

Superfine[®]

PARTICLEBOARD

| Technical Manual



Superfine[®]
PARTICLEBOARD

Superfine[®]
PARTICLEBOARD MR

Edition 2.0 05.21

Laminex[™]
NEW ZEALAND

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1 General product description

1.1 Superfine[®] and Superfine MR[®] material

Superfine[®] and Superfine MR[®] are medium density, grainless, resin bonded particleboard panels which have a fine uniform surface. Manufactured locally from renewable New Zealand Radiata Pine, Superfine[®] particleboard carries the Environmental Choice New Zealand Certification. Constant testing over a wide range of applications has proven that Superfine[®] performs significantly better than alternative substrates when it comes to stability and moisture absorption.

1.2 Superfine[®] types

1.2.1 Superfine[®]

Uses:

Superfine[®] is designed as a substrate for:

- o Low pressure melamine overlays
- o Wood veneer overlays
- o High pressure laminates
- o Vinyl overlays
- o Paint finishes (not clear coatings)
- o Residential and commercial cabinetry

1.2.2 Superfine MR[®]

Superfine MR[®] (Moisture Resistant) has been developed to provide additional resistance when used in high humidity environments. Superfine MR[®] panels are clearly labelled on the pack banner and are identified by green dye in the panel.

Uses:

Superfine MR[®] is designed for everything listed above, plus:

- o Kitchen cabinetry
- o Bathroom vanity units and laundry cabinetry
- o Benchtop substrates
- o Cabinetry in tropical and laboratory location

1.3 Make sure your information is up to date

When specifying or installing Laminex New Zealand™ product, ensure you have the current technical manual. If you are not sure you do, or you need more information, visit laminex.co.nz or call Laminex New Zealand™ on **0800 303 606**.

1.4 Sustainability

Superfine[®] and Superfine MR[®] has Environmental Choice New Zealand certification, one of the highest, most trusted and recognised environmental certifications in New Zealand. This certification provides maximum points towards Homestar and Green Star within Green Building Council ratings. Green Star is a rating system for the design, construction and operation of buildings, interiors and communities, and Homestar measure the health, warmth and efficiency of New Zealand homes.



2 Material properties

Superfine® and Superfine MR® are composed of engineered wood flakes bonded under heat and pressure. The Superfine® adhesive is urea formaldehyde and the Superfine MR® adhesive is melamine urea formaldehyde.

The resulting particleboard panels are sanded, cut to size and ready for use.
Typical results when tested to ASNZ 4266.

2.1.1 Superfine® physical properties*

Table 1

Nominal thickness (mm)							
Physical property	Units	9 mm	12 mm	13 - 19 mm	20 - 29 mm	30 - 33 mm	>33 mm
Moisture content	%	8	7	7	7	8	8
Density	Kg/m ³	650	650	650	630	610	600
Internal bond	KPa	890	870	660	580	570	660
Modulus of rupture	MPa	15	16	17	16	15.5	15.5
Modulus of elasticity	MPa	2050	2150	2310	2210	2250	2200
Surface soundness	MPa	1.4	1.6	1.7	1.9	2	2.1
Face screw holding	N	N/A	N/A	1050	1050	1200	1300
Edge screw holding	N	N/A	N/A	610	530	530	620
Surface water absorption	g/m ²	140	120	100	100	90	90
Thickness swell 24hr	%	14	9	8	6	6	5
Formaldehyde	mg/L	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5

2.1.2 Superfine MR® physical properties*

Table 2

Nominal thickness (mm)						
Physical property	Units	12 mm	13 - 19 mm	20 - 29 mm	30 - 33 mm	>33 mm
Moisture content	%	7	7	7	8	8
Density	Kg/m ³	650	650	630	610	600
Internal bond	KPa	950	910	900	900	890
Modulus of rupture	MPa	19	19	18	17	17
Modulus of elasticity	MPa	2600	2580	2500	2460	2400
Surface soundness	MPa	1.7	2	2	2.4	2.5
Face screw holding	N	N/A	1200	1200	1400	1500
Edge screw holding	N	N/A	740	730	720	700
Surface water absorption	g/m ²	80	70	70	70	60
Thickness swell 24hr	%	4	4	3	3	3
Formaldehyde	mg/L	<1.5	<1.5	<1.5	<1.5	<1.5

2.1.3 Superfine® Typical board weight

Table 3

Weight per unit area								
Thickness	mm	9	12	16	18	25	30	35
Mass per square	kg/m ²	5.85	7.83	10.54	11.71	15.78	18.47	21
Average mass for 2440x1220	kg	17.41	23.22	30.96	34.83	46.88	54.48	62.51

*Laminex New Zealand™ reserves the right to change the specification.

2.1.4 Sheet tolerances

Table 4

Tolerances		
Dimension	Target	Upper limit
Length	Nominal	+/- 2mm
Width	Nominal	+/- 2mm
Thickness	Nominal	+/- 0.2mm

2.1.5 Availability guide



Table 5

Thickness	Sheet size	Description	Stocked	Pack size
9mm	2440x1220	Superfine® Standard	Stocked	50
12mm	2440x1220	Superfine® Standard	Stocked	75
12mm	2440x1220	Superfine MR®		75
16mm	2440x1220	Superfine® Standard		56
16mm	2440x1830	Superfine® Standard		38
16mm	2440x1220	Superfine MR®		56
16mm	2440x1830	Superfine MR®	Stocked	38
18mm	2440x1220	Superfine® Standard		50
18mm	2440x1830	Superfine® Standard		34
18mm	3660x1220	Superfine® Standard		34
18mm	3660x2440	Superfine® Standard		16
18mm	2440x1220	Superfine MR®		50
18mm	3660x2440	Superfine MR®		50
25mm	2440x1220	Superfine® Standard		36
25mm	2440x1830	Superfine® Standard		24
25mm	3660x1220	Superfine® Standard		24
25mm	3660x2440	Superfine® Standard		12
25mm	2440x1830	Superfine MR®		24
28.5mm	2440x1220	Superfine® Standard		32
30mm	2440x1220	Superfine® Standard		30
30mm	3660x1210	Superfine® Standard		20
30mm	1820x1200	Superfine® Standard	Stocked	30
30mm	2440x1830	Superfine MR®		20
35mm	1820x1200	Superfine® Standard		25
35mm	2440x1830	Superfine MR®		18

Alternative thickness and sheet size combinations are available on request if minimum order quantities are met.

2.1.6 Shelf load span

Table 6

Shelf load span table (kg/m ²)											
Span type	Thickness (mm)	Span (m)									
		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2
Single span 	9	106	45	23	13	8	6	4	3	2	2
	12	251	106	54	31	20	13	9	7	5	4
	16	594	251	128	74	47	31	22	16	12	9
	18	846	357	183	106	67	45	31	23	17	13
Multiple span 	9	199	84	43	25	16	11	7	5	4	3
	12	473	199	102	59	37	25	18	13	10	7
	16	1121	473	242	140	88	59	42	30	23	18
	18	1595	673	345	199	126	84	59	43	32	25

2.2 Packaging

- o Cover sheets are included at top and bottom of packs to provide edge and surface protection
- o Packs are plastic wrapped to control the effects of changing environmental conditions. The wrap is not intended as a waterproof cover short or long term.
- o Packs are plastic strapped. These should be cut as soon as practical to reduce the effects of moisture uptake which can cause indentations
- o Board size and classification is denoted on pack banner

3 Durability

When stored, handled, installed and maintained in accordance with this document, Superfine® and Superfine MR® will meet the provisions of NZBC B2.3.1(c) for five years (dependent on end use).

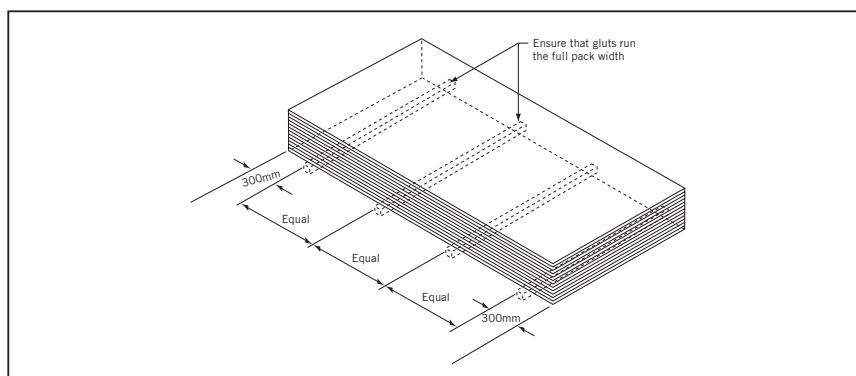
Laminex New Zealand™ will not be liable to any person if the conditions as to storage, handling, installation and maintenance of Superfine® or Superfine MR® as outlined within this document are not complied with.

3.1 Handling and storage

Correct storage procedures will eliminate sagging and permanent distortion of sheets.

- o Store away from heat and direct sunlight
- o Position 60mm minimum gluts, true to line on a level dry floor ensuring that they run full pack width
- o Line gluts vertically one above the other when vertically stacking packs
- o Place end gluts a maximum 300mm from each end of the pack
- o Provide at least 4 gluts per 2400mm and 5 per 3600mm (refer figure 1)
- o All packs are plastic wrapped at the factory to minimise the effects of environmental conditions. The wrap is not intended as a waterproof cover – short or long term.
- o Cut straps as soon as practicable to avoid indentations
- o Do not store product in an exterior situation – storage under canopy is regarded as an exterior location and must be avoided.
- o As with most wood based products, Superfine® will increase in dimension in proportion to any increase in the board moisture content and to the relative humidity of the situation and environment in which they are placed.
- o Adequate preconditioning and precise following of installation instructions are essential for satisfactory results, especially during wet seasons and high humidity.

Figure 1



3.1.1 Hygroexpansivity (sheet expansion)

Attention to correct storage, preconditioning and stock rotation will minimise the effects of dimensional fluctuations and edge peaking resulting from changes in relative humidity.

3.1.2 Stock rotation

The uptake of atmospheric moisture into board edges will be minimised by regular stock turn around. Cut strapping immediately to avoid indentations. Avoid storing close to doorways adjacent to external atmosphere.

3.2 Heat

Precautions must be taken to ensure that Superfine® is kept clear of nearby sources of heat, such as freestanding fire places, space heaters, wall ovens, hot plates etc. The structural life of Superfine® panels may be impaired if surface temperatures exceed 50°C for extended periods. Short term exposure should not exceed ambient plus 65°C.

Manufacturers of heating appliances must be consulted to ascertain the clearances or protection required to ensure 50°C is not exceeded.

3.3 Limitations

Superfine® and Superfine MR® medium density particleboard is intended for dry interior use only.

Superfine MR® is designed to give improved durability and performance in areas of high humidity. It is not waterproof and therefore must not be allowed to come in direct contact with water.

Neither Superfine® nor Superfine MR® is intended to be used in:

- o Exterior locations
- o As a substrate for clear (polyurethane) coatings
- o Areas subject to repeated spillages or extreme dampness
- o Marine applications
- o Exterior door panels

4 Design

4.1 Design considerations

4.1.1 Surface and edge finishing

- o Staining and clear coating are not recommended for Superfine®.
- o Wood veneer and melamine edge banding, PVC and ABS edging, solid timber clashing and paste type edge fillers may all be used on Superfine® particleboards.

5 Installation

5.1 Assembly fittings

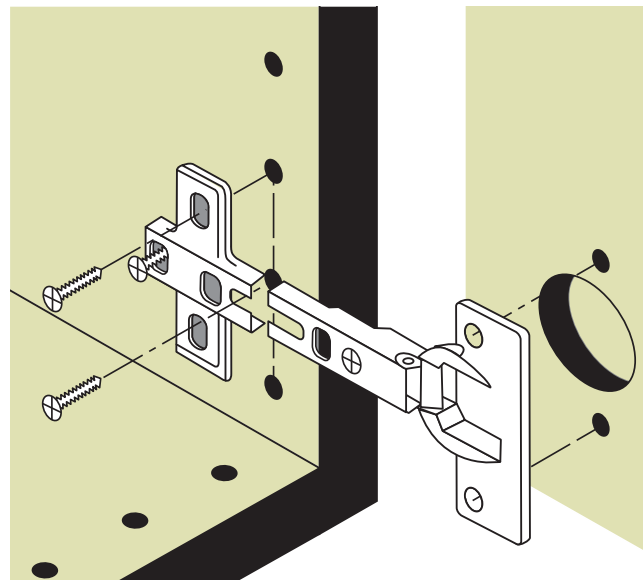
Owing to gathering emphasis placed on “knock down” systems, manufacturers have developed efficient hinges and fittings to assist ease of assembly.

Some of these are as follows:

5.1.1 Concealed hinge

Cup hinges are inserted into a predrilled hole in the door and screw fixed. The mounting plate is fastened to the carcass. The hinge arm slides on to the baseplate and is secured by a screw on the hinge arm. The hinge is adjustable in three directions allowing for perfect door alignment. A built-in catch in the hinge arm keeps the door closed (refer figure 2).

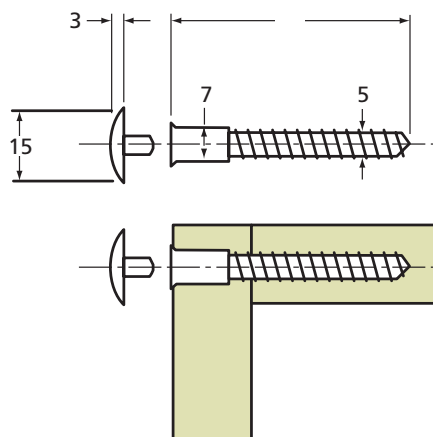
Figure 2



5.1.2 Confirmat screws

These screws are used for right angled joints. 50mm or 70mm long screws are fitted into a pilot hole using a special drill bit. A plastic over cap fits into the head to conceal the screw (refer figure 3).

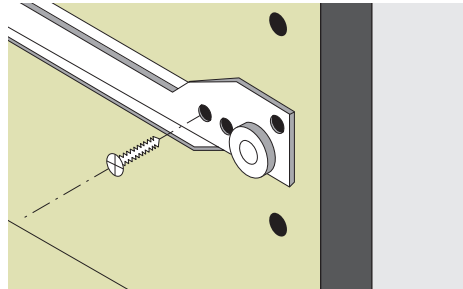
Figure 3



5.1.3 Drawer slides

Slides are mainly epoxy coated steel with nylon rollers or ball bearing races. These are easily fitted and give superb smooth gliding action (refer figure 4).

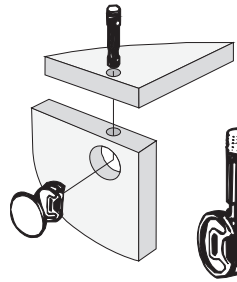
Figure 4



5.1.4 Cam connector system

This is designed to give strong unobtrusive joining of boards of a minimum of 15mm thickness at right angles. The steel connector bolt is screwed into the face of one board. It then passes through a predrilled hole in the edge of the other board, locating at 15mm diameter zinc cam. The cam is then twisted with a screwdriver to apply joining pressure. A cover cap can then be placed over the cam, which can be removed if the units are to be separated (refer figure 5).

Figure 5



5.1.5 V-Grooving and mitre folding

Machining and assembly of Superfine® cabinet components using decorative vinyl film as the fulcrum of hinge at corners gives greater design flexibility and joint accuracy. It eliminates the matching of individual component parts.

Decorative plastic laminates and wood veneers may be used when a decorative vinyl film is adhered to the face of the overlay forming the hinge when folding part taken through the substrate to the back of the tape. Superior groove rather than cutter systems.

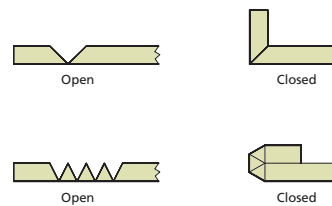


Figure 6

5.2 Sawing

Superfine® is easily cut with a fine toothed hand saw or circular saw adjusted to protrude just through the board surface. Tungsten-tipped machine tools are recommended for volume production.

5.3 Machining and drilling

Superfine® can be easily machined, grooved and routed in any direction. To avoid offside break-out apply only nominal pressure when using power drills.

Note:

Always use approved eye protection when machining particleboard.

For best results ensure hand and machine tools are sharp.

5.4 Laminated panels

5.4.1 Cutting

Particular care must be taken with sheets overlaid with printed papers, vinyls or melamine laminates. Place face side of sheet uppermost when using conventional bench saw and downwards if using a portable electric saw. See also "Machining and drilling".

6 Fixing and jointing

Fixing and jointing techniques with Superfine® are similar to methods used with most other wood products.

6.1 Balanced laminations

When surface coated or laminated, Superfine® products, as with all wood panel products must be treated both sides to reduce panel cup or bow which could otherwise occur at different humidity conditions.

6.2 Screwing

Twinfast self centering screws or particleboard screws, available with single and cross slotted heads, are suitable for fixing into the edge and face of Superfine®. Full length parallel twin threads provide up to 25% more holding power and penetrate faster into the particleboard than conventional wood screws. Plated screws are advisable, to avoid corrosion stains discolouring board surface.

6.3 Pilot holes

Correct pilot holes are essential to avoid splitting of board edges.

Pilot hole sizes								
Screw gauge	3	4	5	6	7	8	9	10
Pilot hole size (mm)	1.00	1.25	1.45	1.60	1.65	1.95	2.10	2.25

Table 7

6.4 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 a 6 gauge.

6.5 Adhesives

Superfine® panels can be readily jointed or bonded with standard woodworking adhesives, such as Rakoll GXL3. High volume manufacture may require alternative methods such as gun applied hot melt systems.

6.6 Dowel jointing

Superfine® panels can be successfully butt jointed edge to face. The joint must be given added strength with a widely used method of glue and dowels.

7 Finishing

7.1 Preparation

7.1.1 Edge preparation

Lamination of balancing veneers is recommended in single sided uses.

Optimum results are gained when boards are preconditioned to balance internal moisture content before processing. Minor cupping or bowing, possibly initiated by the laminating processes, can be accentuated by rapid humidity changes. Under normal conditions boards will recover relatively quickly.

A balancing veneer or surfacing system is recommended as single or unbalanced laminations can cause warping.

8 Health and safety

8.1 Health and safety precautions

Health and safety precautions must be taken when working with wood products. The following information is intended as a guide to help keep you safe.

8.2 Wood dust

- o Exposure to wood dust and/or to formaldehyde may cause irritation to the eyes, respiratory system and skin, and may cause sensitisation resulting in asthma, and by skin contact resulting in dermatitis.
- o Wood dust is classified as a known carcinogen. Repeated inhalation of wood dust over many years may cause nasal cancer.
- o Formaldehyde is classified as a known carcinogen.
- o Storage areas containing large quantities of Superfine® must be adequately ventilated.
- o Work areas must be well ventilated and kept clean. Sawing, sanding and machining equipment must be fitted with dust extractors to ensure that dust levels are kept within standards laid down by Worksafe Australia, Occupational Health and Safety New Zealand, or the specific country of use. If not, a dust mask conforming with AS/NZS 1715 and AS/NZS 1716 and eye protection conforming with AS/NZS 1337 must be worn.
- o Offcuts, shavings and dust must be disposed of in a manner which avoids the generation of dust and in accordance with the requirements of local waste authorities.
- o In end use applications all product surfaces exposed to occupied space must be sealed.
- o For further information and safety data information, please phone Laminex New Zealand™ customer services department.

8.3 Formaldehyde

- o The formaldehyde content of Superfine® and Superfine MR® comply with the limits specified by the World Health Organization for low formaldehyde emitting products and meets the requirements for E1 product as detailed in AS/NZS 1859.1 : 2004 – Reconstituted wood based panels – Specifications.
- o When tested to AS/NZS 4266.16, the formaldehyde emission level is ≤ 1.5 milligrams per litre.
- o Once Superfine® products are installed, emission levels can be further controlled by room ventilation together with covering or coating the surface and edges.

8.4 Warranty

Laminex New Zealand™ will not be liable to any persons if the conditions as to storage, handling and installation and maintenance of Superfine® and Superfine MR® as outlined within the Superfine® Technical Manual are not complied with. It is the obligation of the installer of the Superfine® and Superfine MR® to convey this information to the relevant owner/occupant.

If you have any questions, or in the unlikely event of a problem with Superfine® and Superfine MR®, please contact Laminex New Zealand™ Customer Services. For more information visit laminex.co.nz or call **0800 303 606**.

9 Disclaimer

Laminex New Zealand™ will not be liable to any person if the instructions as to storage, use and installation of Superfine® and Superfine MR® as outlined in this brochure are not complied with.

Any proprietary products referred to in this brochure must be used in accordance with the relevant manufacturer's instructions. Laminex New Zealand™ accepts no liability for these proprietary products. Nothing contained in this paragraph or elsewhere in this brochure affects any rights a person may have under the Consumer Guarantees Act 1993. This brochure supersedes all previous issues. All Acts, Codes and Standards referred to in this brochure are the current editions at the date of brochure publication

9.1 Technical support

As not all product use options can be described in this brochure, additional end use and specifying information is available as a complimentary service. The information contained in this brochure must not be reproduced or published in whole or in part without the prior consent of Laminex New Zealand™. Laminex New Zealand™ reserves the right to revise without notice any information contained in this brochure. Please contact Laminex New Zealand™ customer services department to check the currency of information contained in this brochure.

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