



KalsiGroove 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.

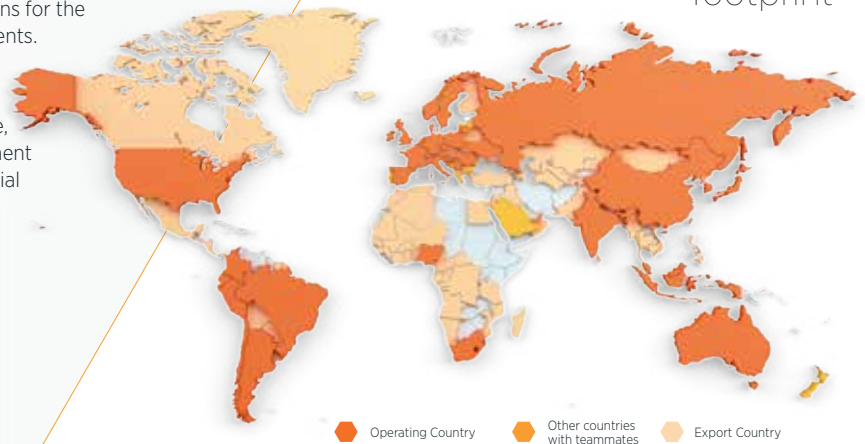


Industry
Front runner of engineering expertise to drive the future of high performance thermal and acoustic insulation as well as passive fire protection in the industrial, aerospace and energy sectors.



New Ways
As a new division created in January 2020, New Ways offers high-tech offsite modular solutions based on wood and steel framing.

Strong manufacturing **global footprint**



>110
Sites: plants, quarries, offices

42
Operating countries

>11,000*
Teammates

* Excluding the Residential Roofing companies which have been divested in 2020 as well as the personnel of Knauf's former plasterboard business in Australia, as this operation was finalised in February 2021. The figures include the personnel of FSi Limited, which was acquired by Etex in September 2020.

Our main Commercial Brands

CEDRAL

DURLOCK

Eternit

EQUITONE

Gyplac

Kalsi

Promat

Superboard®

siniat

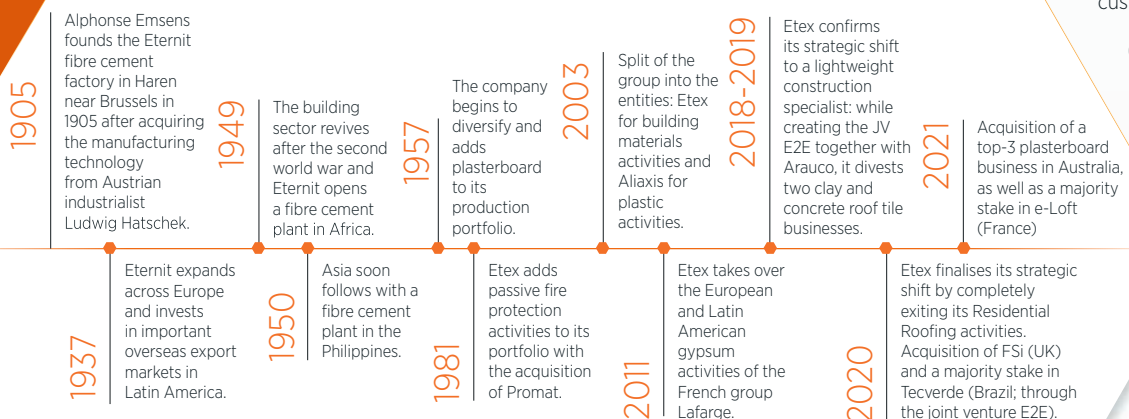
Inspiring ways of living

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

Our why
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



KalsiGroove fibre cement board is 7.5mm thick with a 2.5mm deep, 5mm wide V-shaped groove, at 100mm centres, which replicates a traditional tongue and groove style panelling. Sheets are 1200mm wide, 2400mm or 2700mm long. It is manufactured from Portland cement, finely ground sand, softwood cellulose fibres, additives and water.

Manufactured to conform to the requirements AS/NZS 2908.2: 2000, it is classified as Type B, Category 3.

KalsiGroove can be used as an internal wall lining, or as an eave and soffit cladding providing it will not be directly exposed to the weather.

The following application guide, provides the basic recommendations for interior applications. For more information or specific needs, please contact our Technical Department.

KalsiGroove Technical Specifications

Dimensions

Length (mm)	Width (mm)	Thickness (mm)
2400	1200	7.5
2700	1200	7.5
3000	1200	7.5



KalsiGroove General Properties

General Technical Properties

Dimensional Conformity (tested to AS/NZS 2908.2)		Pass
Length	mm	± 8
Width	mm	± 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 (EN 13501-1+A1)	AI 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 wind zones up to and including extra high as defined in NZS 3604:2011 or to a wind design pressure (ULS) of 2.5kPa.
- In all corrosion zones as defined in NZS 3604: 2011
- In conjunction with a primary structure that complies with the NZ Building Code or where the designer and/or installer have satisfied themselves that the existing structure is suitable for the intended building work.
- As an external soffit and eave lining.
- As an internal lining.

Limitations

- In areas protected from the weather.
- Where used in corrosive zones, fixings to be Table 20, E2/AS1.
- Where subject to water splash it must be coated with a layer that is impervious to moisture.



Working with KalsiGroove

Tools

- Circular saw – with diamond tipped or tungsten carbide blade fitted.
- Hole saws.
- Speed bits.
- Drill.
- Jig saw - with diamond tipped or tungsten carbide blade fitted.
- Scribing knife.
- Utility knife.
- Bench saw or plunge saw.
- Soft faced mallet.
- Cartridge gun.

Other products required

For fixing to wood frames:

- 30mm x 6g zinc alloy fibre cement screws.
- 40mm x 9g stainless steel 316 nails.
- 40mm x 2.8mm galvanized nails.

For fixing to steel frames:

- 30mm x 9g fibre tek C4 screws.

For fixing on internal walls:

- ND 50 brad nails with adhesive.
- Adhesive sealant e.g. Sika Sikaflex I IFC, Bostik Seal N Flex-I.
- Fullers Max Bond, Selleys Liquid Nails.



Site Work

Loading and unloading

KalsiGroove 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

KalsiGroove 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 KalsiGroove 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.

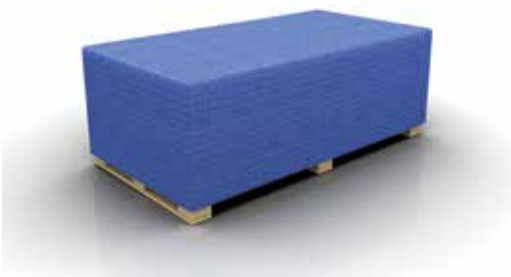


Figure 1
Protective Plastic Sheeting

Handling of KalsiGroove fibre cement boards

The following must be taken into consideration when handling KalsiGroove 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 KalsiGroove

Cutting KalsiGroove Fibre Cement Boards

KalsiGroove 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 KalsiGroove Fibre Cement Boards

KalsiGroove 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.

Forming Holes

Very often apertures need to be cut within a board in order to allow for penetration of services such as switchboxes, lights, access panels etc. Therefore, the following procedures would serve as general guidelines to achieve this requirement.

For smooth, clean cut circular holes,

- Mark the centre of the hole on the board.
- Pre-drill a hole to be used as a guide.
- Cut hole to the required diameter using a hole saw fitted to a electric drill where the central bit is inserted into the pre-drilled hole.

For small irregular holes,

- Small rectangular apertures can be achieved by forming a series of small holes around the perimeter of the opening.
- Tap out the waste piece from the panel face carefully.

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 this installation guidelines is valid at the time of publication. Please consult Etex or its nearest official representative for further versions or updates.

KalsiGroove 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 KalsiGroove 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.

Fixing KalsiGroove Fibre Cement Boards

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 resistant to corrosion.

Fixing requirements

- Screws can be countersunk.
- Nails should be flush with the KalsiGroove surface.
- Do not punch the nails.

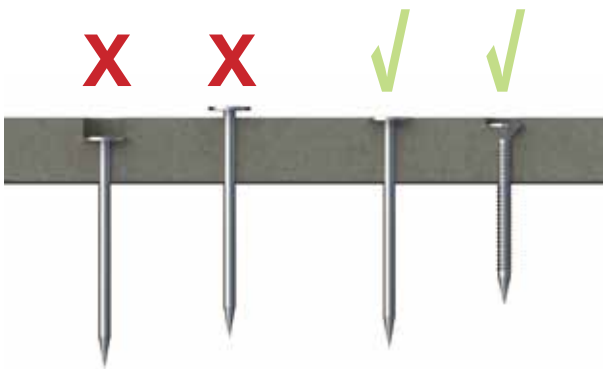


Figure 5
Position of fasteners

Fixing KalsiGroove Fibre Cement Boards for external use

Ensure that the project falls within the product's specified scope of use and that the fixings selected are suitable for the site's exposure zone. KalsiGroove sheet joints must be supported by timber or lightweight steel members. Where KalsiGroove is to be used with Taylor or Klaas Fascia Systems, it must be chamfered to fit. KalsiGroove may be fixed directly to supporting framing of timber or light gauge steel.

For larger eaves, gable ends and roof projection ceilings, the selection of the correct nominal size will be given by the span tables in NZS3604: 2011, table 10.3 or NASH Design Standard: 2010.

Installation

Substrate preparation

KalsiGroove may be fixed to timber or light gauge steel framing (0.5mm to 1.15mm gauge).

Framing centres must be:

- 600mm maximum for stud/joist spacing.
- 1200mm maximum for noggin spacing.
- 45mm minimum support face width for timber framing or 36mm minimum support face width for steel framing.

Check the substrate is level and true.

Ensure timber framing has a moisture content of less than 18% before installing KalsiGroove.

Board preparation

Ensure boards are dry to equilibrium moisture content before fixing. Damp boards should not be installed as they are prone to shrinking, which may lead to joint failure.

Fixing

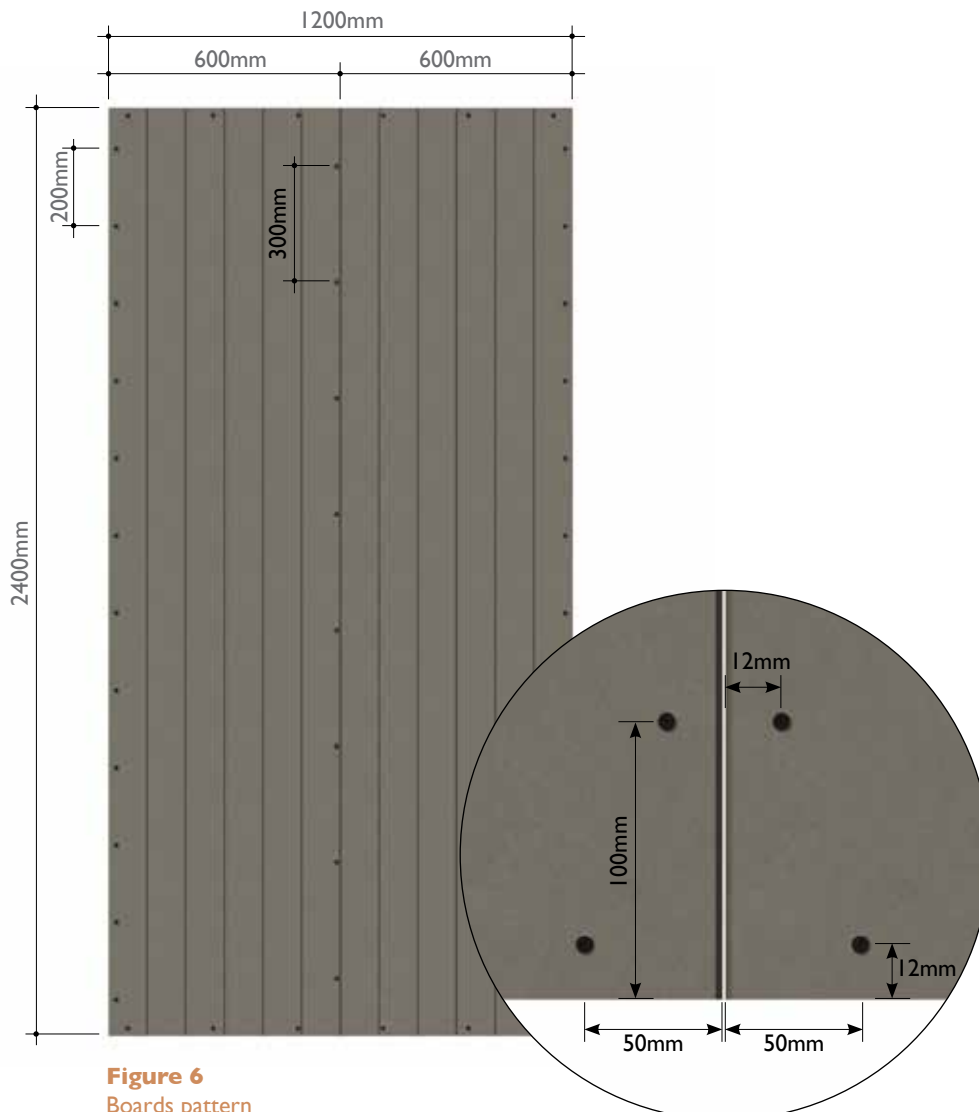


Figure 6
Boards pattern

Installation

Masonry wall installation

Installing KalsiGroove over new or existing masonry requires the installation of light weight steel or timber battens at a maximum of 600mm vertical centres.

When installing battens, ensure that a damp proof course is used to separate the batten from the concrete face.

Fix battens in place using masonry nails, screws or light gauge nylon frame anchors at maximum of 300mm centres.

Install KalsiGroove panels as shown.

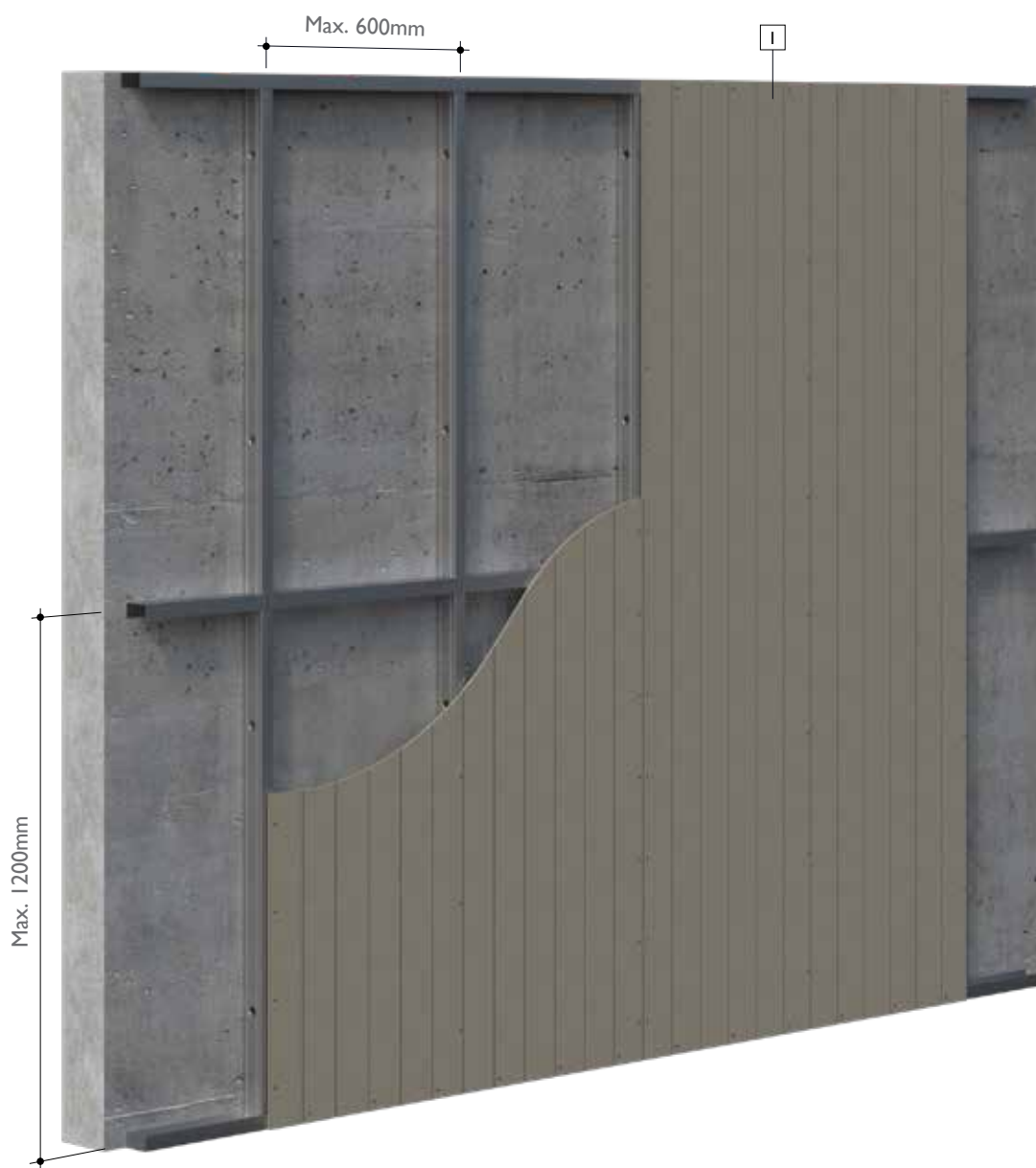


Figure 7
Masonry wall installation

1. KalsiGroove
2. Timber or steel battens 35mm x 45mm

Timber framing installation

Installing KalsiGroove over new or existing timber framing with vertical stud at a maximum of 600mm centres.

Ensure the frame is plumb and true with a moisture content not exceed 18% prior to installation.

Install KalsiGroove panels as shown.

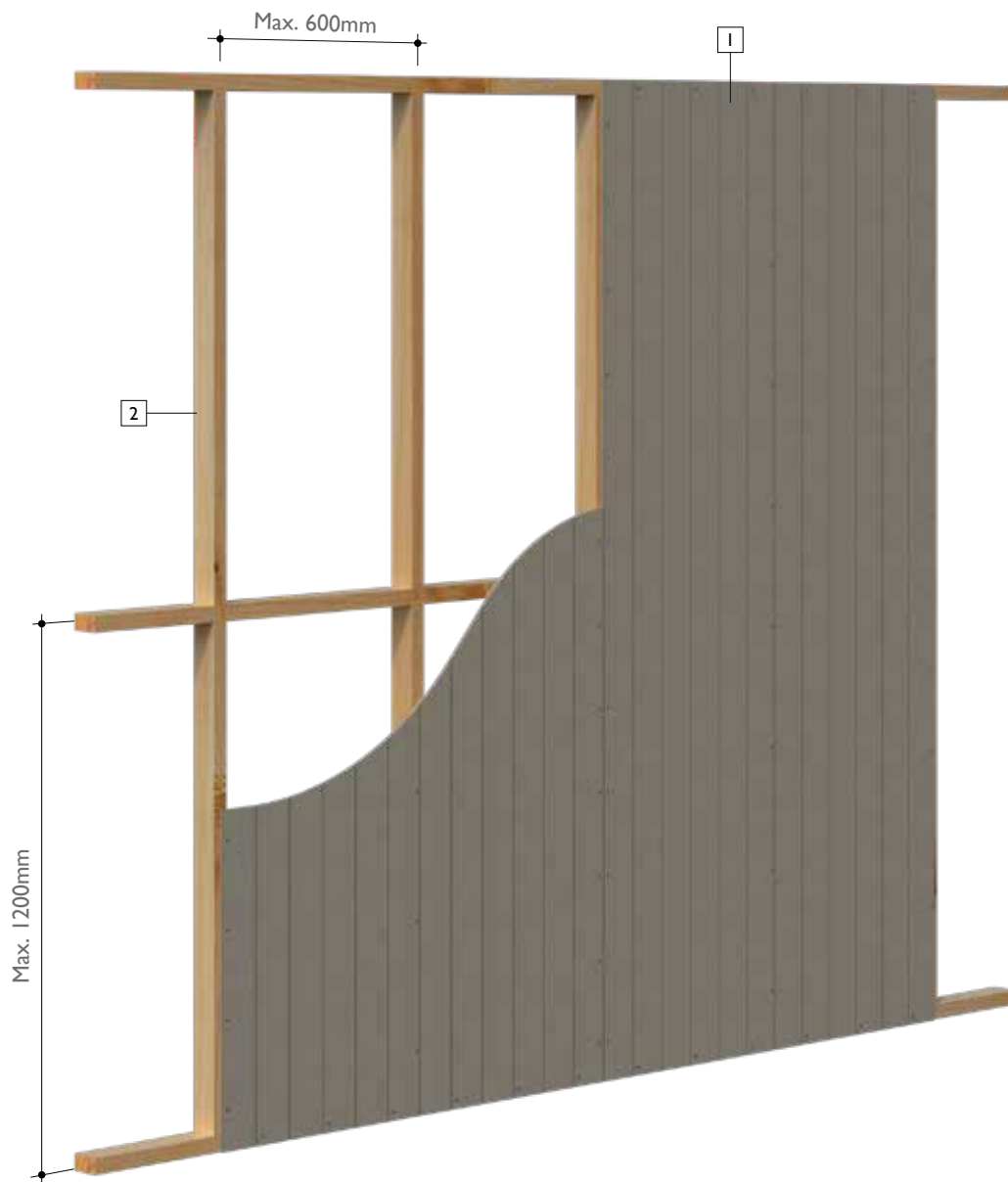


Figure 8

Timber framing installation

1. KalsiGroove
2. Timber studs at 600mm centres

Installation

Joints details



Figure 9
Butt joint

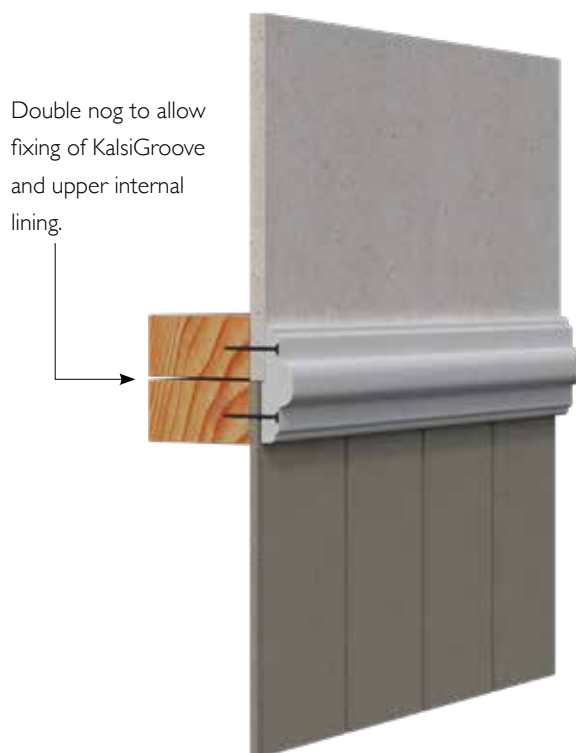


Figure 10
Dado fixing



Figure 11
External corner joint

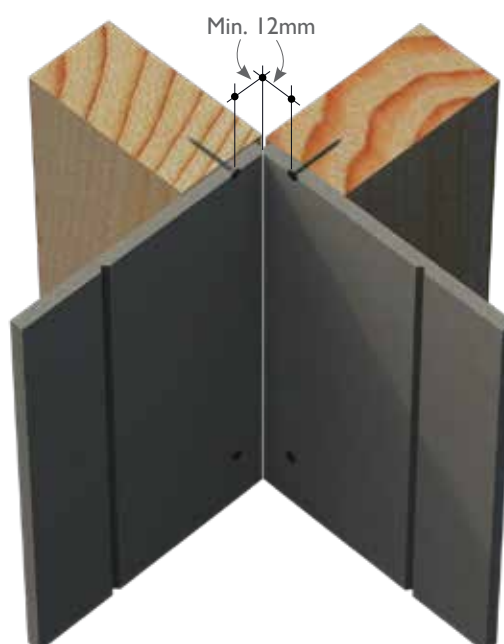


Figure 12
Internal corner joint

Eave and soffit fixing

KalsiGroove is able to be used as a soffit lining.

It may be used with all fascia boards including uPVC and metal provided the groove can accept 7.5mm.

Where the fascia groove is less the leading edge of the KalsiGroove can be chamfered to allow clearance.

The soffit lining must be supported with fixings at 300mm maximum centres.

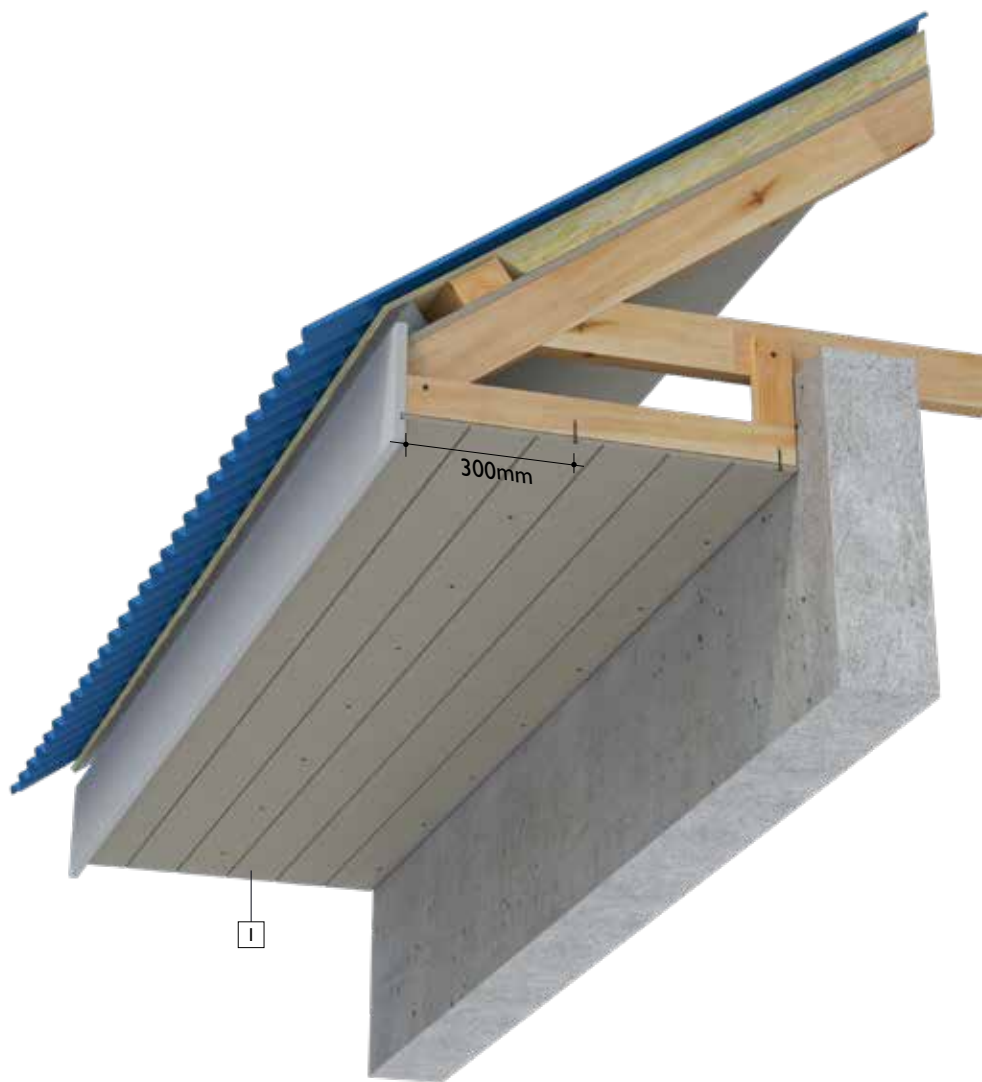


Figure 13
Eave and soffit fixing

1. KalsiGroove

Installation

Ceiling lining

KalsiGroove is able to be used as an interior or exterior ceiling lining.

Conceal the fixings by using countersunk screws, filled with a epoxy filler and sand flush.

Fixing centres may be reduced in favour of a compatible glue. Prop or semi install fixings until the glue has cured.

Install KalsiGroove panels as shown.

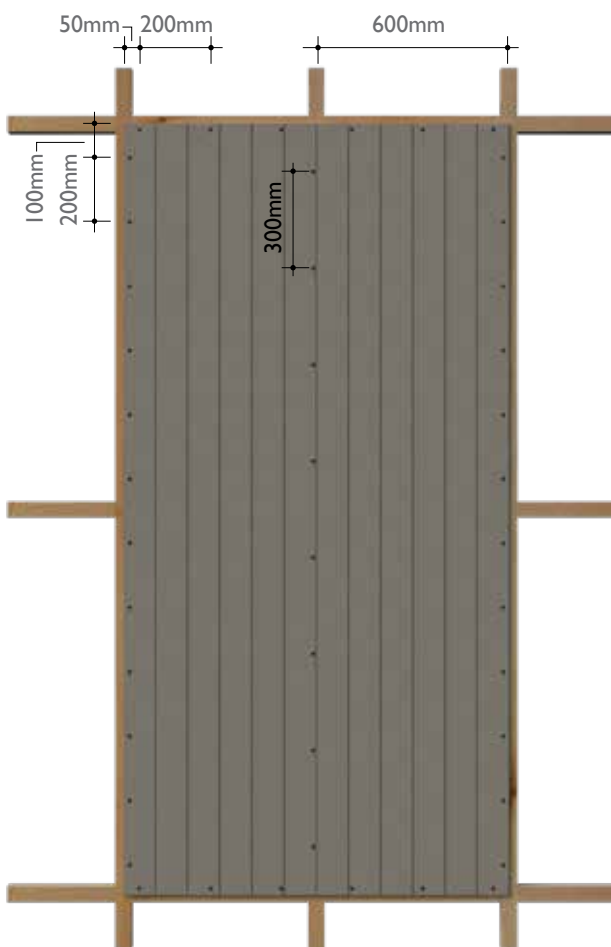


Figure 14
Fixing along joist

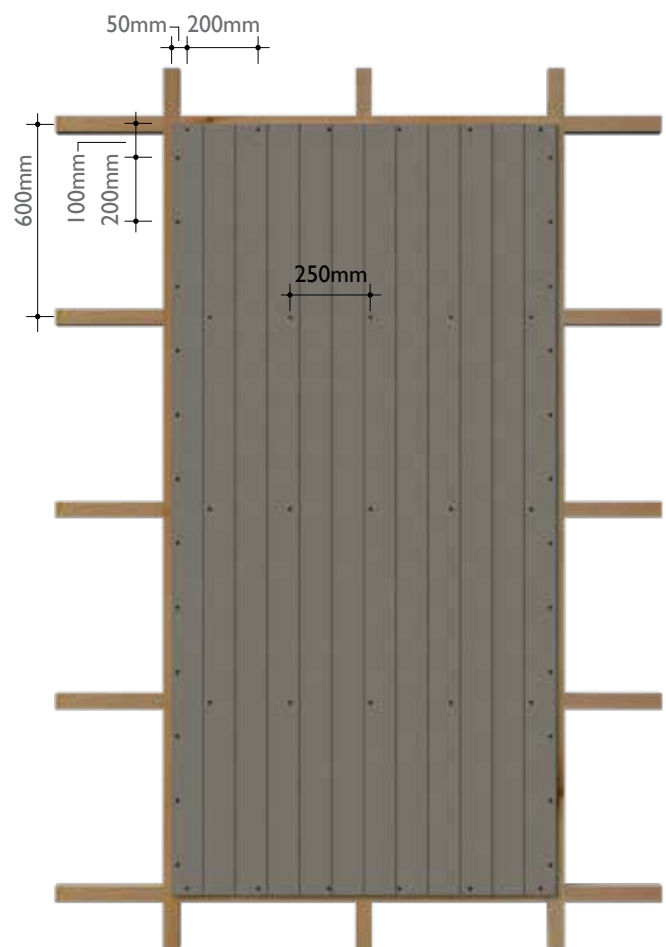


Figure 15
Fixing across joist

Finishing & Maintenance

Finishing

Use a paint system that is compatible with fibre cement panels and appropriate for where the product has been used e.g., externally, internally in a non-wet area, or internally in a semi-wet area. Kalsi recommends obtaining advice from your preferred coating supplier.

When used externally, ensure all panel joints are sealed and filled, if necessary, use a suitable exterior grade flexible sealant and filler prior to painting. Once the joints are dry remove any dirt, grease or dust from the panel surfaces.

Maintenance

Under normal conditions, KalsiGroove will not need maintenance, as long the protective paint system is maintained.

If water damage does occur to an area where KalsiGroove has been used, first remove the protective paint layer. Then make sure the area is allowed to dry before replacing the protection.

Maintain the paint finish in accordance with the manufacturer's requirements. This will depend on the finish chosen, but will typically include:

- Regularly washing or wiping clean protective surfaces.
- Ensuring the paint or plaster system is maintained.

Health & Safety

As for all products containing quartz (e.g. concrete and clay), KalsiGroove 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 dust 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](#)

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KalsiGroove

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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.)