

WeatherKem®

Calcium Silicate Fibre Cement Board

Installation Guide

A1 Non-combustible Category A general-purpose fibre cement building board suitable for many internal and external applications, including:

APPLICATIONS

Interior Applications

- Kitchens and wet-rooms
- Splash backs
- Bathrooms
- Shower and bath enclosures
- Steam-rooms and saunas
- Swimming pool ceiling and wall linings

Exterior Applications

- Timber and Steel frame system lining board
- Render carrier board (approved for use as a render carrier board by Wetherby Building Systems and K-Rend)
- External Wall Insulation carrier board
- Temporary hoardings
- Fascia and Soffits

Kemwell and Wetherby Building Systems Ltd. collaborate on many projects, using WeatherKem as the sheathing board within the Wetherby external wall systems with Wetherby render on the outside.

Wetherby used WeatherKem as part of their full through wall system in a fire test to achieve EI120 in both directions, along with Frameclad steel framing and stone wool insulation with Wetherby render on the outside. For further details of this and other fire rated external wall systems, please contact the Kemwell Technical Department or Wetherby Technical Department.

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INSTALLATION GUIDE

All timber and steel framing should comply with all national building regulation requirements and be designed to provide support with a maximum allowable deflection of L/360 under all intended live (including wind) and dead loads.



Note: Cut or score Kemwell WeatherKem® on rear/rough face. Snap by pressing over straight edge. When cutting with a skill saw it is recommended to use a Stehle 250mm x 60T Circular Saw Blade for best results.

Walls and Ceilings

Wall Framing: Timber and metal studs should be at a maximum of 600mm centres. For taller buildings please contact the Kemwell Facades Technical Department.

Ceiling Framing

The deflection of the complete ceiling assembly due to dead load (including insulation, Kemwell WeatherKem®, bonding material and facing material) should not exceed L/360. The dead load applied to the ceiling frame should not exceed 0.4788kN/m². Ceiling joist or furring channel should not exceed 600mm centres for 12mm board and 400mm centres for 9mm board, with all edges of WeatherKem® parallel to framing continuously supported.

For fire rated ceiling linings please consult the Kemwell Facades Technical Department.

Control Joints

For external installations, allow a maximum of 6.0m between control joints. Consult finish manufacturer for other requirements. A control joint must be installed but not limited to the following locations: where movement/expansion joints occur in the framing or building (discontinue all cross-furring members located behind joint); when boards abut dissimilar materials; where framing material changes; at changes of building shape or structural system; at each storey separation. Place control joints at corners of window and door openings or follow specifications of architect.

Weatherproofing

While WeatherKem® is unaffected by moisture, a moisture resistant barrier and/or vapour barrier should be installed to protect the cavity and the integrity of the weather-proofing of the building. The requirement for this, along with the type and specific placement or location of such barrier will vary based on building type and performance requirements as specified by the architect and/or insulation and/or render manufacturers' warranties.

WeatherKem® Fibre Cement Board: Fix WeatherKem® with long and short edges jointed to leave a 3mm gap. Install as stretcher-bond brick pattern in successive courses. Fixings should be made into the field of WeatherKem® fibre cement board first, working toward ends and edges. Fixings should be at maximum 300mm centres for walls and maximum 200mm centres for ceilings with perimeter fixings 12-15mm from board edges and 50mm from board corners.

Joint Treatment

Fire Sealing and Airtightness

For fire rated external walls formed using WeatherKem®, KemStop FR Flexi Sealant must be applied to fill the board joints and gaps between each panel and with the surrounding construction. In addition to the sealant, Kemwell Ampacoll Flexx self-adhesive tape can be installed over the joint to provide airtightness. This is not necessary unless airtightness is required.

The same process (depending on the projects requirements) must also be used at corners, window opes, control joints, trims or other accessories. A further application of the

KemStop FR Flexi Sealant can be feathered over fixings heads to fully conceal if necessary. This is not necessary for the tested fire performance of the wall.

Timber frame

Facing: 12mm Kemwell WeatherKem® fibre cement board.
Framing: 90mm x 40mm timber studs at maximum 600mm centres. External lining: 2400mm x 1200mm x 12mm Kemwell WeatherKem®, jointed with a 3mm gap and fixed with 50mm long, 3.35mm diameter nails at 150mm centres around the perimeter and 300mm centres on intermediate studs.

Steel frame

Facing: 12mm Kemwell WeatherKem® fibre cement board.
Framing: Steel studs at 600mm maximum centres - size to suit load requirements and location, but nominally 100mm x 50mm or 60mm C section steel studs. External lining: 2400mm x 1200mm x 12mm Kemwell WeatherKem®, jointed with a 3mm gap and fixed with M4 self-tapping, self-drilling screws at 300mm maximum centres.

Decoration:

Kemwell WeatherKem® fibre cement board can be decorated using standard non-oil based coatings. Ensure fixings are driven below the surface and filled using KemStop FR Flexi Sealant, smoothed over and allowed to dry prior to application of coating. KemStop FR Flexi Sealant can be used up to 45 minutes prior to rain. This allows the sealant to form a weather proof coating as the seal cures.

Fixing Pull Out Tests

Test equipment and tests performed in accordance with BS 5080-1:1993 and to ETAG 001 where applicable.

Table 1.0

Fixing	Average Pull-out Value (kN)
Ejot TBF 4.8 for 9mm WeatherKem	1.4
Ejot TBF 4.8 for 12mm WeatherKem	1.57

Installation of WeatherKem as a Tile Backer Board for Floors and Walls

Timber or steel framing members should be spaced at maximum 600mm centres, with 12mm thick WeatherKem® fixed using corrosion resistant M4 screws at maximum 200mm centres. Fixings should be 12mm from the board edges and 30mm from board corners.

Use a suitable adhesive to support the particular tile being used. Please contact the tile manufacturer for recommended tile adhesive.

All edges of WeatherKem® should be continuously supported. Please contact the Kemwell Technical Department for advice relating to the application of heavier tiles or fixing tiles at increased heights above finished floor level (above 3m).

WeatherKem® is pre-sealed so no further sealing is required prior to application of adhesive.

Ensure account is taken for possible movement and allow joints to cope with this as necessary. KemStop FR Flexi Sealant should be used to fill such joints.

In floor applications, WeatherKem® is not a load bearing board, so must be fully supported, and all joints should be reinforced as per the description above.

Please view our FAQs sheet on our website:

www.kemwell-facades.com



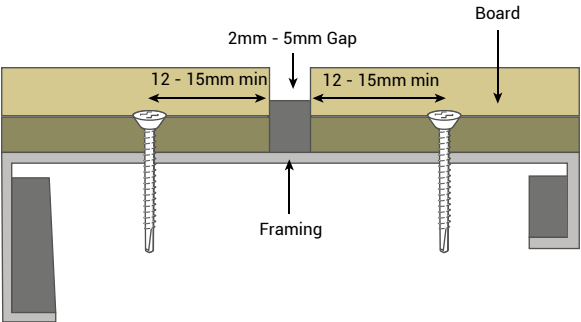
GENERAL FIXING GUIDE

FIXINGS

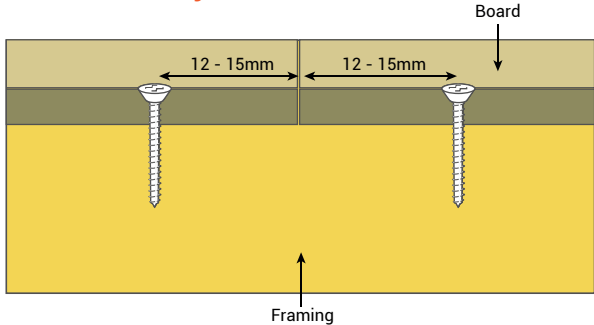
The fixing pattern indicated below is based on studs at 600mm centres and screw fixings at 300mm centres.

The final layout and pattern of fixings depends on the type of fixing being used, the wind loading and other loads to be applied.

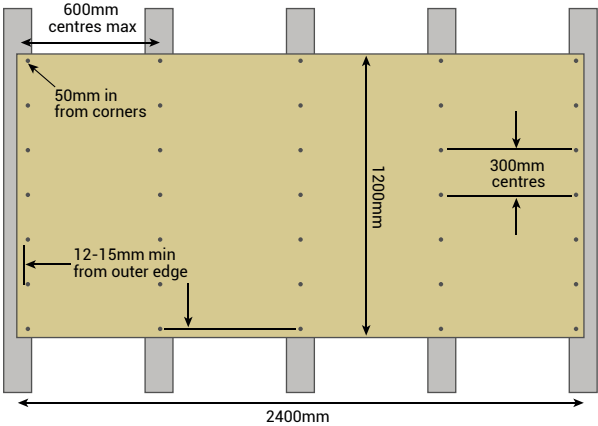
Exposed Joints



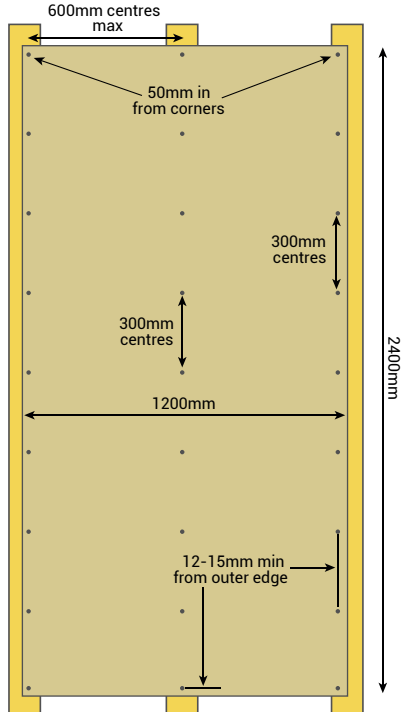
Internal Dry Areas



Board Fixing Horizontally



Board Fixing Vertically



Recommended for fixing 9 or 12mm WeatherKem to SFS framing.

Ejoyt TBF 4.8

Kemwell Non-Combustible Joint Seal Kit



APPLICATIONS

- Airtightness seal on sheathing boards
- Taping
- Outdoor use

FEATURES

- Provides a reliable airtight seal
- Easy to apply

KIT CONTENTS

Each kit will provide 100 linear metres.

- 10 tubes of Kemwell KemStop FR Flexi Sealant (coverage of 3mm x 10mm = 1 tube provides 10 linear metres)
- 3 rolls of 40m long x 60mm wide, Kemwell Ampacoll Flexx Acrylic Adhesive Tape (covers 120 linear metres)

The Kemwell Non-Combustible Joint Seal Kit provides the solution to the requirement on many commercial and residential projects to increase the overall airtightness of the Building to improve thermal and acoustic performance.

Building facades are subjected to a range of external elements such as rainwater, moisture, UV and humidity.

Therefore, the waterproofing system used for the façade needs to be durable to withstand these conditions. Additionally, the façade waterproofing system needs to be long-lasting and should require minimum maintenance.

The Joint Seal Kit has been specifically designed to create an airtightness seal on Kemwell range of external sheathing boards and to meet the above criteria.

It is ideal for use on-site by dry lining and cladding contractors.

Order code ref. **JOINT KIT**

Kemwell KemStop FR Flexi Sealant



- High-end formula, certified Worldwide
- Classified for fire sealing all types of constructions and building service penetrations
- Very high sound insulation
- Low emissions - environmentally and user-friendly
- Simple to apply with a smooth surface finish
- Permanently flexible – movement capability up to 12.5%
- No priming necessary for application to most materials
- Suitable for most surfaces, included concrete, masonry, steel, gypsum, glass, plastics and most non-porous surfaces
- Hardens quickly, tack-free after 1 hour
- 18 months storage time (under correct conditions)
- 30 years' working life

Kemwell Ampacoll® Flexx Acrylic Adhesive Tape



- Carrier flexible lengthwise and crosswise
- Two applications: Sealing of overlaps and penetrations of overlaps and penetrations
- Maximum adhesive power at temperatures from as low as -5° C
- Serrated - easy to tear off by hand
- Soft and adaptable; absorbs component movements

Area of application: Tear-resistant but at the same time flexible system adhesive tape for indoor and outdoor use. Ideal for airtight and windproof sealing of overlaps, board joints and penetrations. Suitable for roofing applications and in timber construction.

TECHNICAL DATA

Storage Conditions	Cool and dry
Application Temperature	Above -5° C
Temperature Resistance	-40 to + 100° C
Resistance to Ageing	> 20 years (under covering)
Natural Weathering Period	4 months (without mechanical stress)

JOINT SEAL KIT INSTALLATION

Apply a layer of Kemwell **KemStop** FR Flexi Sealant along the joint gap between the boards. Then leave until fully dry.

Afterwards apply Kemwell Ampacoll® Flexx Acrylic Adhesive Tape centrally over the board joint, avoiding forming trapped air bubbles or creases / kinks.

Further information on best practice application of the tape, please refer to the details on the next page.

Kemwell Ampacoll® FlexxTape

Application Tips for Tape

The surfaces to be bonded must be clean, dry and free of dust and grease.

The ambient temperature, the surface temperature and the temperature of the adhesive tape must correspond to the indicated processing temperature.

Installed membranes should be stress-free and even.

The adhesive tape must be applied following the uneven surface of the substrate and pressed on firmly.

Kemwell Ampacoll® Flexx adheres immediately to the substrate and is largely insensitive to normal weather conditions for four months. Mechanical loads caused by objects being dragged around, intensive walking or similar must be avoided.



For Ventilated Rainscreen cavities
Please ask for details of the Kemwell Firebreather Instant Fire Stop Cavity Barrier.

KemStop FR Flexi Sealant used in conjunction with Kemwell Ampacoll XT 60 providing an airtight and weathertight seal at all joints

WeatherKem sheathing board fixed to SFS framing

Rainscreen cladding brackets fixed through to structural frame

Internal Plasterboard Lining

Steel frame system

Vapour control layer

Kemwell Isovent-M façades insulation tightly fitted between SFS studs

Rainscreen decorative cladding panels

Kemwell Isovent-M stone mineral wool insulation lining to outside face of Kemwell WeatherKem® sheathing board

Fixing brackets with thermal break pads

Vertical fixing rails

TECHNICAL DATA SHEET

MECHANICAL AND PHYSICAL PROPERTIES

Properties	Units	Standards	Value
Nominal Weight (for 12mm board)	Kg/m ²	ISO 8336: 2017	15.2 kg/m ²
Nominal Density (dry)	Kg/m ³	ISO 8336: 2017	1200 Kg/m ³

MECHANICAL CHARACTERISTICS

Properties	Units	Standards	Min. Req.	Test Value
Minimum Modules of Rupture (EMC)	Mpa or N/mm ²	ISO 8336	10	11.5
Minimum Modules of Rupture (WET)	Mpa or N/mm ²	ISO 8336	7	8
Impact Strength (Charpy Method)	KJ/m ²	ATSM D 256		>11.5
Amina Bonding Strength	Mpa or N/mm ²	ATSM D 1037		1
Screw Withdrawal Strength	kN	BS 5080-1: 1993 + ETAG001 + 014		0-83

ADDITIONAL CHARACTERISTICS

Properties	Units	Standards	Min. Req.	Test Value
Thermal Conductivity at 50oC (Mean Temperature)	W/m/K	ASTM 518		0.19
Linear Coefficient of Thermal Expansion	mm/mm/°C	ASTM C 696		7.5 X 10 ⁻⁶
PH Value				
Acoustic Insulation	dB	BS 2750		26 dB (6mm)
Moisture Content (at EMC)	%			<15
Water Absorption (Equilibrium to Saturation)	%			<25
Moisture Movement	%			0.026

FIRE PERFORMANCE

Properties	Results
Reaction to fire	Non-combustible as per BS476 Part 4: 1970 BS EN 150 1716 BS EN 150 1182
Ignitability	Class P not easily ignitable as per BS476 Part 5
Fire Propagation Index	0.1
Surface Spread of Flame	Class -1, as per BS476 Part 7
Specific Optical Density of Smoke	<5, ASTM E 662
Fire Rating	A1 Non-combustible EN13501-1: 2007 + A1: 2009