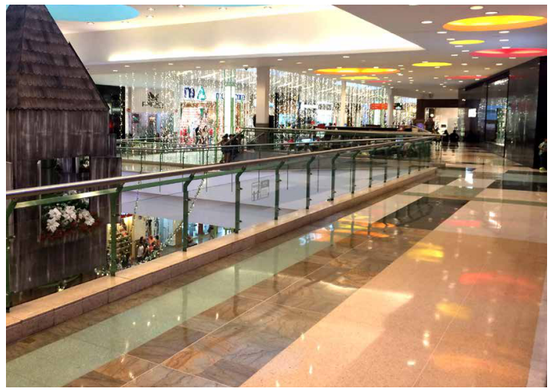
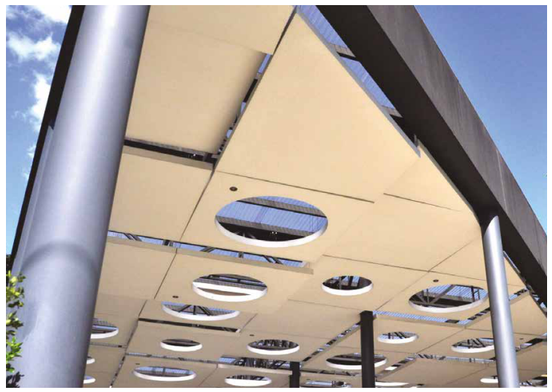
Kalsi
Advanced Fibre Cement



**Nigerite Limited**
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etex inspiring ways of living

Kalsi
Advanced Fibre Cement

# Building boards for dry construction solution

etex inspiring ways of living

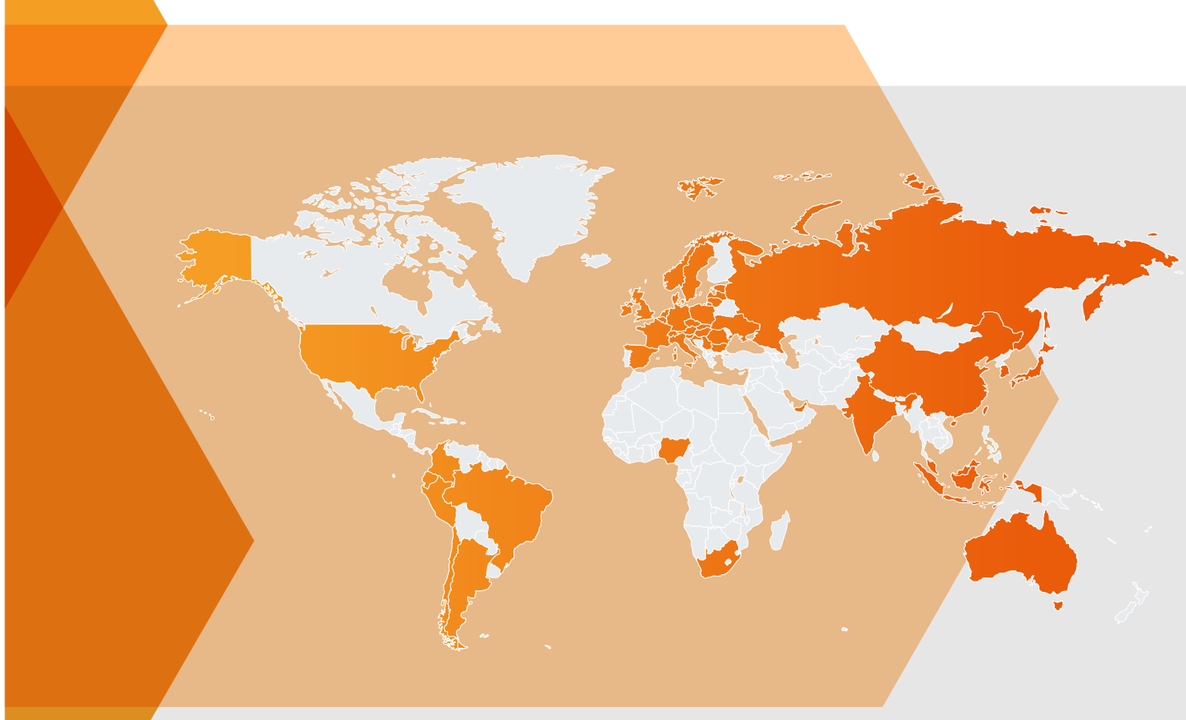
etex inspiring ways of living

Etex is a belgian industrial group specialized in manufacturing and selling building materials and solutions:

- Fibre cement boards
- Plasterboards
- Plasters and formulated products
- Passive fire protetion and associated products
- Roofing tiles, corrugated sheets and roofing components
- High performance insulation systems
- Dry Construction solutions

With around 14,000 employees working at 107 production sites in 42 countries, Etex is an international player in sustainable building solutions, a global presence supported by more than 115 years of history, achievements, research and innovation.

At Etex, we want to inspire people to build living spaces that are ever more safe, sustainable, smart and beautiful. We strive to improve our customers' quality of life with effective lightweight solutions.



**ETEX IN THE WORLD**

Etex is a global group, a house of strong commercial brands who, together, bring "Inspiring ways of living" to the world.

Promat Kalsi EQUITONE siniat ETERPAN®

CEDRAL Gyplac MICROTHERM PLADUR DURLOCK Eternit Superboard



Kalsi

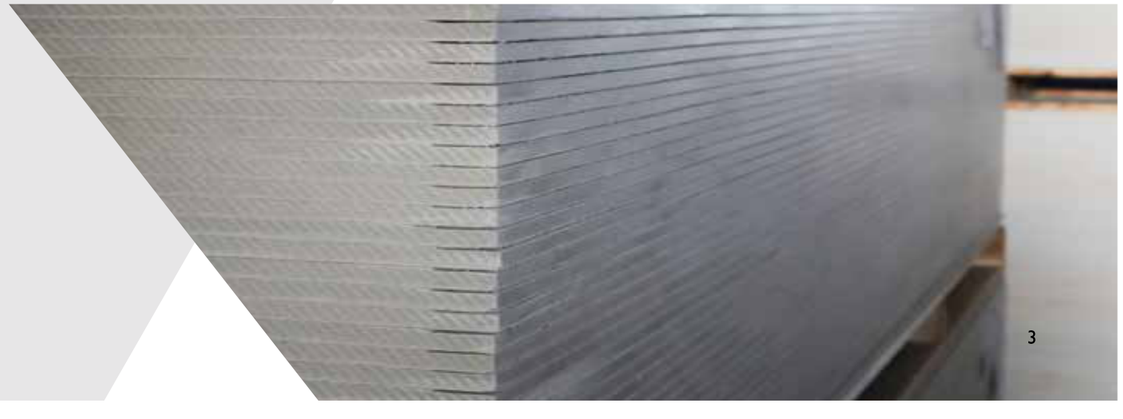
Kalsi fibre cement boards are the result of decades of committed effort to offer the best choice in fibre cement technology supported by Etex´s worldwide network of R&D centres that provide high performance solutions.

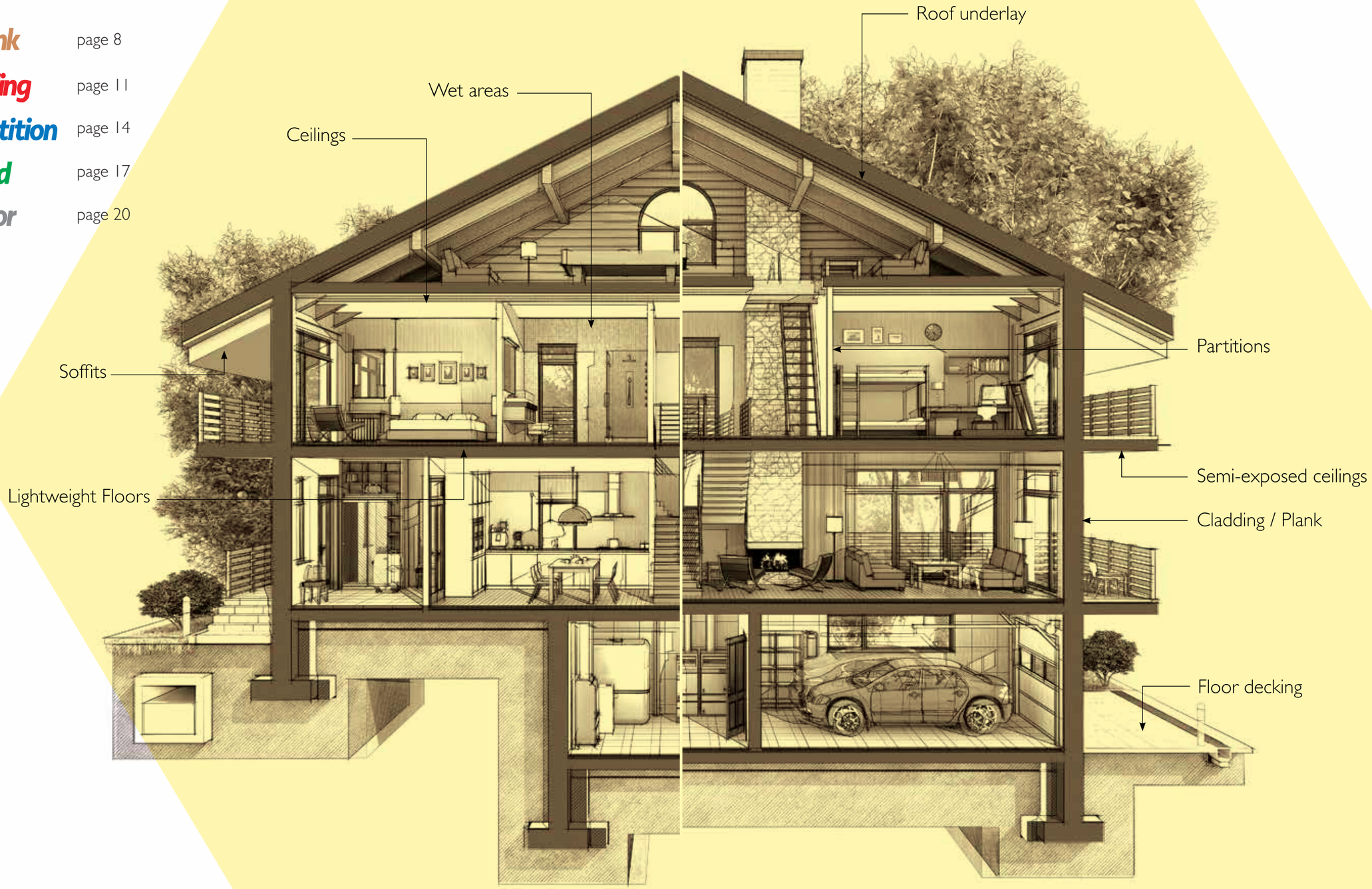
Our raw materials, obtained from renewable sources, ensure a low carbon footprint. Cellulose is obtained from sustainable forests. Cement and aggregates from local quarries. Our low energy production processes are clean and efficient together with recycling of production waste.

Kalsi boards are the right balance of light weight, strength and durability.

Resistant to water, mold growth, impact and harsh weather conditions, our fibre cement solutions are the best alternative for builders and home owners who are ready to explore creative building solutions and improve their way of living.

Kalsi boards are the perfect replacement of wood, concrete and masonry in dry construction solutions.





# Dry Construction

Dry construction is a building technology that utilises composite boards installed over metal or timber subconstruction. It is often used to build exterior walls (claddings), interior walls (partitions), ceilings, floors and some other applications.

The cost effectiveness, strength, durability, design flexibility, adaptability, recyclability and sustainability are just some of the many advantages of dry construction over brick and mortar. It not only makes good economic sense to choose the dry construction method, but good environmental sense, too...because $CO^2$ emissions are minimised.

## Main Benefits Of Dry Construction

- Green and sustainable
- Cost effective
- Rapid installation
- Reduced wastage
- Easy installation of pipes and other services
- Lightweight and structurally efficient
- Durable
- Earthquake resistant

The various components -- boards, studs and accessories -- assembled to create Kalsi dry construction systems can be easily dismantled at the end of the building's lifecycle. They are 100% recyclable and recoverable.

**Dry Construction is synonym for efficiency and sustainability.**



Kalsi is the brand name of our fibre cement boards and planks.

Manufactured from a precise combination of cement, silica and cellulose, the boards are cured and stabilised in an autoclave -- a special process involving steam, high temperatures and pressure -- that ensures optimum dimensional stability and mechanical resistance.

Kalsi fibre cement boards and planks are durable and highly resistant to most environmental conditions. They are the best alternative to wood, concrete and masonry constructions.

Kalsi fibre cement boards are manufactured in modern production facilities in Nigeria. The company's factories meet the international benchmarks for quality and environmental impact.

### Physical and mechanical properties

| | Value | Standard |
|---|---|---|
| Dimensional conformity<br>• Thickness<br>• Length<br>• Width<br>• Straightness of edges<br>• Squareness of edges | Level II (Pass) | ISO 8336 |
| Density | ≥1250 kg/m$^3$ | ISO 8336 |
| Moisture content | 10 - 15% | ASTM C1185 |
| Water absorption | 33±2% | ASTM C1186 |
| Moisture movement | ≤0.04% | ISO 8336 |
| Water permeability | Pass | ISO 8336 |
| Thermal conductivity | 0.25 W/mK | ASTM C518 |
| Modulus of rupture<br>Category C (ambient condition) | ≥10MPa | |

### Durability

| | | |
|---|---|---|
| Warm water performance | Pass | ISO 8336 |
| Soak-dry performance (category A) | Pass | ISO 8336 |
| Freeze-thaw performance (category A) | Pass | ISO 8336 |
| Heat-rain performance (category A) | Pass | ISO 8336 |

### Reaction to fire

| | | |
|---|---|---|
| Non-combustibility | Non-combustible | BS 476 Part 4: 1970 |
| Surface spread of flame | Class 1 | BS 476 Part 7: 1997 |
| Fire propagation index | I = 2.3<br>i(1) = 2.1<br>i(2) = 0.1<br>i(3) = 0.1 | BS 476 Part 6: 1989 |
| Fire classification using test data from reaction to fire test | Class A1 | EN13501-1: 2007 + A1: 2009 |

**Kalsi is the perfect balance of resistance, durability, and functionality.**

## Benefits

- Resistant to the attack of termites, insects and other vermin
- Moist, mould and water resistant
- Wide variety of thicknesses and applications
- Impact resistant
- Dimensionally stable
- Easy to work and install

**Working with certified materials brings peace of mind.**

# KalsiPlank

KalsiPlank is a fibre cement siding designed for residential cladding and external siding application. Easy to cut, nail and drill, KalsiPlank is a simple, pragmatic solution to create protective barrier without the problems associated with humidity from using wooden materials.

KalsiPlank comes in attractive surface finishes.

KalsiPlank can be installed with different jointing options to achieve desired aesthetics.

### Surface finishes



### Edge finishes


## BENEFITS

- Resistant to the attack of termites, insects and other vermin
- Moist, mould and water resistant
- Impact resistant
- Dimensionally stable
- Easy to work and install
- Non-combustible
- Does not rot/decay
- Formaldehyde-free
- Durable & weather resistant

## OTHER APPLICATION

Fencing, soffit, eaves lining, fascia etc



KalsiPlank

### KalsiPlank Overlapped Siding Dimensions

| | Thickness (mm) | Width (mm) | Length (mm) | Weight (kg) |
|---|---|---|---|---|
| KalsiPlank | 8 | 200 | 3000 | 6.9 |

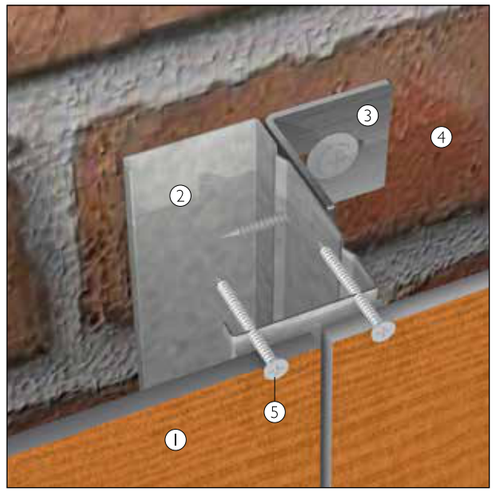
"KalsiPlank with beauty, strength and flexibility inspired by natural wood."

# KalsiPlank

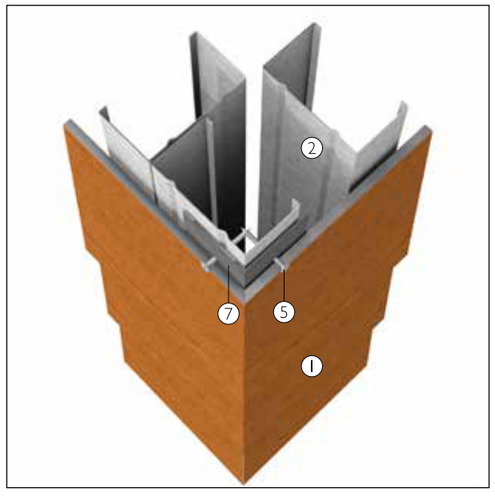
## Technical details

"Following the basic practices of installation is the best guarantee for a beautiful and long-lasting solution"


General view




Board jointing detail




External corner detail

1. KalsiPlank
2. Steel framing
3. Metal bracket
4. Masonry / Drywall
5. Screw
6. Vapour permeable membrane (lightweight cladding)
7. Corner flashing



# KalsiCeiling

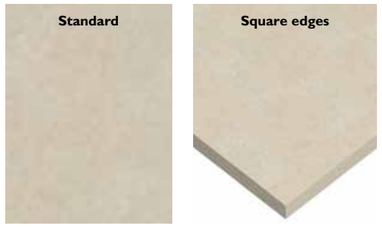
KalsiCeiling is a fibre cement sheet designed specially for ceiling applications in both dry and wet areas. It's a lightweight but durable sheet that offers exceptional dimensional stability and years of functional service.

KalsiCeiling comes in 6mm thickness. It should be screwed to steel frame or seasoned timber. After installation, joints between sheets may remain open or can be covered using wooden or metal joiners.
Alternatively, Kalsi joint compound or other compatible joint finishing products.

KalsiCeiling can also be used as ceiling tiles on a T-grid structure. The extra-smooth surface is ready to receive a wide range of finishes.

### Surface finishes

### Edge finishes




**BENEFITS**

- Resistant to the attack of termites, insects and other vermin
- Moist, mould and water resistant
- Impact resistant
- Dimensionally stable
- Easy to work and install
- Durable
- Flexible
- Good for exterior use
- High mechanical strength

KalsiCeiling

**KalsiCeiling Standard Dimensions**

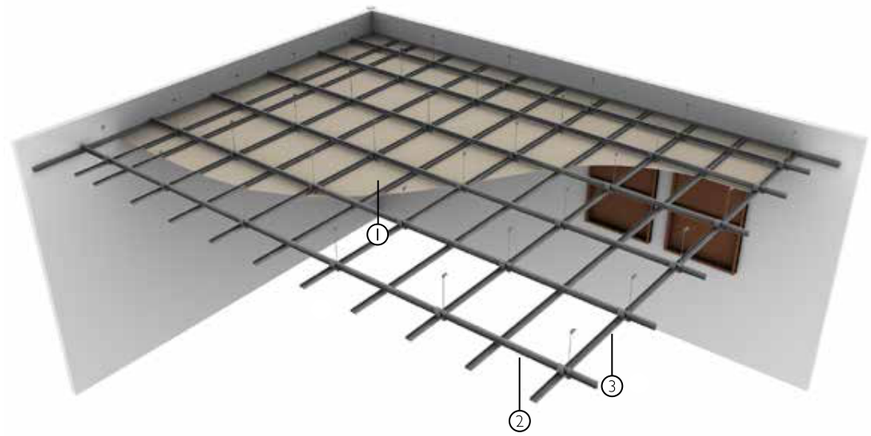
| Thickness (mm) | Width (mm) | Length (mm) | Weight per $m^2$ of sheet ($kg/m^2$) |
|---|---|---|---|
| 6 | 1220 | 2440 | 8.4 |



KalsiCeiling

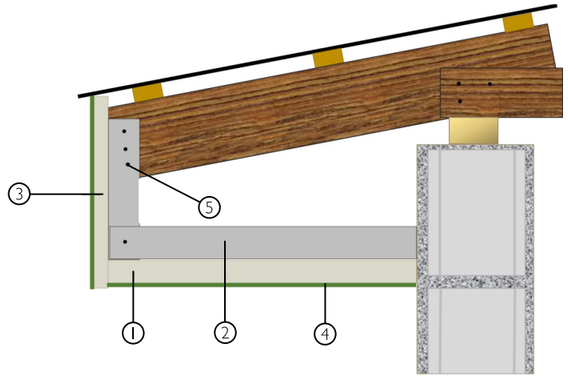
Technical details

KalsiCeiling is ideal for interior and exterior ceiling applications exposed to high humidity conditions."




**General**

1. Kalsiceiling
2. Primary runner
3. Secondary runner




**Eave soffits & Fascia**

1. Kalsiceiling
2. Metal frame
3. Kalsiceiling
4. Surface Screed
5. Screw

# KalsiPartition

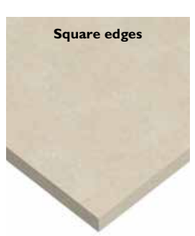
KalsiPartition is the ideal solution for the most demanding internal wall applications exposed to high traffic, impacts and humid conditions.

All kinds of conduit, wiring, pipe and other services are easily installed in the cavity of every KalsiPartition system.

Areas with high levels of cleaning and maintainance find an excellent long-lasting solution when using KalsiPartition.

### Surface finishes

### Edge finishes




## BENEFITS

- Resistant to the attack of termites, insects and other vermin
- Moist, mould and water resistant
- Impact resistant
- Dimensionally stable
- Easy to repair and repaint
- Partition system with design flexibility
- Acoustic performance
- High mechanical strength & stiffness

KalsiPartition

**KalsiPartition Standard Dimensions**

| Thickness (mm) | Width (mm) | Length (mm) | Weight per $m^2$ of sheet ($kg/m^2$) |
|---|---|---|---|
| 8 | 1220 | 2400 | 11.09 |

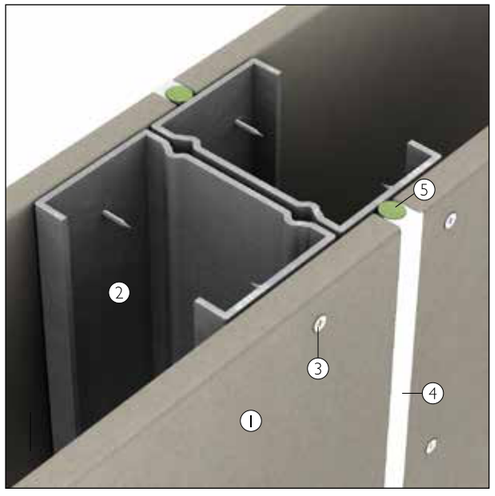
"KalsiPartition means high impact and durable solutions with space optimization, especially in high traffic areas."

# KalsiPartition

## Technical details

General view

Ceramic tiling




Expansion joint

1. KalsiPartition
2. Steel stud
3. Drywall screw N°6 x 1" (specs may change)
4. Polyurethane (PU) sealant
5. 6mm backer rod




# KalsiClad

KalsiClad is a board specifically designed for external wall cladding. Its resistance to the outdoor elements and the capacity to receive different coating finishes are the best features for new or renovation projects which demand design flexibility and modern, contemporary solutions.

KalsiClad can be finished with exposed or sealed joint. .

The type of board finishes in KalsiClad facilitates the right combination of surface texture and joints to match the architect's design.

### Surface finishes

### Edge finishes



**BENEFITS**

- Resistant to the attack of termites, insects and other vermin
- Moist, mould and water resistant
- Weather resistant
- Impact resistant
- Dimensionally stable
- Easy to repair and repaint
- Durable
- Versatility in finishing options
- Thermal insulation


KalsiClad

### KalsiClad Standard Dimensions

| Thickness (mm) | Width (mm) | Length (mm) | Weight per $m^2$ of sheet ($kg/m^2$) |
|---|---|---|---|
| 10 | 1220 | 2440 | 15.28 |

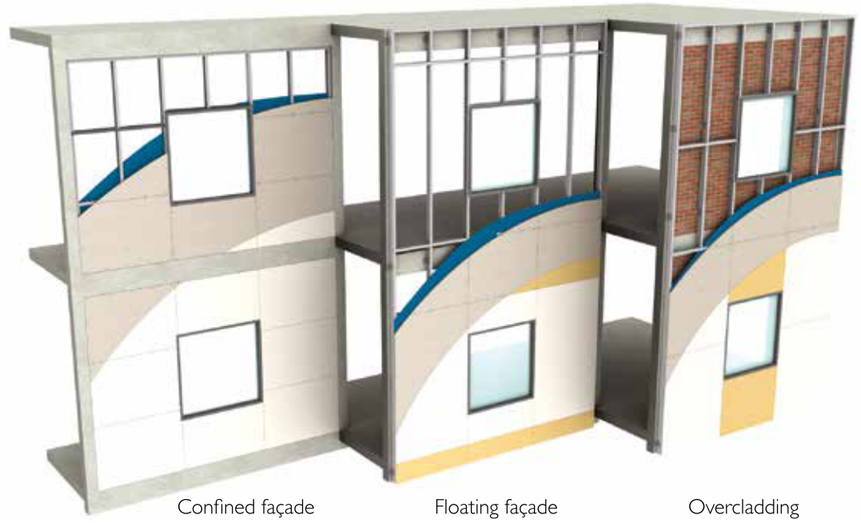
"KalsiClad is an external, lightweight yet strong solution for new and renovation projects"



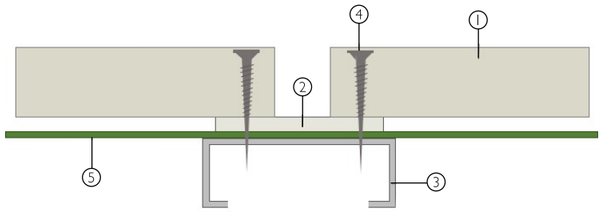
KalsiClad

## Technical details

### Types of facade in dry construction

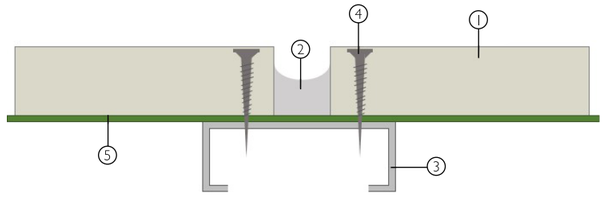


Confined façade | Floating façade | Overcladding (Renovation projects)



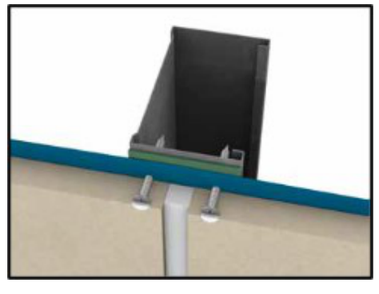

**Open Joint**

1. KalsiClad
2. Backing strip
3. Metal frame
4. Drywall screw
5. Vapour barrier




**Sealed Joint**

1. KalsiClad
2. PU Sealant
3. Metal frame
4. Drywall screw
5. Vapour barrier



# KalsiFloor

KalsiFloor is a strong fibre cement board suitable for internal flooring applications. KalsiFloor can be directly finished (with carpet or vinyl tiles) in residential projects or offices, or with reinforced mortar screed in industrial and heavy duty applications.

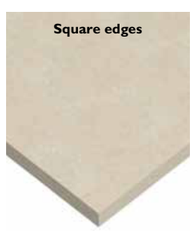
KalsiFloor is a superb alternative to concrete slabs due to its resistance, dry and clean installation process, leading to waste reduction and saving in execution time.

### Surface finishes

**Standard**

### Edge finishes

**Square edges**



**BENEFITS**

- Resistant to the attack of termites, insects and other vermin
- Moist, mould and water resistant
- Speed of installation
- Impact resistant
- Lightweight solution
- Non-combustible
- Higher mechanical strength
- Durable
- Does not swell



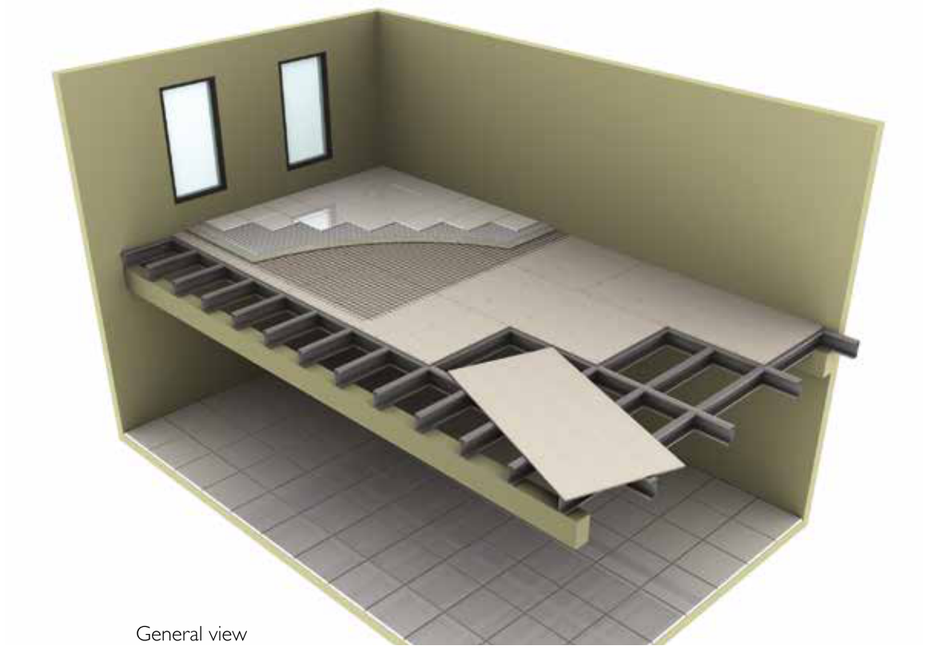

KalsiFloor

**KalsiFloor Standard Dimensions**

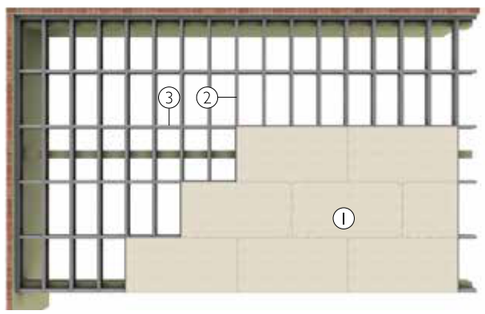
| Thickness (mm) | Width (mm) | Length (mm) | Weight per $m^2$ of sheet ($kg/m^2$) |
|---|---|---|---|
| 20 | 1220 | 2440 | 28.22 |

"KalsiFloor is the ideal substrate for lightweight flooring. Fast, clean and durable solution."

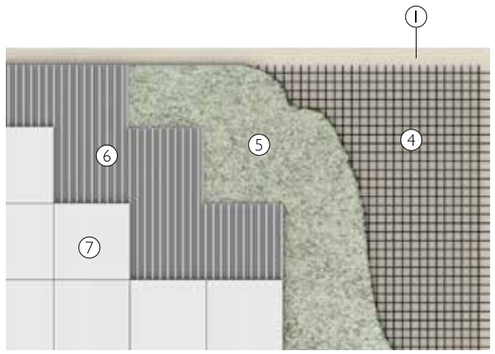
# Technical details



General view




Installation practice




Surface finishing detail

1. KalsiFloor
2. Steel purlin
3. Steel bracer
4. Wire mesh reinforcement
5. Mortar/screed
6. Tile adhesive
7. Finishing (ceramic tile, stone)



## Installation Accessories

Kalsi fibre cement boards can be installed with standard and common accessories easily found in most hardware outlets.

Anchors
(Steel frame to main structure)

Screws with drill point
(to fix steel frame components)



Steel stud/ runner

Screws
(boards to steel frame)



Steel channel

Mesh tape
(2" fibreglass)



Mineral wool

PU Sealant