CEMBRIT

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Cempanel A2

Cement Particle Board - Building board for external and internal applications

Cempanel A2

Class “A2” cement particle board with excellent impact, fire and acoustic properties. Its durability, consistently high manufacturing tolerances and lack of need for wet trades makes Cempanel ideal for off-site and modular construction.

Cempanel (cement particle board) is superior to timber and plasterboard panel products when used as internal linings on rainscreen cladding projects (sheathing), general purpose external boarding, floors or studwork interior walls. Cempanel is both stronger and less absorbent than timber and plasterboard, the high cement and alkaline content also resists insect and fungal attack.

Composition

Comprising by weight 50% cement, 29% mineral, and 20% fine wood particles with 1% trace amounts of process additives and mineralizing agents, the wood particles are the main ingredient by volume. These ingredients are mixed and laid onto carrier plates which are stacked and compressed to the desired thickness until the cement has hardened. The boards are then conditioned to bring them to optimum moisture content. Once fully matured the boards are trimmed and quality inspected.

Product consistency across the range is ensured as all Cempanel thicknesses and sizes are manufactured by the same producer.

Product Specification

Cempanel is an exterior and interior cement particle cladding and lining board that is far superior to timber sheathing. Cempanel can absorb small amounts of moisture whilst remaining structurally sound.

Technical Information							
Standard Board Size	1200mm x 2400mm						
Thickness (mm)	10	12	16	18	20	24	
Main application:							
Partitioning & Ceiling	▯	▯					
Sheathing, insulated render backing, roof decking	▯	▯	▯				
Offsite, acoustic		▯	▯	▯	▯	▯	
Flooring, acoustic				▯	▯	▯	
Appearance	Grey surface with particulate core						

Dimensional Tolerance	
Diagonal	± 4.0mm
Length / Width	± 2.0mm
Thickness 10 – 12mm	± 1.0mm
Thickness 16 – 20mm	± 1.5mm
Thickness 24mm	± 2.0mm

Durability

Guaranteed by the product manufacturer for 10 years

Specific Properties	EN Standard	Unit	Norm	Average
Density	EN 323	kg/m3	≥ 1420	1580
Bending strength	EN 310	N/mm2	> 9	15
Modulus of elasticity in bending	EN 310	N/mm2	≥ 4500	7200
Internal bond	EN 319	N/mm2	≥ 0.5	0.7
Swelling in thickness 24 h	EN 317	%	≤ 1.5	0.4
Internal bond after cyclic test	EN 319 / EN 321	N/mm2	≥ 0.3	0.5
Swelling in thickness after cyclic test	EN 317 / EN 321	%	≤ 1.5	0.7
Moisture content	EN 322	%	6 - 12	9
Surface alkalinity	-		-	12
Thermal conductivity (K Value)	EN 12664	W/m°c	-	0.15

Fire Resistance

Reaction to fire: A2-s1,d0 according to BS EN 13501-1:2007 + A1:2009

Interior Finishes

Prime board with alkali resistant primer before using acrylic, epoxy or polyurethane paint/coating. Do not use oil based paints. Where there are large changes in moisture content and temperature, or where conditions on both sides of the board differ significantly, paint both sides of the board to prevent board distorting.

The strengths of Cempanel

Cempanel combines the strength of cement with the flexibility of timber. It is resistant to changes in heat and moisture. This quality makes Cempanel fire resistant and a good thermal insulator.

Sound reduction

Board thickness	Sound reduction in dB
8mm	30
10mm	31
12mm	31
16mm	33

Sound insulation can be improved by using insulation between 2 panels.

2 layers of board thickness	Insulation in cavity	Studwork	Sound reduction in dB
12mm	40mm (43kg/m^3)	75mm x 50mm timber @ 610mm centres	45
16mm	80mm (43kg/m^3)	75mm x 50mm timber @ 610mm centres	47
12mm	50mm (60kg/m^3)	48mm x 32mm galvanized steel @ 610mm centres	54
16mm	2 x 50mm (60kg/m^3)	70mm x 32mm galvanized steel @ 600mm centres faced with 100mm x 24mm strips	50

Thermal insulation

Having a 0.15 W/m°C K value makes Cempanel cement particle board popular as a lining in temperature controlled spaces or as a partition board.

Sound reduction

With a density of 1420-1580kg/m^3 Cempanel is also frequently used as a sound proofing board for airborne sound. Sound reduction achieved by single skin Cempanel for selected thickness of board is shown above.

Racking strength

High dimensional stability contributes to improved performance and enhanced structural stability.

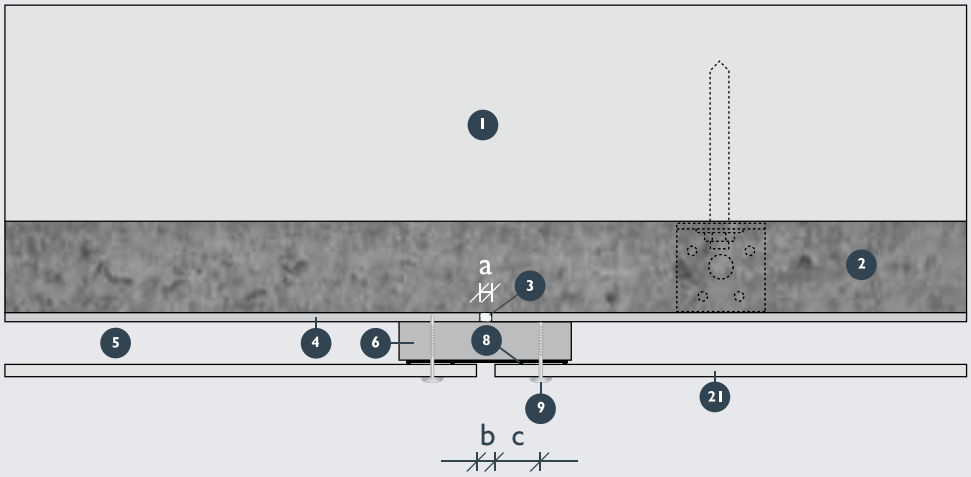
Installation & Fixing

All fixing holes should be manually drilled with a hole 0.8mm larger than the desired fixing.

Sheathing / Carrier board

Rainscreen cladding ventilated facade principle

1 Load bearing wall or steel frame
2 Insulation
3 1436 grade joint sealing tape. Polyurethane joint sealant can be used as an alternative.
4 **Cempanel**
a 5mm gap
5 Air gap min 25mm
6 Batten or cladding rail
8 EPDM underlay 90mm
9 Facade screw 4.5 x 36/41
21 Facade board
b Joint width 8mm
c Edge distance min 30mm



Fixings

Countersunk steel or galvanized self-tapping screws 3.5mm - 4.2mm diameter, 2.5 to 3 times the board thickness.

Method – nails screws or staples, manually, pneumatic or power fixed.

Site work

Cempanel should be cut in the same way as chipboard with tungsten carbide tipped blades at 3000 - 4000 r.p.m. If a highly sanded surface is required e.g. for direct application of paint, conventional hand held wood sanders can be used indoors in conjunction with dust extraction equipment.

Most common woodworking tools can be used on Cempanel. It can be sawn, drilled, planed, routed, nailed or screwed. It is relatively lightweight and with no need for wet trades, cement particle board is one of the most workable panel materials available to the UK construction industry.

Joint sealing

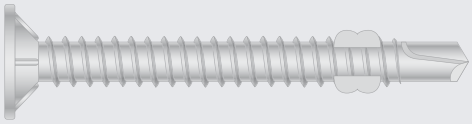
Where Cempanel is used as a carrier board for external cladding applications particular attention should be paid to wind load.
A 5mm gap should be left between boards which is covered with a 50mm, 1436 grade aluminium sealing tape, alternatively the gap can be filled with a bead of polyurethane sealant.

Wind load

If sheathing is left exposed for any length of time designers should take account of wind load below. Otherwise sheet and fixing centres are 600mm regardless of thickness.

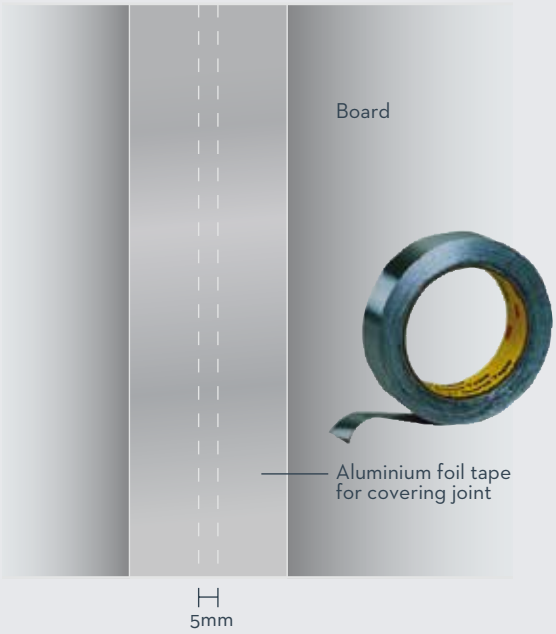
Board thickness	Wind Load (kg/m²)			
	50	80	120	160
	Maximum distance between steel stud (cm)			
10mm	57			
12mm	69	54		
16mm	92	73	59	51
20mm	115	91	74	64

Fixings

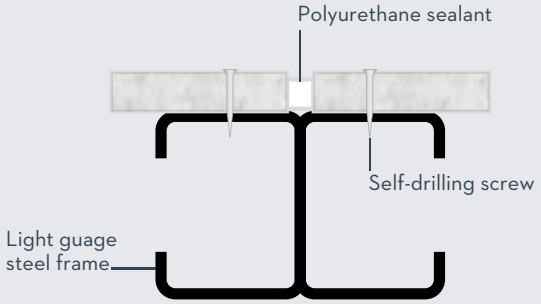


Self-drilling screw for fixing into steel frame

Joint sealing – plan (tape)

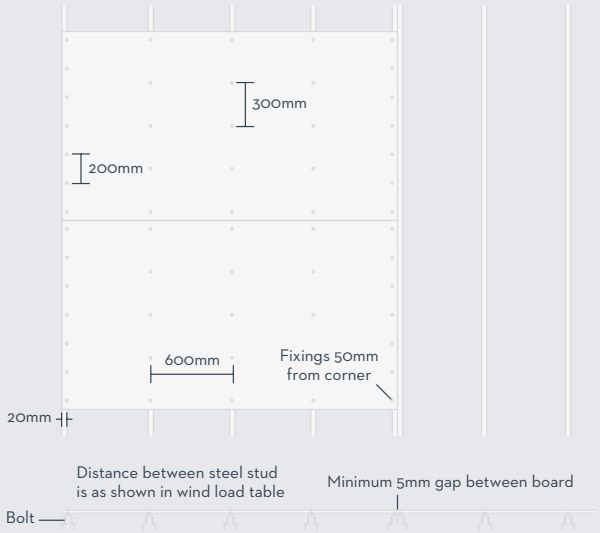


Joint sealing - section (sealant)

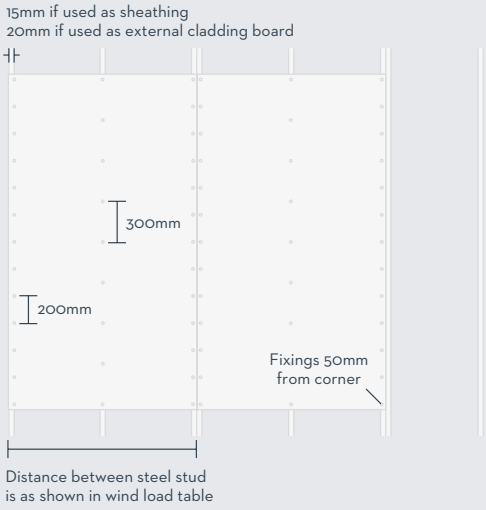


Unity College, Towneley Park, Burnley, Lancashire

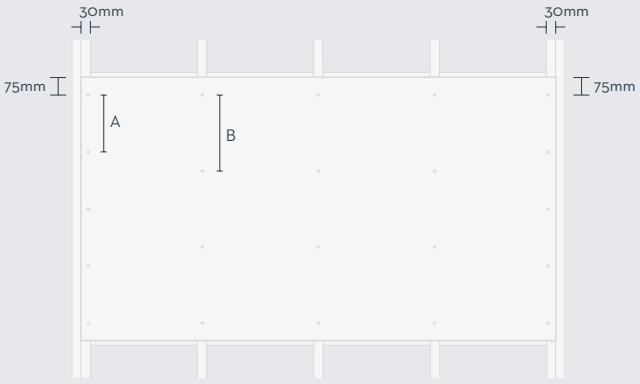
Installation details – horizontal



Installation details – vertical



Installation details, Flooring – For interior floor, ceiling, roof decking



Installation details, Flooring – For interior floor deck with covering such as tile or wood flooring

Fixing distances for flooring

Thickness	'A' (edge fixing)	'B' (centre fixing)
8 – 16 mm	150 – 200 mm	200 – 300 mm
20 – 24 mm	200 – 300 mm	300 – 400 mm

Conformity

Cempanel conforms with the requirements of BS EN 634 Cement-bonded particle boards. Specification Requirements for OPC bonded particleboards for use in dry, humid and exterior conditions. EN 13986+A1 wood based panels used in construction.

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As with all manufactured materials, appearance of cement particle board may vary according to light and weather conditions. It is advisable to ask for samples of sheets prior to specification and purchase. Owing to this and limitations of the printing process, colours of sheets in this brochure may only be taken as indicative.

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