impact of warpage will be. Ensure as far as possible that ambient conditions are the same on each side of a panel where it is used, mounted on a wall or enclosing a cabinet for example.

**Incorrect:** door cut out of width of a sheet, warpage vertically.

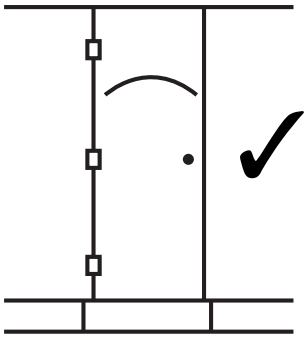


Front View

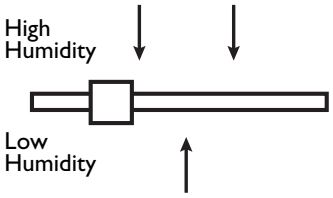



Side View

**Correct:** Door cut out of length of a sheet, warping horizontally.



Front View




Top View

**Note:** An exception is when Compact Laminate is used for sash doors. The panels have to be cut out of the width of the basic sheets instead of the length. If a sash door is cut out of the length of a sheet the horizontal bow will interfere with the sliding action of the door. It is preferable to have a vertical bow for this application and cutting out of the width of the basic sheet is recommended.

## GLUEING

Compact panels can be glued to each other and to almost any other material with one or two part adhesives, e.g. epoxy or polyurethane adhesive systems.

Glueing is usually carried out together with a mechanical joint to provide sufficient pressing during drying.
Glue Type Epoxy/Polyurethane

| | |
|---|---|
| Glue Type | Epoxy/Polyurethane |
| Application | 100-250 g/m$^2$ |
| Open Time | Depends on type |
| Application Pressure | 0.2 N/mm$^2$ |
| Time | 4-8 hours at 20°C |



**Issued September 2013** ASW 000000

Please follow the instructions below for thickening the edges of panels.

Panels and strips must have the same "grain direction".

Panels, strips and adhesive must be pre-conditioned in the same way (temperature and humidity preferably the same as the future conditions of use).

Remove grease from surfaces to be glued, slightly roughen them and ensure they are dust-free.

## PROCESSING

### Sawing

It is strongly recommended that all sawing operations for Laminex Compact to be done with stationery circular saw to achieve optimum finishing effect and always use some trial panels to test first before actual operation. Always make sure that the decorative surface facing upwards to prevent damage chipping edges on the surface.

A carbide or diamond tipped saw blade should be used to saw the panels

The height setting of the saw blade should be approximately 30-40mm above the decorative surface. The image below illustrates the correct setting of the saw blade so as to avoid chipping saw edges.

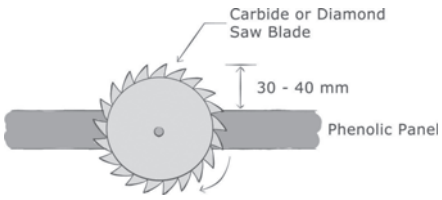
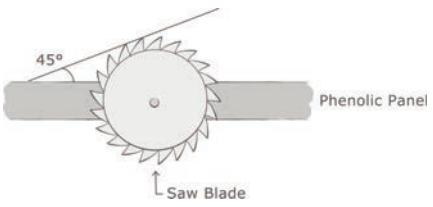



Illustration of Height Setting for Saw Blade

Entry rake angle of about 45˚ will give the panels nice and straight sawn edges as shown below.




Entry Rake Angle of the Saw Blade

The saw blade must always be sharp and if necessary, remove it to sharpen or change to a new one before continuing the sawing operation.

All sharp sawn edges should be removed with fine sand paper or router to achieve good and smooth finishing effect.

**Recommended Sawing Operation for Laminex Compact**

| Saw Blade Diameter (mm) | No. of Saw Teeth | No. of Revolutions for Saw Machine (rev/min) | Blade Thickness (mm) | Height Setting (mm) | Feeding Speed (m/min) |
|---|---|---|---|---|---|
| 300 | 72 | 6000 | 3.5 | 30 | 7-22 |
| 400 | 96 | 4000 | 4.8 | 40 | |

### Routering

Routering of edges require hard metal or diamond cutter at slow speed to achieve good finishing without burn marks on the phenolic core surface.

This operation can be done with either a CNC machine or manual operated routering cutter. Depending on the type of router shapes, the cutter bits below can achieve the desired effect.

**Types of Router Bits for Different Types of Edge Finishing**

| Edge Finishing | Type of Bit |
|---|---|
| Bevelling | Straight and Slanted |
| Rounded | Hollow or Round |
| Groove | Diamond Groove |

For CNC operation, please follow the machine manufacturer instructions. For manual operated routering, the table below shows essential information for the operation.

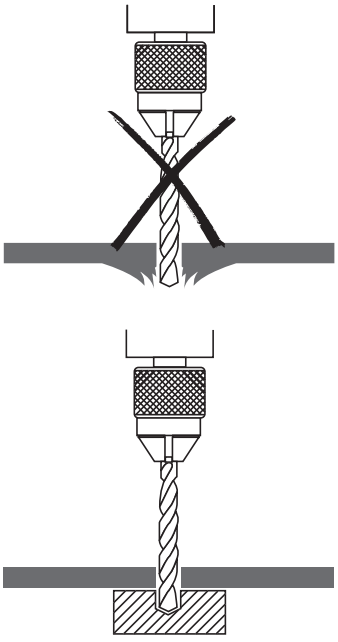
**Manual Operated Routering Operation**

| Bit Diameter (mm) | No. of Revolutions (rev/min) | Speed (m/s) | Feeding Speed (m/min) |
|---|---|---|---|
| 20 | 18000 | 20 | 5 |
| 25 | 24000 | 30 | |

### DRILLING

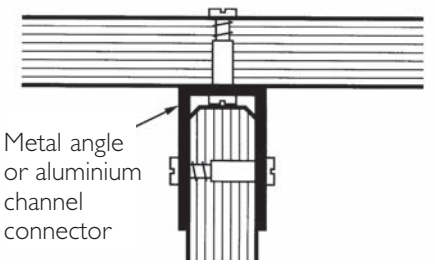
HSS drill, top angle 60°-80°. Panels should be drilled with support sheets.

| Section | 5mm | 8mm | 10mm |
|---|---|---|---|
| Number of Revolutions | 3,000 | 2,000 | 1,500 |
| Start | 60-120 mm/min | 40-80 mm/min | 30-60 mm/min |

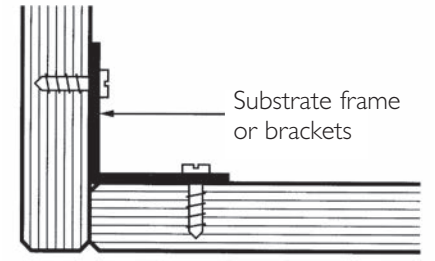


## INTERSECTIONS

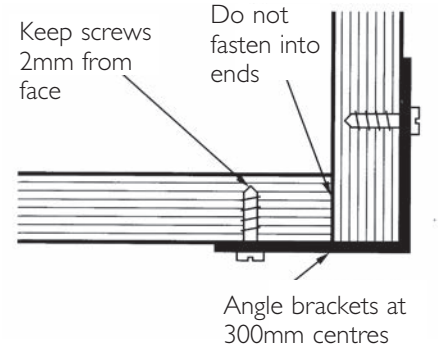
### T-Intersection




### External Corner

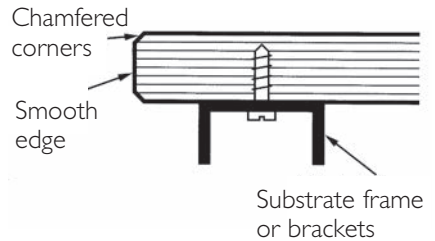



### Internal Corner

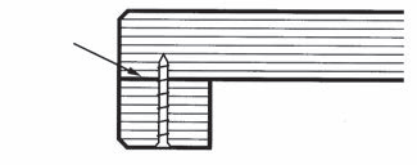



## EDGES & NOSINGS

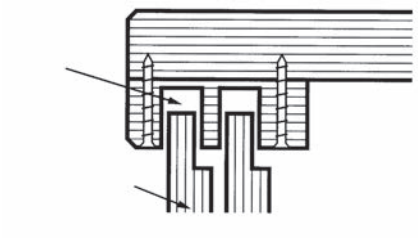
### Standard Edge



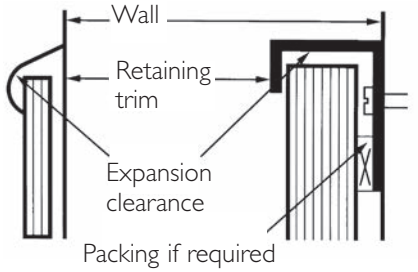

### Built-Up Edge



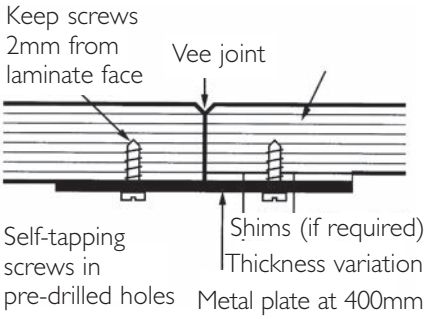
### Edge with Sliding Doors



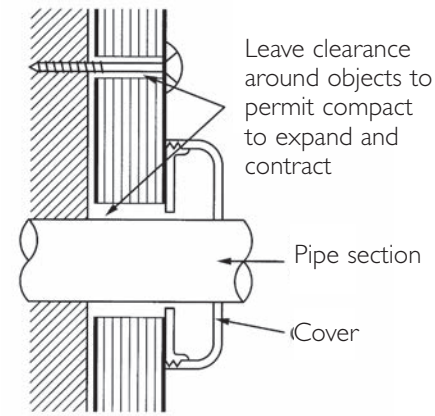
## SPLASHBACKS




## JOINTS




### Pass-through Objects




## CARE & CLEANING

The non-porous surface is easy to clean. For general cleaning of standard interior applications, household cleaners, water or soap are highly recommended. The use of abrasive or polishing materials should not be used.

Both the decorative surface and homogenous core of Laminex Compact Laminates are impervious and resistant to most commonly used cleaning agents and disinfectants.

The surfaces of Laminex Compact Laminates furniture can be easily cleaned with a dry or damp cloth and, if necessary, a mild household cleaner. Wipe damp surfaces with an absorbent cloth.

Alternatively, the panels can be steam cleaned.

### Removing Severe Soiling

Severely dirty surfaces or areas where normal soiling* has built up over a long period of time are easy to clean with hot water and an interior detergent- or soap-based cleaning agent, applied with a sponge or soft nylon brush.

Apply the diluted cleaning agent to the surface and leave it to soak for a while. Then rinse off with clean water and dry with an absorbent cloth.

*dust, pencil, ball pen, ink, coffee, tea, fruit juice, lipstick, grease, nicotine stains, shoe polish, soap residues, limescale, water-soluble paints and adhesives.



Issued September 2013 ASW 000000

**Removing Special Staining**
Solvent-based varnishes and adhesives (nail varnish, rubber stamp ink, aerosol paint) should be removed with organic solvents such as acetone, white spirit, turpentine or petroleum.

Remove wax from candles or crayons immediately with water and a mild household cleaning agent. Dried wax stains may first have to be scraped off with a wooden or plastic spatula and the remainder removed with an organic solvent.
Two part paint or adhesive, synthetic resin and the like should be removed immediately with water or an organic solvent. Once these products have set, they cannot be removed without damaging the surface.

Limescale can be removed with acidic cleaning agents containing approximately 10% acetic acid or citric acid.

The manufacturer's instructions must be strictly followed. Rinse surfaces and edges very thoroughly!

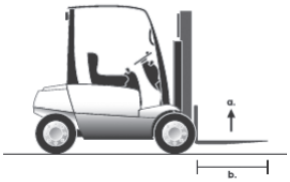
Paint, varnish, ink, shoe polish, lipstick, tar and other soluble (but strong stains) can be removed with organic solvents such as acetone, white spirit, turpentine or petroleum.

Rub silicone off dry or use silicone remover.

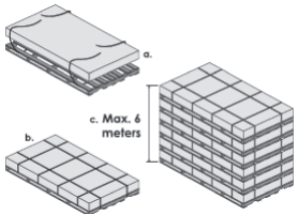
Both the decorative surface and core of Laminex Compact Laminates are highly resistant to most commonly-used disinfectants such as:
- alcohol, preferably up to 70% solution in water.
- aldehydes, although not in, or in combination with, quartenary ammonia compounds.
- chlorine bleaching compounds. (However, long term use of these products can cause certain pigments to fade.)
- phenols, not to be used for kitchen disinfection.
- peroxide compounds (hydrogen peroxide and organic peracids)
- quarternary ammonium compounds

Some manufacturers offer products containing both cleaning and disinfecting components. These are known as detergent sanitisers, and are intended for simultaneous cleaning and disinfection of light to medium soiled surfaces in rooms where there is no great risk of infection.

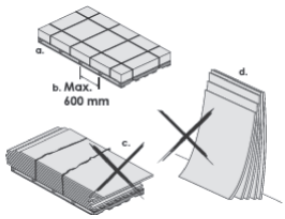
## STORAGE & HANDLING CONDITIONS



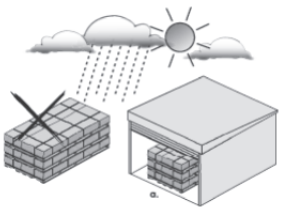

1. Compact is heavy. Ensure you use the right forklift length for the laminate stacking height and sheet size. Don't overload the forklift.



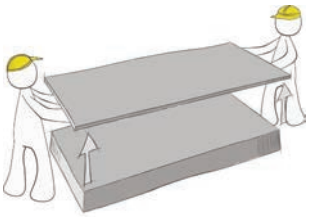

2. During storage the sheets must be parallel to the ground and aligned with each other on bearers that are evenly spaced on a flat surface. Maximum space between bearers is 600mm. Protect the sheet corners.



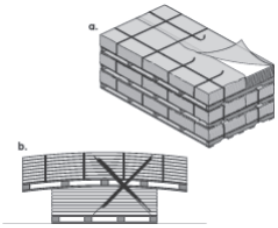

3. Do not stand the sheets against a wall vertically. Make sure there are no cavities between the sheets.




4. Store in a dry, sheltered area. Do not leave the sheets inside the pallet in the rain or direct sunlight.



5. Sheets must be carried by at least 2 people, or if using a forklift or suction lift, move sheets gently to avoid damage.




6. Protect laminates with a moisture impermeable cover. Do not stack bundles of different size on top of each other. If laminates are removed from the pallet for storage, it's recommended that the plastic film is removed to ensure even moisture absorption on both sides of the panel.