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VERSPANEL®
Technical Manual

Versapanel® Technical Manual

Versapanel® Cement Bonded Particle Board

Manufactured to EN 634-1 & EN 634-2

Versapanel® is a cement bonded particle board intended for both internal and external use which has very high levels of performance in the presence of moisture.

Versapanel® is conformity assessed in accordance with EN 13986 which specifies the requirements for cement particle boards bonded with Ordinary Portland Cement (OPC) for use in dry, humid and exterior conditions.

Versapanel® also complies with the general requirements as listed in EN 634-1 together with the requirements set out in table 1 of the standard.

Composition and manufacture

Cement bonded particle board generally (but not exclusively) comprises wood particles bonded with ordinary Portland cement. Wood is the predominant component by volume but cement is predominant by weight. Small quantities of chemicals are added to the wet mix, one of their purposes is to accelerate cement setting.

Weight

Typical density of boards are 1300 kg/m^3 for example a 2400 x 1200 x 12mm board will weigh approximately 45 kilograms.

Appearance

Standard unsanded boards are generally light grey in colour with a smooth cementitious surface. Although generally smooth this should not be relied upon for decoration.

Versapanel® is sold worldwide and has gained acceptance in various countries by meeting required performances in applications.

Further information is available on request.

Size

Panel Type	Unsanded or calibrated
Stocked Size (mm)	2400 x 1200
Thickness (mm)	8, 10, 12, 16, 18, 24
To Order (mm)	2600 x 1200 2800 x 1200 3050 x 1220
Thickness (mm)	20, 22, 28

Introduction

Versapanel® - the versatile cement bonded particle board suitable for a wide range of applications. Cement particle board represents an advantage in building board technology to meet increasingly stringent building regulations and demands for ever higher standards of durability, safety and economy.

Versapanel® board may be sawn, planed, sanded, drilled, routed, nailed and screwed.

Suitable for exterior performance with excellent sound attenuation. It is durable, even when unprotected, and is able to withstand the destructive influences of weather, moisture, insects, vermin and fungi. It is robust against impact, therefore the possibility of damage is reduced. It will not build up static charges. It will also accept a wide variety of finishes.

Made from the traditional building materials, cement and wood. The special process of blending results in a board having a unique combination of properties. Due to the monolithic structure any exposed sawn edges are not vulnerable to weather damage.

Finishes

Versapanel® board is smooth in texture and light grey in colour. It is available in two types of finish: unsanded and calibrated. Calibrated is normal production, simultaneously sanded on both sides; it is used where minimal thickness tolerance is required. Although generally smooth this should not be relied upon for decoration.

Edges

Plain or profiled are available.

Versapanel® is a cement bonded particle board comprising of wood particles and cement.

Versapanel®'s principle attributes are durability and sound reduction, it is fire resistant in tested build-ups, it is resistant to attack from termites, insects and fungus.

Internal, External & Other Applications

Internal

Versapanel® board has advantages over other types of board materials due to its strength, workability and durability coupled with main attributes:

sound reduction and high performance in the presence of moisture.

Versapanel® may be confidently used in wet areas.

The first choice for internal walls and partitions in domestic or public buildings due to its impact resistance and sound reduction properties.

External

Proven performance as an external sheathing material - Versapanel® has been successfully used in prefabricated panel construction - both single skin and sandwich application. Also, due to the excellent “racking” properties of Versapanel®, the board may be utilised as a structural member in a composite building application.

Versapanel® in an untreated state is weather resistant and will not degrade with permanent exposure, even if subjected to freeze/thaw conditions. However, in general, a surface treatment is recommended for external applications. A range of paint and textured finishes may be used.

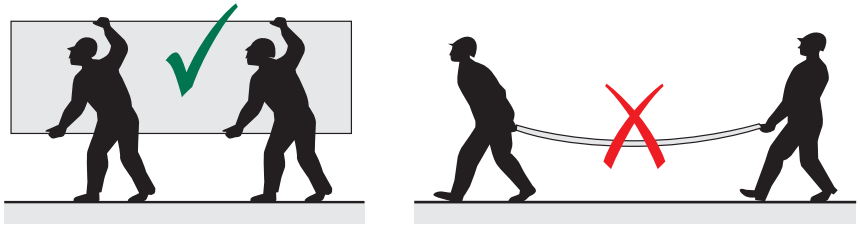
Other Applications

Can also be used for a wide range of applications including as a backing board (carrier panel) to cladding systems such as:

- Insulated Render Systems
- Terracotta Cladding Systems
- High Performance Cladding Panels

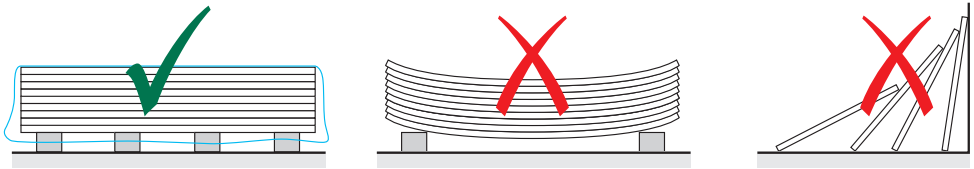
The benefits of using Versapanel® in this type of application is to help acoustic performance, impact performance, pull out performance for approved fasteners, tested for wind loadings, ventilated rainscreen cavity.

Site Procedure



Transport

Boards are usually delivered secured in plastic bound, edge protected pallets. When loose boards are transported they must be laid flat and fully protected with a waterproof sheet. When manually moving Versapanel® it must be carried in a vertical position.



Storage

Verspanel® should be stored flat on levelled supports at 800mm centres. It must never be stored on edge or upright. If outside, a protective plastic sheet must be secured to protect from weather.

Conditioning

Versapanel® has an ex-works moisture content of 9% + / - 3% and is in equilibrium when the temperature is 20°C with a relative air humidity of 50-60%. Versapanel® adapts to the ambient humidity level, therefore to adjust to its working conditions it should be allowed to acclimatise for 24-48 hours prior to fixing.

Processing

Machining

Dry working (drilling, sanding, cutting) can release dusts unless controlled. Versapanel® is machined and processed in the same manner as resin bonded particle boards, but ensuring that tungsten carbide tipped blades are used at all times. Comprehensive tests have shown that wear on tools during the processing of Versapanel® is significantly lower when compared with resin bonded board. This is due to the lack of resinification and a lower degree of heating.

Sawing

Equipment:

- Cross cut hand saws for thicknesses up to 12mm.
- Jigsaw for thicknesses up to 12mm and small work.
- Portable circular saw.
- Fixed saw for dimensioning (vertical or horizontal).

Type of blade:

- Alternative or trapezoidal teeth
- Chart shows number of revolutions and number of teeth (Z).

Diameter mm	250	300	350	400
Panel thickness up to 12mm	Z=48	Z=60	Z=72	Z=72
Panel thickness exceeding 12mm	Z=36	Z=48	Z=54	Z=60
Number of revolutions rpm	3000/4500	3000	3000	3000/1500

Milling

When working in confined areas dust extraction equipment is recommended. When used indoors, use vacuum dust extractor. Common machines with carbide-tipped tools. The higher the rpm, the better the milled edge.

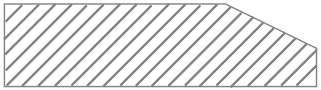
Countersinking Drilling

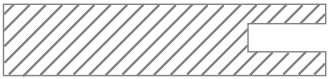
When working in confined areas dust extraction equipment is recommended. When used indoors, use vacuum dust extractor. Versapanel® can be drilled using conventional portable drilling machines; high speed steel drills or tungsten carbide drills (for prolonged use) and central tip for precision drilling. Although Versapanel® is a wood and cement panel it is not concrete and therefore does not require percussion drilling. The drilling speeds are the same as for chip-board panels (3000/4000 rpm).

Sanding

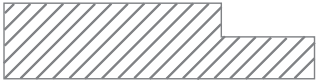
When working in confined areas dust extraction equipment is recommended. When used indoors, use vacuum dust extractor. Versapanel® can be sanded using a vibrating sanding machine or belt sanding machine. Belts should be 40-80 grains; open coat structure with linear speed of 20 to 28 m/sec. Hand-held Orbital Sander, Hand-held Belt Sander.

Edging & Jointing Detail

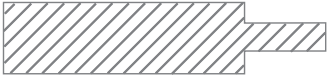




Minimum thickness: 16mm

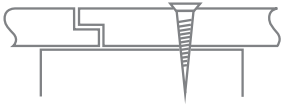


Minimum thickness: 12mm

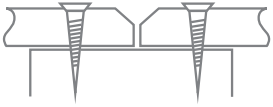


Minimum thickness: 18mm

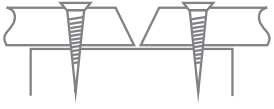
Tongue and Groove



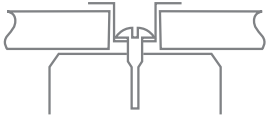
Interlocking rebate joint



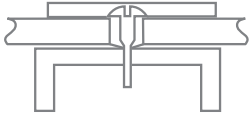
Beveled edge joint



Angled edges



Joints with metal cap profile on wood



Fastening on metal frame with clips and anodised aluminium coverstrip

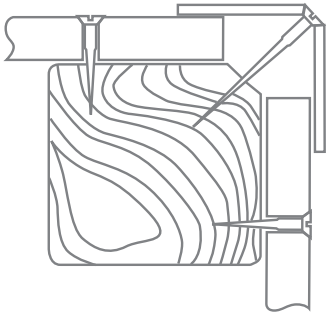
Note:

Where Versapanel® is used on an application where the product is not sealed but can be exposed to temperature changes in relative

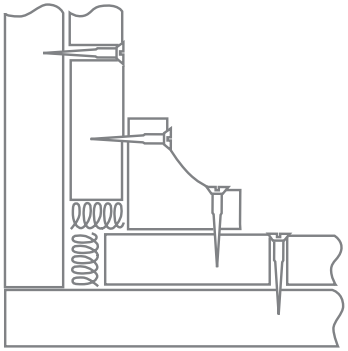
humidity, then screw holes should be oversized and a gap which allows movement should be used at joints.

Edging & Jointing Detail

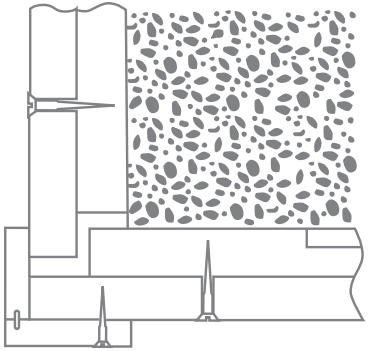
Examples showing 3 corner joints



Exterior corner fixture on timber supports



Interior corner fixture on wooden frame with wooden cover clip



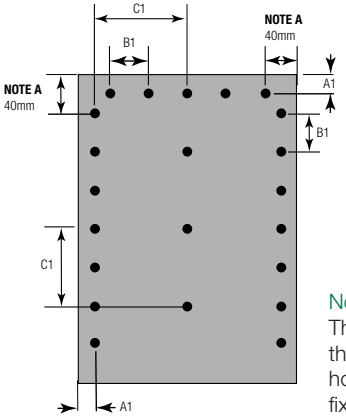
Exterior angle fixture on wooden frame

Mounting & Fixing

Mounting

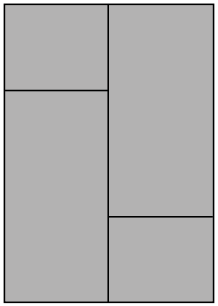
Versapanel® can be fixed using nails, screws or staples and is also suitable for manual, pneumatic and powered fixing methods. The following table is a guide to fixing distances for most common applications; however, the details are not sufficient when Versapanel® is to be subjected to particular structural forces such as wind suction or loading on ceiling soffits etc. In such cases further advice should be obtained.

Board Thickness	Centres mm			
mm	A	A1	B1	C1
8	40	15	200	400
10 - 12	40	15	300	600
16 +	40	30	400	600



Note A
The first fixing in from the corner for both horizontal and vertical fixing must be 40mm in from the edge

Figure 1



Board Arrangement

We recommend that Versapanel® should be installed in brick Bond fashion as per the diagram. For further information please contact Euroform Products.

Note:
- Do not use 4 way joints.
- Minimum board width should not be less than 300mm.

Expansion/Movement Joints

Versapanel® can be affected by slight dimensional changes according to variation in relative humidity. Fixings and in particular the joints between the panels must allow for movement. E.g. oversize the screw hole and leave a 3-6mm gap at the joint. Joints can be filled with Versaseal Intumescent joint compound.

Mounting & Fixing

Screwing

Type of screw:

Wafer head screws designed for particle boards in stainless steel or galvanized, preferably self tapping screws with central tip adapted to the type of substrate.

Diameter: 3.5 to 4.8mm
Length: 2.5 to 3 times the panel thickness

Euroform recommends and distributes the following fixings:

Steel	Board thickness	Screw type
0.9 - 3.0mm	up to 16mm	EMF1 4.8x45mm
0.9 - 3.0mm	18 - 22mm	EMF2 4.8x66mm

Fixing Technique

- Manually with pre-drilling
- Pre-drilling is not necessary when using a pneumatic screw driving machine and central tip screws, preferably screws with a self tapping head
- Screws must be positioned as shown in Figure 1 (on previous page)
- On external application screw heads should be covered to avoid rust formation
- Use self-tapping screws for a metal frame structure with thicknesses exceeding 7.5/10mm
- Screwing in edges is possible with 16mm (minimum) panels and predrilled holes

Nails

Type of nail:

- Flat-headed, galvanized stainless steel, twisted or sheradized serrated
- Diameter: 2.2 to 3.1 mm
- Length: 3 to 3.5 times the panel thickness

Fixing Techniques:

- For thicknesses up to 12mm nailing can be manual, but pre-drill an 0.8 x diameter hole exceeding 12mm use pneumatic tools set to 5-6 bars with tape loader or nail roll, or pre-drill pilot hole
- Avoid tapping the panel with hammer
- Keep panel steadily positioned on the background structure whilst nailing

Bonding

Only alkali resistant adhesives should be used, suitable for Versapanel® due to a potential surface pH of 11 - 13 when wet. For high quality bonding, Versapanel® with calibrated surfaces are most suitable. For adhesive bonding by means of hot pressing, a board moisture content of no more than 6% -9% is required but this should be determined with the adhesive manufacturer. When bonding to one face of Versapanel® the reverse should always be counterbalanced. For large-area adhesive bonding, some pre-testing should always be carried out in cooperation with the adhesive manufacturer.

Full Surface Bonding of Versapanel® to each other

Dry Rooms:

Dispersion adhesive or one component reaction resin adhesives.

Wet Rooms:

Double component resin adhesive polyurethane based or epoxy resin adhesive.

Bonding of Tongue & Grooved Edges

PUD 4 polyurethane adhesive is recommended for this application for wet or dry environments.

Full Surface Bonding of Laminates and Veneers

Versapanel® is an excellent substrate for the application of decorative laminates and veneers. The sanded/calibrated finish should always be used, when bonding a decorative surface to one face the reverse of the panel must have a compensator layer applied. With timber veneers a cross band veneer is usually required. In all instances the above operations should be carried out by experienced companies specialising in bonding techniques using the input from adhesive manufacturers for bonding to cement board material.

Note:
Always consult adhesive manufacturer and laminate manufacturer for technical assistance on suitability of use. Always test a small sample of the materials before application.

Technical Data

Panel Type	Unsanded or calibrated
Stocked Size (mm)	2400 x 1200
Thickness (mm)	8, 10, 12, 16, 18, 24
To Order (mm)	2600 x 1200 2800 x 1200 3050 x 1220
Thickness (mm)	20, 22, 28

Density (average)	1300Kg/m^3	Surface Alkalinity	pH between 11 and 13
Modulus of Elasticity	4500N/mm^2	Moisture Content (ex production)	9% +/- 3% by weight
1. Thickness tolerances Calibrated: Unsanded: 2. Length: 3. Width:	 8-28mm +/- 0.3mm 8-10mm +/- 0.7mm 12-20mm +/- 1.0mm 22-28mm +/- 1.5mm +/- 5mm +/- 5mm -2.5mm on panel diagonal difference	Thickness Swelling (24hrs immersion)	0.7% (average)
		Dimensional Stability	0.11% for an increase in relative humidity from 65% to 90% 0.16% for an increase in relative humidity from 65% to saturation
Bending Strength (min)	9N/mm^2	Thermal Conductivity	0.26.W/m.k. Coefficient
Permissible design value	2.25 N/mm^2	Sound Insulation	See characteristics guide Also acoustic information
Tensile strength (parallel to surface)	4.0N/mm^2	Reaction to Fire	EN 13501-1: (B-s1,d0 Versapanel®),
Tensile strength (perpendicular to surface)	0.5Nmm^2	Bonding Agent	Versapanel® is odourless. As the bonding agent is free from formaldehyde.
Compression strength (min)	15 N/mm^2		

Technical Data

Testing of Euroform Versapanel® (12mm Thick) to BS EN 12086: Determination of Water Vapour Transmission Properties

Summary

A sample of Euroform 12mm thick Versapanel® has been tested to establish its Water Vapour Transmission Properties. Testing was performed in accordance with BS EN 12086, 'Thermal Insulating Products for Building Applications – Determination of Water Vapour Transmission Properties', Test Method B, using test conditions 23ºC and 85% r.h.

The mean test results are as follows:

Water Vapour Transmission Rate	10.3 mg/(m^2.h)
Water Vapour Permeance	0.75 mg/(m^2.h.Pa)
Water Vapour Resistance	1.35 m^2.h.Pa/mg
Water Vapour Permeability	8.86 x 10^3mg/(m.h.Pa)
Water Vapour Diffusion Resistance Factor	80.5μ

Versapanel® Characteristics

Thickness of board (mm)		8	10	12	16	18	20	22	24	28
Manual nailing without pre-drilled holes		*	*	*						
Manual screwing with pre-drilled holes		*	*	*	*	*	*	*	*	*
Power screwing & nailing without pre-drilled holes		*	*	*	*	*	*	*	*	*
Nailing and screwing into edges					*	*	*	*	*	*
Edge Profiling	Rebated				*	*	*	*	*	*
	Grooved for inserted tongue				*	*	*	*	*	*
	Tongue & Grooved				*	*	*	*	*	*
General internal linings & ext. claddings	Studs at 400mm centres	*								
	Studs at 600mm centres		*	*	*	*	*	*	*	*
Ceilings and soffits	Joists at 400mm centres	*	*	*						
	Joists at 600mm centres			*	*	*	*	*	*	*

Versapanel® Characteristics

Board Size	No. of Boards
8mm	57
10mm	52
12mm	43
16mm	31
18mm	28
22mm	22
24mm	20
28mm	17

Acoustic Insulation

Versapanel® has a minimum density of 1300kg per M^3 and therefore have superior acoustic performances when used in various elements of construction: walls, floors or ceilings.

Protection against noise is an important criteria in the design of modern construction. Whether used in conventional construction or in component manufacture, Versapanel® increases substantially the mass of the overall system.

Versapanel® has been used extensively in a wide range of constructions where acoustic control is one of the important performance criteria.

- Internal linings to existing constructions to increase mass
- Underlining to roofs in high risk noise areas -airports, etc -both in single sheet and sandwich construction
- As one or both faces to factory finished bonded composite panels for various cladding systems
- High performance ceiling and flooring systems
- External sound barriers for motorways and airports
- Soundproofing of doors, new or upgrading -application can be to one or both sides
- Versapanel® is flat and smooth and can be used in acoustic baffles in theatres, concert halls and recording studios where true sound reverberation is required

Versapanel® acoustic performance based on minimum density of 1300kg per m^3 by thickness

Thickness	Weight per m^2 Kilos	Weighted Acoustic Insulation Value Rw dB
8	10.4	30
10	13.0	31
12	15.6	31
16	20.8	33
18	23.4	33
20	26.0	34
22	28.6	34
24	31.2	35
28	36.4	36

Versapanel® Load Charts

The following loading charts have been calculated using the physical data as listed, these are the performance requirements of the EN 634-2. Versapanel®'s actual performances against EN 634-2 can be considered as superior.

8mm - Versapanel® Cement Particle Board

Uniformly distributed load (kN/m²)							Concentrated load (kN on 50mm x 50mm square)						
Span (mm)	Single Span			Continuous			Span (mm)	Single Span			Continuous		
	Load limited by stress	Load limited by deflection		Load limited by stress	Load limited by deflection			Load limited by stress	Load limited by deflection		Load limited by stress	Load limited by deflection	
		Span/300	Span/500		Span/300	Span/500			Span/300	Span/500		Span/300	Span/500
300	2.0	1.8	1.1	2.6	-	2.1	300	0.1	-	-	0.1	-	-
400	1.1	0.8	0.5	1.4	-	0.9	400	0.1	-	-	0.1	-	-
500	0.7	0.4	0.2	0.9	0.7	0.4	500	0.1	-	0.1	0.1	-	-
600	0.4	0.2	0.1	0.6	0.4	0.3	600	0.1	--	0.1	0.1	-	-
700	0.3	0.1	0.1	0.4	0.3	0.2	700	0.1	-	-	0.1	-	-
800	0.2	0.1	0.1	0.3	0.2	0.1	800	0.1	-	-	0.1	-	-
900	0.1	0.1	0.04	0.2	0.1	0.1	900	0.1	-	-	0.1	-	-
1000	0.1	0.05	0.03	0.1	0.1	0.1	1000	0.1	0.1	-	0.1	-	-

Versapanel® Load Charts

10mm - Versapanel® Cement Particle Board

Uniformly distributed load (kN/m²)							Concentrated load (kN on 50mm x 50mm square)						
Span (mm)	Single Span			Continuous			Span (mm)	Single Span			Continuous		
	Load limited by stress	Load limited by deflection		Load limited by stress	Load limited by deflection			Load limited by stress	Load limited by deflection		Load limited by stress	Load limited by deflection	
		Span/300	Span/500		Span/300	Span/500			Span/300	Span/500		Span/300	Span/500
300	3.2	-	2.1	4.0	-	4.0	300	0.1	-	-	0.2	-	-
400	1.8	1.5	0.9	2.2	-	1.7	400	0.1	-	-	0.2	-	-
500	1.1	0.8	0.5	1.4	-	0.9	500	0.1	-	-	0.2	-	-
600	0.7	0.4	0.3	0.9	0.8	0.5	600	0.1	--	-	0.2	-	-
700	0.5	0.3	0.2	0.6	0.5	0.3	700	0.1	-	-0.1	0.2	-	-
800	0.3	0.2	0.1	0.5	0.4	0.2	800	0.1	-	-0.1	0.2	-	-
900	0.2	0.1	0.1	0.3	0.2	0.1	900	0.1	-	-0.1	0.1	-	-
1000	0.2	0.1	0.1	0.3	0.2	0.1	1000	0.1	-	-0.1	0.1	-	-

Versapanel® Load Charts

12mm - Versapanel® Cement Particle Board

Uniformly distributed load (kN/m²)							Concentrated load (kN on 50mm x 50mm square)						
Span (mm)	Single Span			Continuous			Span (mm)	Single Span			Continuous		
	Load limited by stress	Load limited by deflection		Load limited by stress	Load limited by deflection			Load limited by stress	Load limited by deflection		Load limited by stress	Load limited by deflection	
		Span/300	Span/500		Span/300	Span/500			Span/300	Span/500		Span/300	Span/500
300	4.7	-	3.7	5.9	-	-	300	0.2	-	-	0.3	-	-
400	2.6	-	1.6	3.2	-	2.9	400	0.2	-	-	0.3	-	-
500	1.6	1.3	0.8	2.0	-	1.5	500	0.2	-	-	0.3	-	-
600	1.1	0.8	0.5	1.4	-	0.9	600	0.1	--	-	0.1	-	-
700	0.7	0.5	0.3	1.0	0.9	0.5	700	0.1	-	-	0.2	-	-
800	0.5	0.3	0.2	0.7	0.6	0.4	800	0.1	-	0.1	0.2	-	-
900	0.4	0.2	0.1	0.5	0.4	0.3	900	0.1	-	0.1	0.2	-	-
1000	0.3	0.2	0.1	0.4	0.3	0.2	1000	0.1	-	0.1	0.2	-	-

Versapanel® Load Charts

16mm - Versapanel® Cement Particle Board

Uniformly distributed load (kN/m²)							Concentrated load (kN on 50mm x 50mm square)						
Span (mm)	Single Span			Continuous			Span (mm)	Single Span			Continuous		
	Load limited by stress	Load limited by deflection		Load limited by stress	Load limited by deflection			Load limited by stress	Load limited by deflection		Load limited by stress	Load limited by deflection	
		Span/300	Span/500		Span/300	Span/500			Span/300	Span/500		Span/300	Span/500
300	8.3	-	-	10.5	-	-	300	0.3	-	-	0.5	-	-
400	4.6	-	3.7	5.8	-	-	400	0.3	-	-	0.5	-	-
500	2.9	-	1.9	3.6	-	3.6	500	0.3	-	-	0.4	-	-
600	1.9	1.8	1.1	2.5	-	2.1	600	0.3	--	-	0.4	-	-
700	1.4	1.1	0.7	1.8	-	1.3	700	0.3	-	-	0.4	-	-
800	1.0	0.8	0.5	1.3	-	0.9	800	0.2	-	-	0.4	-	-
900	0.8	0.5	0.3	1.0	-	0.6	900	0.2	-	-	0.4	-	-
1000	0.6	0.4	0.2	0.8	0.7	0.4	1000	0.2	-	-	0.4	-	-

Versapanel® Load Charts

18mm - Versapanel® Cement Particle Board

Uniformly distributed load (kN/m²)							Concentrated load (kN on 50mm x 50mm square)						
Span (mm)	Single Span			Continuous			Span (mm)	Single Span			Continuous		
	Load limited by stress	Load limited by deflection		Load limited by stress	Load limited by deflection			Load limited by stress	Load limited by deflection		Load limited by stress	Load limited by deflection	
		Span/300	Span/500		Span/300	Span/500			Span/300	Span/500		Span/300	Span/500
300	10.6	-	-	13.3	-	-	300	0.4	-	-	0.7	-	-
400	5.9	-	5.2	7.4	-	-	400	0.4	-	-	0.6	-	-
500	3.7	-	2.7	4.6	-	-	500	0.4	-	-	0.6	-	-
600	2.5	-	1.6	3.2	-	2.9	600	0.3	--	-	0.5	-	-
700	1.8	1.6	1.0	2.3	-	1.9	700	0.3	-	-	0.5	-	-
800	1.3	1.1	0.7	1.7	-	1.2	800	0.3	-	-	0.5	-	-
900	1.0	0.8	0.5	1.3	-	0.9	900	0.3	-	-	0.5	-	-
1000	0.8	0.6	0.3	1.0	-	0.6	1000	0.3	-	-	0.5	-	-

Versapanel® Load Charts

20mm - Versapanel® Cement Particle Board

Uniformly distributed load (kN/m²)							Concentrated load (kN on 50mm x 50mm square)						
Span (mm)	Single Span			Continuous			Span (mm)	Single Span			Continuous		
	Load limited by stress	Load limited by deflection		Load limited by stress	Load limited by deflection			Load limited by stress	Load limited by deflection		Load limited by stress	Load limited by deflection	
		Span/300	Span/500		Span/300	Span/500			Span/300	Span/500		Span/300	Span/500
300	13.1	-	-	16.4	-	-	300	0.5	-	-	0.8	-	-
400	7.3	-	7.2	9.1	-	-	400	0.5	-	-	0.8	-	-
500	4.6	-	3.7	5.8	-	-	500	0.4	-	-	0.7	-	-
600	3.1	-	2.1	3.9	-	-	600	0.4	--	-	0.7	-	-
700	2.2	-	1.3	2.8	-	2.5	700	0.4	-	-	0.6	-	-
800	1.6	1.5	0.9	2.1	-	1.7	800	0.4	-	-	0.6	-	-
900	1.2	1.1	0.6	1.6	-	1.2	900	0.4	-	-	0.6	-	-
1000	1.0	0.8	0.5	1.3	-	0.9	1000	0.4	-	-	0.6	-	-

Versapanel® Load Charts

22mm - Versapanel® Cement Particle Board

Uniformly distributed load (kN/m²)							Concentrated load (kN on 50mm x 50mm square)						
Span (mm)	Single Span			Continuous			Span (mm)	Single Span			Continuous		
	Load limited by stress	Load limited by deflection		Load limited by stress	Load limited by deflection			Load limited by stress	Load limited by deflection		Load limited by stress	Load limited by deflection	
		Span/300	Span/500		Span/300	Span/500			Span/300	Span/500		Span/300	Span/500
300	15.9	-	-	19.9	-	-	300	0.6	-	-	1.0	-	-
400	8.8	-	-	11.1	-	-	400	0.6	-	-	0.9	-	-
500	5.5	-	4.9	7.0	-	-	500	0.5	-	-	0.8	-	-
600	3.8	-	2.8	4.8	-	-	600	0.5	--	-	0.8	-	-
700	2.7	-	1.8	3.4	-	3.4	700	0.5	-	-	0.8	-	-
800	2.0	2.0	1.2	2.6	-	2.3	800	0.5	-	-	0.7	-	-
900	1.5	1.4	0.8	2.0	-	1.6	900	0.4	-	-	0.7	-	-
1000	1.2	1.0	0.6	1.5	-	1.2	1000	0.4	-	-	0.7	-	-

Versapanel® Load Charts

24mm - Versapanel® Cement Particle Board

Uniformly distributed load (kN/m²)							Concentrated load (kN on 50mm x 50mm square)						
Span (mm)	Single Span			Continuous			Span (mm)	Single Span			Continuous		
	Load limited by stress	Load limited by deflection		Load limited by stress	Load limited by deflection			Load limited by stress	Load limited by deflection		Load limited by stress	Load limited by deflection	
		Span/300	Span/500		Span/300	Span/500			Span/300	Span/500		Span/300	Span/500
300	18.9	-	-	23.7	-	-	300	0.7	-	-	1.2	-	-
400	10.5	-	-	13.2	-	-	400	0.7	-	-	1.1	-	-
500	6.6	-	6.4	8.3	-	-	500	0.6	-	-	1.0	-	-
600	4.5	-	3.7	5.7	-	-	600	0.6	--	-	1.0	-	-
700	3.2		2.3	4.1	-	-	700	0.6	-	-	0.9	-	-
800	2.4	-	1.6	3.1	-	2.9	800	0.6	-	-	0.9	-	-
900	1.8	1.8	1.1	2.4	-	2.1	900	0.5	-	-	0.9	-	-
1000	1.4	1.3	0.8	1.9	-	1.5	1000	0.5	-	-	0.8	-	-

Versapanel® Load Charts

28mm - Versapanel® Cement Particle Board

Uniformly distributed load (kN/m²)							Concentrated load (kN on 50mm x 50mm square)						
Span (mm)	Single Span			Continuous			Span (mm)	Single Span			Continuous		
	Load limited by stress	Load limited by deflection		Load limited by stress	Load limited by deflection			Load limited by stress	Load limited by deflection		Load limited by stress	Load limited by deflection	
		Span/300	Span/500		Span/300	Span/500			Span/300	Span/500		Span/300	Span/500
300	25.8	-	-	32.3	-	-	300	1.0	-	-	1.6	-	-
400	14.4	-	-	18.0	-	-	400	0.9	-	-	1.5	-	-
500	9.1	-	-	11.4	-	-	500	0.9	-	-	1.4	-	-
600	6.2	-	5.9	7.8	-	-	600	0.8	--	-	1.3	-	-
700	4.5	-	3.7	5.7	-	-	700	0.8	-	-	1.2	-	-
800	3.3	-	2.5	4.3	-	-	800	0.8	-	-	1.2	-	-
900	2.6	-	1.7	3.3	-	3.3	900	0.7	-	-	1.2	-	-
1000	2.0	-	1.3	2.6	-	2.4	1000	0.7	-	-	1.1	-	-

Versapanel® for Ceilings

Although Versapanel® is not generally regarded as a ceiling material, many prestigious projects have been completed using Versapanel® for a variety
of applications.

- High performance in the presence of moisture
- Easily machined to produce profiles
- Can be used in grid or demountable system
- Acoustic performance
- Wide range of surface finishes
- Flexibility in design

Ceiling Grid

Versapanel® can be supplied cut to size, bevel or square edged, and with a variety of surface treatments. Form emulsion, veneered, laminated etc.

Specific High Performance Systems

Versapanel® ceiling systems are used where there is a requirement for a high performance against any of the following criteria:

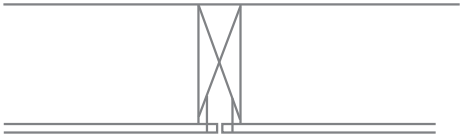
Moisture/Humidity/-Acoustics-Impact contamination.

The density of Versapanel® offers excellent airborne sound reduction (31 dB for a single tile of 10mm). The tiles can be supplied pre-decorated or with an ex-works smooth finish suitable for all types of site applied coatings. Being manufactured from Versapanel® they are of long term durability and maintenance free performance.

Versapanel® for Ceilings

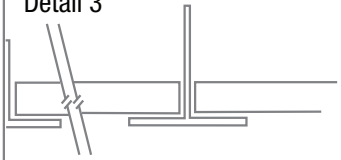
Typical Application Details

Detail 1

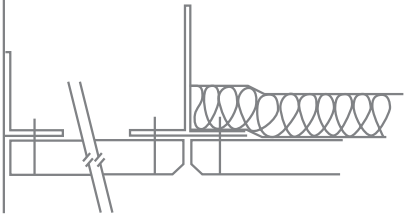


Detail 2

Detail 3



Detail 4



Decoration of **Versapanel**®

Versapanel® will receive most standard paint finishes and stains. Versapanel® has a surface pH of 11-13 and therefore an alkali resistant primer may be required by some coatings - it is advisable to refer to the paint manufacturer in all instances. Remove any surface dust prior to decoration and ensure that if boards have been exposed to the elements that they have been allowed to dry out and acclimatise before being coated.

For surface treatments that are not vapour or moisture permeable, the reverse and all edges of the panel should also be treated in the same way. Uneven joints, screw holes or surface damage can be rectified by use of compatible filler.

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