

Cement Particle Board

MULTI-PURPOSE PARTICLE BOARD FOR FLOORS AND CEILINGS



Product Code: 18mm & 22mm: 1245

18mm & 22mm thick high mass, t&g cement particle board for floors and ceilings

JCW Acoustic Cement Particle Board is a high density overlay acoustic product suitable for floors and ceilings, specially designed to add concentrated mass. Used where there is a requirement for a high performance result in acoustic control and fire retardance.

Ceiling Improvement: JCW 18mm T&G Cement Bonded Particle Boards will improve the overall acoustic performance based on the boards mass content and the ability to reduce sound leakage via T&G jointing.

Resilient Bars: JCW 18mm T&G Cement Bonded Particle Boards supported on Single Fix resilient bars (max weight approx 30kg.m²) or Twin Fix resilient bars (max weight approx 50kg.m²) will considerably improve the airborne and impact performance.

Flooring with a resilient layer: see Deck 34/Deck 37 data sheet.

Fire Rating: 30mins = 18mm (22.5kg m²) / 60mins with an additional layer of 12.5mm Fire Rated board.

Produced to BS EN 634 Parts 1 & 2 (CE Marking to EN 13986) governing particle boards and wood based panels tensile strength, mechanical properties, density, load factors and resistance to humidity, frost and hard body impact.

Density (average): 1300kg/m³

- 1. Thickness Tolerances:** +/- 1mm
- 2. Length:** +5mm
- 3. Width:** +5mm
- 4. Squareness:** -2.5mm on panel diagonal difference

Surface Alkalinity: pH between 11 and 13

Moisture Content (ex production): 9% + 3% by weight

Thickness Swelling (24hrs immersion): 0.7% (average)

Thermal Conductivity Coefficient: 0.26.W/m.k.

Ancillary Products

- 1027 JCW Acoustic Sealant (310ml)
- 1196 JCW Waterproof PVA Adhesive (1 ltr)
- 1130 JCW Flat Edging Strip (50 Lm x 150mm x 5mm)
- 1170 JCW Universal L Shaped Edging Strip (2 Lm x 53mm x 23mm)
- JCW Acoustic Isolation Strips (various)

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JCW Cement Particle Board Install Guide

1. Ceilings:

- 1a. With exposed **joists** install 100mm x 45Kg.m³ dense wool between the joists, then fix resilient bars at 90 degrees to the exposed **joists** @ 400mm centres, then screw fix the JCW Cement Particle Boards onto the resilient bars, ensuring that no screws penetrate through the resilient bar and into the joists.
- 1b. If fitting over an **existing plaster boarded ceiling** then screw fix (minimum) 50mm x 25mm (d) timber battens @ 90 degrees over the plasterboard layer/s into the timber joists, then fit 25mm or 50mm x45Kg.m³ dense wool between the new battens, then screw fix the resilient bars at 90 degrees to the timber battens @ 400mm centres, then screw fix the JCW Cement Particle Boards onto the resilient bars, ensuring that no screws penetrate through the resilient bar and into the joists.
- 1c. The T&G board joints should be adhesive bonded using JCW PVA WP adhesive to ensure maximum performance.
- 1d. Remove tongues from boards at the wall edges.

See below: Resilient Bar Install Guide, Cutting & Drilling/Counter Sinking etc.

2. Brick & Block Wall:

The best improvement will be gained by screw fixing (minimum) 50mm x 25mm (d) vertical timber battens @ 600mm centres onto the existing wall then fit 25mm or 50mm x45Kg.m³ dense wool between the new battens, then screw fix the resilient bars horizontally to the timber battens @ 400mm centres, then screw fix the JCW Cement Particle Boards onto the resilient bars ensuring that no screws penetrate through the resilient bar and into the battens or structure. **See 4. below.**

3. All installations:

- 3a. It is essential that the JCW Cement Particle Boards are isolated from the surrounding wall surfaces to achieve the optimum acoustic improvement.
- 3b. By placing JCW Perimeter Edging Strip 25mm(w) x 5mm(d) x 10Lm(L) at the floor, ceiling & wall edges the Cement Board can then be butted up and isolated from structure, any minor gaps to be sealed using JCW Acoustic Sealant.
- 3c. The T&G board joints should be adhesive bonded using JCW PVA WP adhesive ensure maximum performance.
- 3d. Remove tongues from boards at the wall edges.

Advice and Technical Assistance

If in any doubt that a floor construction will meet Building Regulations, please contact us for technical support and advice or for more information about any of our acoustic products and solutions.

Disclaimer: The product and installation information contained in this Data Sheet and General Installation Guide is to the best of our knowledge correct. Please contact us direct, prior to starting works, for the latest information to enable confirmation of the specification.

Technical Data

Product Range

Standard sizes: 18mm & 22mm thick x 1200mm x 600mm. Special sizes and thicknesses available on request.

Panel Type: Unsanded

Density (average)	1300kg/m ³
Modulus of Elasticity	4500 N/mm ²
1. Thickness tolerances	
Calibrated	+/- 1mm
Unsanded	6-10mm+0.7mm 12-19mm+1.0mm 22-42mm+1.5mm
2. Length	+5mm
3. Width	+5mm
4. Squareness	-2.5mm on panel diagonal difference
Bending Strength (min)	9 N/mm ²
Permissible design value	2.25 N/mm ²
Tensile strength (parallel to surface)	4.0 N/mm ²
Tensile strength (perpendicular to surface)	0.5 Nmm ²
Compression strength (min)	15 N/mm ²
Surface Alkalinity	pH between 11 and 13
Moisture Content (ex production)	9% + 3% by weight
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
Thermal Conductivity Coefficient	0.26.W/m.k.
Fire Rating	Tested to BS 476 Part6.7 - classified as Class 0 building board with a Class 1 surface spread of flame.
Bonding Agent	JCW Cement Particle Board is odourless, Since the bonding agent is free from formaldehyde.

Testing of JCW Cement Particle Board (12mm Thick) to BS EN 12086: 1997 Determination of Water Vapour Transmission Properties.

A sample of JCW Cement Particle Board has been tested to establish its Water Vapour Transmission Properties. Testing was performed in accordance with BE EN 12086: 1997, 'Thermal Insulating Products for Building Applications – Determination of Water Vapour Transmission Properties', Test Method B, using test conditions 23C and 85% r.h. The mean test results are as follows:

Water Vapour Transmission Rate	10.3 mg/(m ² .h)
Water Vapour Permeance	0.075 mg/(m ² .h.Pa)
Water Vapour Resistance	13.5 m ² .h.Pa/mg
Water Vapour Permeability	8.86 x 10 ⁻⁴ mg/(m.h.Pa)
Water Vapour Diffusion Resistance Factor	805 μ

Fire Performances

As a single board material JCW Cement Particle Board is probably one of the most versatile flat sheet materials available when it comes to application in areas which have to be fire rated.

JCW Cement Particle Board's wide range of thicknesses combined with its unique quantities of:

- Resistance to moisture
- Resistance to impact
- High acoustic performance
- For use internally or externally
- Smooth surfaces

Making it a very cost effective solution for fire protection.

JCW Cement Particle Board has been tested - in accordance with BS 476 which is the fire test relevant to building materials and structures.

Fire Propagation. Part 6: 1981

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 (I) which is based on three subindices ('i1', 'i2', 'i3'). The higher the value of the index of performance, I, the greater is the materials contribution to fire growth. The higher the value of sub-index, 'i1' the greater the ease of ignition and flame spread.

Surface Spread of Flame - Part 7: 1971

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.

JCW Cement Particle Board is Class 'O'

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 (I) of not more than 12, and a sub-index 'i1' of not more than 6.

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Health and Safety

1. Product Information

Trade Name: JCW Cement Bonded Particle Board
Supplier: JCW Acoustic Supplies

2. Product Ingredients

Manufactured from: Portland Cement Water Wood Fibres
Chemical Additives

3. Physical Data

Appearance & Odour: Grey Sheet - No Odour
Boiling Point - NA % Volatile by volume: 0
Vapour Pressure - NA Melting Point: NA
Water Solubility% - NA Specific Gravity: 1.25
Evaporation Rate - Nil Density: 1250kg/m³
Surface pH: 11-13

4. Fire & Explosion Data

Flash Point: NA
Extinguishing Media: Foam, Water
Unusual Fire or Explosion Hazard: None
Special Fire Fighting Procedures: None
Flammability: NA

5. First Aid Measures

Eye Contact: Flush eyes immediately with water or physiological saline for at least 15 minutes, then if necessary remove contact lenses and open eye widely. Seek medical advice if irritation persists.

Skin Contact: Use water to wash skin thoroughly.

Ingestion: Flush mouth and drink plenty of water.

Inhalation: Take person to an area away from product and where they can inhale plenty of fresh air.

If necessary to seek medical advice take this data sheet with you to the doctor or casualty department.

6. Toxicological Information

Short term effects - Routes:

Eye: Dust may cause temporary irritation and watering of the eyes.

Lungs: Dust may result in irritation of the respiratory tract.

Ingestion: Mild discomfort.

Long term effects: Prolonged inhalation of high concentrations of the dust may cause respiratory conditions.

7. Accidental Release Measures

Collect dust with a type H vacuum cleaner that should comply to BS 5415 as a minimum or soak with water and brush up the dust. Restrict spreading and refer to handling procedures. Make sure to use personal safety equipment.

8. Personal Protection

Eyes: Safety Glasses for dust protection.

Skin: Protective gloves, normal working overalls.

Inhalation: Mask with dust type filter P2, make sure to change filters as necessary.

Work Environment: The work area should be well ventilated.

9. Handling

When drilling or cutting effective emission ventilation should be in place. The use of high speed cutting tools should be avoided unless emission ventilation (dust extraction) is in place.

10. Fire Measures

No special fire precautions are necessary. Fire fighting equipment is not applicable. Hazardous decomposition products – not flammable. Small quantity of carbon monoxide and carbon dioxide.

11. Other Information

- Occupational Exposure Standard (OES).
- Portland cement OES 10mg/m³ total dust 5mg/m³ respirable dust, 8 hr time weighted averages.
- Cellulose OES 10mg/m³ total dust, 5mg/m³ respirable dust, 8 hr time weighted averages.
- Soluble Aluminium Salts OES 2mg/m³ total inhalable dust.

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	

Milling

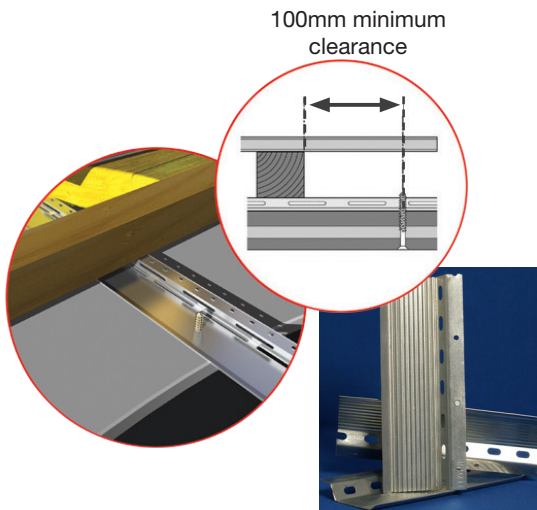
Common machines with carbide-tipped tools. The higher the rpm, the better the milled edge.

Guidance for using Resilient Bars

Screw fix the pre-drilled section of the resilient bars at 400mm centres and perpendicular to the joists, battens or studs.

Screw fix acoustic plasterboards to the flat underside of the resilient bars, allowing a clearance of 100mm of the supporting timbers.

It is imperative that no screws penetrate through the resilient bar and into the supporting structure.



Countersinking Drilling

JCW Cement Particle Board 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 JCW Cement Particle Board 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 chipboard panels (3000/4000 rpm).

Sanding

JCW Cement Particle Board 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. When working in confined areas dust extraction equipment is recommended. Hand-held Orbital Sander, Hand-held Belt Sander. When used indoors, use vacuum dust extractor.