

# Cembrit FR

## BUILDING BOARD

FIRE RATED BUILDING BOARD FOR HIGH  
PERFORMANCE INTERNAL APPLICATIONS





# Cembrit FR

Cembrit FR is a versatile, A1 non-combustible internal lining board. Suitable for partition walls, ceilings and floors, Cembrit FR will provide up to 120 minutes of fire resistance depending on the structure used. Cembrit FR can also achieve sound insulation of more than 50dB. This makes Cembrit FR ideal for high occupancy buildings with large volumes of foot traffic or noisy activities. Cembrit FR is popular in areas where impact damage is possible and regular cleaning is likely, particularly if fire resistance is required e.g. storerooms, stairways, refuse storage and pre-fabricated units. The combination of light weight and robust strength makes Cembrit FR ideal for off-site construction.

## Compliance

The boards are classified as NT C2 I, pursuant to EN 12467:2005

- NT– The boards contain no dangerous additives and do not give off any harmful fumes or odours.
- C– The boards are designed for indoor use and endure moisture as well as heat, but they do not stand frost.
- 2– The boards have a minimum flexural strength of 7 MPa when in use.
- I– The boards are cut to size.

The boards are fire proof rated according to DS/EN 13501-1:2002 and DS/EN 13501-2:2003.

The boards are classified as non combustible according to BS476:Part4:1970.

## Technical information

### Product details

Composition: Cement, cellulose and mineral fillers in a dense matrix providing fire, impact and sound resistance.

### Boards

Size	9mm	12mm
Weight	9.7kg/m <sup>2</sup>	13.0kg/m <sup>2</sup>
Density	1050kg/m <sup>3</sup> (± 75)	1050kg/m <sup>3</sup> (± 75)
Dimensions	2550 x 1200	3000 x 1200
m <sup>2</sup> per board	3.06	3.60
Tolerance - Thickness	± 0.9mm	± 1.2mm
Tolerance - Width	± 3mm	± 3mm
Tolerance - Length	± 5mm	± 5mm

### Ceiling Tiles

Size	600x600mm <sup>†</sup>	600x600mm <sup>†</sup>
Weight	9.7kg/m <sup>2</sup>	13.0kg/m <sup>2</sup>
Thickness	9mm	12mm

<sup>†</sup> other tile sizes available on request

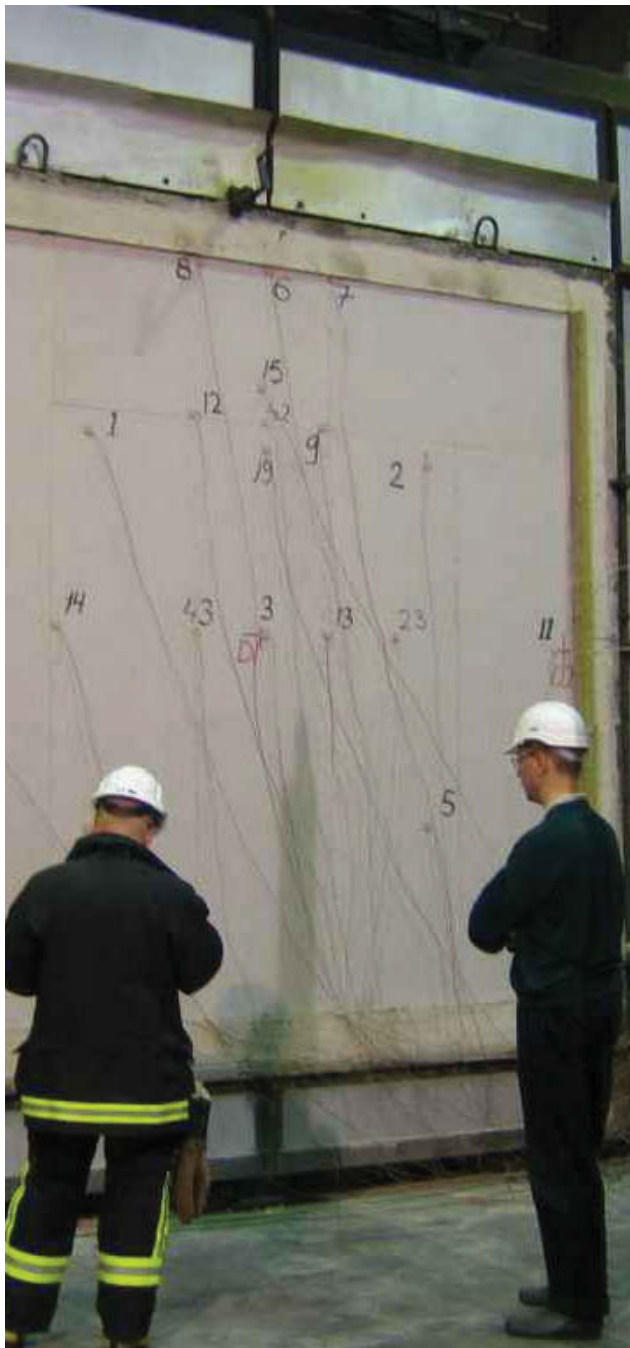
Water absorption	32%
Moisture content	2-4%
Thermal conductivity	0.25 W/mK
Coefficiency of thermal expansion	7x10 <sup>-6</sup> m/m°C
Specific heat	0.9kJ/kg°C
Temperature range maximum	150°C

## Ceilings

Cembrit FR boards can be used as ceiling linings on both timber and metal frameworks. On timber constructions the boards are normally fixed to the underside of the joists or bottom cords of the roof trusses. Noggings must be added to provide support. Fix boards starting at the centre, using nails at 150mm centres. All fixings should be 12mm from the edge of the board and no closer than 75mm to a corner. With metal framework systems the framework should be erected as instructed by the framework manufacturer. Attach the board using screws at 150mm centres, 12mm from the edge of the board and no closer than 75mm to a corner. Where insulation is included in a sound-insulating or fire-proofing system, make sure that there are no gaps or uncovered areas to affect the ceiling's performance.

### Suspended Ceiling Systems

Strong, dense, non-combustible and easily decorated Cembrit FR ceiling tiles are available bevelled or square edged for use in suspended ceilings.

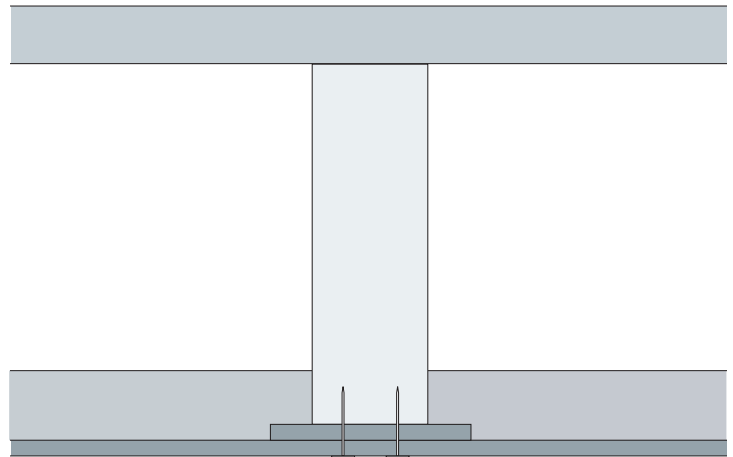


## 60 minutes fire resistance

### Timber floors with mineral wool insulation

BS 476: Part 21: 1987

Warres No 53576 4/91



### Fixing specification

18 mm t & g chipboard  
30 mm mineral wool insulation (90 kg/m<sup>3</sup>)  
9 mm Cembrit FR Board  
9 mm Cembrit FR Board Fillet  
195 x 44 mm timber joists @ 400 mm c/c  
50 mm clout nails

## 30 minutes fire resistance

### Timber floors without insulation

BS 476: Part 21: 1987

BGSI 5055 4/89



### Fixing specification

21 mm t & g chipboard  
9 mm Cembrit FR Board  
195 x 44 mm timber joists @ 400 mm c/c  
40 x 23 mm nails

## Fire Ratings

### Reaction to fire

12mm thick baseboard is classified as non-combustible (BS 476 : Part 4 : 1970) (Exova Warringtonfire 192748 6th May 2010)

Cembrit FR (base board and ceiling tiles only) is Classified as A1 – EN 13501-1:2002 Reaction to fire

### Test methods

- Determination of the non-combustibility performance of the fibre-cement flat sheet Cembrit FR according to SFS-EN ISO 1182:2002
- Determination of the heat of combustion of the fibre-cement flat sheet Cembrit FR according EN ISO 1716:2002”.

Report numbers – RTE3901/05 Classification report (8 November 2005), RTE3900/05 (7 November 2005), RTE3899/05 (7 November 2005)

### Fire resistance as an element in walls and ceilings

Cembrit FR has been tested as a component in a structure to achieve various fire-ratings according to SFS-EN 1364-1:1999

Fire resistance tests for non-loadbearing elements – Part 1: Walls and SFS-EN 1364-2:1999

### Fire resistance tests for non-loadbearing elements – Part 2: Ceilings.

Statements and report numbers – VTT-S-5800-06 Statement:

Statement on the fire resistance of Cembrit FR – board structures

of structures (12-06-2006)

- VTT-S-6053-06 (16 June 2006) Statement on the fire resistance of loadbearing insulated, two-sided Cembrit FR 9mm double boarded wall with timber studs
- VTT-M-03929-07 (26 April 2007) Statement on the fire resistance of loadbearing Cembrit FR – board walls (REI30 classified walls)
- VTT-S-2223-07 (2 March 2007) Statement on the fire resistance of Cembrit FR – board structures (3 facades and 2 shaft walls)
- Statement of facades and shaft walls – Swedish Brandskyddslaget Jørgen Thor (30-10-2006)
- VTT RTE4190-05 (21 February 2006) Fire resistance test on a non-loadbearing, insulated, two-sided Cembrit FR 9mm double boarded wall with timber studs (66mm)
- VTT RTE3771-05 (15 December 2005) Fire resistance test on a non-loadbearing, insulated, two-sided Cembrit FR 9mm double boarded wall with 45mm steel studs
- VTT RTE4432-05 (21 February 2006) Fire resistance test on a non-loadbearing, uninsulated, two-sided Cembrit FR 12mm double boarded wall with steel studs (45mm)
- VTT-S-2114-06 (5 April 2006) Fire resistance test on model specimens for horizontal and vertical shaft walls
- VTT-S-3438-06 (4 May 2006) Fire resistance test on a non-loadbearing suspended Cembrit FR – ceiling construction



## Fire Rated and Sound insulating partition walls

### Acoustic insulation

Cembrit FR Board offers good acoustic insulation. A reduction of up to 58 dB can be achieved when Cembrit FR Building Board is used in combination with mineral wool insulation. Close attention should be paid to details such as corners and edges, where an acoustic sealant should be used.

The performance will depend on the structure used. The effectiveness of sound-damping structures is affected not only by the frequency of the sound and the location of its source, but also by the quality of the construction of the partition. For this reason, close attention should always be paid to construction details.

### Fire rated partition walls

Cembrit FR can be used as partition walls and floors as well as fire barriers, fire doors and fire surrounds.

### Steel stud partitions

In steel stud partitions, the floor and ceiling channels should be set out and fixed at 600mm centres. Perimeter studs should be secured with webs flat to adjoining walls at 600mm centres.

The joints must be installed on the same stud. When installing oversize walls, the stud calculations must be made case-by-case, following the general instructions given here.

### Decoration/Painting

Cembrit FR Building Board can be painted without any special priming, using an alkali-resistant paint or emulsion. Indentations due to nail and screw heads should be filled and all dust removed from the surface. Under normal circumstances, two coats of paint give a satisfactory finish. The following types of paint are suitable: pva, acrylics, pvc, chlorinated rubber, polyurethane, epoxy and silicate.

### Moisture Resistance

Cembrit FR is not weakened considerably in wet condition. The boards are able to absorb and liberate moisture an unlimited number of times, without weakening the strength of the boards.

Partition type	Structure			Technical data			Fire rating (mins)	Sound insulation (dB)*	
	board (mm)	frame (mm)	insulation (mm)	thickness (mm o/all)	weight (kg/m <sup>2</sup> )	height (mm max)			
	9	70	-	87	20	3000	-	34	31
	12	70	-	92	25	3000	-	35	32
	9	95	-	111	22	3200	-	36	32
	12	95	-	117	26	3200	-	37	33
	9	70	70	87	23	3000	30	40	36
	12	70	70	92	27	3000	30	41	37
	9	95	95	112	25	3900	60	42	38
	12	95	95	117	29	3900	60	43	39
	9	95	95	128	26	3900	60	42	38
	12	95	95	137	30	3900	60	43	39
	9	70+70	70+70	157	29	3000	90	54	49
	12	70+70	70+70	162	32	3000	120	55	50
	9	95+95	95+95	207	31	3600	120	55.5	51
	12	95+95	95+95	212	34	3600	120	56	52
	12+12	95+95	95+95	234	59	3900	120	62	58

### Steel stud partitions

Partition type	Structure			Technical data			Fire rating (mins)	Sound insulation (dB)*	
	board (mm)	frame (mm)	insulation (mm)	thickness (mm o/all)	weight (kg/m <sup>2</sup> )	height (mm max)			
	9	70	-	87	19	3000	-	36	32.5
	12	70	-	92	23	3000	-	37	33
	9	95	-	112	19	3200	-	38	33
	12	95	-	117	23	3200	-	39	34
	9	70	70	87	20	3000	30	45.5	40.5
	12	70	70	92	25	3000	30	46	41
	9	95	95	112	22	3900	30	46.5	41.5
	12	95	95	117	26	3900	30	47	42
	9	95	95	128	23	3900	60	47	42
	12	95	95	137	27	3900	60	52	43
	9	70+70	70+70	157	25	3000	60	53.5	48.5
	12	70+70	70+70	162	29	3000	60	55	49.5
	9	95+95	95+95	207	26	3600	60	56.5	50
	12	95+95	95+95	212	30	3600	60	57	52
	12+12	95+95	95+95	234	53	3900	60	63	57.5

\* Two values are given for sound insulation, the first the theoretical value and the second the actual site performance.





The information contained in this publication and otherwise supplied to users of the company's products is based on the company's general experience, best knowledge and belief. However, because of factors beyond the company's knowledge and control, which can affect the use of the products, no warranty is given or implied with respect to such information.

The company's policy is one of continuous improvement. Cembrit Limited therefore reserves the right to alter specifications at any time and without notice.

As with all manufactured materials, the appearance of fibre cement building boards 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.

Please ensure that you have the latest version of this datasheet by checking that the publication date on the top right of the front cover corresponds with the downloadable version on our website.

#### Branch listings

- 1 London T +44 (0)20 8301 8900
- 2 Southampton T +44 (0)23 8061 5631
- 3 Bovey Tracey T +44 (0)1626 835722
- 4 Llandow T +44 (0)1446 773777
- 5 Normanton\* T +44 (0)1924 890890

\* Main building boards branch

#### Cembrit Ltd

57 Kellner Road  
London  
SE28 0AX

Tel: +44 (0)20 8301 8900

Fax: +44 (0)20 8301 8901

[sales@cembrit.co.uk](mailto:sales@cembrit.co.uk)

