



A perfect lining for wet and high traffic areas

KalsiWAB Installation Guide



An industrial company with a proven history and a promising future

What we do

Improving our customers' quality of living with ever more effective lightweight solutions.



Building Performance
Leader in plasterboards and fibre cement boards, and the global reference in passive fire protection solutions for the residential and commercial segments.



Exteriors
Provider of innovative, durable, high performance and beautiful fibre cement exterior materials for architectural, residential and agricultural projects.

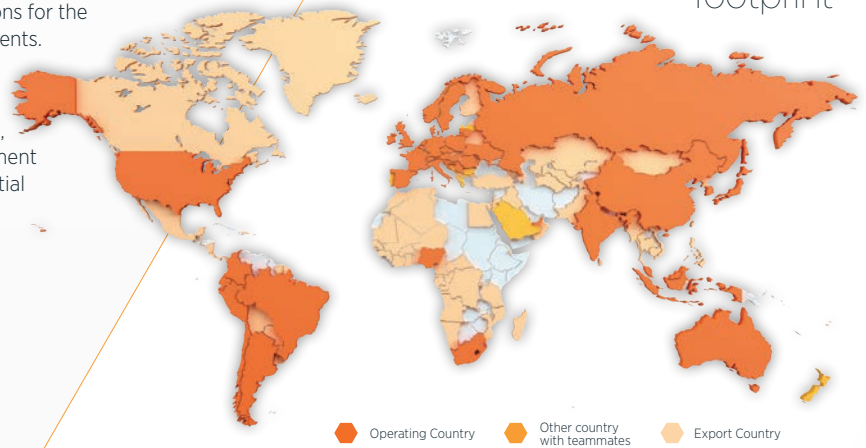


Industry
Front runner of engineering expertise to drive the future of high performance thermal and acoustic insulation as well as passive fire protection in the industrial, aerospace and energy sectors.



New Ways
New Ways offers high-tech, lightweight, factory-assembled panel and modular solutions based on timber and steel framing.

Strong manufacturing **global footprint**



>140
Sites: plants, quarries, offices.

45
Operating countries

>13,500
Teammates

* On 11 January 2022, Etex announced the acquisition of thermal and acoustic insulation expert URSA. When completed, this operation will lead to the incorporation of URSA as a separate division dedicated to insulation activities. Etex's Annual Report will reflect this new structure as of its 2022 edition.

Our main Commercial Brands

CEDRAL

DURLOCK

Eternit

EQUITONE

Gyplac

Kalsi

PLADUR

Euronit

Promat

Superboard

siniat

URSA

Inspiring ways of living

Our why
We want to inspire people around the world to build living spaces that are ever more safe, sustainable, smart and beautiful.

Our how
We work as one, fostering a collaborative and caring culture, a pioneering spirit and a passion to always do better for our customers.

Our what
Building on our experience and global market needs, we strive to improve our customers quality of living with ever more effective lightweight solutions.

Over a century of sustainable profitable growth

1905

Creation

Alphonse Emsens founds the Eternit fibre cement factory in Haren near Brussels in 1905 after acquiring the manufacturing technology from Austrian industrialist Ludwig Hatschek.

1937

Geographic expansion

Eternit expands across Europe and invests in important overseas export markets in Latin America.

1957

Technological diversification

The company begins to diversify and adds plasterboard to its production portfolio.

2003

Split into two entities

Split of the group into the entities: Etex for building materials activities and Aliaxis for plastic activities.

2018-2019

Focus on lightweight construction

Etex confirms its strategic shift to a lightweight construction specialist: while creating the JV E2E together with Arauco, it divests two clay and concrete roof tile businesses.

KalsiWAB fibre cement board is a great wet area and high traffic lining for dry construction applications. KalsiWAB has a smooth, sanded surface and rebated edges allowing the boards to be set and finished to a high level. Immune to long-term moisture exposure, KalsiWAB fibre cement board do not feed or promote mould growth in humid areas. Its delamination strength, can be up to 70% higher than a water resistant plasterboard.

KalsiWAB fibre cement board, offer a very low moisture movement, which makes it a very stable and robust substrate for ceramic and stone tiling, painting or your chosen wall finish. The board will not bow or deform during service.

The following application guide provides the basic recommendation for installation in interior applications. For more information or specific needs, please contact our technical department.

KalsiWAB Technical Specifications

Dimensions

Length (mm)	Width (mm)	Thickness (mm)
2400	1200	9
2700	1200	9
3000	1200	9

6 & 12mm available to special order

KalsiWAB General Properties

General Technical Properties

Dimensional Conformity (tested to AS/NZS 2908.2)		Pass
Length	mm	± 8
Width	mm	± 0.5%
Thickness		± 10%
Straightness of edges	mm/m	3
Squareness of edges	mm/m	4
Density (tested to AS/NZS 2908.2)	kg/m ³	≥1250
Modulus of rupture (tested to AS/NZS 2908.2) (Type B . Category 3)	MPa	≥10
Water permeability (tested to AS/NZS 2908.2)		Pass
Moisture content (tested to ASTM C1185)		≤15%
Water absorption (tested to ASTM C1185)		≤33%
Moisture movement (tested to ASTM C1185)		≤0.04%
Thermal conductivity (tested to ASTM C518-76)	W/m ² K	0.27

Reaction To Fire

Combustibility (EN13501-1+A1)	A1 Non-Combustible
Surface spread of flame (tested to BS 476 Part 7)	Class I
Fire propagation index (tested to BS 476 Part 6)	I = 1.6
Heat and Smoke Release (tested to AS/NZS 3837)	Group I
Fire Hazard Properties (tested to AS/NZS 1530.3)	
Ignitability Index	0
Spread of Flame Index	0
Heat Evolved Index	0
Smoke Developed Index	0-1

Scope of Limitations

Scope of Use

- In all buildings where the structure is suitable for the intended building work.
- In all building areas prone to water splashes.
- As a tile substrate over existing or new reconstituted wood floors (e.g. plywood, particle board and Orientated Strand Board (OSB) and tongue and groove timber.
- As a wet area lining for bathrooms, kitchens, laundries and internal rooms with high humidity.
- In conjunction with an approved firewall design.

Limitations

- When you are specifying and installing KalsiWAB the KalsiWAB Installation Guide must be followed.
- KalsiWAB should not be installed on timber framing where the moisture content is greater than 18%.
- Tiles must be installed with a flexible tile adhesive that's also compatible with KalsiWAB. Talk to your preferred adhesive manufacturer for recommendations.
- When specifying and installing KalsiWAB as a flooring substrate, the panels must be fully supported by a rigid flooring material.



Working with KalsiWAB

Site Work

Loading and unloading

KalsiWAB fibre cement boards are usually supplied on pallets suitable for forklift. If crane offloading by slings is envisaged, special notification must be made in advance or upon placing orders.

All pallets and crates can be safely handled by using a barge lift or hoisting equipment and straps. Steel cables should not be used as it will damage both the pallet and the panels within.

When the crates have to be removed from a box container, care must be taken NOT to expose crates or pallets to the shock of any impact, as the shock could result in cracks in the boards.

Transport to site

Always drive the delivery vehicle as close as possible to the location where the panels are to be installed. When transporting the panels, it is essential to firmly secure the pallets to prevent the panels from sliding or moving while in transit.

Storage

KalsiWAB fibre cement boards are supplied with protective plastic sheeting wrapped around the timber crates. This protection should not be removed until site and structural conditions are prepared and ready for panel installation.

All KalsiWAB fibre cement boards must be stored flat on pallets and placed inside in covered and dry conditions, optimising protection for stored panels against exposure to weather and other unfavourable conditions.

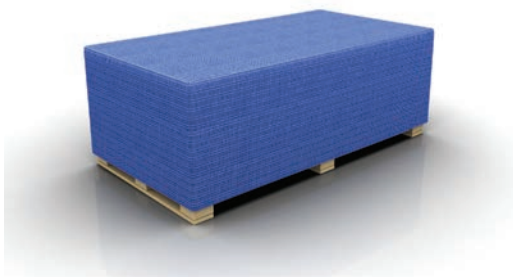


Figure 1
Protective Plastic Sheeting

Handling of KalsiWAB fibre cement boards

The following must be taken into consideration when handling KalsiWAB fibre cement boards.



Figure 2
Whenever possible, lift the panel from the stack below rather than slide panel or drag off the stack. This will prevent damage by scratches to the lower panel.



Figure 3
Always carry the panel on edge but DO NOT store on edge

Working with KalsiWAB

Cutting KalsiWAB Fibre Cement Boards

KalsiWAB fibre cement boards offer easy workability with conventional tools, on or off construction sites. The method of cutting is dependent on the amount of cutting. Cutting of the panel can be achieved using stationary table saws, circular saw and jigsaws. Cutting must take place in a dry environment. Dust control is required.

It is recommended that fibre cement saw blades (see figure 4) are used to cut the panels on site. These blades have been designed especially for fibre cement and when correctly employed, a high level of finish can be achieved. The blade is uniquely designed with vibration damping composite body construction and diamond tipped teeth shaped to give a tear-free edge.

When small amounts of cutting are required on site, an alternative to the recommended fibre cement saw blade is a carbide-tipped flat trapezoidal tooth blade. This has limited life and will need regular changing.



Figure 4
Fibre cement blade.

Drilling KalsiWAB Fibre Cement Boards

KalsiWAB fibre cement boards should be drilled using preferred and more efficient tungsten carbide tipped drills with point angles of 60° to 80° rather than the usual 120° type.



Design Specifications

Compliance

Designers and/or contractors responsible for the intended project should follow the details and recommendations specified in this manual.

It is also wise to keep in mind that all designs and constructions should comply with appropriate and relevant requirements of current legal building codes, regulations and standards, both domestic and international.

The information provided in these installation guidelines is valid at the time of publication. Please consult Etex or its nearest official representative for further versions or updates.

KalsiWAB has a CodeMark certificate which is third party certified, allowed under the Building Act 2004. This means that under law, a Building Consent Authority must accept the specification of KalsiWAB as complying with the NZ Building Code, providing that all conditions of the certificate have been met.

Refer to CodeMark certificate CM70106 for further information.

Framing Considerations

Specific requirements for framing must be determined by a design engineer as per prevalent building codes prior to installation.

Galvanized steel or timber may be used. Dimensions (gauge and web depth) will depend on the partition's height and local requirements.

Structure must be sound and aligned and comply with the local regulations. In any case, maximum expected deflections cannot be bigger than $L/360$.

Minimum width of timber or flange of metal studs must offer minimum 35mm to fix the boards.

All the edges of the boards must be properly supported by means of noggins or stiffeners. The maximum stud's separation between centres cannot be bigger than 600mm.



Figure 5
Timber batten



Figure 6
Metal stud

Flashing

Prior to fixing KalsiWAB fibre cement boards ensure any water proofing membranes or treatments are completed in accordance with local regulations and building codes paying attention to:

- External corners
- Internal corners
- Windows and door openings
- Penetration where pipes or wiring pass through the panels

Installation of KalsiWAB Fibre Cement Boards

Panel Fixing In Wall Applications

Fix KalsiWAB across the framing (at right angles to the studs). KalsiWAB boards can be installed vertically or horizontally, but only in a staggered pattern.

All joints must coincide with the centre of the studs and noggins. Care should be taken that no joints are located directly above the jamb of window or door openings unless constructed as a vertical movement control joints. The joints must be located at least 200mm in from the jamb, and away from any area of great stress. Refer to Figure 11 on page 8 for fastening position.

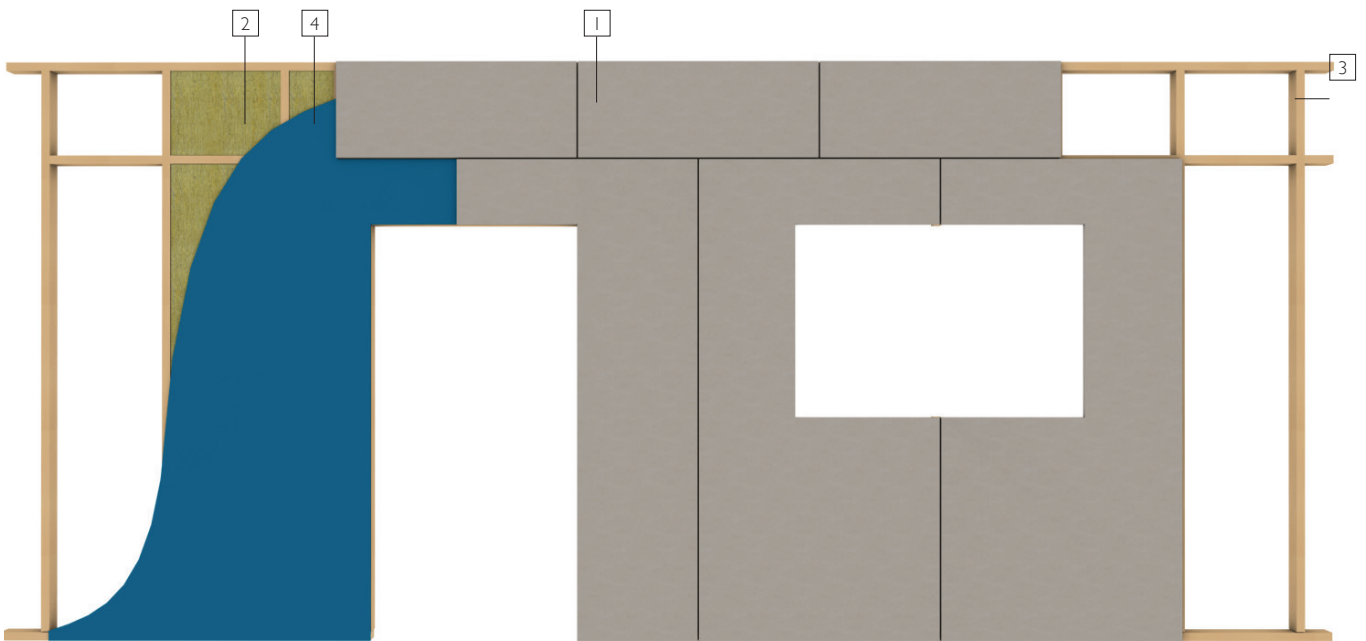


Figure 7
Timber framing

- 1. KalsiWAB fibre cement boards
- 2. Thermal insulation
- 3. Timber batten
- 4. Building underlay membrane if applicable

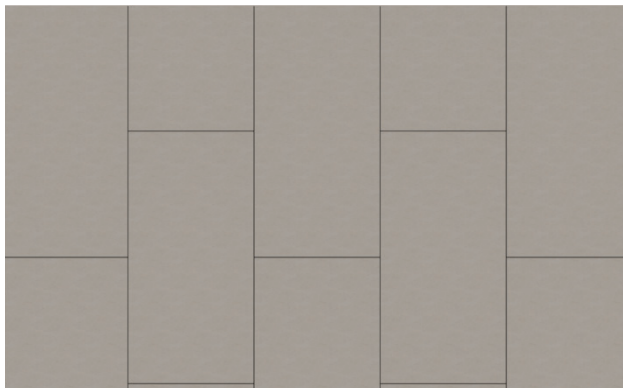


Figure 8
Vertical alignment

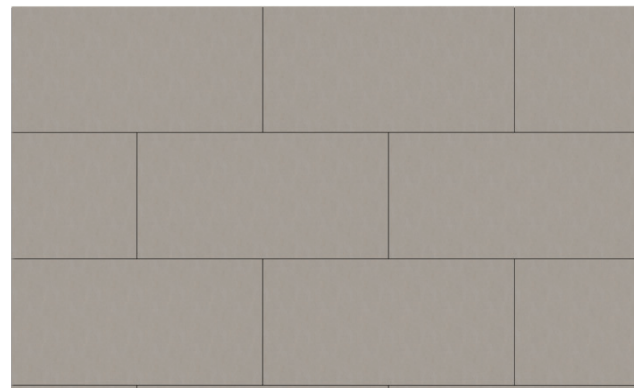


Figure 9
Horizontal alignment

Fixing KalsiWAB

Consideration of fasteners durability will be influenced by material choice, environmental factors and compatibility of materials in contact with fasteners. In general, the fasteners of choice should be resistance to corrosion.

Fastener is fixed using either countersunk head screws or Jolt Head Galvanised steel nails as per Table 1.

Table 1: Fixing Requirements

Fixing to Timber Studs	
KalsiWAB 6mm, 9mm & 12mm board	Minimum Class 3 - 8g x 30mm self-embedding head screws
KalsiWAB 6mm & 9mm board	30mm x 2.8 Galvanised or Stainless Steel FC nails
KalsiWAB 12mm board	30mm x 2.8 Galvanised or Stainless Steel FC nails
Fixing to Steel Studs (0.55mm to 1.5mm BMT)	
KalsiWAB 6mm board	No. 8 x 20mm Countersunk head screws
KalsiWAB 9mm & 12mm board	No. 8 x 30mm Countersunk head screws
KalsiWAB 6mm board	8g x 20mm FC screws
KalsiWAB 9mm board	8g x 30mm FC screws

(Self-embedding minimum Class 3 or stainless steel for wet areas.)

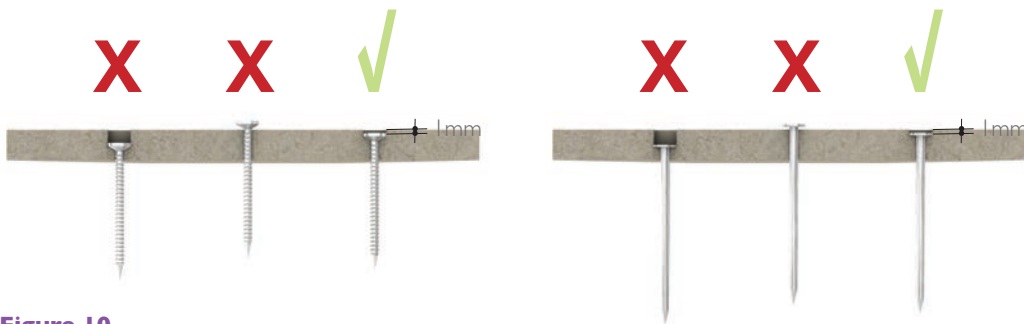


Figure 10
Position of screw and nail fasteners

Fixing spacing along all edges is nom. 200mm centre and should be between 12mm and 20mm from the edge, 50mm from corner and nominal 300mm centres in the body of the sheet. Do not fix to top and bottom plates or noggins. For tiles areas fixing in the body of the board should be no more 200mm apart.

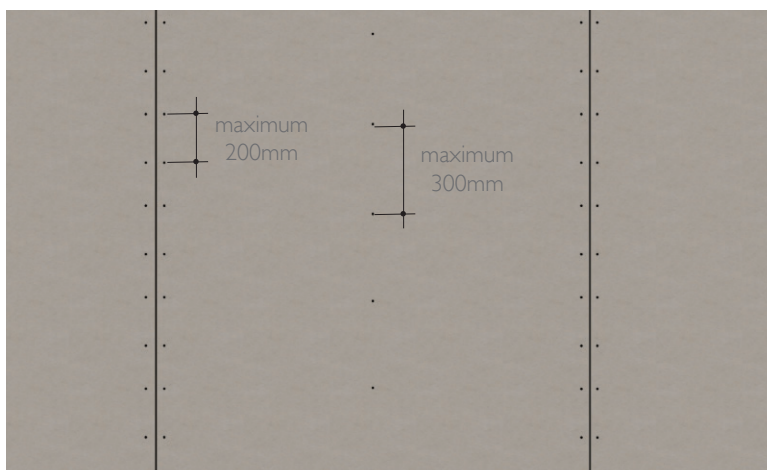


Figure 11
Fastening position

Installation of KalsiWAB Fibre Cement Boards

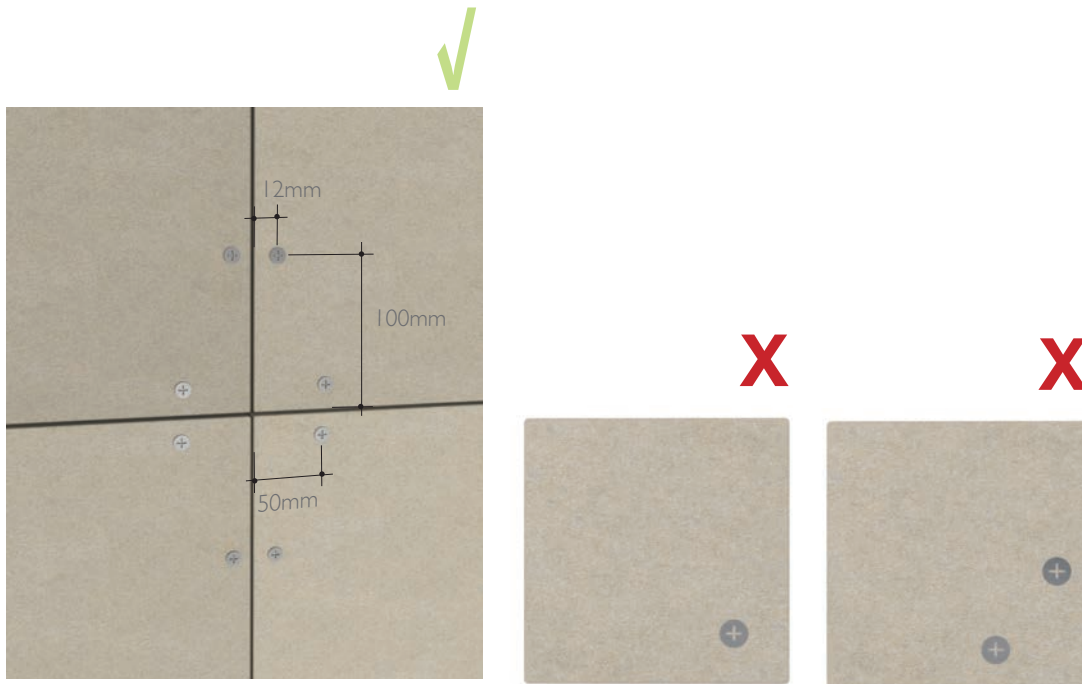
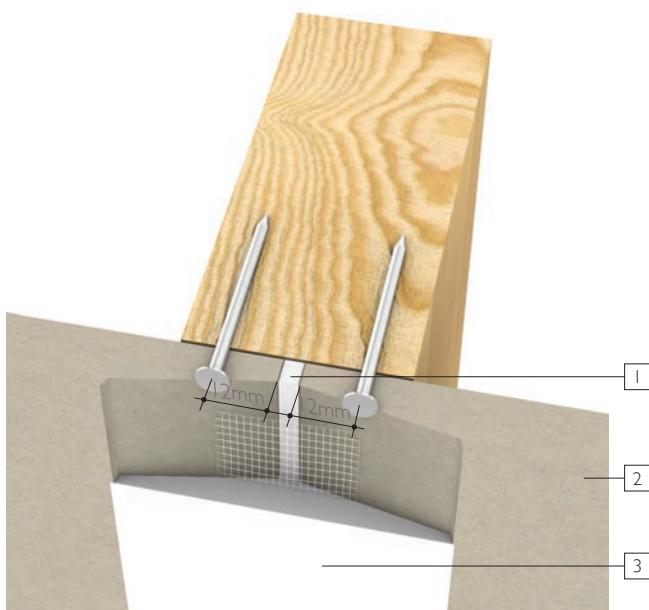


Figure 12
Correct fastener's position

Panel KalsiWAB

Any gaps between panels for vertical and horizontal joints must be filled with the base coat flushing compound before bedding in a 50mm wide alkali resistant fibre glass mesh tape. Finish flushing the joints as per normal trade practice for fibre cement sheet.



1. 50mm Alkali resistant fiberglass mesh tape
2. KalsiWAB
3. Use good trade practice for flushing jointing fibre cement joints

Figure 13
Joint treatment

Movement Joints

Although KalsiWAB is dimensionally stable, it is however, recommended and important to include appropriate movement joints. This will help to prevent bowing, cracking or formation of peaks at joints due to contractions and expansions generated by thermal, moisture and structural variations.

A range of different types of movement joints for use in construction are shown as follows:

- Control joints
- Relief joints
- Construction joints

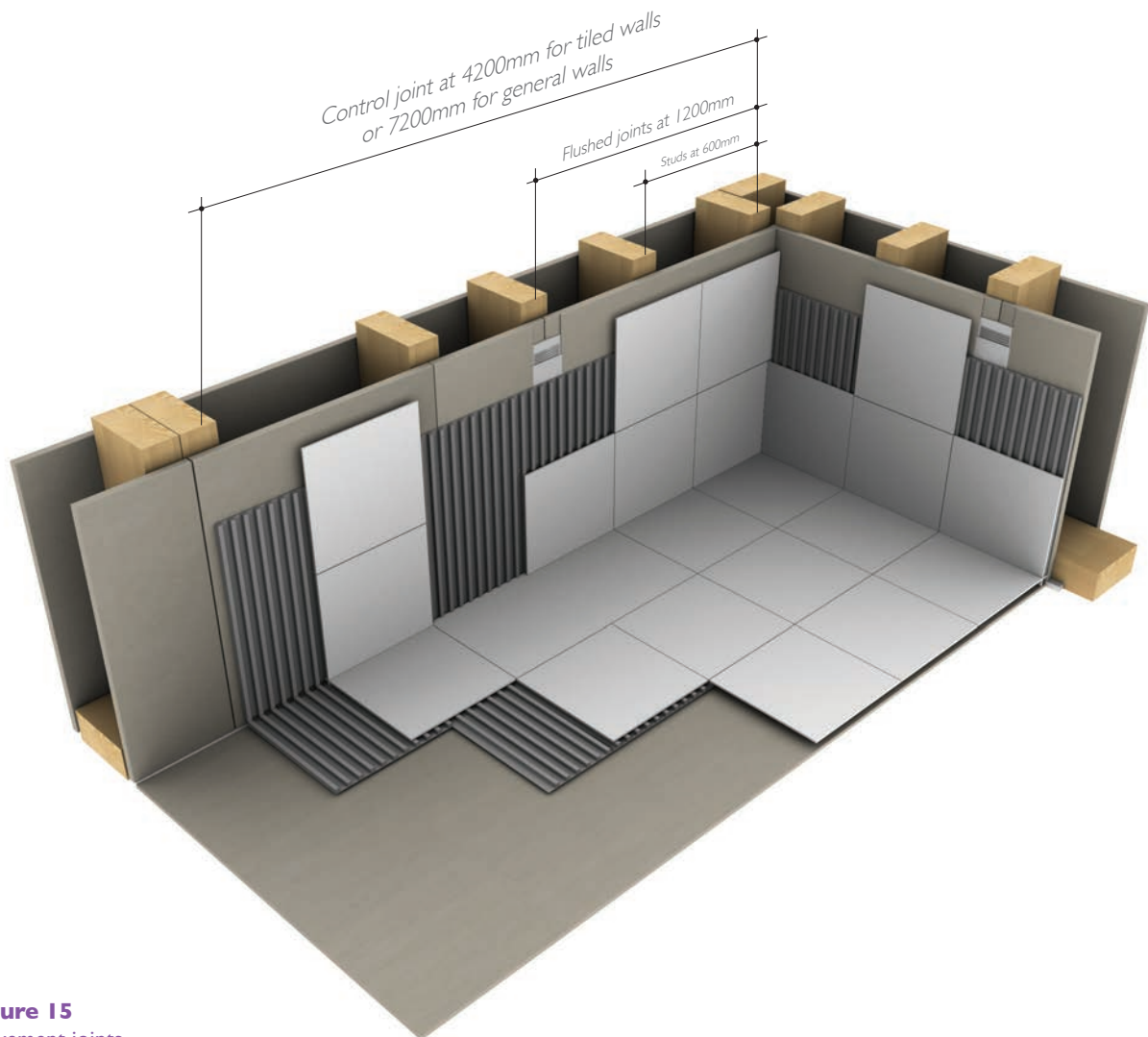


Figure 15
Movement joints

Installation of KalsiWAB Fibre Cement Boards

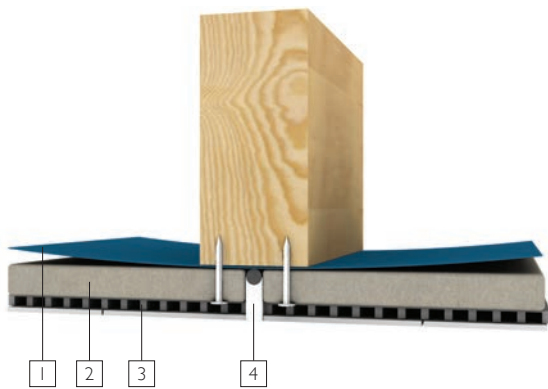
Control Joints

Control joints are installed along the long length of the walls or ceilings. Control joints need also to be constructed whenever there are changes in ceiling directions and wall intersections. Control joints must coincide with a joint between the tiles which is filled with elastic caulking material such as silicone or polyurethane. Refer to Table 2 for control joint spacing and Figure 14 for joint details.

Control joints gap between joints of 4-6mm for internal application and up to 10-12mm for external application.

Table 2: Maximum Control Joint Spacing

Wall Finishes	Steel framing	Timber framing
General walls	6000mm (< 0.75mm BMT) 9000mm (0.8-1.6mm BMT)	7200mm
Tiled walls	4800mm	4200mm



1. Building wrap (If applicable)
2. KalsiWAB
3. Tile adhesive
4. Control joint

Figure 14
Control joints details

Relief Joints

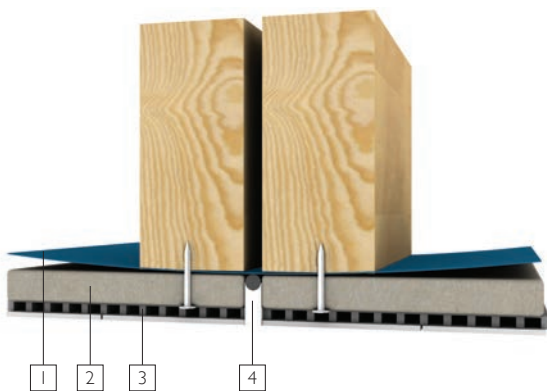


Figure 15
Relief joint details

1. Building wrap (If applicable)
2. KalsiWAB
3. Tile adhesive
4. Relief/Expansion joint

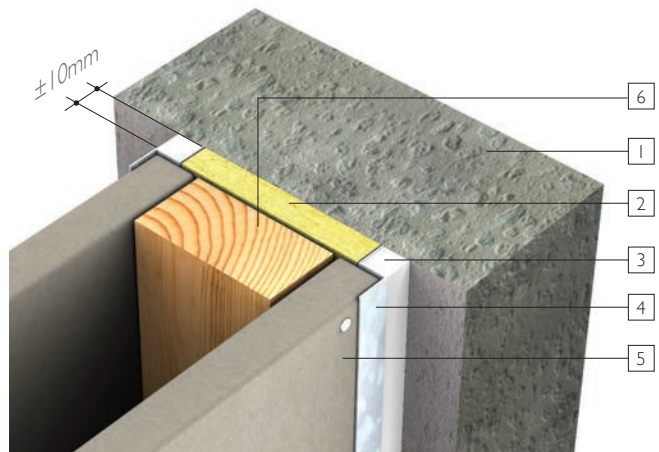


Figure 16
Movement joints

1. Column/wall
2. Mineral wool
3. PU filler (optional)
4. Z corner bead
5. KalsiWAB
6. Timber stud

Finishing

KalsiWAB can be finished with either paint, tiles or wallpaper.

Ceramic Tiles Finishing

KalsiWAB can be tiled with ceramic or stone veneers. Polymer modified sand cement adhesive tiles can be used, and installer must observe the recommendations given by the manufacturer at all times. Some adhesives might require adhesive primers before their application.

Paint Finishing

Coat with two layer of high quality paint as a finishing coat.

Be sure to obtain and understand paint manufacturer's recommendations before commencing work.

Health & Safety

As for all products containing quartz (e.g. concrete and clay), KalsiWAB when machined mechanically (cutting, sanding, drilling) will release dust which may contain quartz particles. Inhalation of high concentrations of dust may irritate the airways. Dust may also cause irritation of the eyes and/or skin. Inhalation of dust containing quartz, in particular the fine (respirable size) dust particulate matter, in high concentrations or over prolonged periods of time, can lead to lung disease (silicosis) and an increased risk of lung cancer:

- Avoid dust inhalation by using cutting equipment which features dust extraction or suppression accessories where practicable.
- Ensure adequate ventilation in the work place.
- Avoid contact with the eyes and skin and inhalation of dust by wearing appropriate personal protective equipment (safety goggles, protective clothing) and approved respirator, a dusk mask of at least type P2.

For more information, consult the appropriate Product Data Sheet, available upon request.

For further information, refer to:

- [The Absolutely Essential Health and Safety Toolkit](#)
- [Worksafe New Zealand Quick Guide](#)







KalsiWAB

A perfect lining
for wet and high
traffic areas

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Installation Guide

Disclaimer:

The sole purpose of images, references and recommendations in this document is to illustrate the functionality and versatility of the products and solutions from Kalsi and the proven international expertise of Etex Group. Note that the successful performance of the product & solutions depends on numerous factors outside Etex Building Performance Indonesia's control (quality of workmanship, design, handling and storage procedures, etc.)