Applications

Shelving

Customwood® MDF Panels of standard density are ideal for all types of shelving. All exposed faces and edges should be sealed before being put into use.

Note: For concentrated or point loads, the maximum concentrated load is 60% of the UDL for the shelf. To check shelf design for concentrated loads, use table for appropriate shelf type with loading 0.6 x value in table. Use single span figures unless multiple span shelf is rigidly fixed at all supports. These figures do not assume rigid fixing of support points. If the shelf is rigidly fixed at these points, loadings can be increased.

Design

The recommended steps for design are:

1. Determine shelf type.
2. Determine loading. The shelf design table is based on a uniformly distributed loading (UDL). The total load on the shelf in kg is divided by the area of the shelf (span x width) to give a loading in kg/m^2.
3. Select thickness for span and loading.

Single Span Type Two supports only							
Span (mm)	**200**	**300**	**400**	**500**	**600**	**800**	**1000**
Thickness (mm)	UDL kg/m^2						
12	680	201	85	44	25	10	
16	1620	480	203	104	64	25	13
18	2300	680	290	150	86	36	18
25		2100	896	464	266	111	57

For example: A 400mm single span shelf with a loading of 200 kg/m^3 will require 16mm thickness. Maximum loading for this shelf is 203 kg/m^3.

Multiple Span Type Shelf is continuous over three or more supports							
Span (mm)	**200**	**300**	**400**	**500**	**600**	**800**	**1000**
Thickness (mm)	UDL kg/m^2						
12	1285	380	161	83	47	20	
16	3060	907	383	146	121	47	24
18	4340	1285	548	283	162	68	35
25		3920	1690	877	503	210	168

Cantilever Span Type The shelf projects from a single rigid support							
Span (mm)	**200**	**300**	**400**	**500**	**600**	**800**	**1000**
Thickness (mm)	UDL kg/m^2						
12	68	20					
16	162	48	20				
18	230	68	29				
25		210	89	46	26		

Wall and Ceiling Linings

Customwood® MDF Panels can be used as a wall and ceiling lining with high impact strength capable of accepting load-carrying fittings at all points. When fixing, allow a 3mm gap between adjacent panels to provide space for movement. It is important to condition panels by inserting gluts between individual panels for 48 hours before use (refer Conditioning). Sealing the panels will improve stability by reducing moisture change in them.

Fixing

Fixing should not be undertaken until the building is closed in and waterproof with the moisture content of timber framing being below 15%.

Panels can be fixed by staple or nail at a minimum of 12mm from the edge of panel. Board surfaces should be primed or clear sealed immediately after fixing to minimise the effects of atmospheric moisture, direct sunlight and to resist marking during construction.

Several options are available when finishing joints of Customwood® MDF wall linings:

- Chamfer the edge of the panels and make a feature of the joint.
- Place a timber or MDF moulding over the joint.
- Use a PVC jointing strip.
- Fill the 3mm gap with a flexible sealant.

Wall				
	Framing		Sheet Fixing	
Thickness (mm)	Stud (mm)	Dwang (mm)	Sheet Edges (mm)	Intermediate Supports (mm)
6, 9	400	800	150	200
	450	800		
	600	600		
12, 16, 18	400	1200	150	250
	450	1200		
	600	800		

Ceiling				
	Framing		Sheet Fixing	
Thickness (mm)	Joist (mm)	Dwang (mm)	Sheet Edges (mm)	Intermediate Supports (mm)
6, 9	400	800	150	200
	450	800		
	600	600		
	900	500		
	1200	500		
12	400	800	150	250
	450	1200		
	600	1200		
	900	600		
	1200	600		
16	400	800	150	250
	450	1200		
	600	1200		
	900	1200		
18	900	1200	150	250
	1200	900		

Customwood®

Flooring Overlays

Customwood® MDF Panels can be used as an overlay on existing timber floors before covering with carpet or vinyl. All exposed faces and edges should be sealed before use. Conditioning requirements are the same as for wall linings and ceilings. Panels should not be laid over existing flooring with moisture content greater than 15%. Floors must be sound and must be sanded flat to ensure all uneven surfaces are levelled out. Sheets should be set out in a brick bond pattern with a 3mm gap between all panel edges and perimeters. Panels can be fixed by staple or nail and must be spaced at 100mm around all edges and 150mm throughout the centre of the sheets. Adhesive can be used as an extra fixing and should be applied in accordance with the manufacturer's recommendations.

Customwood® MDF should not be used as a flooring overlay on concrete floors.

Flooring Overlays (over timber floors)		
Thickness (mm)	**Fixing centres at sheet edges (mm)**	**Fixing centres at intermediate points (mm)**
3, 4, 4.75, 6	100	150

Stairs

Customwood® MDF Panels can be used in the manufacture of stairs, treads and risers. Its use for stair stringers is subject to specific design for each application. All exposed faces and edges should be sealed before use.

- With stringers, trenching depth should be kept to the minimum practicable. Performance is improved if metal angle or softwood blocks are used as additional support to the tread.
- Avoid driving wedges into the trenched channel to secure the tread. A close tolerance fit supplemented with adhesive is preferable.
- Twinfast screws are preferred to nails or staples. Correct pilot hole size is important (refer Screwing).

For construction details refer to NZ Building Code/Clause D1/Access Routes.

Multi Laminate

Several sheets of Customwood® MDF Thin Panel can be laminated to build up a curved shape or component. Complex and difficult shapes can be accomplished by laminating thinner panels together to the required shape using woodworking adhesives. Best results for laminating are achieved by sanding the panel surface first with 80-120 grit papers.

Individual sheets can also be bent to form curves for archways, furniture components or single use concrete formwork.

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