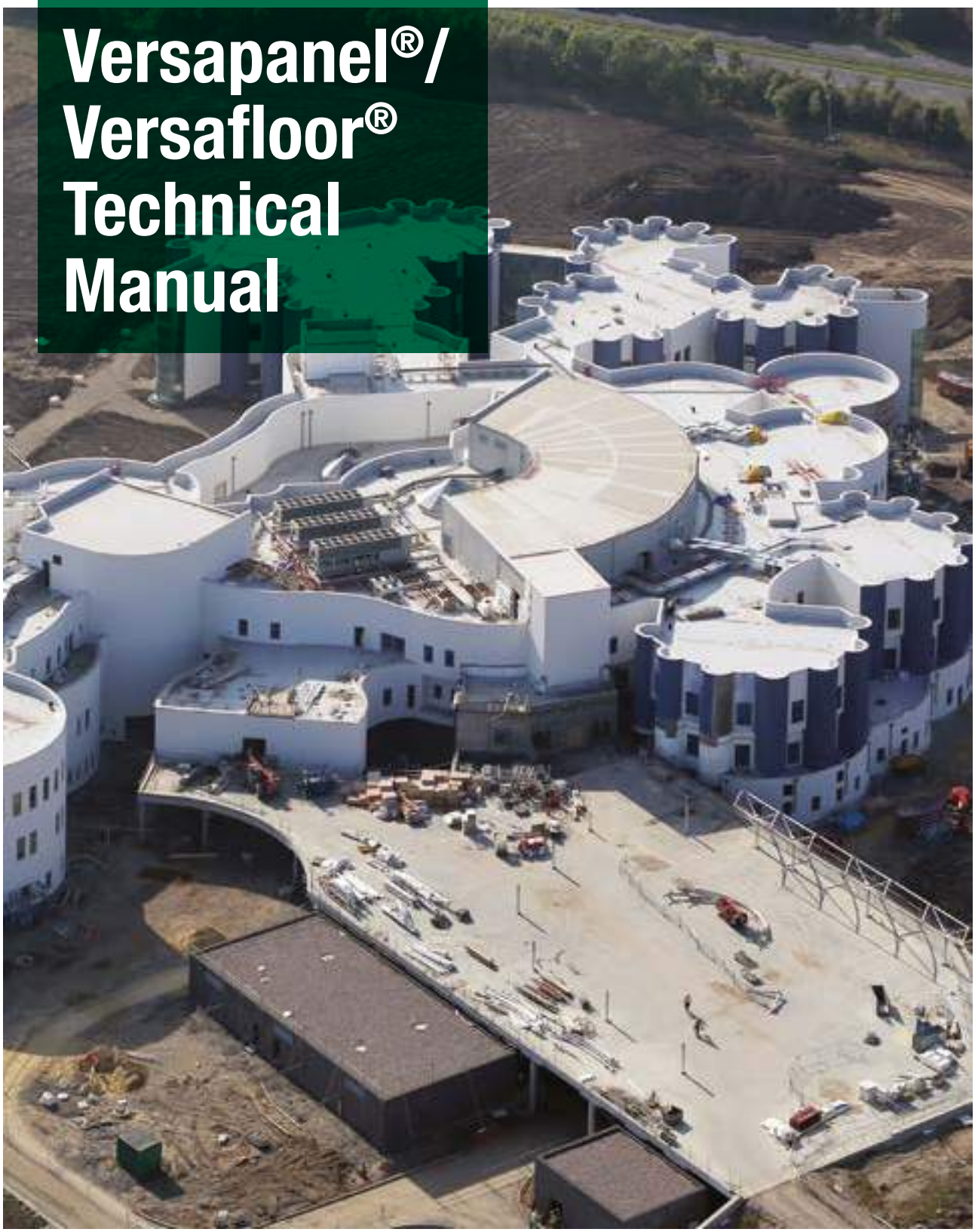
# Versapanel®/ Versafloor® Technical Manual



VERSAPANEL®

euroform
BUILD CLEVER

# VERSAPANEL® & VERSAFLOOR® TECHNICAL MANUAL



*Separate data sheets are available upon request*

The registered trademark of Euroform Products given to its range of cement bonded particle board and systems which are supplied to Euroform from manufacturing operations in Europe conforming to the EN 634-1 and EN 634-2 for cement bonded particleboard.



# VERSAPANEL® AND VERSAFLOOR® ARE 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 and has high resistance to fire.**

**Versapanel® conforms to the European Standards EN 634-1 for cement bonded particle boards. This specifies the requirements for particle boards bonded with Ordinary Portland Cement (OPC) for use in dry, humid and exterior conditions. Versapanel® is CE marked in accordance with EN 13986.**

**Versapanel® also complies with the general requirements as listed in EN634-1 together with the requirements set out in table 1 of the standard.**

**Versafloor® is a cement bonded particle board intended for internal use which has very high levels of performance for flooring applications and a high resistance to fire.**

## 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.

## SIZE

Board sizes generally available are 2400 x 1200, 2800 x 1200 and 3050 x 1220mm in thickness of 8mm to 40mm. Square edged boards are standard although other edge details are available.

## 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.

## Worldwide Standards

Versapanel® is sold worldwide and has gained acceptance to various country standards by meeting and in many cases exceeding the required performances in applications. Further information is available on request.

Technical assessment papers on Cement Bonded Particle Board are available from the Building Research Establishment (UK). Who have carried out extensive research on the Generic material since 1979.

STANDARDS

# 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 contains no hazardous volatiles, it is asbestos free and its process dust is non-aggressive. It 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 relevant to current needs. Due to the monolithic structure any exposed sawn edges are not vulnerable to weather damage.**

**Specifications**
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®** is a High Performance Panel its principal attributes are:
durability, fire resistance, sound reduction, it is resistant to attack from termites, insects and fungus.

**Versapanel®** is produced in sizes:
2400mm x 1200mm
2800mm x 1200mm
3050mm x 1220mm
2600mm x 1200mm

**Versapanel®** is available in a wide range of thicknesses 8mm - 40mm.

**Versapanel®** is manufactured either unsanded or calibrated.

**Versapanel®** is available with an optional Primer/Sealer factory applied.

**Versapanel®** may have a wide range of surface treatments applied.



# INTERNAL, EXTERNAL & OTHER APPLICATIONS

**INTERNAL**
Versapanel® board has advantages over other types of board materials due to its strength, workability and durability coupled with the three main attributes:
fire resistance, sound reduction and high performance in the presence of moisture.

Versapanel® may be confidently used in wet areas. It is ideal for cold storage, food processing and all areas which highlight the importance of hygiene.

The first choice for internal walls and partitions in domestic or public buildings due to its impact resistance, fire 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.

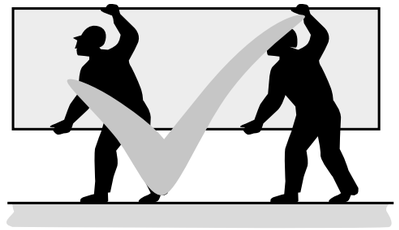
Versapanel® in an untreated state is weather resistant and will not degrade with permanent exposure, even if subjected to freeze/thaw conditions. However, in general, a surface treatment is recommended for external applications. A range of paint and textured finishes may be used.

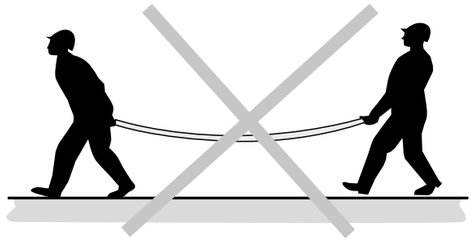
**OTHER APPLICATIONS**
Can also be used for a wide range of applications including as a backing board (carrier panel) to cladding systems such as:

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

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

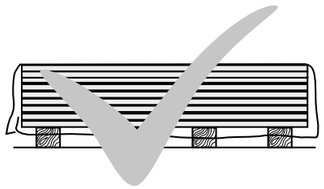
# SITE PROCEDURE

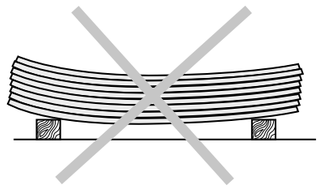


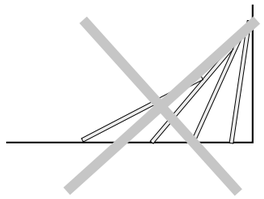


**TRANSPORT**

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.

**PRODUCT INFORMATION - HEALTH & SAFETY**

**FIRE:** Tested to BS 476-6 & BS 476-7 classified as Class 0 building board with a Class 1 surface spread of flame. European classification to EN 13501-1: B1 B-s1,d0 Versapanel®, Bfl-s1 Versafloor®

**HEALTH:**
Skin contact - classified as non-aggressive dust.
Eye contact - Normal Treatment for removing foareign bodies from eyes.
Inhalation - Process dust is non-aggressive, but protection recommended.

**COMPOSITION:** Portland Cement
Wood
Water
Non-toxic chemical neutralising agents.

**SURFACE pH:** 12 - alkaline in the presence of surface moisture.





# PROCESSING

**MACHINING**

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 AND GENERAL FIXING DETAILS

**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. Joints can be filled using Versaseal joint compound.**

### WATER PROOFING

For more information on waterproofing, please contact Euroform.

### APPLICATION EXAMPLE

The following application example refers to the use of flexible surface treatments for internal or external application, whether the surface treatment be water based or solvent based. Before fixing Versapanel®, the location of all battens must be carefully checked for accurate location. Versapanel® will be nailed through to regularised softwood battens prefixed to the timber frame panel, with the board held tight to the batten at point of fixing to avoid break-out. The battens should be drilled or grooved to allow the cavity to be ventilated. Fixing nails should be ITW Paslode ring shank nails, selected from the following table of pullout resistances:

| | 35mm Length | 45mm Length |
|---|---|---|
| 2.2mm Diameter | 125N | 216N |
| 2.5mm Diameter | 180N | 243N |

Nailing can be manual or pneumatic. Pneumatic tools should be set to 5-6 bar, then finely, adjusted using test pieces to achieve the required penetration. The perimeter ring fixings will be at 200mm centres, min 15mm from the board edge to min 38 x 25mm battens (35mm nails) or min 38 x 32mm battens (45mm nails). The central vertical fixings will be at 300mm centres, to min 38 x 25mm battens (35mm nails) or min 38 x 32 battens (45mm nails). Board junctions within a panel will be butt-jointed with a space not less than 2mm nor greater than 3mm between boards, with fixings at 200mm centres, min 15mm from the board edge, to min 50 x 25mm battens (35mm nails) or min 50 x 32mm battens (45mm nails). All nail heads must finish not less than 2mm nor greater than 4mm below the board surface.

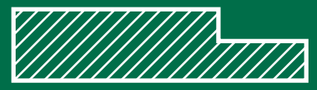
**NOTE:**

Regular checks are required to allow for minor variations in density of the board. There must be no step between the outer plane of the boards at joints in excess of 2mm. Any damaged or broken boards must be replaced. No small infill pieces should be used. No oil based marker pens are to be used on the surface of the board.



# EDGING & JOINTING DETAIL

Minimum thickness: 16mm



Minimum thickness: 12mm

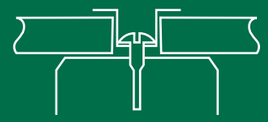
Minimum thickness: 18mm

Tongue and Groove

Interlocking rebate joint

Beveled edge joint

Angled edges



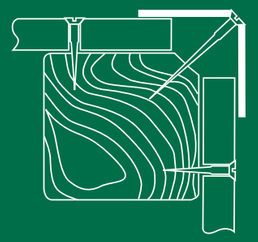
Joints with metal cap profile on wood

Fastening on metal frame with clips and anodised aluminium coverstrip

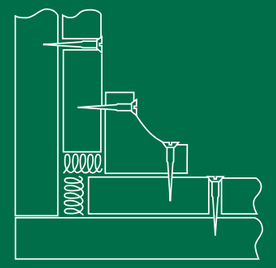
**NOTE:**

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.

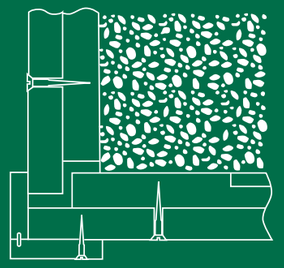
**Examples showing 3 corner joints**



Exterior corner fixture on timber supports



Interior corner fixture on wooden frame with wooden cover clip



Exterior angle fixture on wooden frame

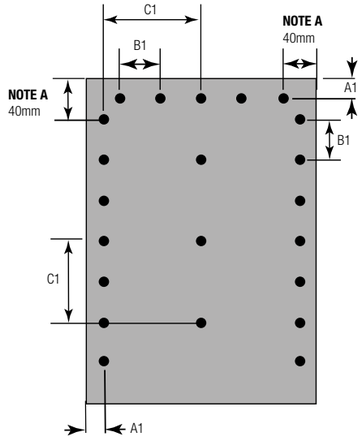
# MOUNTING & FIXING

## 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.

**Figure 1**

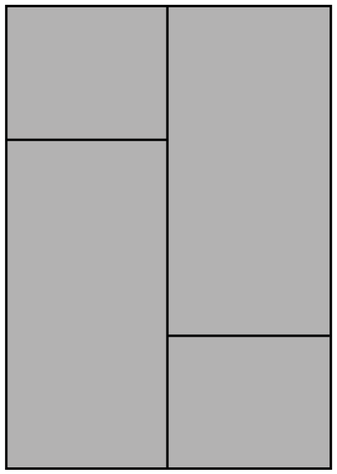
| Board Thickness | Centres mm | | | |
|---|---|---|---|---|
| mm | A | A1 | B1 | C1 |
| 8 | 40 | 15 | 200 | 400 |
| 10 - 12 | 40 | 15 | 300 | 600 |
| 16 + | 40 | 30 | 400 | 600 |




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

## 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 4.2 mm
Length: 2.5 to 3 times the panel thickness

**Euroform recommends and distributes the following fixings:**

| Type of Substrate Steel | Board Thickness | Screw Type |
|---|---|---|
| 0.7 - 1.5mm | up to 16mm | EMF1 4.8x45mm |
| 1.5 – 3.00mm | up to 16mm | EMF2 4.8x35mm |
| 4.0 – 10mm | up to 16mm | EMF3 5.5x65mm |

| Timber Battens | Board Thickness | Screw Type |
|---|---|---|
| | up to 20mm | ETF1 4.8x60mm |
| | up to 36mm | ETF2 4.8x80mm |

## 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 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 pre-drilled 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

# MOUNTING & FIXING

**SPECIFIC FIXING METHODS**

**a) Cordless nail gun into timber**

The use of a cordless nail gun enables the rapid fixing of Versapanel® to timber frame or battens. The advantage of this method is the speed of erection time and the subsequent cost reduction.
To fix 8mm to 22mm boards for internal and external applications a 51mm x 2.8mm annular ringed nails with sheradized coating BS 492 was Precast concrete partition slabs.
BS EN 492 is Fibre cement slates and fixings should be used.
The variable power setting on the tool can provide either a flush finish with the board surface where visible fixing is acceptable or where a high build surface coating is to be applied, or a countersunk nail head where filling and painting are desired.

**b) Cartridge nail gun**

Versapanel® can be fixed into steel framing or structure, concrete, brickwork or concrete blockwork using cartridge fixing tools.
Fixing method can be direct to substrate, or where irregular surfaces are encountered, via battens applied prior to panels.

**METHOD - Screw fixing**

Versapanel® can be screw fixed to various support systems including timber battens or framing, metal studwork or structure and by either manual or power methods.





# 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 my 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.

**APPLICATIONS AND TYPES OF ADHESIVES**

Tiling Versapanel® for internal walling applications should be limited to single panel applications. The type of Versapanel® to be used should be factory primer/sealed. The board should be supported on all edges with support centres not exceeding 400mm. A minimum thickness of 10mm board should be used with all screw fixings at nominal 300mm centres and screw holes oversized. Without sealing the back of the boards, moisture can penetrate the board, which can result in distortion. Distortion can also take place when the back of the board dries out on one side only. For adhesive bonding to free floating floors Versafloor® primed on both sides should be used, to avoid one-sided penetration of moisture which could lead to distortion. Boards with a calibrated surface can easily absorb moisture.

**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 as supplied by Euroform Products 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

**PRODUCT RANGE**

| | | |
|---|---|---|
| Panel Type: | unsanded calibrated | Thicknesses: |
| Standard Sizes: | 2400 x 1200mm | Unsanded: 8 10 12 14 16 18 20 22 24 28 30 32 36 40mm |
| | | Calibrated: 8 10 12 14 16 18 20 22 24 28 36mm |
| Non Standard Sizes: | 2600 x 1200mm | |
| | 3050 x 1220mm | |
| | 2800 x 1200mm | |

**SPECIAL SIZES OF PANEL AND THICKNESSES ARE AVAILABLE ON REQUEST**

| | | | |
|---|---|---|---|
| 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<br>Calibrated:<br>Unsanded:<br><br><br>2. Length:<br>3. Width:<br>4. Squareness: | <br>8-37mm +/- 0.3mm<br>8-10mm +/- 0.7mm<br>12-19mm +/- 1.0mm<br>22-42mm +/- 1.5mm<br>+/- 5mm<br>+/- 5mm<br>-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%<br><br>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$^2$ | Fire Rating | BS 476-6 & BS 476-7 classified as Class 0 building board with a Class 1 surface spread of flame. European classification to EN 13501-1: (B-s1,d0 Versapanel®), (Bfl-s1 Versafloor®) |
| 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

# 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$^3$mg/(m.h.Pa) |
| Water Vapour Diffusion Resistance Factor | 80.5μ |

# VERSAPANEL® CHARACTERISTICS

| | | Unsanded and Calibrated Only | | | | | | | | | | | Calibrated only | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Thickness of board in mm | | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 28 | 30 | 36 | 40 |
| Approx. kg per square metre | | 10.4 | 13 | 15.6 | 18.2 | 20.8 | 23.4 | 26 | 28.6 | 31.2 | 36.4 | 39 | 46.8 | 52 |
| Airbourne sound reduction for single board in dB | | 30 | 31 | 31 | 32 | 33 | 33 | 34 | 34 | 35 | 36 | 36 | 37 | 38 |
| 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 500mm centres | | | | | * | * | * | * | | | | | |
| | Studs at 600mm centres | | * | * | * | * | * | * | * | * | * | * | * | * |
| Ceilings and soffits | Joists at 400mm centres | * | * | * | * | | | | | | | | | |
| | Joists at 600mm centres | | | * | * | * | * | * | * | * | * | * | * | * |

**APPROXIMATE NUMBER OF BOARDS PER PALLET**
(subject to variation)

| Board Size | No. of Boards |
|---|---|
| 8mm | 63 |
| 10mm | 52 |
| 12mm | 43 |
| 16mm | 33 |
| 18mm | 28 |
| 22mm | 25 |
| 25mm | 22 |
| 28mm | 20 |
| 32mm | 18 |
| 36mm | 15 |





# FIRE PERFORMANCE

**Versapanel®'s wide range of thicknesses combined with its unique quantities of:**

- **High performance in the presence of moisture**
- **Resistance to impact**
- **High acoustic performance**
- **For use internally or externally**
- **Smooth surfaces**

**Making it a very cost effective solution for fire protection.**

**FIRE PROPAGATION BS 476-6**

This test measures the amount and rate of heat evolved by the material while subjected to standard heating conditions. Test results are given as an index of performance (1) which is based on three sub- indices (il 'i2'i3). The higher the value of the index of performance, 1, the greater is the materials contribution to fire growth. The higher the value of sub-index, il the greater the ease of ignition and flame spread.

**SURFACE SPREAD OF FLAME BS 476-7**

This test groups materials into class 1 to 4 in descending order of performance according to the rate at which flame spreads over their surface under standard heating conditions.

**Versapanel® IS CLASS '0'**

Class 'O' is not a classification identified in a British Standard test. Class 'O' is defined in Approved Document B2/3/4 as follows:

a) Composed throughout of materials of limited combustibility, or

b) A Class 1 material which has a fire propagation index (1) of not more than 12, and a sub-index (i1) of not more than 6.

**EUROPEAN CLASSIFICATION**

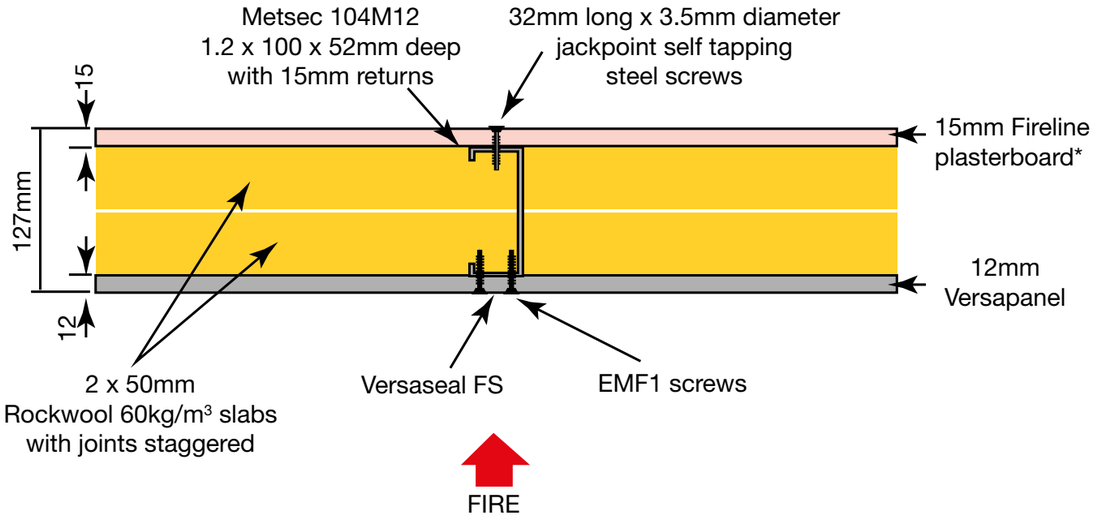
European classification to EN 13501-1 (B-s1,d0 Versapanel®), (Bfl-s1 Versafloor®)

# FIRE PERFORMANCES

## Fire Performances - Typical Example Showing CP Board

60 Minute Fire Resistant Non-Load Bearing External Metal Frame Wall

## Assessed to BS 476-22




*Fireline plasterboard supported on horizontal joists by gypframe 99FC50 0.8 x 10 99mm strip
Illustration for guidance purposes.





# 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.

With today's environmental considerations, 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**

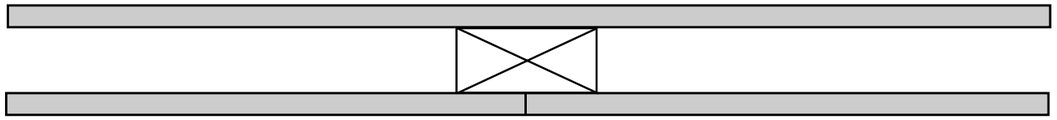
| Thickness | Weight per $m^2$ Kilos | Weighted Acoustic Insulation Value Rw dB |
|---|---|---|
| 8 | 10.4 | 30 |
| 10 | 13 | 31 |
| 12 | 15.6 | 31 |
| 14 | 18.2 | 32 |
| 16 | 20.8 | 33 |
| 18 | 23.4 | 33 |
| 20 | 26 | 34 |
| 22 | 28.6 | 34 |
| 24 | 31.2 | 35 |
| 28 | 36.4 | 36 |
| 30 | 39 | 36 |
| 32 | 41.6 | 37 |
| 36 | 46.8 | 37 |
| 40 | 52 | 38 |

# ACOUSTIC INSULATION

Typical examples using Versapanel® in varying thicknesses in wall, floor and ceiling constructions. The performance figures given are the theoretical value, it is to be noted that it is possible to achieve these figures providing site work is carried out correctly.

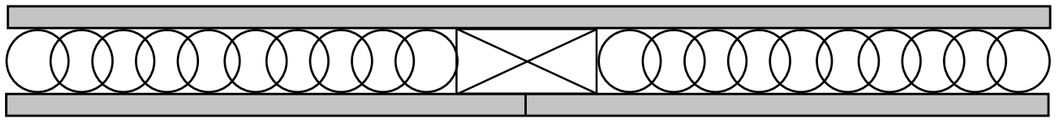
**Partition Construction - Basic Details**

## Timber Stud - No Insulation To Cavity



| Thickness of Partition | Thickness of Versapanel® To Both Sides | Performance (dB) |
|---|---|---|
| 95mm | 10mm | 40 |
| 99mm | 12mm | 43 |
| 107mm | 16mm | 45 |
| 115mm | 10mm | 42 |
| 119mm | 12mm | 45 |

## Timber Stud - Insulation To Cavity



Insulation RWA 45 - 75mm *RWA 45 - 100mm

| Thickness of Partition | Thickness of Versapanel® To Both Sides | Performance (dB) |
|---|---|---|
| 95mm | 10mm | 46 |
| 99mm | 12mm | 49 |
| 107mm | 16mm | 53 |
| *115mm | 10mm | 49 |
| *119mm | 12mm | 52 |
| *127mm | 16mm | 55 |

**NOTE:**

When using steel stud the dB values of the partitions are at least the same and in many cases can be 1 to 2 dB better than timber frame.



# VERSAFLOOR® SYSTEMS

The following is an overview of Versafloor® - A factory finished, high performance flooring system.

The construction industry now requires as many components as possible to be supplied in a finished form, minimising any further work on site. This particularly applies to the Modular and Volumetric construction industry where modules are of a repetitive sizing for such constructions as:

• Prisons • Hospitals • Restaurants • Petrol Stations • Hotels

Versafloor® has been developed for these applications manufactured using Versapanel® cement bonded particle board which is a high performance building material with high fire resistance, moisture resistance and acoustic performance.

.For further information on Versafloor®, please contact Euroform.

**FINISHED SPECIFICATION**

Thickness of floor = 18mm - 19mm - 20mm - 22mm - 24mm - 28mm - 32mm.

Versafloor® is available to the following specifications:

**Type 001**

Unsanded Versafloor® can be supplied with the standard unsanded finish with square edge or tongue and groove applied to two or four edges. Care must be taken when using this specification as there will be a thickness tolerance of up to +/- 1.5mm.

Note: This range can also be supplied with a factory applied grey primer/sealer to both faces which is highly recommended for environments where the product may take on moisture during a build process or in it's construction life. The top surface is white and the bottom surface is grey.

**Type 002**

Calibrated Versafloor® has been factory calibrated and all thickness' have a thickness tolerance of + - 0.3mm. This range can also be supplied square edge or with tongue and groove applied to two or four edges. This product range is suitable for application of fine thickness overlays such as vinyl flooring and thin carpet tiles.

**Type 003**

Prime/Seal Versafloor® that has been factory calibrated and then has a factory applied primer/sealer to reduce uptake of moisture when used in damp or wet conditions, the thickness tolerance is +/- 0.5mm. The top surface is white and the bottom surface is grey, the application of this primer/sealer can prevent up to 80% of moisture uptake. This range can also be supplied square edge or with tongue and groove applied to two or four edges. This primer/sealer is highly recommended for environments where the product may take on moisture during a build process or in it's construction life. The top surface is white and the bottom surface is grey.

# VERSAFLOOR® SYSTEMS

**THE FACTORY FINISHED HIGH PERFORMANCE FLOORING SYSTEMS**

**Tongue & Groove**

Where a tongue and groove is applied it will be in the centre of the panel.

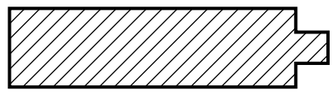
**Panel Sizes**

Versafloor® panel sizes will be produced to suit client requirements and layouts but standard stock sizes 2400 x 1200mm.

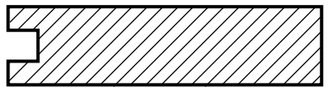
Versafloor® can also be produced in 'kit of part' supply to minimise on site cutting and wastage and can be supplied in the following panel types:

**PANEL TYPE**

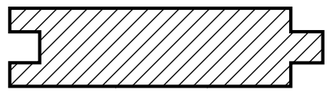
**PT**



**PG**



**GT**



Above illustrations not to scale.

**Tiling to Versafloor®**

When tiling to Versafloor® the Type 003 Prime/Seal specification must always be used with tongue and groove to all four edges and laid in accordance with the BS 5385-3:2014.

Tile adhesive systems should be tested for compatibility and expansion joints incorporated in accordance with the BS 5385-3:2014.

**Fixing Versafloor®**

Self-drilling, self-countersinking screws should always be used for fixing to steel or timber support structure. No mechanical fixings should be used for floating floor applications. All edges of the Versafloor® must be bonded using a moisture resistant, fire resistant adhesive - for this application we advise the use of Euroform T&G Adhesive.

**Floating & Acoustic Floor Applications**

Versafloor® for acoustic flooring both as a working deck or finished floor will increase mass with fire rated performance.

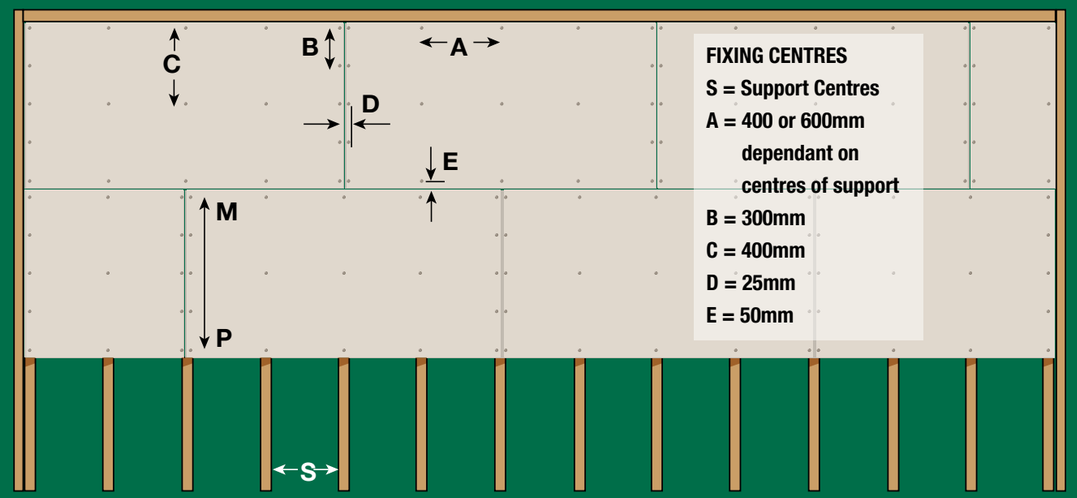
Versafloor® can be used with high-density mineral insulation or with the Euroform Versalayer for performance applications in accordance with Document E to the building regulations - for further information please contact Euroform.



VERSAFLOOR® SYSTEMS

VERSAFLOOR® SYSTEMS

**LAYING OF SYSTEM - TYPICAL LAYOUT ALSO SHOWING CENTRES OF MECHANICAL FIXINGS**




**ALL Tongue & Grooved edges to be bonded.**

**NOTE:**

A 10mm perimeter gap should be allowed around the edge of the floor to wall junction.

Boards should not be installed with a moisture content over 12%, reading should be taken prior to laying of Versafloor® to ensure that this is the case.

Please read these installation instructions in conjunction with BS 8201 code of practice for installation of flooring of wood and wood based panels.

# 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 | - | - |

## 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

## 14mm - 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 | - | 0.05 | 0.1 | - | - |
| 800 | 0.2 | 0.1 | 0.1 | 0.3 | 0.2 | 0.1 | 800 | 0.1 | - | 0.04 | 0.1 | - | - |
| 900 | 0.1 | 0.1 | 0.04 | 0.2 | 0.1 | 0.1 | 900 | 0.1 | - | 0.04 | 0.1 | - | - |
| 1000 | 0.1 | 0.05 | 0.03 | 0.1 | 0.1 | 0.1 | 1000 | 0.1 | 0.1 | 0.03 | 0.1 | - | - |

## 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

# 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 | - | - |

## 19mm - 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 | 11.8 | - | - | 14.8 | - | - | 300 | 0.5 | - | - | 0.7 | - | - |
| 400 | 6.5 | - | 6.2 | 8.2 | - | - | 400 | 0.4 | - | - | 0.7 | - | - |
| 500 | 4.1 | - | 3.2 | 5.2 | - | - | 500 | 0.4 | - | - | 0.6 | - | - |
| 600 | 2.8 | - | 1.8 | 3.5 | - | 3.5 | 600 | 0.4 | -- | - | 0.6 | - | - |
| 700 | 2.0 | 1.9 | 1.2 | 2.5 | - | 2.2 | 700 | 0.4 | - | - | 0.6 | - | - |
| 800 | 1.5 | 1.3 | 0.8 | 1.9 | - | 1.5 | 800 | 0.3 | - | - | 0.6 | - | - |
| 900 | 1.1 | 0.9 | 0.5 | 1.4 | - | 1.0 | 900 | 0.3 | - | - | 0.5 | - | - |
| 1000 | 0.9 | 0.7 | 0.5 | 1.1 | - | 0.7 | 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 | - | - |

## 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 | - | - |

## 25mm - 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 | 20.5 | - | - | 25.7 | - | - | 300 | 0.8 | - | - | 1.3 | - | - |
| 400 | 11.4 | - | - | 14.3 | - | - | 400 | 0.7 | - | - | 1.2 | - | - |
| 500 | 7.2 | - | - | 9.1 | - | - | 500 | 0.7 | - | - | 1.1 | - | - |
| 600 | 4.9 | - | 4.2 | 6.2 | - | - | 600 | 0.6 | -- | - | 1.0 | - | - |
| 700 | 3.5 | - | 2.6 | 4.5 | - | - | 700 | 0.6 | - | - | 1.0 | - | - |
| 800 | 2.6 | - | 1.8 | 3.4 | - | 3.3 | 800 | 0.6 | - | - | 1.0 | - | - |
| 900 | 2.0 | - | 1.2 | 2.6 | - | 2.3 | 900 | 0.6 | - | - | 0.9 | - | - |
| 1000 | 1.6 | 1.5 | 0.9 | 2.0 | - | 1.7 | 1000 | 0.6 | - | - | 0.9 | - | - |

# 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 | - | - |

## 32mm - 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 | 33.7 | - | - | 38.4 | - | - | 300 | 1.3 | - | - | 2.1 | - | - |
| 400 | 18.8 | - | - | 23.6 | - | - | 400 | 1.2 | - | - | 1.9 | - | - |
| 500 | 11.9 | - | - | 15.0 | - | - | 500 | 1.1 | - | - | 1.8 | - | - |
| 600 | 8.1 | - | - | 10.3 | - | - | 600 | 1.1 | -- | - | 1.7 | - | - |
| 700 | 5.9 | - | 5.5 | 7.4 | - | - | 700 | 1.0 | - | - | 1.6 | - | - |
| 800 | 4.4 | - | 3.7 | 5.6 | - | - | 800 | 1.0 | - | - | 1.6 | - | - |
| 900 | 3.4 | - | 2.6 | 4.3 | - | - | 900 | 1.0 | - | - | 1.5 | - | - |
| 1000 | 2.7 | - | 1.9 | 3.4 | - | - | 1000 | 0.9 | - | - | 1.5 | - | - |



VERSAPANEL® LOAD CHARTS

# VERSAPANEL® LOAD CHARTS

## 36mm - 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 | 42.8 | - | - | 43.2 | - | - | 300 | 1.7 | - | - | 2.7 | - | - |
| 400 | 23.9 | - | - | 29.9 | - | - | 400 | 1.5 | - | - | 2.4 | - | - |
| 500 | 15.1 | - | - | 19.0 | - | - | 500 | 1.4 | - | - | 2.3 | - | - |
| 600 | 10.4 | - | - | 13.1 | - | - | 600 | 1.3 | -- | - | 2.2 | - | - |
| 700 | 7.5 | - | - | 9.5 | - | - | 700 | 1.3 | - | - | 2.1 | - | - |
| 800 | 5.6 | - | 5.2 | 7.2 | - | - | 800 | 1.2 | - | - | 2.0 | - | - |
| 900 | 4.4 | - | 3.7 | 5.6 | - | - | 900 | 1.2 | - | - | 1.9 | - | - |
| 1000 | 3.4 | - | 2.7 | 4.4 | - | - | 1000 | 1.2 | - | - | 1.9 | - | - |

## 40mm - 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 | 52.8 | - | - | 48.0 | - | - | 300 | 2.1 | - | - | 3.3 | - | - |
| 400 | 29.5 | - | - | 36.0 | - | - | 400 | 1.9 | - | - | 3.0 | - | - |
| 500 | 18.7 | - | - | 23.5 | - | - | 500 | 1.8 | - | - | 2.8 | - | - |
| 600 | 12.8 | - | - | 16.2 | - | - | 600 | 1.7 | -- | - | 2.7 | - | - |
| 700 | 9.3 | | - | 11.8 | - | - | 700 | 1.6 | - | - | 2.5 | - | - |
| 800 | 7.0 | - | - | 8.9 | - | - | 800 | 1.5 | - | - | 2.5 | - | - |
| 900 | 5.4 | - | 5.1 | 6.9 | - | - | 900 | 1.5 | - | - | 2.4 | - | - |
| 1000 | 4.3 | - | 3.7 | 5.5 | - | - | 1000 | 1.4 | - | - | 2.3 | - | - |

# 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.

- **Class 'O' fire resistance • 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**

### MOULDED PANELS

Versapanel® can be machined to create a fielded effect or have mouldings in hard or soft wood applied to the surface.

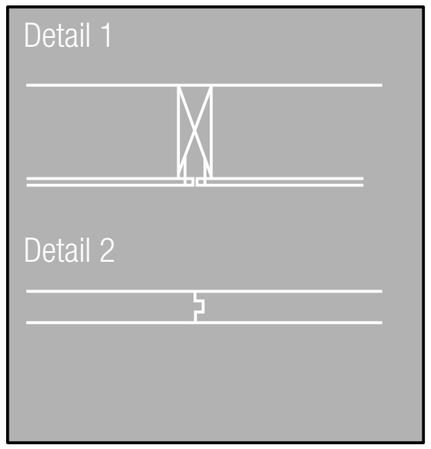
### CEILING GRID

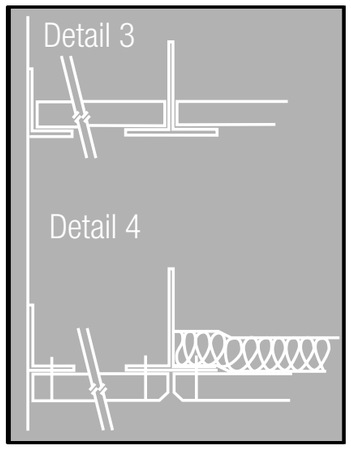
Versapanel® can be supplied cut to size, bevel or square edged, and with a variety of surface treatments. Form emulsion, veneered, laminated etc.

### SPECIFIC HIGH PERFORMANCE SYSTEMS

Versapanel® ceiling systems are used where there is a requirement for a high performance against any of the following criteria: Fire-moisture/Humidity/-Acoustics-Impact contamination. Versapanel® is also available in standard sizes of 600 x 600mm or 1200 x 600mm. Available with square edge (for lay-in grid system) or bevelled edge (for face fixing) they offer a Class 'O' fire resistance with a Class '1' spread of flame to BS 476-7 European classification to EN 13501-1 (B-s1,d0 excluding floors). 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 totally asbestos and toxic free, with the additional qualities of long term durability and maintenance free performance.

**Typical Application Details**








# SURFACE TREATMENTS TO VERSAPANEL®

### DECORATION TO 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.

### FACTORY APPLIED PRIMER/SEALER TO VERSAPANEL®

Versapanel® can be supplied with a factory applied primer/sealer that will resist up to 80% of possible moisture uptake. It can be applied to both unsanded and sanded material, compatibility of this finish to additional surface treatments should be referred to the finish-coating manufacturer before any application. This finish is standard for the Versafloor® range of flooring and is essential when used in conjunction with ceramic tile installations.

# SURFACE TREATMENTS TO VERSAPANEL®

**PRIMER/SEALER SPECIFICATION**

Composition - Acrylic based water reducible coating containing white or grey pigment and fillers.

Application - Suitable for in line application to Versapanel® cement board, both faces and all edges. It is applied by computer controlled pressure spray guns.

Properties - The cured film of the primer/sealer has excellent adhesion to the substrate and reduces the swelling and shrinkage of the panel by controlling any moisture uptake.

Extensive test have been carried out with various adhesive manufacturers but in all instances surface compatibility should be carried before any further application is made by either adhesive or paint.

Appearance - Opaque white or grey
Viscosity - 30 - 35 sec. Din 4mm cup
Density - ca 1.33
Drying - After coating panels run through an extractor zone so that moisture is taken form the application to aid curing and level the surface. Panels then pass under infra red dry zones to harden the surface.
Storage - Product should always be stored away from direct sunlight and direct heat sources at temperatures preferably below 25°C.

**For more information on waterproofing, please contact Euroform.**





# GALLERY

# EUROFORM

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