Kalsi

Advanced Fibre Cement

The right building material for Design Freedom and Performance

European Technology

etex inspiring ways of living

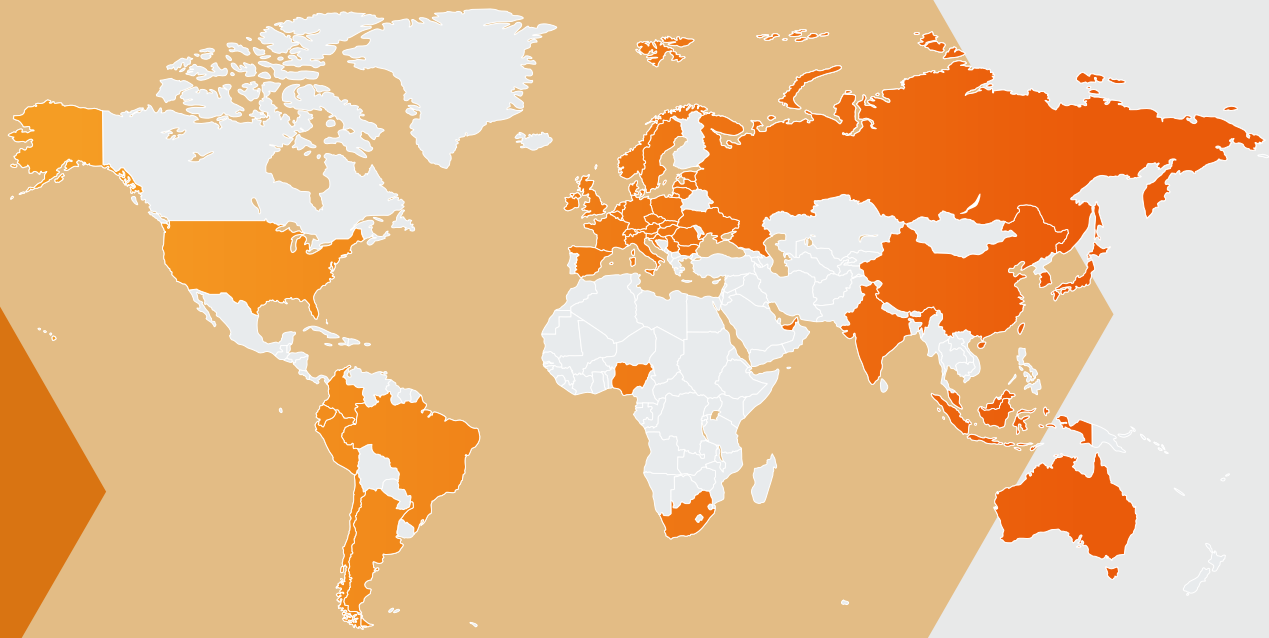
etex inspiring ways of living

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 employess working at 107 production sites in 42 countries, and with annual sales of almost 3 billion euros, 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®

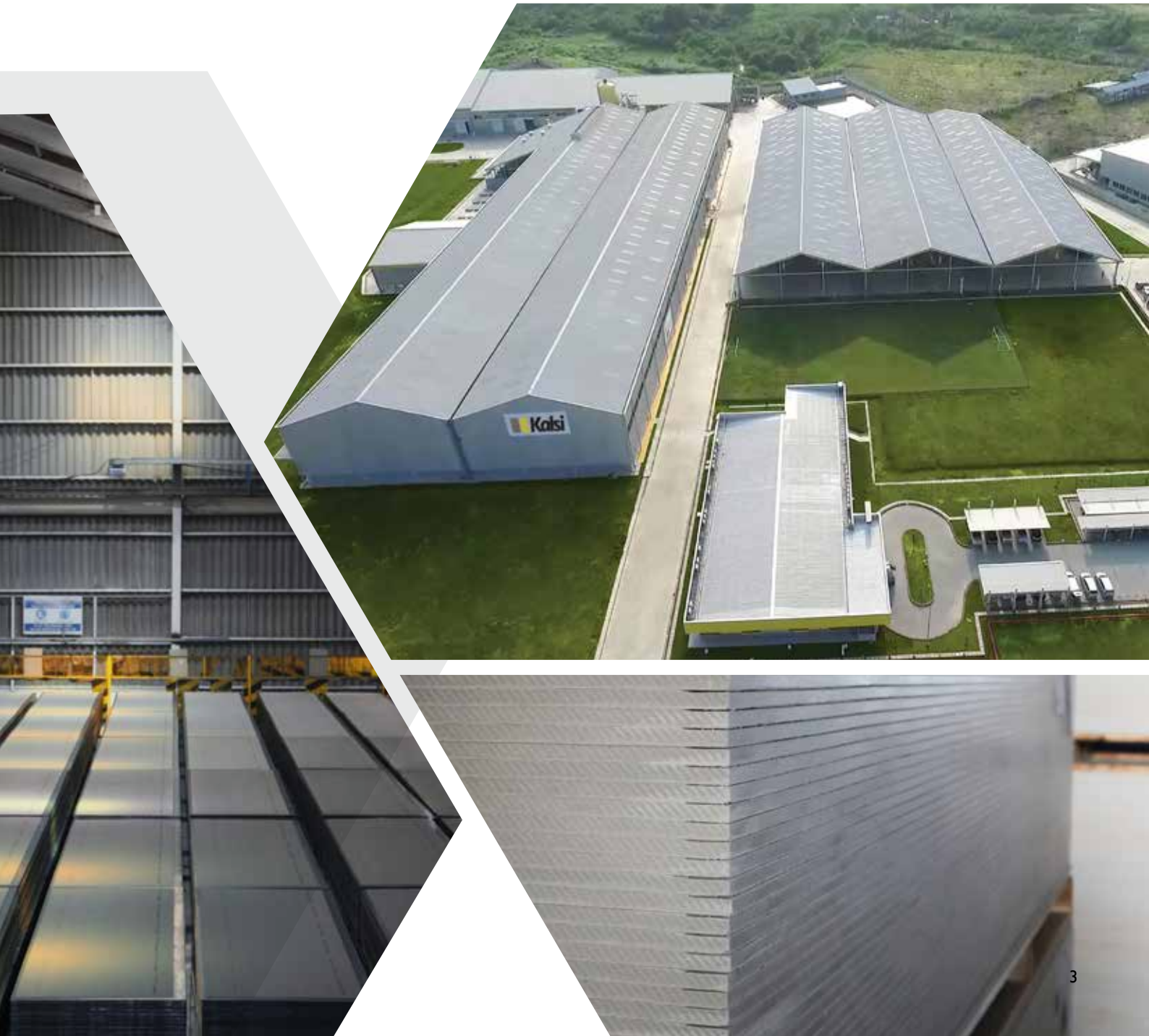
Kalsi fibre cement boards are the result of decades of committed effort to offer the best choice in fibre cement technology supported by Etex´s worldwide network of R&D centres that provide high performance solutions.

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.

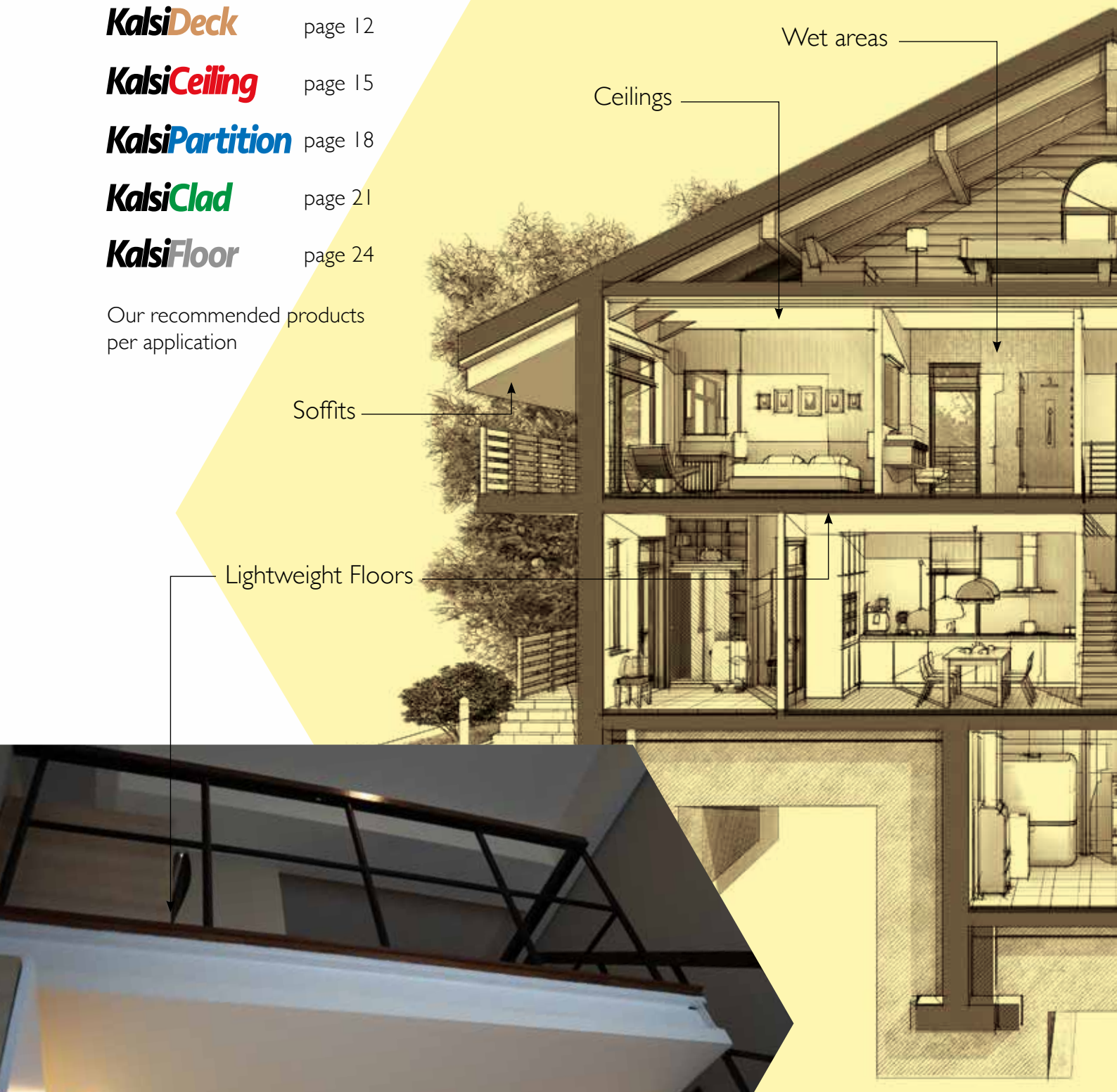
Resistant to water, mold growth, impact and harsh weather conditions, our fibre cement solutions are the best alternative for builders and home owners who are ready to explore creative building solutions and improve their way of living.

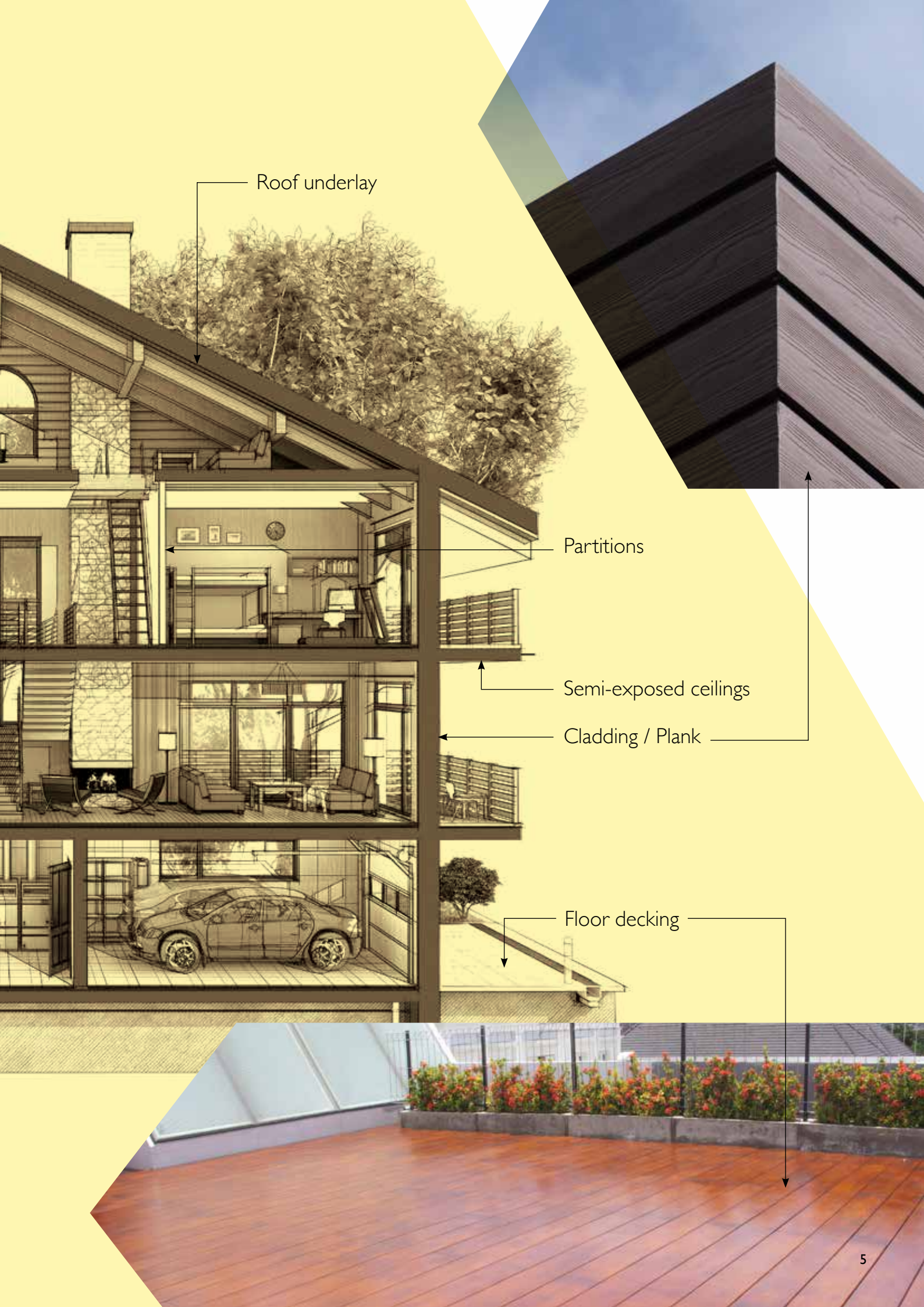
Kalsi boards are the perfect replacement of wood, concrete and masonry in dry construction solutions.



Kalsi

Our recommended products per application




Roof underlay
Partitions
Semi-exposed ceilings
Cladding / Plank
Floor decking

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.

Dry Construction is synonym for efficiency and sustainability.

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.

Kalsi

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 and planks are manufactured in modern production facilities around the Asia Pacific region. The company's factories meet the international benchmarks for quality and environmental impact.

Physical and mechanical properties

	Value	Standard
Dimensional conformity • Thickness • Length • Width • Straightness of edges • 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 Category A (saturated condition) Category C (ambient condition)	 ≥7MPa ≥10MPa	ISO 8336

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 i(1) = 2.1 i(2) = 0.1 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

Note: If certain properties are critical for any particular application, it is advisable to consult the Kalsi Technical Staff for more information.
The properties in above table are mean values provided for informational purposes only.

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

041-081

Taiwan Green Label Certificate

HKGLS Code No. GL-008-011
Certification No. HK02262

Working with certified materials brings peace of mind.

Board Finishes

Surface finishes

Kalsi fibre cement boards are available with different surface finishing to enhance their overall performance, installation process and aesthetic appearance.

Standard:

The standard surface of Kalsi fibre cement boards is smooth and off-white in colour, making it appropriate for typical applications. Extra skim coating for smooth finished is required.

Wood grain:

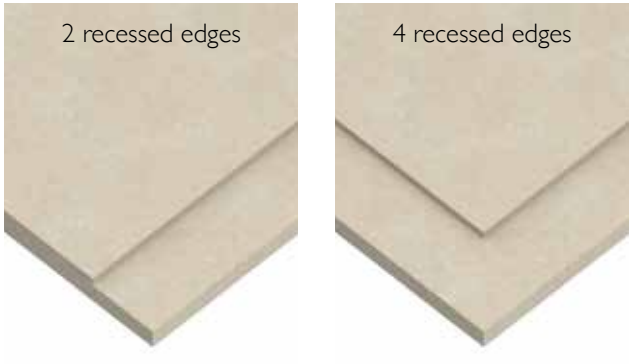
The wooden pattern comes in attractive textures that can be enhanced by a wide range of modern architectural finishes.

Edge finishes

Kalsi fibre cement boards come with squared or recessed edges to achieve expressed or flushed joint solutions.

Square cut:

Standard for board edges which are cut at 90°. Ideal in expressed joint cladding.



Recessed edges:

Boards recessed on two or four edges further complement invisible joint treatment for smooth and levelled finishes of ceilings and partitions.

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 four attractive surface finishes: Smooth, Jati, Meranti and Cedar.

There are two options for installation, Overlapped Siding and Interlocking Siding. Both overlaps the planks differently to give an unique aesthetic view.

Surface 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 KalsiPlank Cedar	7.5	200	3000	6.4
	7.5	200	3600	7.7
	8	200	3000	6.9
	8	200	3600	8.2
	9	300	4000	15.4
KalsiPlank Jati	8	200	3000	6.9
	8	300	3000	10.3
KalsiPlank Senepa	9	250	2440	7.8
	12	250	2440	10.4

Other dimensions available upon request. Weight is based on nominal density plus expected variations due to humidity and other factors.

KalsiPlank Interlocking Siding Dimensions

	Thickness (mm)	Width (mm)	Length (mm)	Weight (kg)
KalsiPlank IL KalsiPlank Jati-IL KalsiPlank Meranti-IL	10	200	3000	8.6

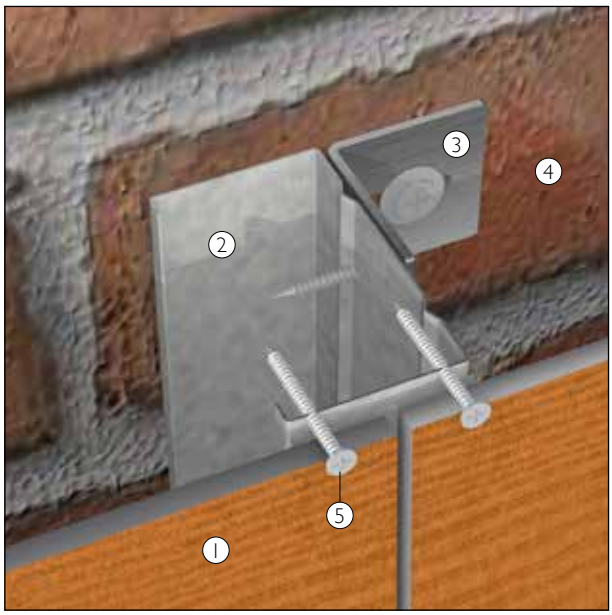
KalsiPlank Interlocking section view

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

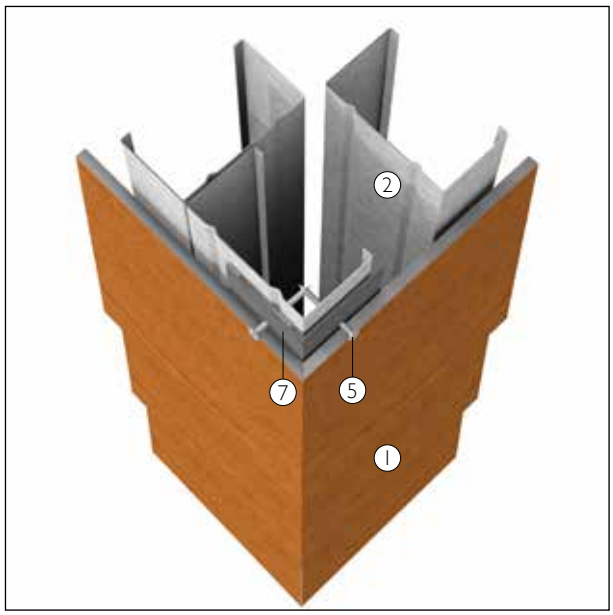
Technical details

"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

Please refer to our website for more technical specifications: www.kalsi-building-solutions.com

KalsiDeck

As a perfect replacement of timber floor decking, KalsiDeck has been designed to combined the best of a natural wood texture in a fibre cement matrix for interior and exterior areas and staircase applications.

KalsiDeck is available in two different designs:

KalsiDeck Meranti

KalsiDeck Meranti-VL

Surface finishes

Meranti

Meranti-VL

BENEFITS

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

KalsiDeck

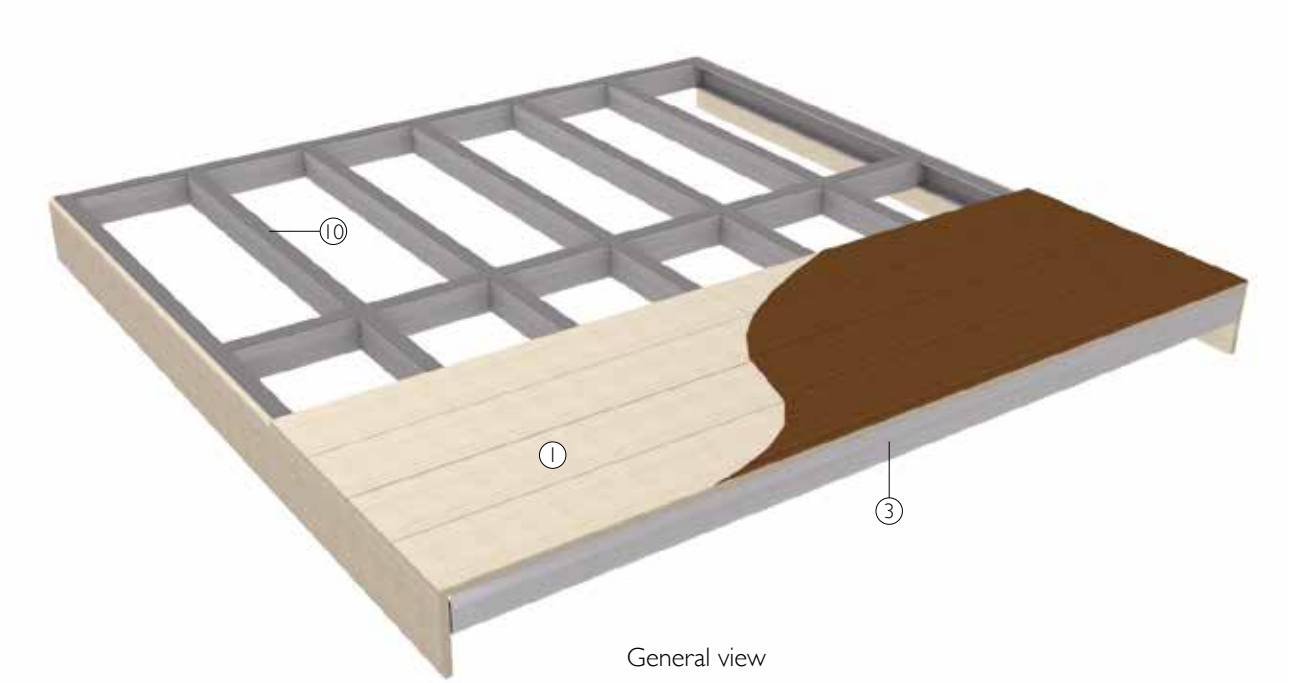
KalsiDeck Standard Dimensions

	Thickness (mm)	Width (mm)	Length (mm)	Weight (kg)
KalsiDeck Meranti KalsiDeck Meranti-VL	20	200	2400	13.7

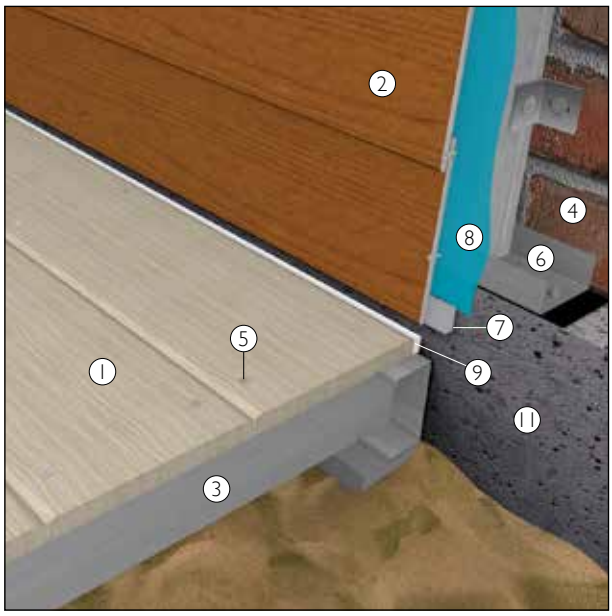
Weight is based on nominal density plus expected variations due to humidity and other factors.

"KalsiDeck is a brilliant solution to get rid of the problems of other decking materials exposed to humid conditions"

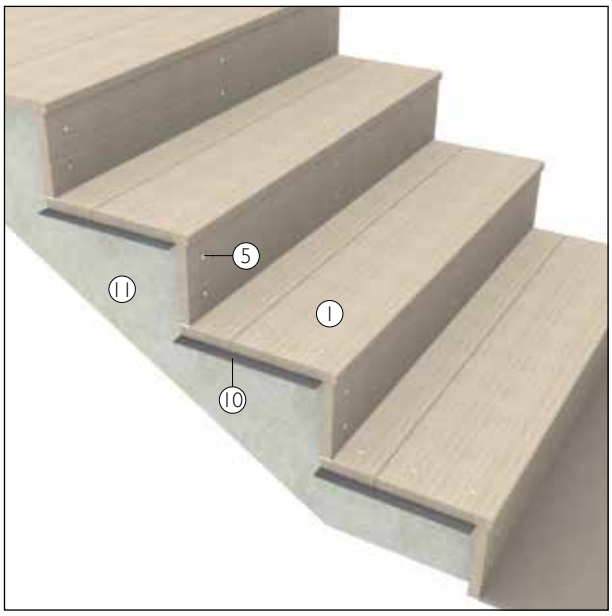
Technical details



General view

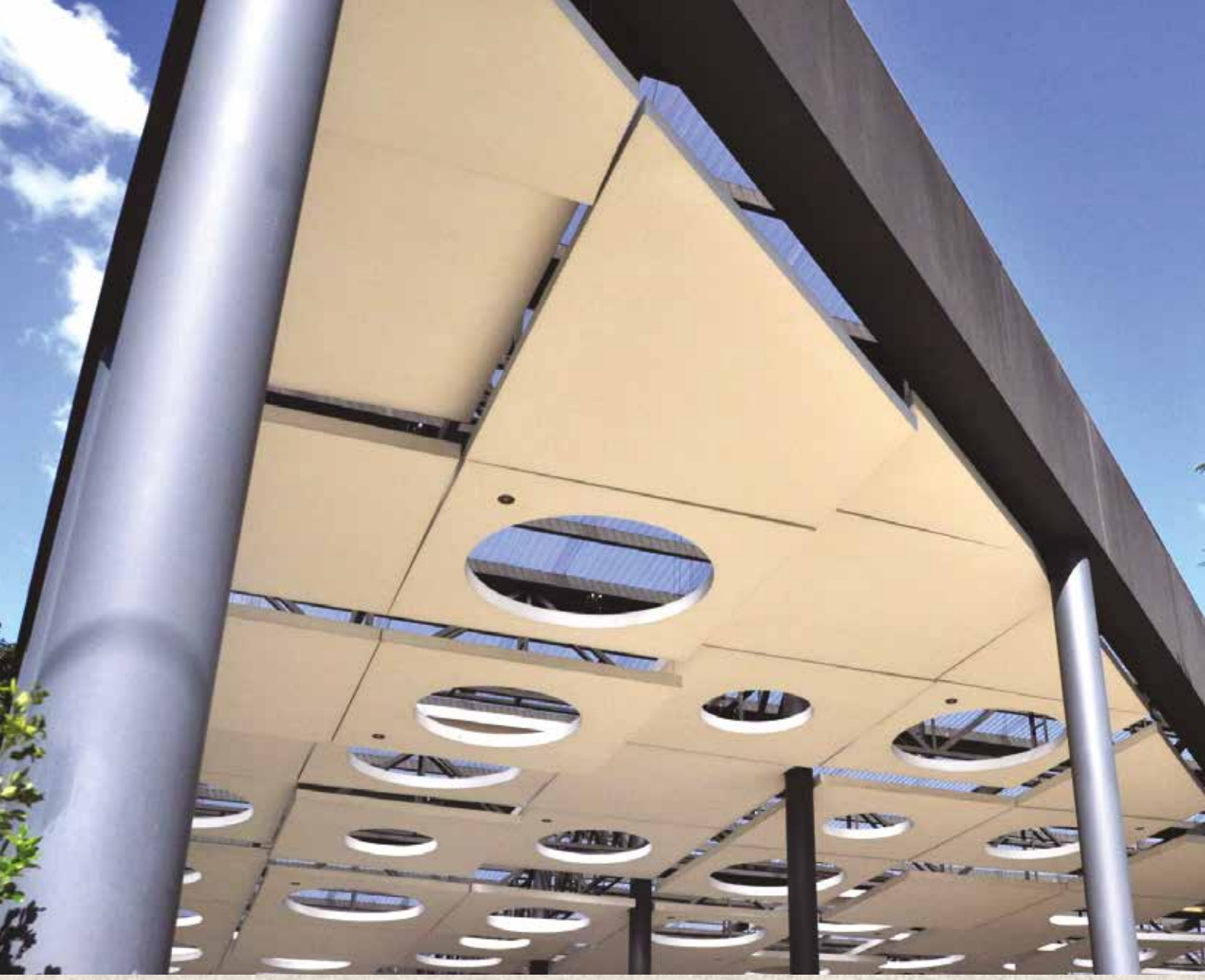


External deck detail



Staircase detail

1. KalsiDeck
2. KalsiPlank
3. Steel framing
4. Masonry
5. Screw
6. Bottom track
7. Starter pack
8. Vapour permeable membrane
9. Polyurethane sealant
10. Rubber/foam absorber
11. Concrete floor



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 thicknesses of 3.2mm, 3.5mm, 4.5mm and 6mm. It should be nailed to timber frame or screwed to steel frame. After installation, joints between sheets may remain open or can be covered using wooden or metal joiners. Alternatively joints can be flushed by applying KalsiJoint Compound or other compatible product.

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.

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 semi-exterior use
- High mechanical strength

KalsiCeiling

KalsiLing Standard Dimensions

Thickness (mm)	Width (mm)	Length (mm)	Weight per m^2 of sheet (kg/m^2)
3.2	603	1213	4.54
	1220	1220	
3.5	603	1213	4.97
	1220	1220	
	1200	2400	
	1220	2440	

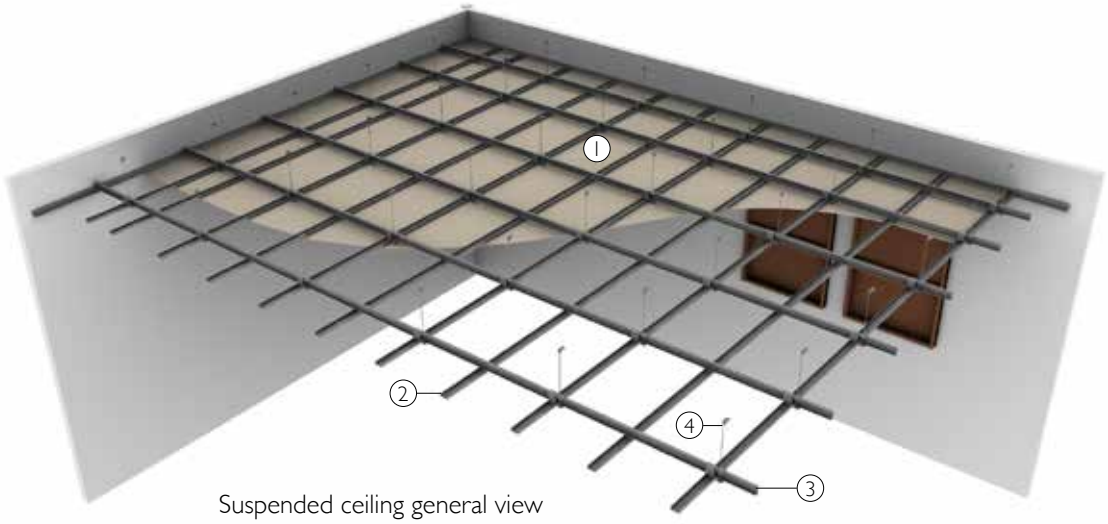
Thickness (mm)	Width (mm)	Length (mm)	Weight per m^2 of sheet (kg/m^2)
4.5	1220	1220	6.39
	1200	2400	
	1220	2440	
6	1200	2400	8.52
	1220	2440	
	1200	2700	
	1200	3000	

Other dimensions available upon request. Weight is based on nominal density plus expected variations due to humidity and other factors.

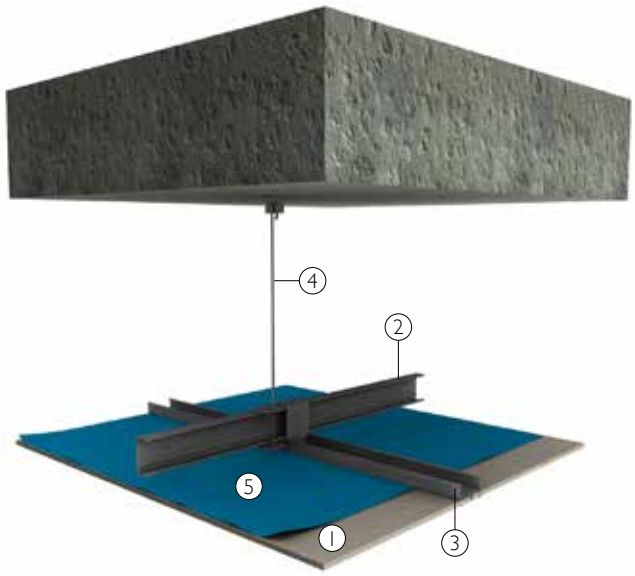
KalsiCeiling

Technical details

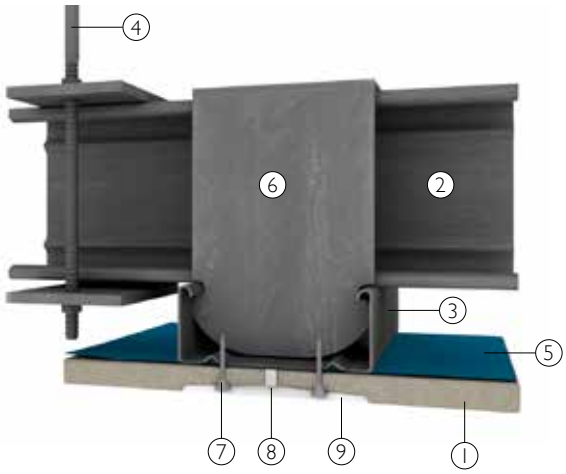
KalsiCeiling is ideal for interior and exterior ceiling applications exposed to high humidity conditions."



Suspended ceiling general view



Suspended ceiling structure assemble



Joint detail

1. KalsiCeiling
2. Primary profile
3. Secondary profile
4. Suspension rod/wire
5. Vapour membrane/barrier
6. Fixing hooks
7. Drywall screw
8. 50mm fibreglass mesh tape
9. Multipurpose joint compound

Note: Kindly follow our recommendations on board storage and handling to avoid damaging the product prior to the installation.

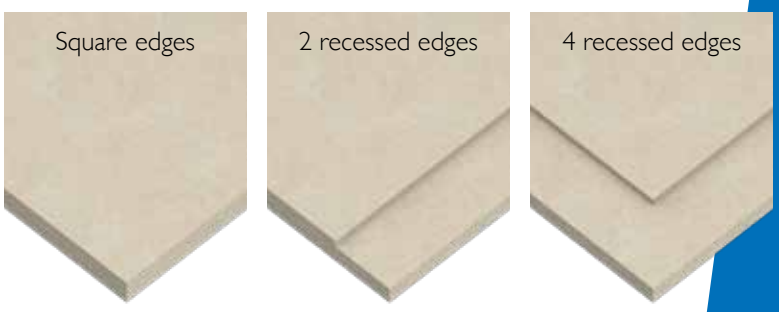
KalsiPartition

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.

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

KalsiPart Standard Dimensions

Thickness (mm)	Width (mm)	Length (mm)	Weight per m^2 of sheet (kg/m^2)
8	1200	2400	11.36
	1220	2440	
	1200	2700	
	1200	3000	
9	1200	2400	12.78
	1220	2440	
	1200	2700	
	1200	3000	

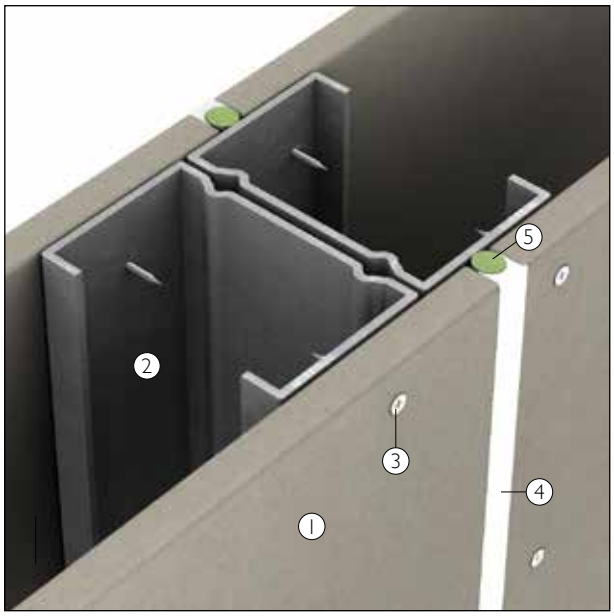
Other dimensions available upon request. Weight is based on nominal density plus expected variations due to humidity and other factors.

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

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 expressed or flushed joint*.

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

** Please consult the Kalsi Technical staff for more infomation.*

Surface finishes

Standard

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

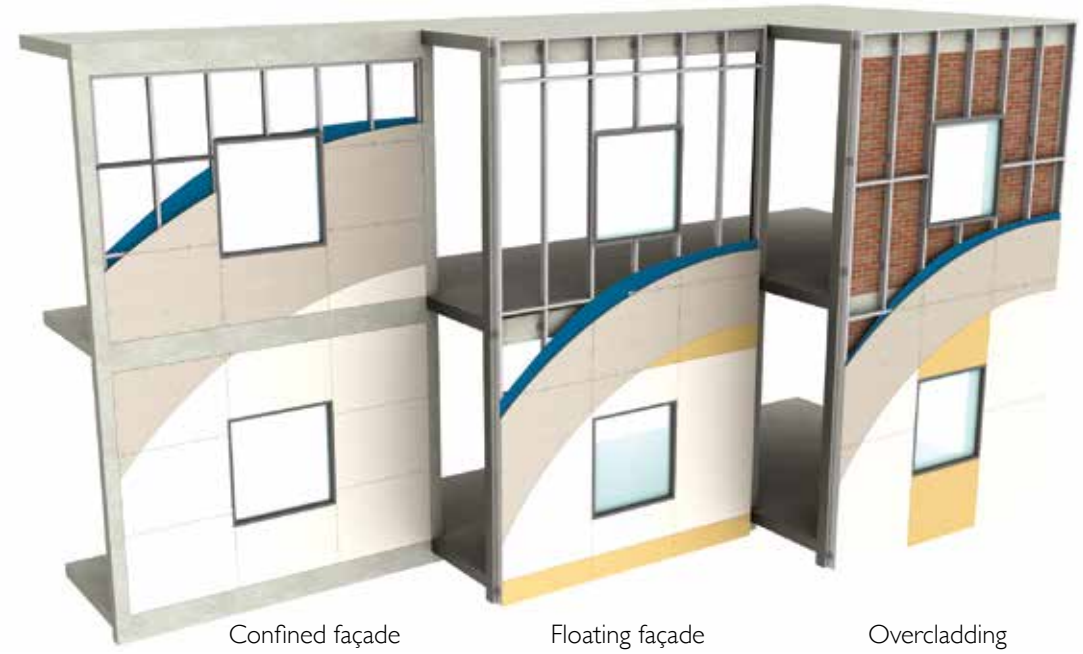
Thickness (mm)	Width (mm)	Length (mm)	Weight per m^2 of sheet (kg/m^2)
10	1200	2400	14.20
	1220	2440	
12	1200	2400	17.04
	1220	2440	

Other dimensions available upon request. Weight is based on nominal density plus expected variations due to humidity and other factors.

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

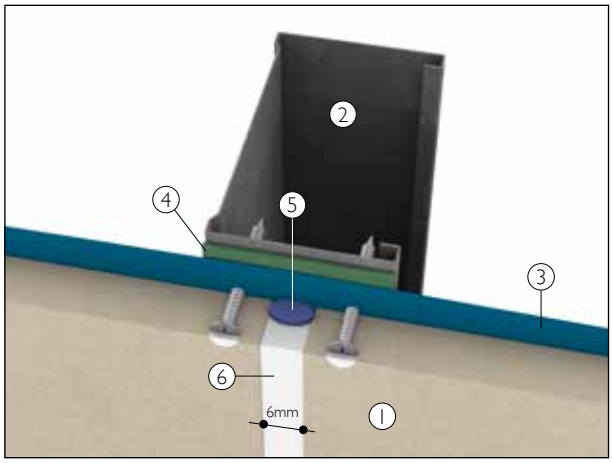
Technical details

Types of facade in dry construction

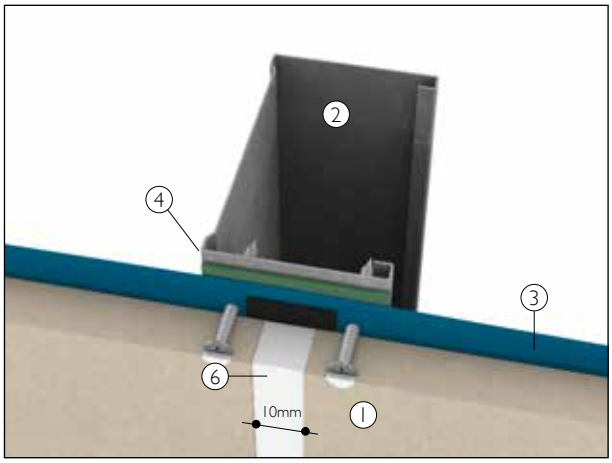


Confined façade | Floating façade | Overcladding (Renovation projects)

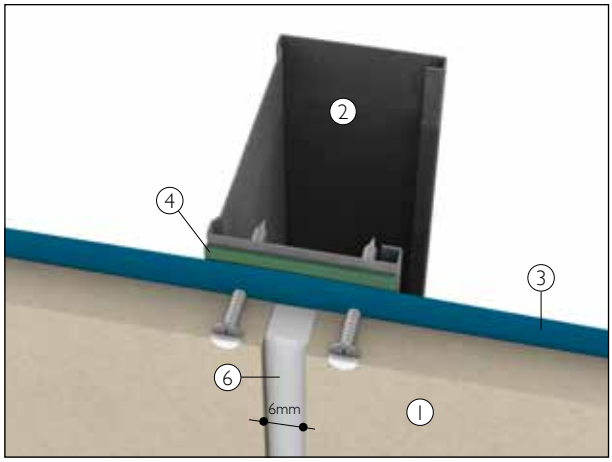
Recommended jointing practices



6mm joint treatment (option A)



10mm joint treatment



6mm joint treatment (option B)

1. KalsiClad
2. Steel stud
3. Vapour membrane/barrier
4. Thermostop*
5. 6mm backer rod
6. Polystyrene filler

* *If required by local building codes and/or local atmospheric conditions*

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

Edge finishes

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

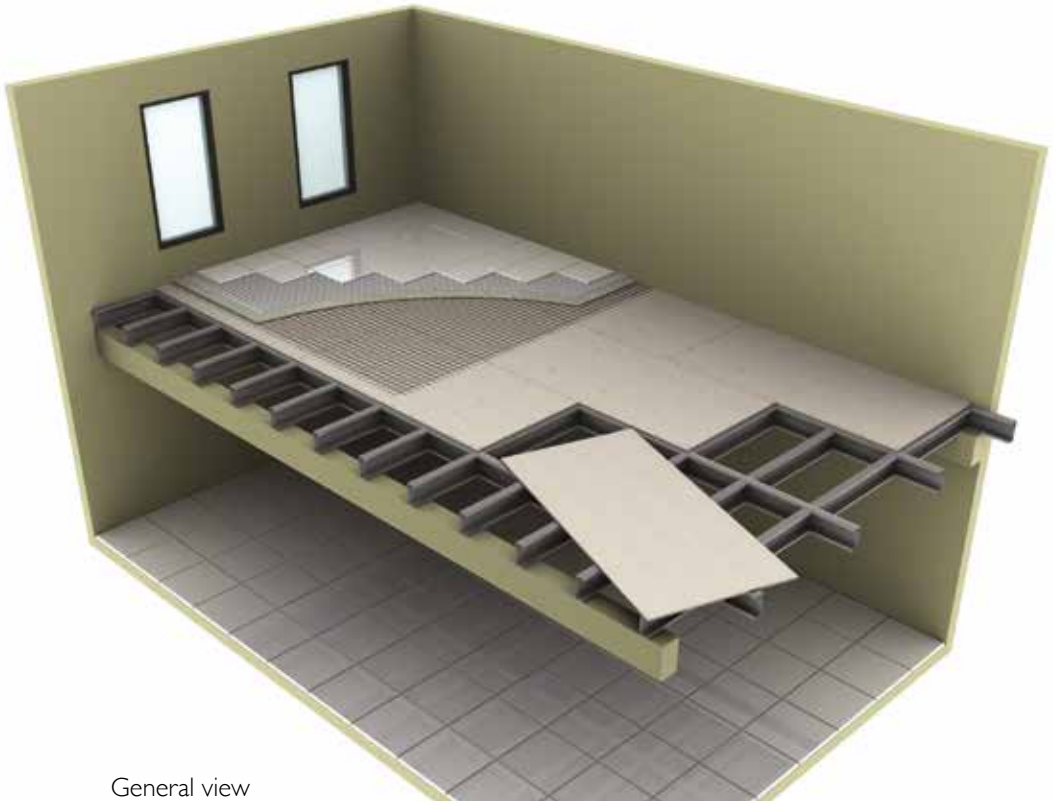
KalsiFloor Standard Dimensions

Thickness (mm)	Width (mm)	Length (mm)	Weight per m^2 of sheet (kg/m^2)
15	1200	2400	21.30
	1220	2440	
18	1200	2400	25.56
	1220	2440	
20	1200	2400	28.40
	1220	2440	

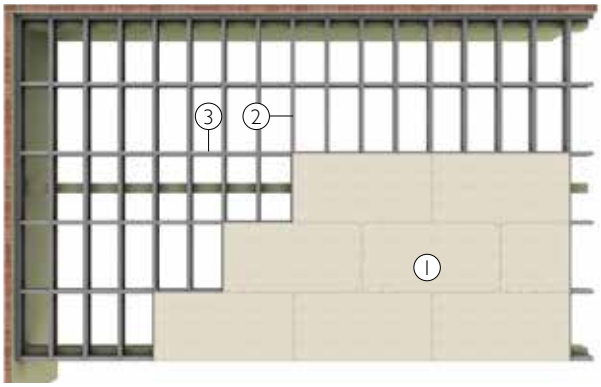
Other dimensions available upon request. Weight is based on nominal density plus expected variations due to humidity and other factors.

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

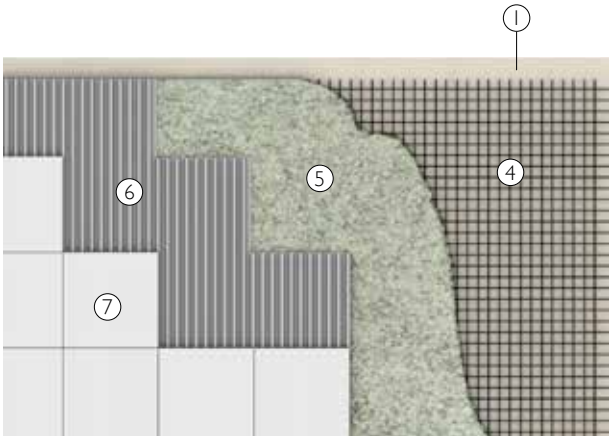
Technical details



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)

System Components

Kalsi fibre cement 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)

Screws
(boards to steel frame)

Steel stud / runner

Mesh tape
(2" fibreglass)

Steel channel

Backer rod

Clip
(for ceilings, where available)

PU Sealant

KalsiJoint compound

Mineral wool

Kalsi
Advanced Fibre Cement

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.)

PT. Etex Building Performance Indonesia

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