

E0 MDF Raw Product Range

Craftwood® E0 MR & Craftwood® E0 STD
Craftform® (Bendable) E0 MR

trade essentials®





All Trade Essentials® Medium Design Fibreboard (MDF) is made in Australia at our MDF plant in Gympie. All wood fibre used to make our MDF is sourced only from renewable pine plantations in Australia and has extremely low formaldehyde levels (E0).

Trade Essentials MDF Raw Product Range is a stable and homogenous board with a super fine finish that can be cut, drilled and routed without fear of chipping or splintering. It can be left in its raw form or stained, painted or laminated as desired. It is the ideal material for use in furniture making, cabinetry, shelving and wall panelling.

Our MDF raw products come both standard and moisture resistant grades and in a wide variety of sheet sizes and thicknesses. We also have a bendable MDF product (Craftform) that is perfect for when you need a board that can be safely and easily bent into shape.

E0 MDF Raw Product Range



MDF Raw MR

MDF Raw MR is a highly moisture resistant MDF, suitable for use in areas of high humidity, or where accidental wetting may occur. The high moisture resistant properties of MDF Raw MR is due to the bonding of the wood fibres with a specially formulated moisture resistant resin system.

Applications

MDF Raw MR is designed for interior use such as kitchen cupboards, bathroom vanities, laundry cupboards, shelving, wall lining (if used with a suitable feature jointing system) and mouldings.

Note: MDF Raw MR is not recommended for exterior use.

Physical Properties

(Typical physical properties when tested to AS/NZS 1859.2)

Property	Unit	Board Thickness		
		9mm – 12mm	13mm – 22mm	23mm – 32mm
Thickness Tolerance	mm	+/-0.2	+/-0.3	+/-0.3
Board Density	Kg/m ³	760	720	700
Internal Bond	MPa	1.00	0.90	0.70
Modulus of Rupture	MPa	46.0	43.0	38.5
Modulus of Elasticity	MPa	3600	3600	3400
Surface Soundness	MPa	1.3	1.7	1.8
Screw Holding - Face	N	N/A	≥700	≥700
Screw Holding - Edge	N	N/A	≥1100	≥1100
Thickness Swell 24hr	%	<7	<4	<4
Wet Bending Strength (Method A)	MPa	10.5	9.7	8.5
Formaldehyde level	mg/L	≤0.5	≤0.5	≤0.5

Fire Hazard Indices

(Typically achieved when tested to AS/NZS 1530.3)

Indices	Result	Range
Ignitability	14	0 - 20
Spread of Flame	8	0 - 10
Heat Evolved	7	0 - 10
Smoke Developed	4	0 - 10

General Board Weight

Unit	Kg/m ²
9mm	7.0
12mm	9.0
16mm	11.6
18mm	13.1
25mm	17.6
32mm	22.1



MDF Raw Standard (STD)

Applications

MDF Raw STD is recommended for interior applications: such as detailed joinery, lacquered furniture, furniture mouldings, built-in furniture, shelving, wall linings and partitions (if used with suitable feature jointing systems).

Note: MDF Raw STD is designed for interior use only and should not be exposed to damp conditions or high humidity.

Physical Properties

(Typical physical properties when tested to AS/NZS 1859.2)

Property	Unit	Board Thickness		
		9mm – 12mm	13mm – 22mm	23mm – 32mm
Thickness Tolerance	mm	+/-0.2	+/-0.3	+/-0.3
Board Density	Kg/m ³	760	720	700
Internal Bond	MPa	0.75	0.60	0.50
Modulus of Rupture	MPa	38.5	34.5	31.0
Modulus of Elasticity	MPa	3600	3400	3400
Surface Soundness	MPa	0.9	1.2	1.4
*Screw Holding - Face	N	N/A	≥550	≥550
*Screw Holding - Edge	N	N/A	≥700	≥700
Thickness Swell 24hr	%	<10	<6	<6
Formaldehyde level	mg/L	≤0.5	≤0.5	≤0.5

Acoustic Properties

(Typical achieved when tested to AS/NZS 1911-1985 Section A2-3 AS 1276-1979)

Thickness	STC Class
16mm	29 dB
25mm	31 dB
32mm	32 dB

General Board Weight

Unit	Kg/m ²
9mm	7.0
12mm	9.0
16mm	11.6
18mm	13.1
25mm	17.6
32mm	22.1

Fire Hazard Indices

(Typically achieved when tested to AS/NZS 1530.3)

Indices	Result	Range
Ignitability	14	0 - 20
Spread of Flame	8	0 - 10
Heat Evolved	7	0 - 10
Smoke Developed	4	0 - 10

E0 MDF Raw Product Range



MDF Raw Thin Standard

(Standard Craftwood 3mm – 6mm thick)

MDF Raw (Thin) is designed for applications where a thin board is required with a hard smooth surface that can be overlaid with natural timber veneer, foils, vinyl, paint and lacquer.

MDF Raw (Thin) is a wood based panel and reacts to changes in moisture like natural timber, ie. high or low humidity may cause some expansion or contraction with only minor change to the strength of the board.

Applications

Cupboard backs, drawer bottoms, curved panels, door skins and other applications requiring a thin panel.

Note: MDF Raw (Thin) is designed for interior use only and should not be exposed to damp conditions or high humidity.

Physical Properties

(Typical physical properties when tested to AS/NZS 1859.2: 2001.Int)

Property	Unit	<5mm	5-6mm
Board Density	Kg/m ³	840	780
Internal Bond	MPa	1.10	0.90
Modulus of Rupture	MPa	41.5	40.0
Modulus of Elasticity	MPa	4400	3500
Thickness Swell 24hr	%	<25	<16
Formaldehyde Levels	mg/L	≤0.5	≤0.5

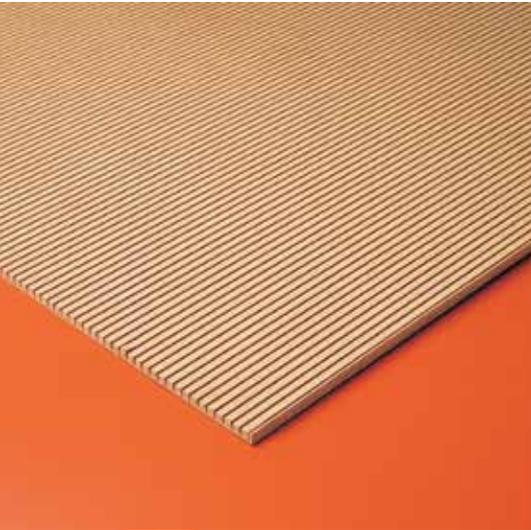
Fire Hazard Indices

(Typically achieved when tested to AS/NZS 1530.3: 1989)

Indices	Result	Range
Ignitability	14	0 - 20
Spread of Flame	8	0 - 10
Heat Evolved	7	0 - 10
Smoke Developed	4	0 - 10

General Board Weight

Unit	Kg/m ²
3mm	2.5
4.75mm	4.0
6mm	4.7



Craftform® E0 MR

Craftform® E0 MR is an innovative MDF product featuring specially machined V-grooves which provide enhanced flexibility of the MDF sheet. Craftform can be bent into a variety of shapes. Circular and undulating constructions as well as a high quality finish are easy with Craftform. This flexibility allows for creative shapes to be formed, with a radius of down to 200mm being achievable. The Craftform® substrate is 9mm Moisture Resistant MDF which provides added security in areas of humidity and accidental wetting.

Applications

Craftform® E0 MR MDF is recommended for interior joinery applications where a flexible substrate is required. The substrate can be used either as a supporting material for further decorative finishing or as the feature itself. Craftform® MDF is ideal for fabricating into curved furniture and formed shapes for counter fronts, gondolas, displays and other decorative featured joinery.

Craftform is available with grooves running either across the board or along the board.

Note: A PVA adhesive such as Trade Essentials® MDF PVA is recommended when creating forms using Craftform® E0 MDF.



Physical Properties

(Typical physical properties when tested to AS/NZS 1859.2: 2001.Int)

Property	Unit	Board Thickness
		9mm
Board Density	Kg/m ³	760
Internal Bond	MPa	0.75
Modulus of Rupture	MPa	38.5
Modulus of Elasticity	MPa	3600
Thickness Swell 24hr	%	<10
Formaldehyde Level	mg/L	≤0.5
General Board Weight	Kg/m ²	7.0

Fire Hazard Indices

(Typically achieved when tested to AS/NZS 1530.3: 1989)

Indices	Result	Range
Ignitability	14	0 - 20
Spread of Flame	8	0 - 10
Heat Evolved	7	0 - 10
Smoke Developed	4	0 - 10



E0 MDF Raw Product Range

Craftform® – Circular Construction



1
First of all, construct a template out of particleboard. To achieve an exact moulding over the whole surface, keep a maximum distance of 250mm between the ribs.



2
Apply Craftwood® PVA Adhesive with a glue roller to the grooved sides that are to be joined together.



3
Place glued boards together, bearing in mind that when constructing circular forms the interior radius is smaller than that of the outer board and therefore the two boards are to be of different width.



4
Secure boards with clamps to the lower half of the template.



5
There should also be further pressure between clamps in a longitudinal direction, e.g. use timber straight edge.



6
After 5 hours curing time, take the shell half out of template.



7
Level both longitudinal edges on the planing machine in order to achieve well-fitting gluing of the upper and lower 'shell halves'. Use locating dowels or Lamello tongues.



8
When bonding two halves use gap-filling two-component glue such as Epoxy.



9
Apply glue with spatula.



10
After application of the glue on both longitudinal edges, add upper shell. To prevent sticking on the template, use sealing tape in the area of the separating joints.



11
Produce the necessary pressure using clamps. Use sealing tape in the area of the glue joint to prevent the clamps sticking.



12
Sand down the finished item inside and outside with suitable abrasive tools.



13
Fill the open notches with two-component filler.

Craftform® – Undulating construction



1
Construct a template out of particleboard. To achieve an exact moulding over the whole surface, keep a maximum distance of 250mm between the ribs.



2
Use edge strip for all ribs of the template so that boards which are to be moulded slide easily into the template. Also helps to avoid damaging the surfaces.



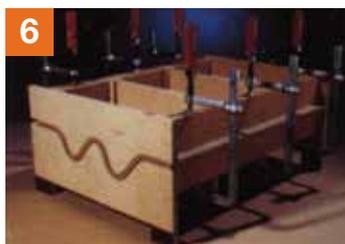
3
In case of extremely narrow radii we recommend you moisten external surfaces in order to achieve greater flexibility during the moulding.



4
Apply Craftwood® PVA Adhesive glue with a glue roller on the internal surfaces if two boards are to be joined together.



5
Put the boards which are to be pressed together between upper and lower templates, gradually.



6
Press the boards together – either by using a screw press or hydraulic press.



7
Take the moulded part out of the template/former after 5 hours curing time.



8
After cutting to the required sizes, further processing of the curved surfaces can be carried out.



9
Use a two-component filler to fill the open notches.



10
Apply filler with spatula.

E0 MDF Raw Product Range

Craftform® – The finishing touch

Once you've crafted Craftform® MDF into the precise shape you wish, all that is left is the finishing. The following finishing tips ensure your construction has the unique appeal that only Craftform® MDF can deliver.

Finishing

1. Veneering

Craftform® MDF can be veneered and painted easily. The veneer is best applied before the wood is shaped. Adhesives used in heat-bonding are suitable for gluing the smooth non-grooved side. Flexibility of the glued joints can be ensured by using **Trade Essentials® Cross Linking PVA**. The glue must be applied sparingly in order to prevent it from bleeding through on account of the surface density of Craftform® MDF. Press-bonding is carried out at temperatures normally used for particleboard and MDF. The veneered side will be tubular if the grooves in the board run parallel to the grain in the veneer. A lesser degree of bending will result if the veneer is applied at right angles to the grooves. After cooling and subsequent shaping, the board must be sanded on the veneered side to eliminate any polygon effects.



2. Surfacing

The formability must be taken into account when selecting surfacing materials. A radius of less than 200mm should be avoided if the surfacing material is less than 0.8mm thick, otherwise the grooves on the reverse side of the board will mark through onto the surfacing material. Also, in most cases, matt or high-gloss plain-coloured decorative finishes are only suitable for large-radius bends, although much smaller radii are possible when using sturdy imitation wood finishes. The steps for surfacing are the same as for veneering, except that sanding is not required.



3. Craftform® extension boards with offset butt joints

If the standard Craftform® width panel is not adequate, additional boards can be butt-joined and glued together. A sandable glue such as **Craftwood® PVA** should be used for this purpose to avoid joint marks. Care must be taken to ensure that the joints are flush; any irregularities can be sanded down after approx. 2 hours setting time. This also applies for the 2-layer construction of boards which are bonded with the slit sides together in order to obtain a permanent shape after pressing in a template. The glued joints should be generously off-set in order to improve the stability.



4. Combining pre-formed Craftform® elements

Pre-formed Craftform® elements can be combined if the standard panel width is not sufficient or if extension boards cannot be used due to weight and size limitations. The elements are simply joined together using dowels or Lamello loose cross tongues. A continuous tongue-and-groove connection is not recommended.



Note: When Craftform® MDF is overlaid with timber veneer or laminate, the minimum radius may be reduced.





Single Sided E0 MR MDF

Single Sided E0 MR MDF is a highly moisture resistant MDF, sanded smooth on one side and bonded on the other side with a hard wearing white melamine surface.

Single Sided E0 MR MDF is manufactured for the membrane pressing and painted panel market. To cater for the unique requirements of various vinyl membrane pressing and paint application techniques, there are two Single Sided E0 MR MDF board substrates available to choose from:

- Single Sided E0 MR MDF (735kg/m³), and
- High Density Single Sided MDF (770kg/m³)

Single Sided E0 MR MDF is a wood based panel and reacts to changes in moisture like natural timber, ie. high or low humidity may cause some expansion or contraction without any degradation to the strength of the board.

Single Sided E0 MR MDF is recommended for interior use only.

Applications

Single Sided E0 MR MDF can be overlaid with vinyl, timber veneer or a paint system. It is used to make cupboard doors, cupboard end panels and other applications where panels are required to be decorated on one side.

Single Sided E0 MR MDF panels are manufactured with a specific pre-stressed bow to cater for correction factors that arise in the application of different decorative surfaces to the non-laminated face.

As the substrate is a wood based panel, it will react to changes in moisture as per natural timber, and hence humidity variations will affect the level of the bow. Exposure to moisture and/or heat (>100°C for extended periods >1 min) may cause surface and edge disturbance.

Substrate and pre-stressed bow options

Many factors will contribute to the overall stress applied to the non-laminated panel face and hence the resultant panel flatness. These include the decorative surface applied and the amount of face routing or modification to the non-laminated face. There are two Single Sided MDF board substrates available and each has different pre-stressed values to accommodate the various manufacturing factors.

Therefore, Laminex strongly recommends that trial panels be manufactured and subjected to the proposed environment before full-scale processing commences. Due to high risk of visual defect from minor surface disturbances the product used for high gloss applications should be prepared suitably.

Physical Properties

(Typical physical properties when tested to AS/NZS 1859.2)

Property	Unit	Board Thickness	
		Single Sided 16mm – 18mm	High Density 16mm – 18mm
Board Density	Kg/m ³	735	810
Internal Bond	MPa	0.90	1.55
Modulus of Rupture	MPa	930	50
Modulus of Elasticity	MPa	3600	4000
Surface Soundness	MPa	1.7	1.9
Moisture Content	%	6-9	6-9
Thickness Swell 24hr	%	<4	<4
Wet Bending Strength (Method A)	MPa	9.7	11.5
Board Weight	Kg/m ²	13	14.6

Fire Hazard Indices

(Typically achieved when tested to AS/NZS 1530.3)

Indices	Result	Range
Ignitability	14	0 - 20
Spread of Flame	8	0 - 10
Heat Evolved	7	0 - 10
Smoke Developed	4	0 - 10

Fire Test Indices

Cone Calorimeter (Results when tested in accordance with AS/NZS 3837)

Classification	Result
Group Number	3
Average Specific Extinction Area	47.0kg/m ²

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Single Sided E0 MDF (735kg/m³)

Single Sided MDF incorporates regular Craftwood® MR substrate. It's stability, high quality surface finish and machining properties allow the board to be used for a wide range of membrane pressing, veneering and painting jobs. It is ideal for flat panels or where simple routing profiles are required and is available in three different pre-stressed bow ranges to accommodate most applications.

High Density Single Sided MDF (810kg/m³)

The higher density core and resin system of this MDF substrate has been designed specifically for applications where complex, deep routing profiles are required.

This board is available in two stable, consistent pre-stressed bow ranges and is suitable for all painting and membrane pressing jobs.



Vinyl wrapped Single Sided MDF door.

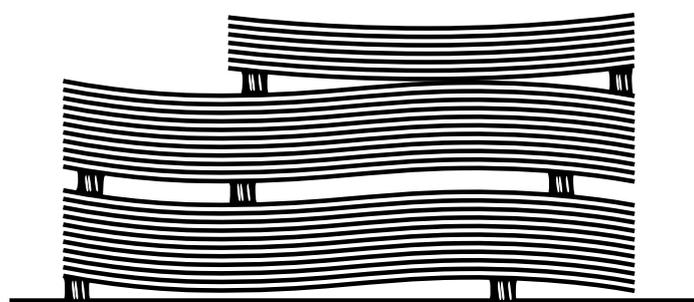
Storage and handling

Storage and handling of E0 MDF Raw Product Range panels

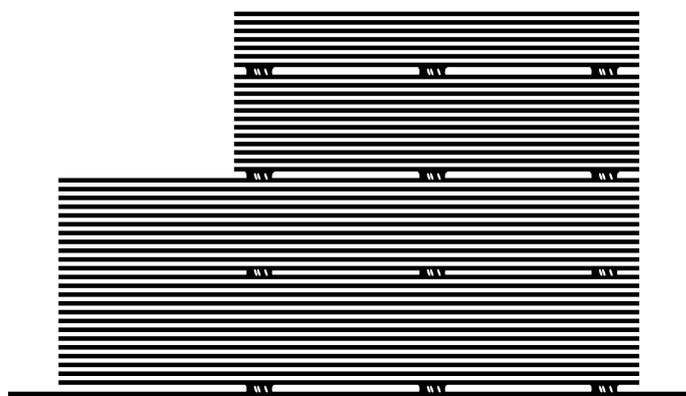
The following recommendations should be applied to maintain MDF panels in good order and condition. The storage area should be protected from the sun, rain and wind. Open sided sheds would not be regarded as dry stores.

All packs should be evenly supported at each end at intervals of no more than 600mm where the packs are multiple stacked, and no further than 150mm from the edge of boards. All supports should be vertically aligned.

Keep work area clean. Avoid contact with abrasive surfaces or grit.



Incorrect storage method



Correct storage method

Pre-conditioning

Laminex usually dispatches MDF Raw Products with a moisture content of between 6% to 9%. This can alter, however, during the time the boards are in transit or in storage before use. Apart from this, the relative humidity of the environment where the boards are to be fixed may call for a quite different moisture content, and some adjustment may be needed.

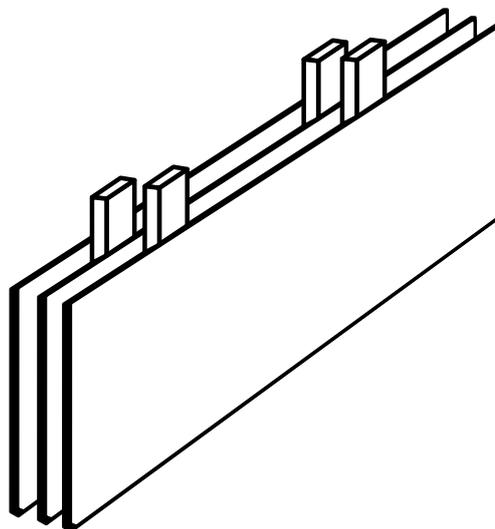
Pre-conditioning MDF Raw boards is recommended to ensure that they attain an equilibrium moisture content (EMC) before fixing, so as to reduce the likelihood of bowing after they have been fixed. Any subsequent movement will thus be a drying shrinkage which, given adequate support and fixings, keeps the boards flat and taut.

Some boards may achieve an EMC simply by being stored for some time in the location where they are to be used without any positive conditioning.

Conditioning in air

Conditioning in air is adequate for most locations. It involves exposing the boards in the room where they are to be fixed for long enough to allow them to reach a moisture content which is in balance with their surroundings and to adjust their dimensions accordingly.

To encourage free air circulation over all board surfaces, the boards should be arranged loosely as shown. They should then be allowed to stand like this for a minimum of 48 hours either horizontally or vertically.



E0 MDF Raw Product Range

Fabrication

Machining

MDF panels can be cut, drilled and machined using standard wood working equipment fitted with tungsten carbide tipped cutting edges.

It is recommended that the material be cut on a bench type or beam saw, using a 300mm tungsten tipped blade with 72 to 96 teeth. For decorated (pre-laminated) board a triple chip saw blade should protrude 20-30mm above the surface of the board. For un-decorated panels, an alternate bevel saw blade is also satisfactory.

Note: All decorated panels including Single Sided E0 MR MDF should be cut only on saws that have a scribing blade on the underside. Work piece must be firmly fixed. Continue to observe all professional machining and safety practices.

Routing and edge shaping

One of the prime features of Craftwood® MDF is its sharp, clean edge-machining requiring minimal treatment prior to finishing. Edge-sanding on routed mouldings and panels are eliminated with the right finishes, and Craftwood® MDF can be matched to similar configuration as natural wood. Contoured designs are almost unlimited although feathered or sharp protruding edges should be avoided.

The most common problem with face routing of panels is the depth of the profile, where the depth of cut can be up to 13mm to 14mm deep. This is far too deep for any single router cut and is unnecessary as the same appearance can be achieved with a cut between 8mm to 10mm. When the cut is too deep the cutter over heats and blunts quickly, resulting in torn fibres and furry surfaces. This in turn requires a lot of extra sanding.

Hand tools

When using hand tools to cut Craftwood® MDF panels they must be kept sharp, with no resin build up on the back of the cutter, and must not be allowed to burn. When using routers do not allow the cutter to take too deep a cut at one time, for deep trenches only cut 6mm depth at one time. Never trench deeper than one third of the thickness.

When using electric hand saws, cut with the face side down. When using hand saws, hold the saw at as flat an angle as possible to the plane of the board with the face side up.

Sanding

The way to sand a machined part made from Craftwood® MDF is to start with 120 grit moving up to 180 grit to 280 grit and higher. The use of palm held orbital sanders or hand sanding is suitable. Coarser papers are not recommended as they just keep raising the fibres. To obtain a fine finish, you should merely buff the surface.

Recommended abrasives

The best type of sandpaper to use on Craftwood® MDF is free cut in a A or C weight or P Graded paper. Very good results are achieved with Random orbital sanders.

Carbide-based abrasives are generally recommended for sanding Craftwood® MDF. (Aluminium oxide types tend to dull rapidly, producing burnishing.) A 'modified closed coat' abrasive is suggested. High sanding speeds cut the fibres most efficiently; with belt sanders, for example, belt speeds in excess of 1500 metres per minute and controllable feed speeds are recommended.

Face sanding

Craftwood® MDF is supplied from the mill typically with a 180 grit finish on the surfaces. This provides an excellent smooth surface - ideally suited to the direct application of most veneers and plastic foils. Scuff-sanding with the object of increasing adhesion is not recommended. For the economic application of paints or printed effects, and for very thin foils, a further light sanding with 240 grit or even 320 grit belts may be advisable.

Deep sanding of the faces of MDF with the objective of reducing thickness is not recommended. It will result in an asymmetrical board profile causing bowing and loss of structural properties.

Edge sanding and sealing

Cut edges may require sanding with 120 grit to 380 grit. Good quality contour cutting should require little or no sanding. If sanding is required, this may be carried out before or after priming/sealing.



Adhesives and bonding

Many adhesives work well with MDF. General Purpose PVAs are satisfactory, however **MDF PVA** has been specifically formulated to complement the high quality properties of MDF board.

Bonding MDF with MDF PVA is highly recommended for the following reasons:

- It has a rapid, high bond strength, and can withstand higher impact when machining compared to other similar adhesives.
- It will accept stains and lacquers without going 'shiny' and highlighting the join
- It has good heat and moisture resistant properties suitable for use with moisture resistant Craftwood® MDF.

Screwing

Selecting screw type

Parallel threaded screws are recommended for Craftwood® MDF.

Selecting screw length

The length of the screw directly affects the holding power of the screws, for example, a 25mm screw has twice the holding power as a 13mm screw. This is most important when screwing into the edge of Craftwood® MDF panels.

Selecting screw diameter

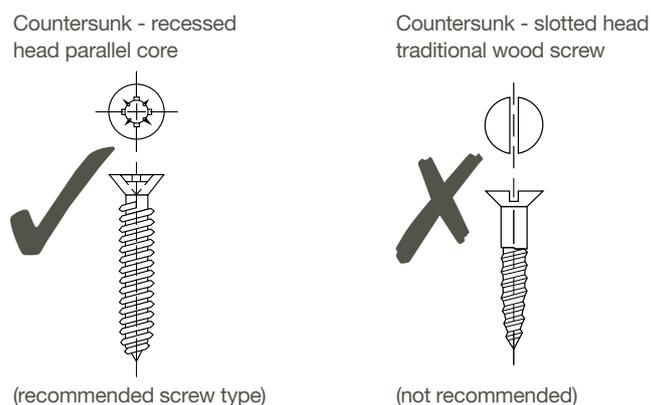
To avoid splitting the panel when screwing into the edge, the screw diameter should not exceed 20% of the panel thickness. For example, the maximum screw diameter for 16mm board is 6 gauge. Please see tables below.

Pilot holes

Correct pilot holes are essential to avoid splitting. The pilot holes should be at least 2mm to 3mm longer than the screw used and should be approximately 80% of the screw core diameter. Do not over-tighten screws, as further turning after screw is tight will reduce holding power.

Screw location

Screws should be carefully positioned to prevent splintering and breakout - no closer than 25mm to a corner and no closer than 10mm to the edge. When a long line of screws has to be used, it is a good idea to stagger the screws to prevent splitting the substrate being screwed to. If screwing into the edge of Craftwood® MDF, never place a screw closer than 75mm from the end of the panel.



Screw Pilot Hole Selection

Recommended Screw Gauge	Pilot Hole	Thickness
4	2.0mm	9mm
5	2.4mm	12mm
6	2.6mm	16mm
7	2.7mm	18mm
8	3.0mm	25mm
9	3.3mm	35mm

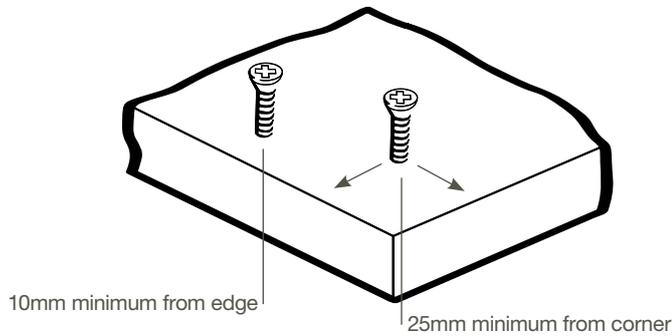
Maximum Screw Gauge Selection

Thickness	The Maximum Recommended Screw Gauge to Thickness of Craftwood®				
	4	5	6	7	8
9mm	-	-	N/R	N/R	N/R
12mm	Yes	Yes	N/R	N/R	N/R
16mm	Yes	Yes	Yes	N/R	N/R
18mm	Yes	Yes	Yes	Yes	Yes
25mm	Yes	Yes	Yes	Yes	Yes
35mm	Yes	Yes	Yes	Yes	Yes

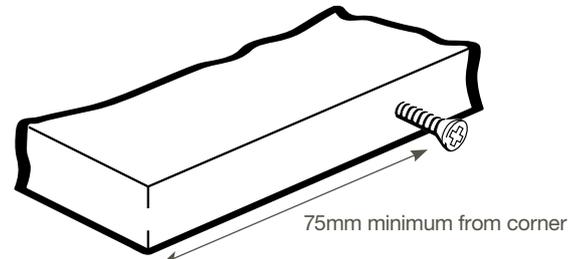
N/R = Not Recommended

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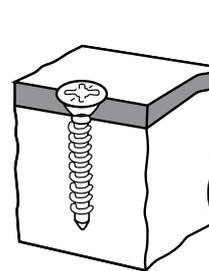
Screws position on panel face



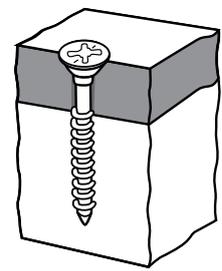
Screws position on panel edges



When fixing thin attachments to MDF, use screws which are threaded up to the head. Screws used for panel jointing or the fixing of thicker attachments may have a plain or unthreaded shank (see below).



Thin attachments



Panel jointing or thick attachments

Nails and staples

Nails and staples are alternatives to screws. However, their holding/pullout strength is much lower. Although generally drilling of pilot holes is not required it is still a recommended practice.

The common use of nails or staples is for holding glued joints together until the adhesive has set. The size of nails or staples should be twice as long as the thickness of material being used and the gauge be the lowest that will drive into the board without bending.

When driving with power tools, the driving power should only be sufficient to drive the head flush or marginally below the surface. If the driving pressure is too high and the staple is driven in too far, splitting of the board could occur and tool marks will show.

Spacing nails

Because of the tendency to split panels when driven into the edge, nails should not be driven closer than 75mm to the corner of a panel or spaced closer than 150mm apart. Ring shank nails give much better holding power than smooth nails. Driving nails in at an angle further enhances holding power.

As with screws, the nails or staples should not be closer than 25mm to the corner, no closer than 10mm to the edge on the face and no closer than 75mm to the end when fixing to the edge of Craftwood® MDF panels.

Spacing staples

Because staples do not have high holding strength, they are not generally used for structural joints. They may be used to attach fabric and decorative items or to hold adhesive-based joints together until the glue cures.

Hinges

When using MDF for doors it is important to use the correct number of hinges.

Door height (mm)	Door weight (kg)	No. of hinges
Up to and including 900mm	Up to and including 9kg	2
Up to and including 1600mm	Up to and including 15kg	3
Up to and including 2000mm	Up to and including 19kg	4
Up to and including 2400mm	Up to and including 23kg	5

Dowel joints

Dowel joints are one of the most common adhesive based furniture assembly joints. Dowelling is a simple, inexpensive, strong and reliable way of making a butt or mitre joint.

Hole diameter

The fit of dowel in the hole is critical to withdrawal strength. Holes drilled in Craftwood® MDF should be slightly larger than those used in particleboard due to the high density of the board.

Board Thickness (mm)	Dowel Diameter (mm)	Dowel Hole Diameter (mm)
12 to 15	6	6.2
16 to 24	6 to 8	6.2 to 8.2
25 or more	10	10.2

Dowel diameter

Dowels used should be no thicker than 50% of the thickness of the panel used.

Gluing

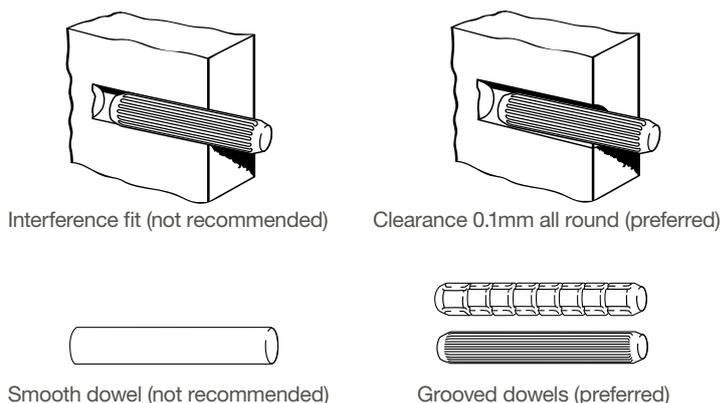
When using dowel joints only the dowels are glued in place. The practice of using glue between the edge and the face may actually weaken the joint.

Depth

The dowel should be inserted at least 25mm into the edge of the Craftwood® MDF panel and as deep as practical into the face surface, but no more than two thirds of the thickness.

Dowel selection

Dowels with multiple longitudinal or spiral groove patterns are recommended to ensure uniform adhesive spread within the joint. The dowels should be cleanly machined and free from any loose or torn fibres. The moisture content of dowels at the time of assembly should be in the range 10% +/-2%.



Painting and finishing MDF Raw

Craftwood® MDF is supplied from the mill with a 180 grit finish and is suitable for most applications. An additional light sanding to high grit levels will be beneficial for applications where a high level of smoothness is required without the necessity of using additional coats of lacquer or paint.

High quality commercial finish

Before any painting is commenced it is important to ensure the surface of the Craftwood® MDF is properly prepared.

Surface preparation

Sand all surfaces to obtain a smooth, even finish. Using an acrylic filler, smooth out all depressions and irregularities. When the filler is dry, sand to a smooth, even finish.

Sealer

When the above procedure is completed, a suitable sealer should be applied.

Note: Do not use "Isogard" types.

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Undercoat

The sealer may require a slight sand prior to the application of a suitable undercoat.

Undercoats, usually two pack, may be either epoxy, polyurethane or polyester types and are usually pigmented. When selecting an undercoat, it is important to consider several factors. But the most important considerations are its sanding characteristics, which affect sandability, hardness, and have a bearing on the ability of the surface to withstand and resist impact damage and improve gloss hold out.

The undercoat should be applied at the manufacturer's recommended spreading rate and drying times.

When the undercoat is dry, it should be sanded smooth using a range of freecut papers down to 600 grit.

Topcoat

A commonly used type of coating for the final coat in this process, to achieve optimum results, is a two pack system. This type of coating is available from all major paint manufacturers in Australia.

Conventional painting of MDF Raw

Surface preparation

Stop all nail holes and imperfections with a suitable timber filler and acrylic blade filler and allow to dry. Lightly sand all surfaces to be coated so as to obtain a smooth and even finish. Dust off all sanded surfaces using a damp rag before painting commences.

Undercoat

For conventional painting, the recommended type of undercoat or primer is a water based acrylic type. Apply the coating in accordance with the manufacturer's instructions. When dry, all painted surfaces should be sanded smooth. It is recommended that acrylic undercoats should not be watered down prior to use.

Topcoat

Ideally, an acrylic coating is selected as the top coat. However, as some formulations in this generic type can be found to be unsuitable in certain applications, as in the case of doors and architraves of high wear areas, an oil or alkyd base type may be more suitable.

Application of topcoat

To achieve the best appearance in finish, spray application is recommended to be carried out in as dust free circumstances as possible. Conventional brush and roller applications can also give a satisfactory result.

Staining of MDF Raw and Craftform

Due to the water resistant properties of Craftwood® MDF, many types of stains have a tendency to be absorbed into the Craftwood® MDF differently, resulting in patchy areas. It is good practice to seal the surface and edges with an acrylic sealer before staining. For persons not experienced in staining large areas, we recommend the following procedure:

1. Apply one coat of an acrylic sealer such as Watty! Speed Clear or similar, and allow 24 hours to dry. This acts as a sealer.
2. Apply one or two coats of Watty! Estapol Gloss or Satin Stain or similar, until required depth of colour is achieved.

Note: When using a stain, it is wise to use a small off-cut to test the strength of the colour. Also check the absorbency of the edges.

Clear finishing without stain

Apply one or two coats of acrylic sealer such as Watty! Speed Clear or similar. If a tough, no-nonsense finish is required, one coat of Watty! Speed Clear should be applied. Allow 24 hours to dry.

Joining systems for Craftwood® MDF panels

Joining

It is difficult to make a joint in wood based panels like Craftwood® for wall panelling and not show the joint. The slightest movement will show up and look unsightly so the best alternative is to make the joint look attractive, which can be achieved in many ways.

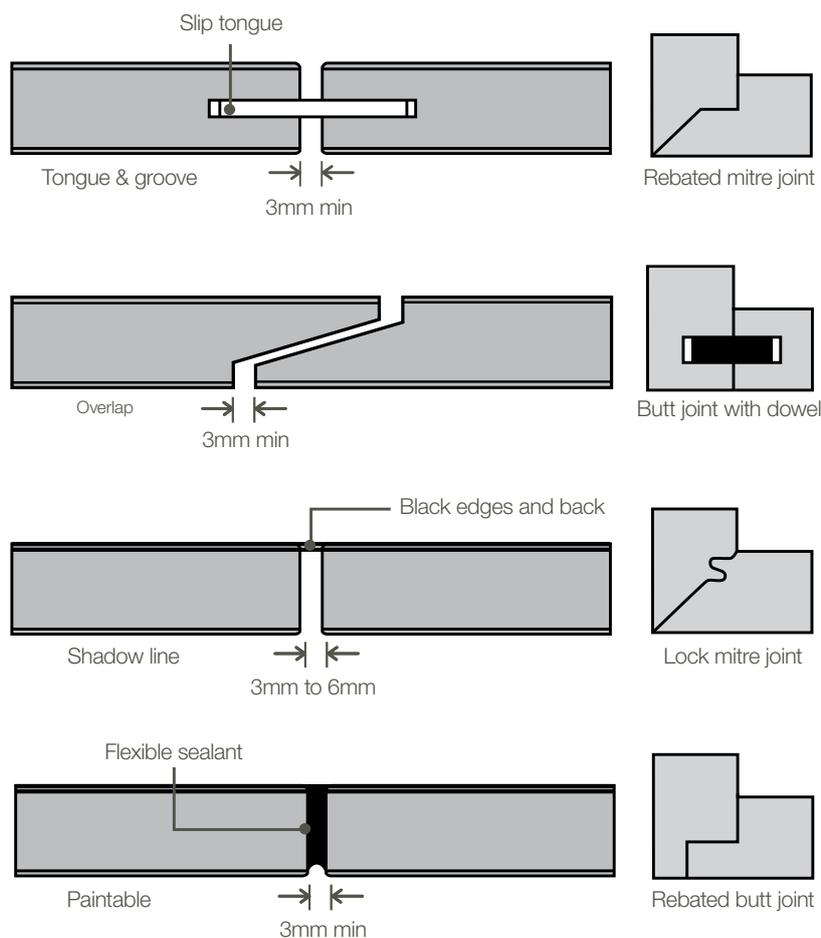
The most common types of joint for wall panelling are a 'V' joint, a slip tongue joint or tongue and groove.

Featured joints

On boards to be painted on site and for plain coloured pre-decorated boards, joints are usually featured; either by the use of suitable cover strips, by bevelling board edges, or by forming an 'open' joint. These techniques, together with some angle joint techniques, are shown on the following page.

Cover strips are manufactured in aluminum, plastic or wood. Aluminium or metallised plastics are usually chosen to contrast with the board; whereas a suitably coloured plastic, or painted/stained wood helps to form more unobtrusive joints.

The joints shown here are only a representation of the many configurations that can be used. Many types of aluminium partition mouldings are also available. All feature joints are suitable, providing an expansion or contraction gap of 3mm minimum is provided.



The joint that will work the best is the slip tongue as it is simple and very effective. The edge of the panels have to be grooved by either spindle moulder, or on site with a router using a saw blade type cutter such as 4 tooth slotting cutter. The slip tongue can be plywood or Thin Craftwood® MDF but the best is anodised aluminium, usually black. The reason for this is that it will not show any movement as it would with a painted tongue. All edges should be painted black with a very fine arras on the edge. This method works well with the split batten system.

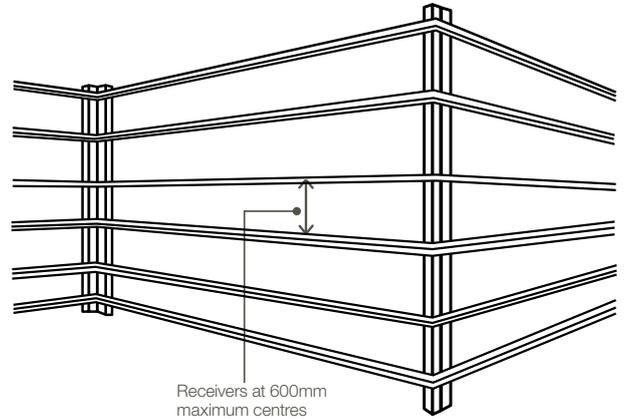
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Application and installation of Craftwood® MDF for wall panelling

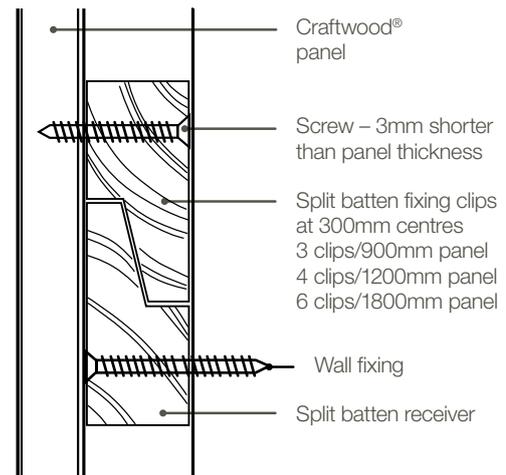
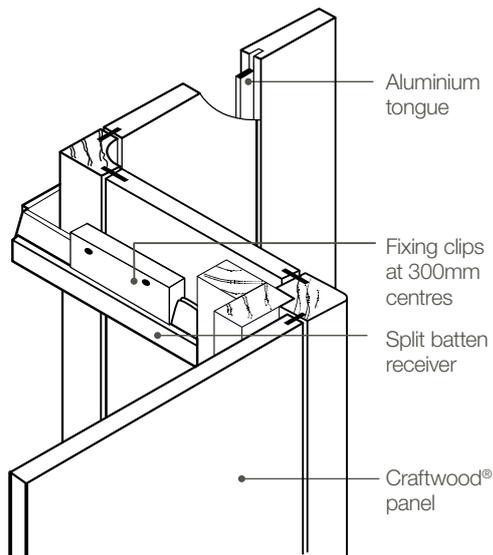
A common use for Craftwood® and decorated MDF panels is as wall panelling.

Fixing panels to the wall - Split Battens or "J" Clips

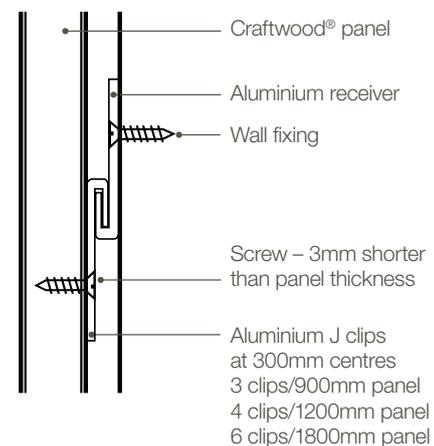
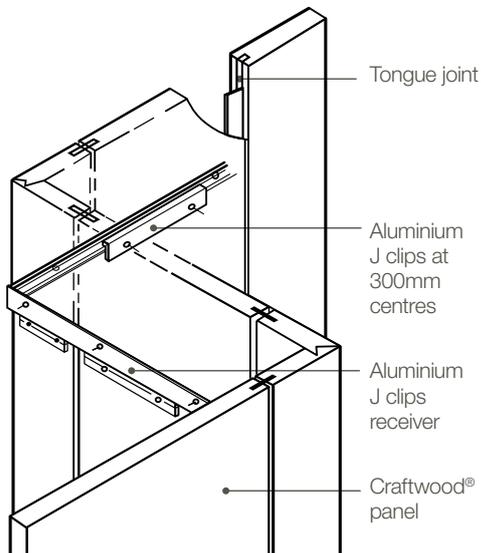
The most effective method of fixing wood based panels is wooden or aluminium cleats to the wall and back of the panels. This method has many advantages. The panels can be prepared off site i.e. cut, edged or polished. They are quick to install and can be easily replaced if damaged. If there is any expansion or contraction, they can be easily pushed along.



Timber Split Batten installation



Metal 'J' Clip installation



Fixing panels to stud work

Spacing of battens, studs and noggins for panels up to 12mm thick: Studs should be a maximum of 450mm apart with one noggin for walls up to 2400mm high, and two noggins in walls over 2400mm high. Battens should be spaced at 450mm centres running at right angles to the studs.

For panels over 12mm thick, the stud spacing can be 600mm with noggins the same as for thinner panels, and battens can be spaced at 600mm.

If the panels are to be mechanically fixed by screws or nails, it is important that a fixing pattern be followed. The fixing should work from the centre out in every direction. If this is not possible on larger panels, fix along one long side first and then work across the panel on all patterns evenly.

Panel thickness

Panel thickness is relative to what is required from the panel i.e. impact or sound rating, etc.

As a general rule 12mm is very suitable for most occasions but 16mm may be more appropriate for sound rating. 12mm is the thinnest panel that can be used with the split batten system. Thinner panels could be used, if good support is provided and the panels are well fixed with nails and adhesive.

Nails, staples, screws etc...

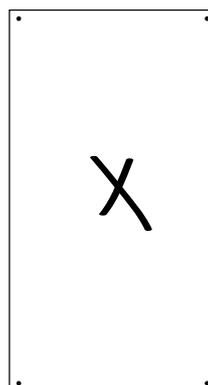
When mechanical fixings are used for Craftwood® boards it is particularly important that the correct number of fixings are used. Fasteners should be inset from board edges by at least 10mm wherever possible. Sometimes it will not be possible to inset fasteners 10mm from the edge. In these instances, inset as far as the support width will allow.

Note: Craftwood® MDF is often used as pelmets to conceal light fixtures, and over window coverings. Wherever there is constant heat from lighting, or from heat from the sun on glass, MDF will shrink causing gaps.

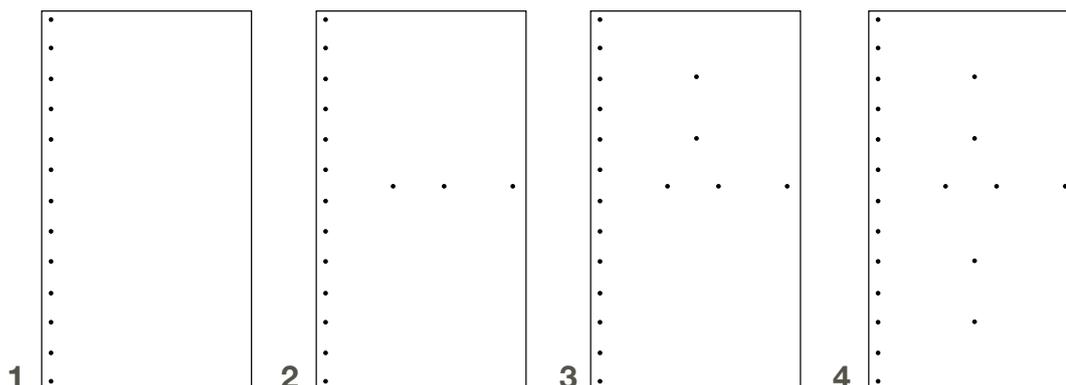
Do not fit pelmets from wall to wall, always leave a gap.

Do not leave plaster cornices to be set hard to pelmets.

On long runs allow slip joints, or 'V' joints for pelmets over 3600mm.



Incorrect
DO NOT tack corners first



Correct sequence and frequency of fixing

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Application and installation of Craftwood® MDF for stairs

MDF Raw has been used in Australia for the manufacture of internal residential stairs for many years. Medium Density Fibreboard is also used for stairs in America and the United Kingdom.

To perform satisfactorily, a stairway and all of its components have to reach a specific performance level.

The main attributes to be considered are: strength, deflection, vibration under dynamic load, slip resistance, resistance to moisture.

Stairways should be strong enough to carry normal loading with an acceptable margin for safety without excessive deflection that would impair its efficiency.

Stairs manufactured from Craftwood® MDF should meet all the requirements of the Building Code of Australia and Local Government Authorities, and only be installed in dry, well ventilated areas.

Craftwood® MDF stairs should not be installed in areas where they will be constantly wet or exposed to constantly high humidity above 70%, such as in basements. They should not be exposed to naked earth or damp subsoil, as under buildings, without first taking action to seal and protect the Craftwood® MDF from moisture of fungal attack.

The overall width of a Craftwood® MDF stairway should nominally be 900mm (maximum width recommended 1000mm including the stringers).

Treads - should be from 32mm Craftwood® MDF

Risers - should be from 16mm Craftwood® MDF

Stringers - can be from 32mm Craftwood® MDF provided they are fully supported by a supporting wall, with studs at 600mm centers.

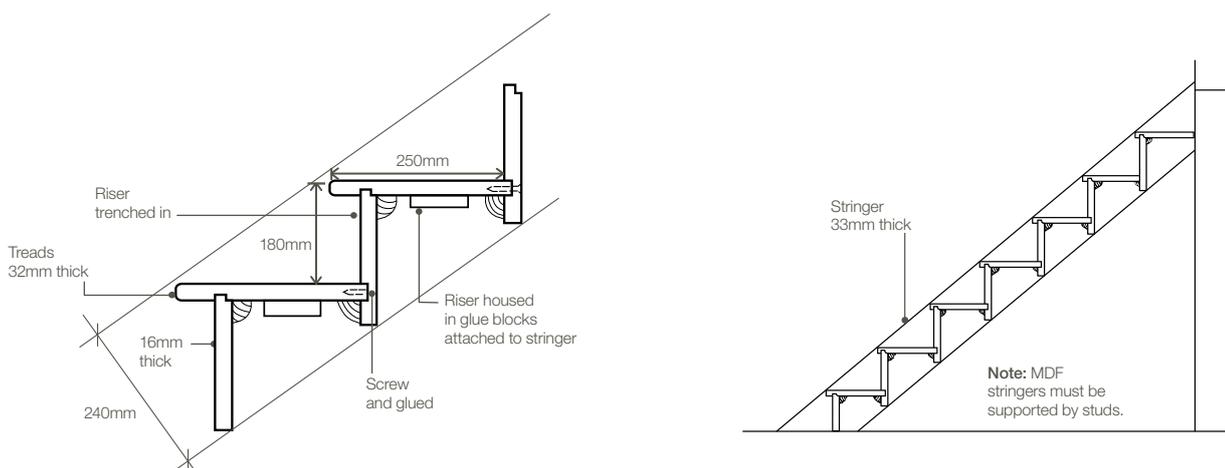
Method

Treads should span 848mm x 240mm minimum width to 355mm maximum width and be housed into the stringers 6mm each end. Trenches should be a snug fit, supplemented with good quality adhesive such as **Trade Essentials MDF PVA**.

Risers should be 16mm Craftwood® MDF trenched into the underside of tread and into the stringer and run past the lower tread by 25mm, to allow glue blocks to be fitted and screwed to the back edge of the lower tread, with 10# x 40mm screws. All joints should be supported with adhesive and glue blocks fitted on all sides.

Stringers - if Craftwood® MDF stringers are to be used, housings should be as shallow as possible, say 6mm. Treads should be screw fixed. Treads and risers should be kept constant.

Note: All stairways must meet all requirements of the Building Code of Australia and all Local Government requirements.



MDF Raw board shelf loadings

The large range of Craftwood® MDF products allow selection of product on suitability for shelf loadings which may range from a simple shelf in a kitchen to a huge collection of books in a library.

With shelf simply supported at both ends (no fixing) with an evenly distributed load. The shelf will not deflect more than 4mm.

Thickness	Size	Shelf loading	Size	Shelf loading
16mm	600mm x 200mm	31kg	1000mm x 200mm	6kg
18mm		41kg		9kg
25mm		120kg		26kg
32mm		235kg		54kg
16mm	600mm x 300mm	47kg	1000mm x 300mm	10kg
18mm		67kg		14kg
25mm		182kg		39kg
32mm		380kg		82kg
16mm	600mm x 400mm	63kg	1000mm x 400mm	13kg
18mm		90kg		19kg
25mm		241kg		52kg
32mm		506kg		109kg
16mm	600mm x 500mm	79kg	1000mm x 600mm	20kg
18mm		112kg		29kg
25mm		302kg		78kg
32mm		633kg		164kg
16mm	600mm x 600mm	95kg	1200mm x 200mm	3kg
18mm		135kg		5kg
25mm		362kg		15kg
32mm		760kg		31kg
16mm	900mm x 200mm	9kg	1200mm x 300mm	5kg
18mm		13kg		8kg
25mm		35kg		22kg
32mm		75kg		47kg
16mm	900mm x 300mm	14kg	1200mm x 400mm	7kg
18mm		20kg		11kg
25mm		53kg		30kg
32mm		75kg		
16mm	900mm x 400mm	18kg	1200mm x 600mm	11kg
18mm		26kg		16kg
25mm		71kg		45kg
32mm		112kg		95kg
16mm	900mm x 600mm	28kg		
18mm		40kg		
25mm		107kg		
32mm		225kg		

Safety and handling

MDF Raw is a reconstituted wood product containing wood, resin and wax. Machine tools should be fitted with dust extractors and the wearing of a dust mask and eye protection is recommended. Material Safety Data Sheets for MDF Raw products are available on request from any Laminex branch or on our website.

E0 MDF Raw Product Range



Available in the Trade Essentials range:

Adhesives
Craftwood (MDF Products)
Fire Retardant Products
Lightweight PVC Panel Products
Particleboard Products
Plywood Products
Strandboard Products
Triboard Products
Ultra LDF Products
White Board and Edging Products

E0 MDF Raw Products are part of the Trade Essentials® range of products

For more information visit tradeessentials.thelaminexgroup.com.au or call 132 136.

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