COMPACT

LAMINATE

Formica® Compact laminate is a solid, extremely durable decorative building panel, available in various thicknesses, which has been developed for use as a self-supporting panel in applications requiring a product that is impervious to moisture, totally hygienic, and virtually indestructible.

Formica Compact laminate, for colourful solutions to tough problems.

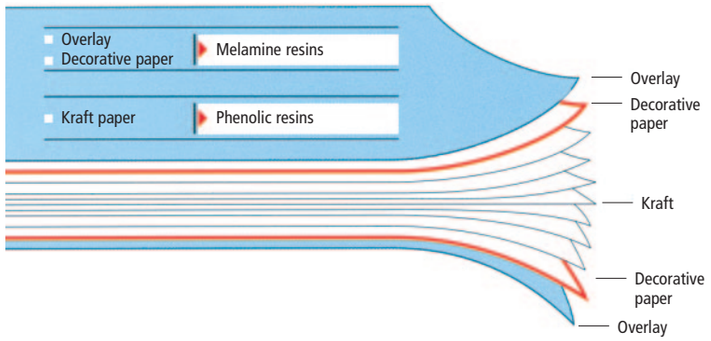
FORMICA®

FASHION · FORM · FUNCTION

Composition

Formica Compact laminate is made up of multiple layers of kraft paper impregnated with thermosetting phenolic resin sandwiched between décor papers impregnated with special high-abrasion-resistant melamine resins.

These components are pressed at a temperature of 140˚C and pressure up to 7500kPa. at which a chemical and physical transformation known as polymerisation occurs where the components are melded into an extremely strong, solid, homogenous panel with superior wear-resistance. Suitable for internal use only.



Availability

Formica Compact laminate is manufactured double-sided only as this ensures the sheets remain flat for ease of machining and installation. It is also suited to applications where self-supporting panels are required.

Sheet sizes: 3600 x 1500mm; 3600 x 1200mm; 2400 x 1200mm.

Standard thicknesses: 13 and 6mm. Other thicknesses on application.

Colours and patterns: Most Formica high pressure laminate colours/patterns are available in Compact laminate.

Properties and Features

- Excellent resistance to impact and mechanical stresses
- Non-toxic
- Does not rot, freeze or cultivate fungi, mildew or spores
- Resistant to moisture and steam
- Decorated both sides, in a wide colour/pattern range, to ensure flatness
- Easy to handle; it can be sawn, drilled, milled, shaped and threaded
- Self-supporting ensuring ease of installation and long term stability
- Quick and simple to install using aluminium mouldings, mechanical fasteners or other purpose-designed systems

Toilet partition systems

Product Applications

FORMICA 13MM
COMPACT LAMINATE
has a wide field of interior applications where both durability, hygiene, security and a decorative effect is required.

Used for:
- toilet partitions
- laboratory cabinetry
- shower partitions
- security partitioning
- swimming pool partitioning
- designer desk tops

Used in:
- hospitals
- sports and recreational centres
- hotels
- prisons
- transportation and shipping
- office systems

FORMICA 6MM
COMPACT LAMINATE
is an extremely durable panel used mainly for wall linings in commercial applications.

Used for:
- wall linings
- wet area wall and ceiling linings
- swimming pool lockers
- laboratory linings

Used in:
- hotels
- prisons
- schools
- armed services establishments
- office systems

Office furniture

FORMICA®

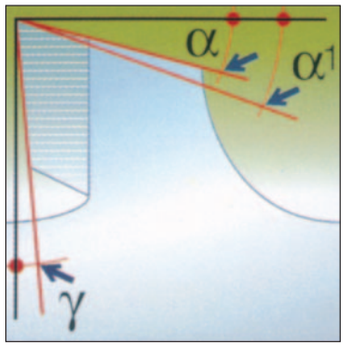
Technical Data

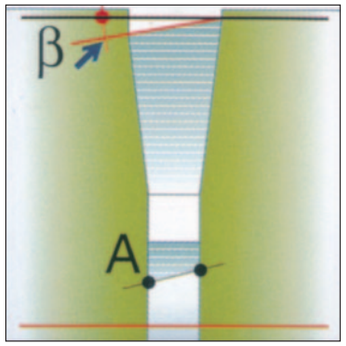
PRODUCT CHARACTERISTICS	
Sheet Sizes	3600mm x 1500mm, 3600mm x 1200mm, 2400mm x 1200mm
Thickness	13.0 +/- 0.5mm, 6.0 +/- 0.3mm
Weight	18.3kg / m^2 for 13mm, 8.5kg / m^2 for 6mm
Finish	Velvet and Quarry
Gloss Level	15 for Velvet finish and 13 for Quarry finish, using 60° Gardner measure
Colour and Pattern Range	Contact The Laminex Group Customer Services
Availability	Made to order. Minimum of one sheet for 13mm product and three sheet minimum for 6mm
PROPERTIES	
AS/NZS 2924.1 : 1998 (Type CGS)	
PROPERTY*	**COMPACT LAMINATE TYPICAL VALUES**
Appearance	No defects visible at a viewing distance of 1.5m
Flatness	No more than 5mm bowing over a distance of one metre
Resistance to Surface Wear	Initial wear point no less than 150 abrasion cycles. Average wear no less than 350 abrasion cycles
Resistance to Immersion in Boiling Water	No deterioration other than slight loss of gloss and/or colour after a 2 hour immersion. Increase in mass and/or thickness of no more than 2.0%
Resistance to Dry Heat at 180°C	No deterioration other than slight loss of gloss and/or colour after 20 minutes in contact with a hot wax pot
Dimensional Stability at Elevated Temperature	Dimensional change of not more than 0.2% with grain and 0.5% across grain
Resistance to Impact by Large-diameter Ball	No indentation nor cracking from a drop height of 240cm with a 286g steel ball
Resistance to Scratching	Equal to or greater than 2N force as tested using a diamond scratching point
Resistance to Staining	No more than a slight change of gloss and/or colour after exposure to a range of common staining agents which includes: acetone; coffee; sodium hydroxide (25% solution); hydrogen peroxide (30% solution); shoe polish: and citric acid (10% solution). Stains can be removed using a mild abrasive cleaner
Resistance to Colour Change in Xenon Arc Light	Minimum of 6 on Blue Wool Scale after exposure to Xenon arc light
Resistance to Cigarette Burns	No more than a slight change of gloss and/or slight brown stain
Resistance to Steam	No deterioration other than slight loss of gloss and/or colour after a 60 minute exposure to steam
Resistance to Crazing	No worse deterioration other than a presence of hairline cracks only visible under a x 6 magnification, after exposure to dry heat at 80°C for 20 hours
Resistance to Moisture	No more than a slight change of gloss and/or colour, or slight edge swell or hairline edge cracks after immersion in water at 65°C for 48 hours
Flexural Modulus (Elasticity)	Not less than 10,000Mpa
Flexural Strength (Rupture)	Not less than 100Mpa
Tensile Strength	Not less than 70Mpa

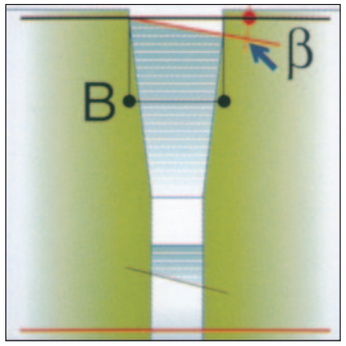
*Enquiries regarding specific properties should be directed to the nearest The Laminex Group Sales Office

Storage

Formica Compact laminate should be stored flat on gluts spaced at 600mm centres. As Compact laminate expands and contracts in extremes of humidity the panels should be uncovered upon delivery to the contract site and allowed to acclimatise in the actual installation environment for 48 hours before fixing begins. This is particularly important when refurbishing areas such as swimming pool ablutions and saunas.







CUTTING ANGLES
A = 2.6mm
B = 3.8mm
α = 15°
α^1 = 20°
β = 10°
γ = 5°

Note: sharpening on alternative teeth, one right and one left

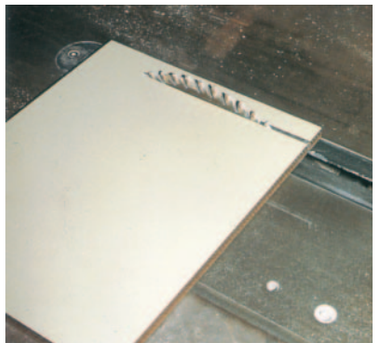
Processing

CUTTING – Table Saw
Formica Compact laminate can be cut into sections:

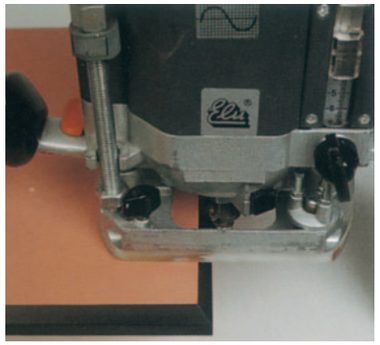
- with a tungsten carbide tipped blade having an ideal diameter of 300mm, with 60 teeth.
- speed – 6000rpm
- feed rate – 15 to 20 metres per minute
- blade body thickness – 2.6mm
- tungsten carbide inset thickness – 3.8mm
- for sharpening angles see drawings

For a correct cutting operation the following basic rules should be followed:

1. Position the panels so that the face is cut first to avoid splintering.
2. Ensure that the panel holding press is parallel to the panel itself and that it has constant pressure applied.
3. Ensure that the blade-holder slide does not vibrate and that there is no clearance on the slide guides.
4. Check that the feed movement of the blade-holder is even and that it does not slow down or speed up due to dirt on the guides or the train mechanism.
5. Check the perfect squareness of the blade-holder shaft in relation to the slide train axis, so that the blade does not bind when coming out of the cut.
6. Formica 13mm Compact laminate must be cut with the main blade cutting the face and the scribing blade cutting the back of the panel.
7. Unless the Compact laminate edges cut on a table saw are hidden during fabrication/installation procedure the finish is usually not of sufficient quality to be used in an exposed situation. Further machining/milling may be required.
8. When cutting panels for double-sided applications ensure saw table is clean to avoid scratching.



Processing



Top: Hand router
Bottom: CNC router

CUTTING – Portable saw (skilsaw)
Similar blade configurations as for table saw apply. Clamp a straightedge along panel, face down, as the blade cuts in the reverse direction to a table saw.

DRILLING
To drill Compact laminate (particularly for volume) it is recommended to use cobalt tips that have a better resistance to high temperatures. For through-holes, rest the Compact laminate on particleboard (or similar) and slow down the feed-speed when the tip is about to protrude from the panel. For blind holes it is recommended to scrupulously observe the minimum sizes recommended.

Compact laminate can be tapped with normal steel tappers.

MILLING
Shaping or chamfering Compact laminate is best carried out on a CNC router or heavy duty portable hand router. For CNC cutting, diamond tipped cutters should be used as they give a superior finish to the machined profile. With portable hand routers use cutters with tungsten carbide inserts. Finish edges off by hand with a fine abrasive cloth ensuring the face of the panel is not abraded. Core can then be wiped with straw oil or neutral silicon-free furniture wax to complete the process.

Shapes

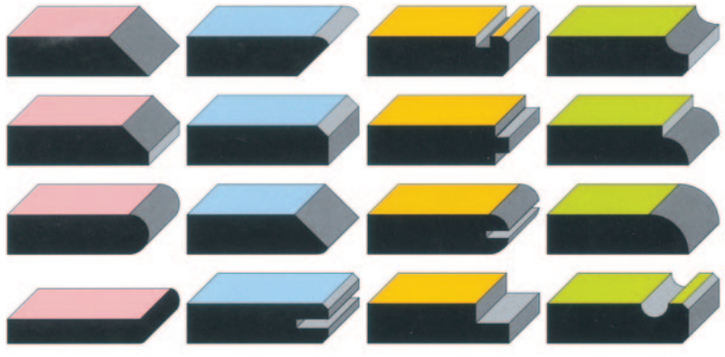


Fig 1 Thread cutting screws
Fig 2 Expansion bushes
Fig 3 Corner screwed
Fig 4 Corner rebated screwed
Fig 5 Tee-section – screwed
Fig 6 Tee-section – glued

FORMICA®

13mm Compact Laminate Panel Assembly

There are various methods of assembling panel components once they have been fabricated. These range from traditional mitreing of corners through tongue and groove to rebating. Given the availability of computerised routers and boring machines the most efficient and cost effective methods that have been evolved have been (1) thread cutting screws and (2) the expansion bush with M6 screws; both used in conjunction with aluminium support brackets.

THREAD CUTTING SCREWS
The maximum depth of the hole should be at least 3mm less than the panel thickness (fig 1). The diameter of the hole should be equal to the screw core diameter (screw diameter minus thread height). Depth of hole at least 1mm greater than screw penetration. Use soap or grease on screws to assist cutting. When screwing parallel to the 13mm panel the minimum distance from edge should be 20mm and the maximum screw diameter should be M6.

EXPANSION BUSHES
When setting up for installation of the expansion bush the following procedures need to be addressed: The 13mm Compact laminate should be drilled to a maximum depth of at least 3mm less than the panel thickness (fig 2). Depth regulators should be used to ensure accurate holes are achieved. The diameter of the hole should be equal to the outside diameter of the expansion bush and the depth of the hole should be at least 1mm greater than the expansion bush.

OTHER ASSEMBLY OPTIONS
Corner profile – Screw-fixed (fig 3): Pre drill 4mm hole 35mm deep through the face of one panel into end of the other. Fix with 4.5 x 30mm screws, which can be countersunk or used with a cover cap. Screw should be 20mm in from edge of panel.

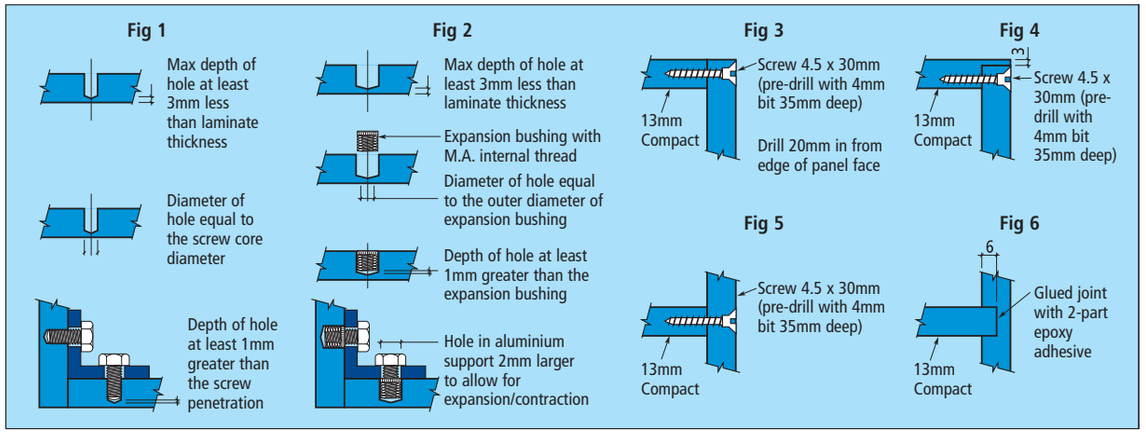
Corner Profile – Rebated (fig 4): Male/female profiles are routed into edges of the panel which are bonded together with the selected adhesive.

Tee Section – Screw-fixed (fig 5): Compact is screw-fixed through face into cross section panel. Pre-drill 4mm hole to a depth of 35 mm. Use 4.5 x 30mm screws, which can be countersunk or used with a cover cap. Screw should be 20mm in from end of panel.

Tee Section – Rebated (Fig 6): A trench is routed in the side panel to the thickness of the Compact laminate and the panels are glued using the selected adhesive.

ADHESIVES
Compact laminate can be bonded to itself, or other materials such as wood, metals, etc, using epoxy, polyurethane or resorcinol type adhesives. The laminate surfaces to be bonded should be cleaned and degreased prior to gluing. Scuff laminate surface(s) to provide a key for adhesive. Follow manufacturers' recommendations with regard to rates of application and curing times. Pressure should be applied to the glue lines throughout the curing time.

HINGES
There is a wide variety of hinges available, but care should be exercised when selecting hinges for use with 13mm Compact laminate. Regard must be taken of manufacturers' recommendations as to maximum load, quantity required, etc. The maximum drill depth is 10mm. Standard finishes are suitable but for chemical resistant applications and/or in damp environments stainless steel hinges and screws are recommended.



13mm Compact Laminate Wall Panelling System

There are four suggested installation methods:

1. ADHESIVE FIXED - Square edges

The panel is bonded to the dry timber/metal framing, which is set out at 603mm centres. Use Holdfast Fix-All 2201M (or similar) FLEXIBLE adhesive leaving a 6mm gap between panel joints (fig 2) and between the panel and the floor (use temporary packers). Fix Bond Breaker tape (Sellotape 5850, 12mm wide) behind joints before installing panels. This will allow the panels to expand or contract after initial installation. Place 100mm long beads of adhesive 9mm wide and 5mm thick at 300mm centres on all studs only. The protective liner is removed from one side of 100mm long strips of 12mm wide double-sided Foam Tape (Holdfast Gator tape or similar) and the tacky side is pressed on to the studs alongside the adhesive, as detailed in fig 1. The protective liner on the face of the foam tape is then removed, the panel correctly positioned and then pushed into place. The foam tape holds the panel in place. The panels should then also be vertically braced over joints and in the centre of each sheet, for 36 hours, until the adhesive cures. Where vertical joints occur two pieces of foam tape and two beads of adhesive will be required; one of each on either side of the centre of the stud, so that each panel is fixed to the framing (fig 2). After removing the bracing the 6mm gaps between joints, and between the panel and the floor, are filled with a flexible sealant (silicone). This is achieved by masking both sides of the joint, filling with silicone, immediately trowelling flush and removing the masking tape. The same method is used at internal and external corners (figs 3 and 4).

Top: Locker module

2. SCREW FIXED

The Compact laminate panels are screwed to the timber/metal framing with stainless steel screws at 600mm centres. A 6mm gap is left between the panels at joints (fig 1) and at internal and external corners (fig 2 and 3). These gaps can be left as a negative detail or filled with a sealant as for "Adhesive Fixing". If sealing joints, fix Bond Breaker tape behind joints before installing panels. The holes for the screws should be drilled 20mm in from the edges of the sheet and must have a 3mm wider diameter than the screw shank to allow for expansion and contraction. It is advisable to insert flexible silicone or polyester bushes in the gap between the hole and the screw to ensure even expansion and contraction. Some bushes are so designed so as to enable a plastic screw cover to be used.

Fig 1
Placement of adhesive/tape

Fig 2
Typical stud fixing

Fig 3
Typical internal corner

Fig 4
Typical external corner

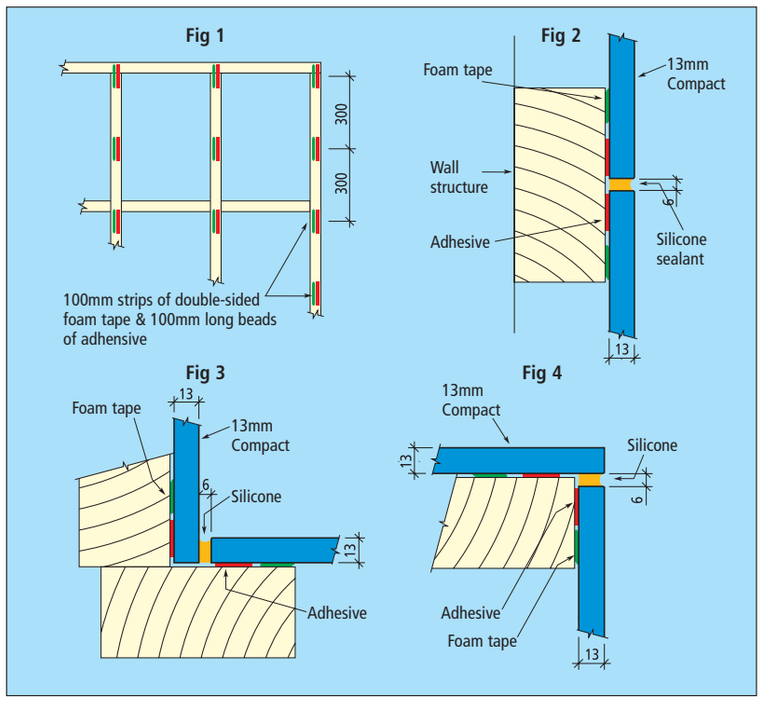
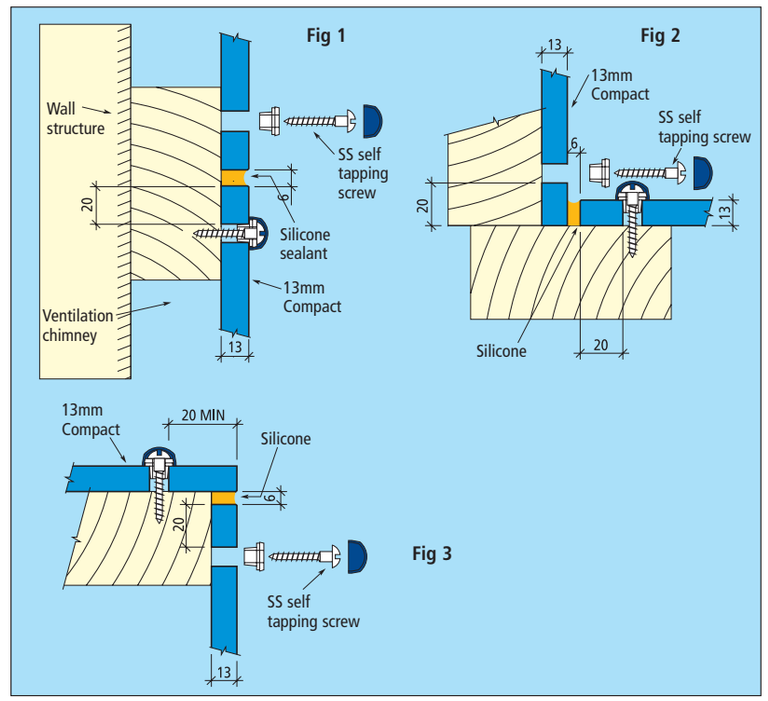


Fig 1
Typical vertical joint

Fig 2
Typical internal corner

Fig 3
Typical external corner



FORMICA®

Top: Partition systems
Bottom: Shower partitions

3. ALUMINIUM PARTITION JOINTER PROFILE

This method is very practical ensuring rapid installation, as the panels can be installed with little or no fabrication. The panels are fixed to the timber/metal framing set at 600mm centres, with the jointer (Ullrich Aluminium UA1473) holding the sides (fig 1). The insert in the aluminium jointer is black PVC. A bead of wall board adhesive can be used down the centre back of the sheets, although if installing over services that may require maintenance or technical inspections, this will not be required. For access it is then only necessary to remove the PVC insert from the jointer, remove the screws and lift out the panel. The slight disadvantage with this method is that the natural anodised finish of the aluminium profiles are visible although this can be overcome by having them powdercoated to order to tone in with the decor of the Compact laminate.

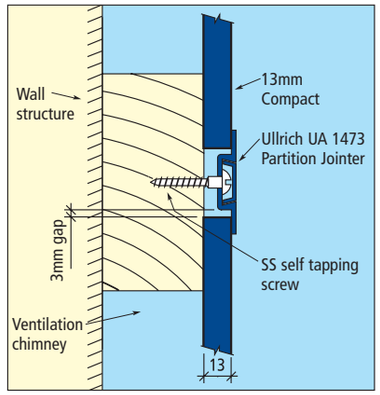


Fig 1
Typical stud fixing

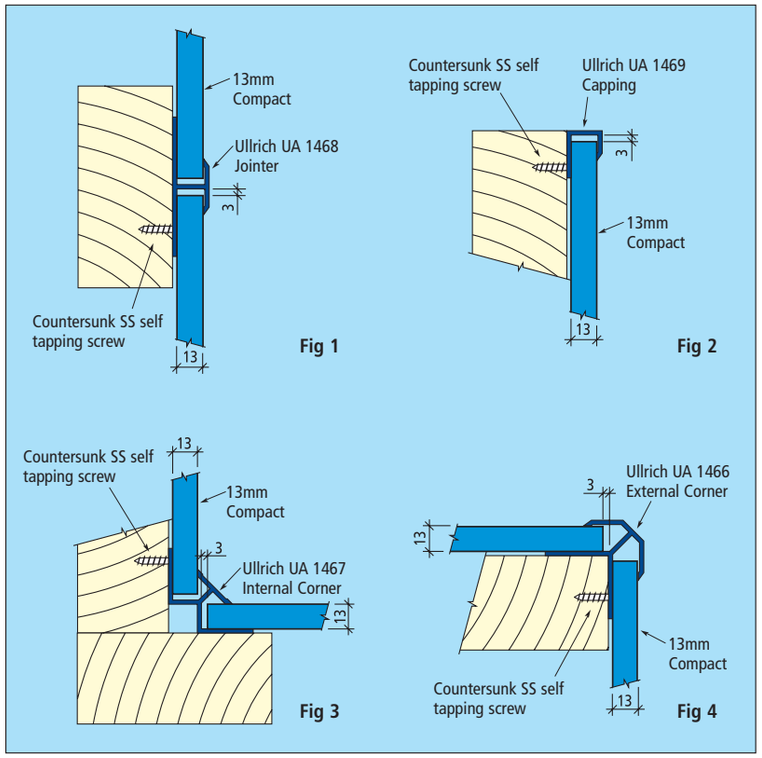


Fig 1
Typical vertical joint

Fig 2
Typical end cap fixing

Fig 3
Typical internal corner

Fig 4
Typical external corner

4. ALUMINIUM MOULDINGS

The panels are fixed to framing, set at 600mm centres, with Ullrich aluminium mouldings – external (UA1466), internal (UA1467), jointer (UA1468) and cap (UA1469) – using stainless steel countersunk screws (figs 1 and 2). A 3mm expansion gap should be allowed for when fitting the mouldings. This can be achieved by pushing the panel hard into the appropriate moulding, scribing down the face of the panel with a pencil and pulling the panel back to achieve the desired spacing. A bead of wallboard adhesive should be applied down the centre back of the panel. These mouldings are available in a natural anodised finish or can be powdercoated to order to tone in with the decor of the Compact laminate.

Far right: Locker modules
Right: Exhibition display stand

6mm Compact Laminate Wall Panelling System

There are five suggested installation systems:

1. ADHESIVE FIXED - REBATED EDGES

The edges of the panels are rebated so that the edge of one panel overlaps the other and also leaves a negative joint detail. The advantage of this system is that the joint can cope with any expansion/contraction of the panel and does not require for the joint to be filled. Before installation, 20mm diameter holes should be drilled through the top plates and horizontal nogs at approximately 300mm spacings to allow for ventilation. The panel is fixed to dry timber/steel studs set out at 602mm centres, using Hold Fast Fix-All 2201M or similar flexible adhesive/sealant and Hold Fast Gator tape double-sided foam tape, leaving a 4mm gap in the negative joint (fig 2). The adhesive will allow panels to expand/contract after installation. Place 100mm long beads of adhesive at 300mm centres on all studs only (fig 1). The protective liner is removed from one side of 100mm long strips of foam tape which is pressed onto the studs alongside the adhesive (fig 1). The liner on the face of the foam tape is then removed, the panel correctly positioned and pushed into place. Apply pressure at glue lines using a cloth covered timber batten and a hammer. The foam tape holds the panel in place until the adhesive cures (36 hours). Where vertical joints occur two beads of adhesive and strips of foam tape will be required; one of each on either side of the stud, so that each panel is secured to the framing (fig 2). The same method is used at internal and external corners (figs 3 and 4). See page 8 for fixing over plasterboard or to concrete or brick walls.

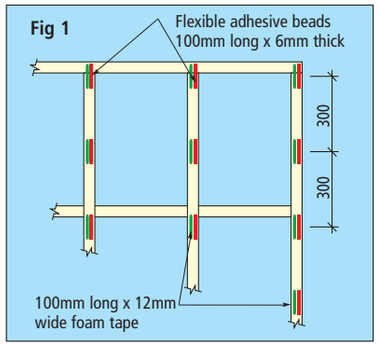


Fig 1
Placement of adhesive/tape

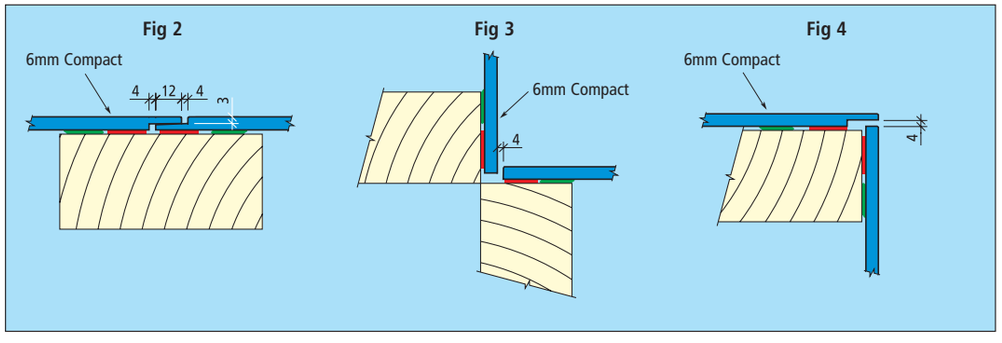


Fig 2
Typical vertical joint

Fig 3
Typical internal corner

Fig 4
Typical external corner

2. ADHESIVE FIXED - SQUARE EDGES

This is a lower cost version of the previous method as there is minimal fabrication necessary. The panels are bonded to dry timber/metal framing, which is set out at 602mm centres, using flexible adhesive and double-sided foam tape. Fix bondbreaker tape (Sellotape 5850 Supermask 12mm wide) to the framing, behind joints, before installing panels. Leave a 4mm gap between the joints and between panel and the floor in a similar manner to above (see figs 1 to 8 on page 13).

Fig 1
Typical external corner

Fig 2
Typical internal corner

Fig 3
Compact laminate/vinyl connection

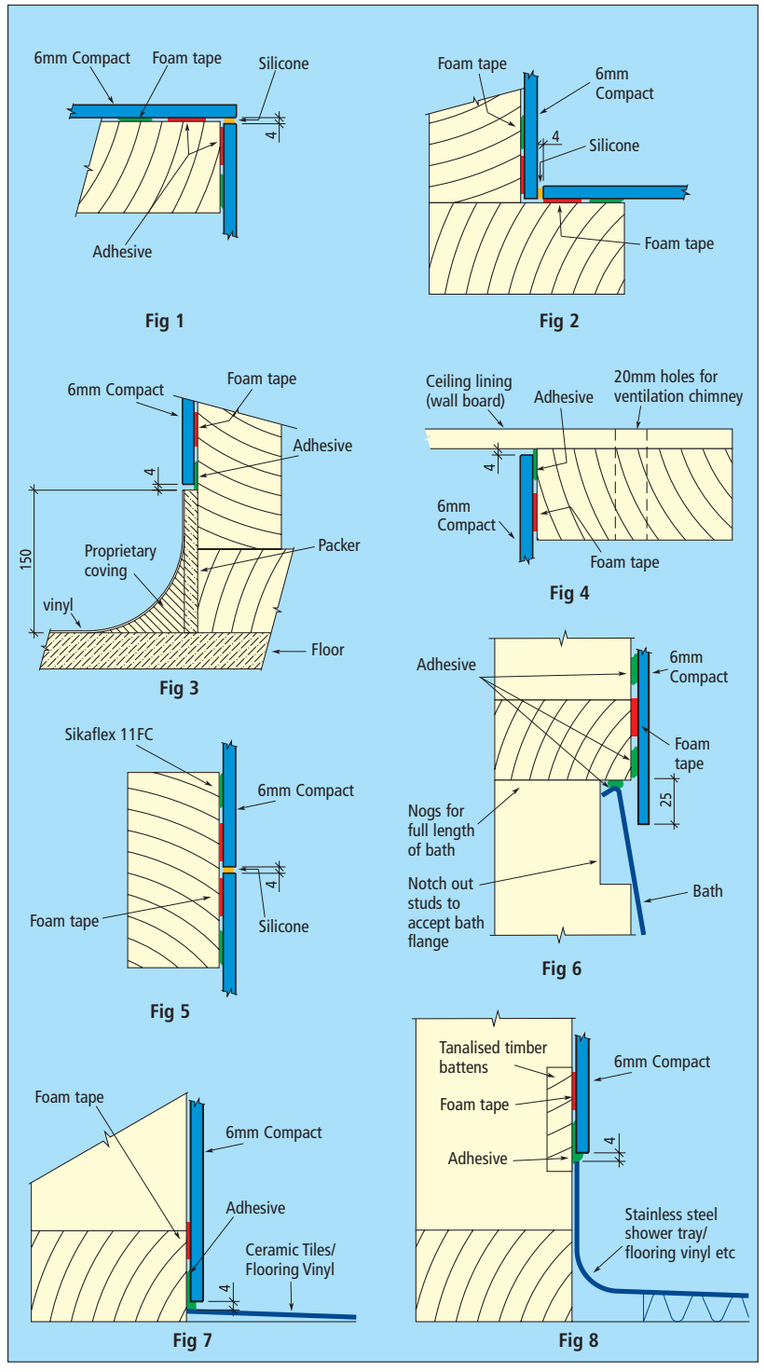
Fig 4
Compact laminate/ceiling connection

Fig 5
Typical vertical joint

Fig 6
Compact laminate/bath connection

Fig 7
Compact laminate/shower wall/floor connection

Fig 8
Compact laminate/shower tray connection



FORMICA®

3. ALUMINIUM MOULDINGS

The panels are fixed to framing, set at 600mm centres, with Ullrich 6.5mm aperture aluminium mouldings – external (UA1459), internal (UA1622), jointer (UA1460) and cap (UA1461) – using stainless steel countersunk screws (figs 1 and 2). A 3mm expansion gap should be allowed for when fitting the mouldings. This can be achieved by pushing the panel hard into the appropriate moulding, scribing down the face of the panel with a pencil and pulling the panel back to achieve the desired spacing. A bead of wallboard adhesive should be applied down the centre back of the panel. These mouldings are available in a natural anodised finish or can be powdercoated to order to tone in with the decor of the Compact laminate. This is the only recommended installation method for sauna linings.

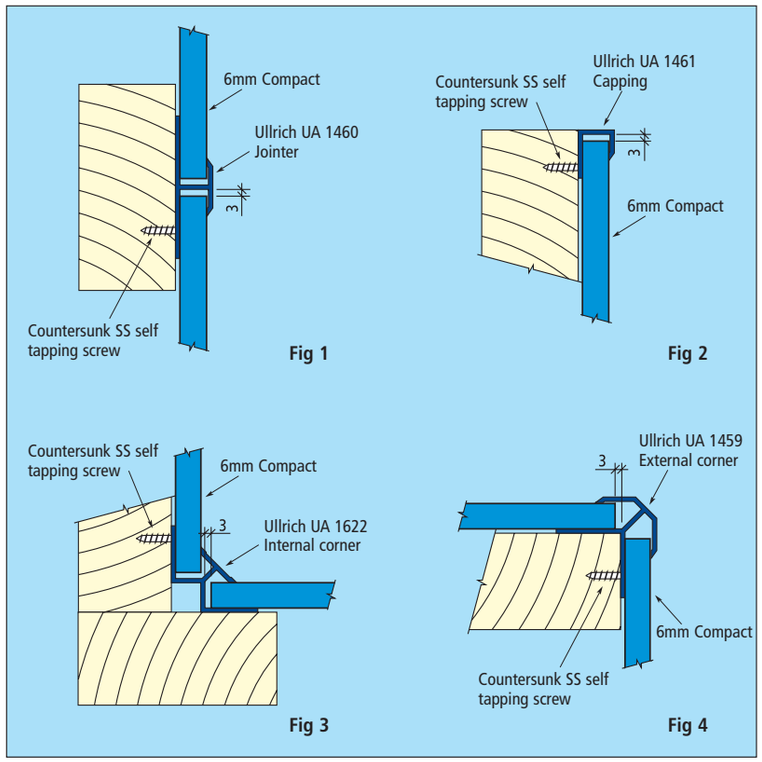


Fig 1
Typical vertical joint

Fig 2
Typical end cap fixing

Fig 3
Typical internal corner

Fig 4
Typical external corner

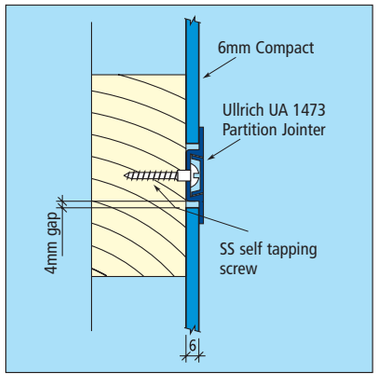


Fig 1
Typical stud fixing

4. ALUMINIUM PARTITION JOINTER PROFILE

This method is similar to that for 13mm Compact laminate. The panels are fixed to the timber/metal framing with an Ullrich aluminium jointer (UA 1473) holding the sides (fig 1). The insert in the jointer is black PVC. A bead of adhesive can be used down the centre back of the panels, although if installing over services that may require maintenance or technical inspections, this will not be required. For access it is then only necessary to remove the PVC insert from the jointer, remove the screws and lift out the panel.

5. SCREW FIXED

Again, this method is similar to that detailed for 13mm Compact. The pre-drilled panels are screwed to the framing with stainless steel screws at nominal centres of 602mm. A 4mm gap is left between panels at joints (fig 1) and at internal and external corners (figs 2 and 3). These gaps can be left as a negative detail or filled with a silicone sealant. The holes for the screws should be drilled 20mm from the edges and must have a 2mm wider diameter than the screw shank to allow for expansion and contraction. Bondbreaker tape should be fixed behind the joints if being sealed.

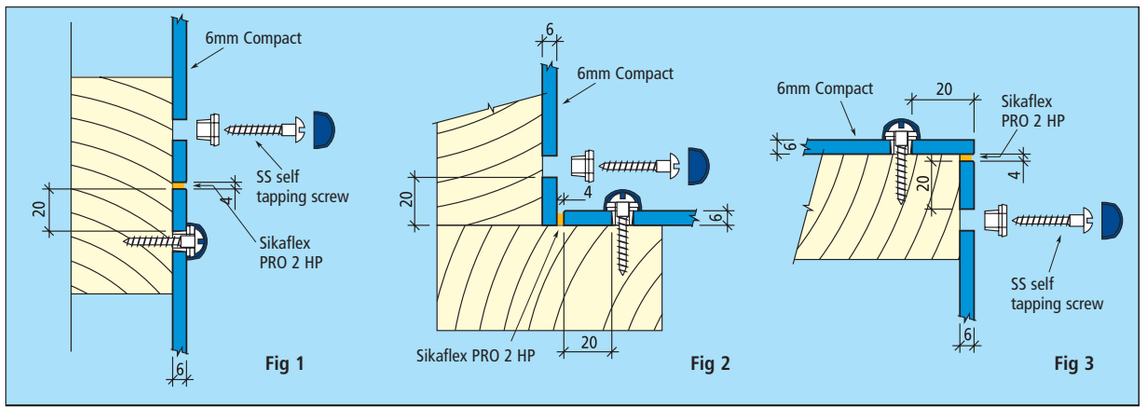


Fig 1
Typical vertical joint

Fig 2
Typical internal fixing

Fig 3
Typical external corner

FORMICA®

Locker Systems

FIXING OVER PLASTERBOARD

Note that the panel is designed to be fixed directly on to dry timber/metal framing. If the requirement is for fixing over top of plasterboard, for fire requirements or to deaden the noise from behind-the-wall services, then the plasterboard should be strapped with dressed 50 x 25mm vertical timber battens at 602mm centres with horizontal battens at 600mm centres. Gaps of 20mm should be left between the vertical and horizontal battens to provide a ventilation chimney. Ideally the ventilation should extend into the ceiling cavity. The panels are then fixed to the timber battens in a similar manner as for fixing to timber/metal framing using adhesive and foam tape.

FIXING TO CONCRETE OR BRICK

Concrete or brick walls should first be strapped with dressed 50 x 25mm vertical tanalised timber battens at 602mm centres with 50 x 25mm horizontal battens at 600mm centres. Gaps of 20mm should be left between the vertical and horizontal battens to provide a ventilation chimney. The ventilation chimney should extend into the ceiling cavity, particularly for new masonry applications. Dampcourse strips should be placed between the timber and the wall to exclude moisture penetration. Voids between the timber and wall should be packed out to ensure that the timber battens are perpendicular and provide a true surface for panel installation. The panels are then fixed to the timber battens in a similar manner as for fixing to timber/metal framing, using adhesive and foam tape.

Cleaning and Maintenance

Although Formica Compact laminate has no special maintenance requirements, the following hints may be useful:

1. Grimy panels can be cleaned with a soft, damp cloth.
2. Obstinate dirt can be removed with warm water and detergent.
3. Persistent stains such as paint, adhesive, ink, lipstick and so on can usually be removed with organic solvents ensuring that the working area is well ventilated and that protective gloves are worn. For adhesive residue or persistent paint stains contact the product supplier for the most suitable solvent. Condensate resin residues (urea and melamine) and 2-part resins (epoxy, etc.) can not be removed once they have hardened.
4. Wax or paraffin should first be scraped off, using a piece of Formica laminate, to ensure that the surface is not scratched. The balance of the residue can be removed by covering area with a piece of absorbent paper (brown paper bag) and passing over it a hot iron. Polishes with a wax or silicone base should not be used on Formica Compact laminate.
5. Do not use strong acids or alkalis.

For more product information, order enquiries or samples
please phone 0508 THE LAMINEX GROUP (843 526),
to speak with your representative from The Laminex Group.

FORMICA®
FASHION · FORM · FUNCTION

May 2003