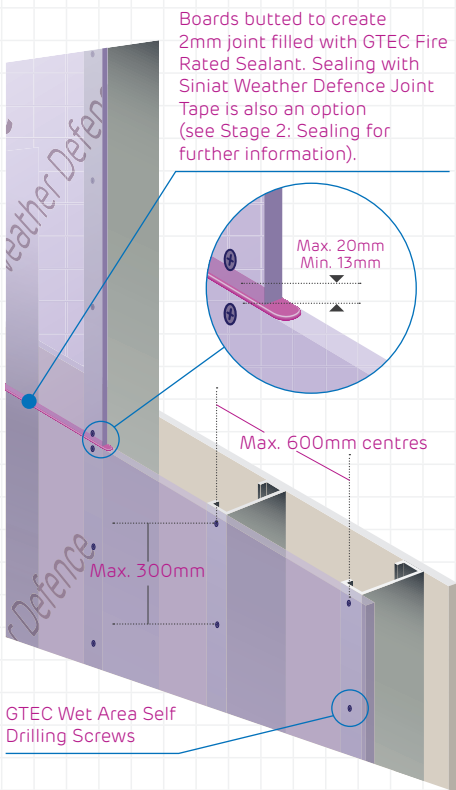


INSTALLATION GUIDE

Stage 1: Fixing Board to Steel Frame*

Install boards horizontally in a staggered 'brick bond' pattern.

Figure 1 Typical board fixing with GTEC Wet Area Self Drilling screws on to steel frame



Boards butted to create 2mm joint filled with GTEC Fire Rated Sealant. Sealing with Sinat Weather Defence Joint Tape is also an option (see Stage 2: Sealing for further information).

Max. 20mm
Min. 13mm

Max. 600mm centres

Max. 300mm

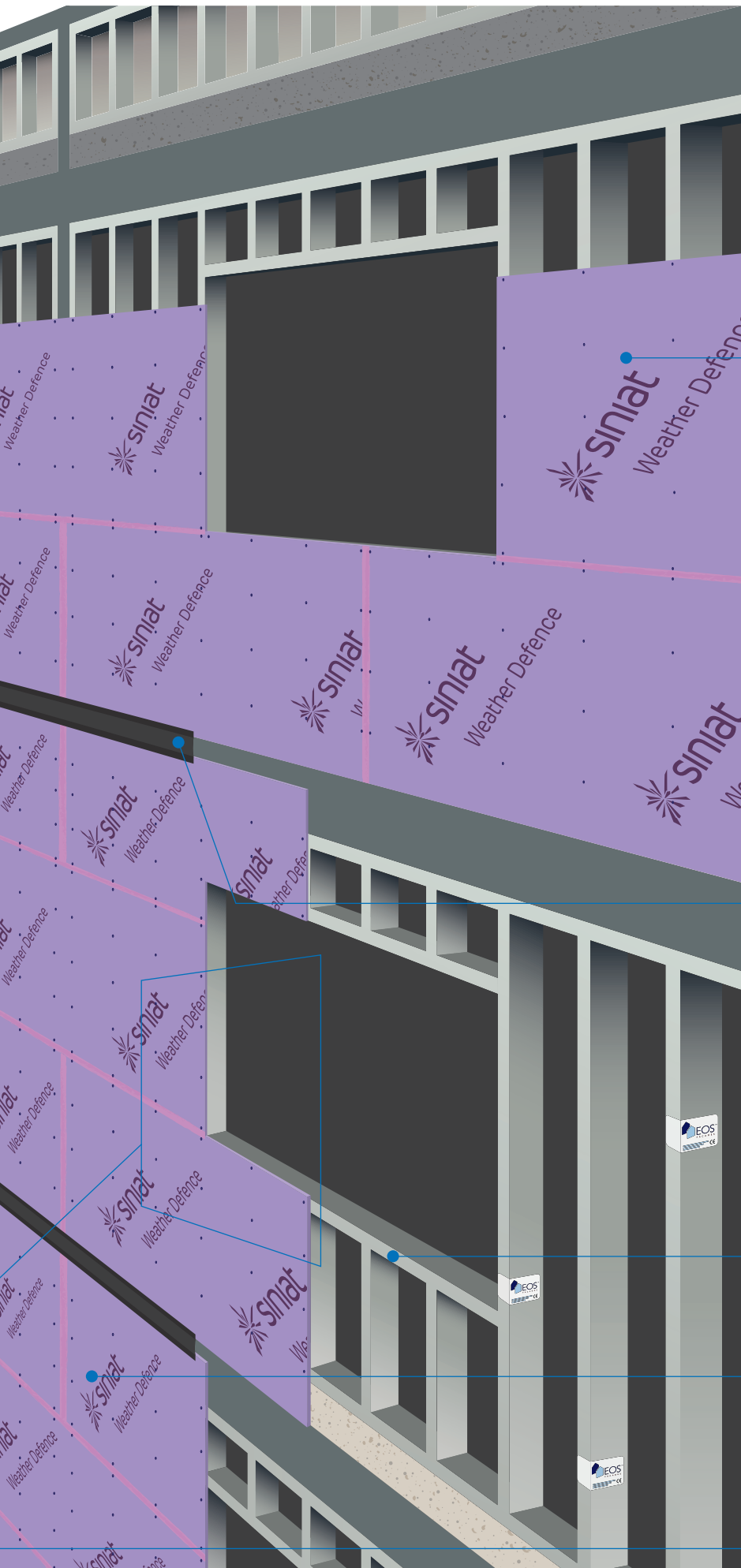
GTEC Wet Area Self Drilling Screws

Locate screws at least 13mm and no more than 20mm from board edges and penetrate at least 10mm into the substrate, see Fig 1, above.

Fix to studs at a maximum 300mm centres (or narrower if required for wind loadings, see Table 1, top right).

Use GTEC Wet Area Self Drilling screws for steel studs or combinations of steel studs up to 3mm thick (total).

Please note: Accommodation of frame and board movement (thermal, hygroscopic or structural) must be considered in fixing the board to frame.



Do not fix to frames where stud centres exceed 600mm.

Higher wind loadings may require fixings at closer centres than 300mm and/or studs at closer centres than, 600mm, see Table 1, below.

Table 1 Characteristic wind load resistance

STUD CENTRES (MM)	SCREW CENTRES (MM)	CHARACTERISTIC WIND LOAD (kN/M ²)
600	300	1.275
600	200	1.915
400	300	2.71
400	250	3.25
400	200	4.06
400	150	5.15

Appropriate cold-applied sealing methods such as butyl tapes or EPDM, by others, should be used to seal deflection or movement joints created in the board layer.

Where metal build up exceeds 3mm contact Promat Technical Services for fixing specification.

Boards can be fixed to the stud frame where the fastener passes through an intermediate material (e.g. a membrane, batten or cavity rail).

Separate board from areas where water may pool (e.g. damp proof membranes, cavity trays) by at least 5mm. Board should be installed above dpc and 150mm above ground level.

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Stage 1B: Curving Weather Defence

- SFS stud centres up to maximum 400mm centres for a curve radius no tighter than 4m
- Fix flat plate or noggin to studs corresponding with all horizontal board joints
- Fit Weather Defence board horizontally across studs and install in a 'brick bond' pattern
- Fix using Siniat GTEC Wet Area Self Drilling screws at maximum 300mm centres
- Fire Rated Sealant or Weather Defence Joint Tape used to seal joints, see opposite

Stage 2: Sealing

Which sealing option:

- Sealant alone may be acceptable where the finishing facade cladding have been tested to AS 4284 and proven to meet the performance requirements of the BCA. Where Weather Defence is to be used as the primary weather barrier, Siniat Weather Defence Tape must be incorporated.
- For fire resistance: use GTEC Fire Rated Sealant where fire resistance is required.
- Siniat Weather Defence Joint Tape may be used where no fire resistance or acoustic insulation is required.

Applying sealant:

- Apply sealant as boarding progresses, along the previously fixed board edge prior to installation of the next board
- Apply sufficient sealant to create a sealant joint of approx. 2mm when the next board is loosely butted
- Any gaps in the sealant should

be filled with additional sealant

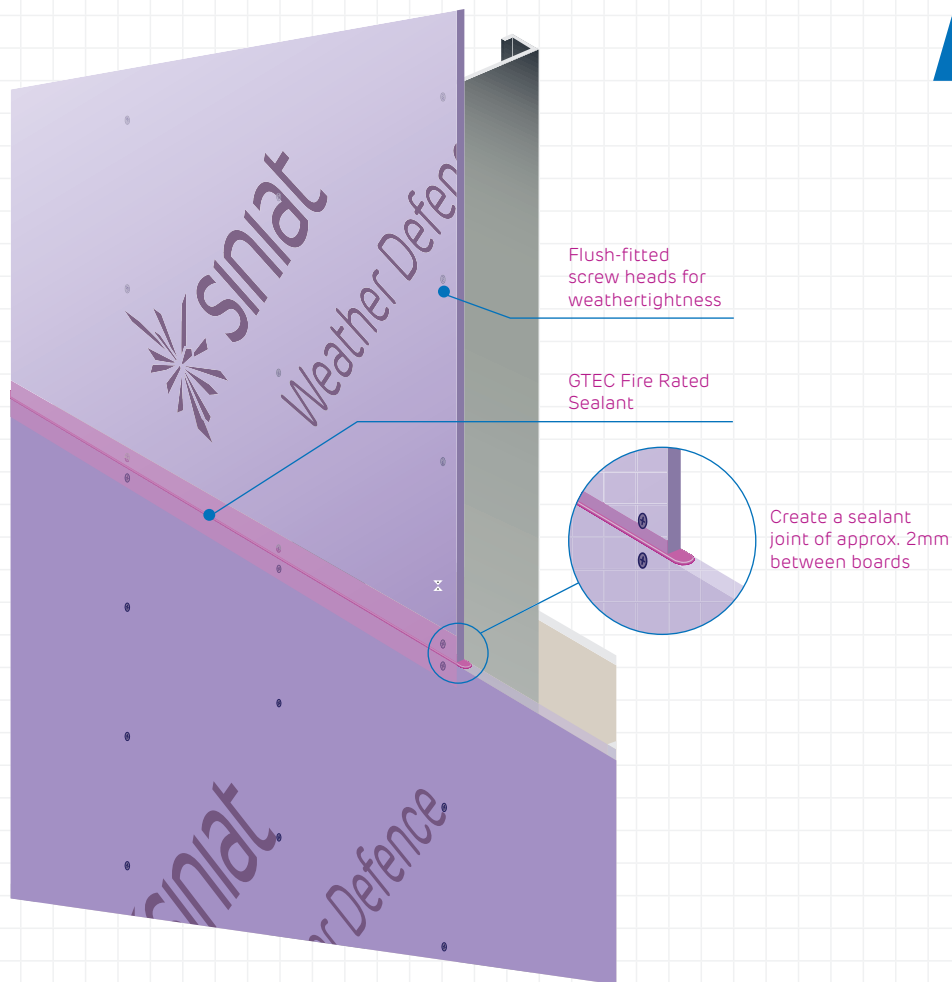
- Flush-fitted screw heads are weathertight. Sealing with a dab of sealant will prevent issues where a screw is not perfectly flat
- Multiple attempts to fix a screw may create holes, inspect for holes carefully and seal
- Where watertightness is critical, we recommend detailed inspection and hose testing
- Only use cold applied waterproofing materials
- Appropriate cold-applied sealing methods such as butyl tapes or EPDM, by others should be used to seal deflection or movement joints created in the board layer
- Sealing methods and associated

details should accommodate all expected movement and satisfy the need for acoustic, fire, weather, or other performance requirement expected from the Weather Defence sheathing layer

- Additional layers of boards or rock mineral wool may be required to maintain fire resistance at movement joints and in cavities

Table 2 Sealing capability

Joint sealing method	LEVEL OF SEALING REQUIRED			
	Air	Rain	Acoustic	Fire
GTEC Fire Rated Sealant	●		●	●
Siniat Weather Defence Joint Tape	●	●		



Applying Weather Defence Joint Tape:

- Tape system is limited to an exposure period of no longer than 6 months
- Tape may be applied at any time within the twelve months exposure period following installation providing that limited water penetration through unsealed joints is acceptable
- The Weather Defence board surface should be generally clean, dry and free of oil, dust and other particles or chemicals that could cause poor adhesion – significant contamination may impair adhesion
- No gap is required between boards when sealing with tape, lightly butting the boards will usually create a 0–0.5mm gaps which is more than sufficient to allow expansion
- Peel backing paper from the tape as the operation progresses
- Apply with joint running along the centre of the tape – this will usually cover screw fixings
- Apply without wrinkles or excessive tension in the tape. Firmly press, and smooth against Weather Defence board. Running over the tape with the applicator paddle to ensure adhesion
- Minimise the number of pieces of tape used to reduce risk of gaps. Overlap tapes by minimum of 50mm where multiple pieces have to be used. Ensure overlaps are pressed firmly against board and fully sealed
- Seal horizontal joints first and run tapes for vertical joints over the top of the horizontal band of tape
- Patch tapes with additional 150mm pieces perpendicular to the original tape, rather than removing strips from the Weather Defence board and risking damage to the substrate
- Where high levels of rain tightness are required it is advised to use a hose test to identify holes or gaps
- Tape may be applied between 5°C and 40°C. Installation may proceed at temperatures as low as -10°C and damp conditions if grab/tack is sufficient. Primers may be required to increase adhesion in severe conditions, contact Technical Services for more information

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Stage 3: Board Inspection

We advise you to inspect the Weather Defence boards for any damage prior to closing off the sheathing layer (e.g. with insulation or other cladding) and after extreme weather.

Pay particular attention to:

- Any facer delamination/ removal greater than 5mm
- Any degradation of the board core greater than 2mm deep, which may occur in the lower portion of the board if it has inadvertently been immersed in water
- Any significant dents, scrapes or tears which have occurred during construction
- Holes through the board caused by repeated attempts to screw fix, all holes must be sealed (see previous section – Sealing)

How to deal with damage:

- Small areas of damage, up to 15mm x 15mm and maximum 3mm deep, may be patched using Siniat Fire Rated Sealant or Siniat Weather Defence Joint Tape
- An area larger or if the board has been perforated by damage must be replaced. Additional metal noggins or straps may be required to support the board

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Stage 4: Insulation Fixing

Cavity and Insulation Rail Fixing:

- Rails or battens may be used with Weather Defence to create cavities for dwellings, or to support insulation; they should be fixed directly to studs
- Intermediate rail fixings, or where the rail cannot be located over a stud, may be made directly into Siniat Weather Defence Boards using appropriate cavity anchors. It may be necessary

to reduce fixing centres from manufacturer's standard recommendation to achieve adequate pull out resistance; this must be determined by the rail system supplier or a qualified engineer



Close-up of board

Insulation Fixing:

- Both dense mineral wool and rigid foam sheet insulation are suitable for use with Weather Defence. *Please see Fire section on page 23 of this document for additional guidance on insulation*
- The number and type of insulation fixings should be determined by a wind loading assessment which should be carried out by an appropriately qualified engineer. This will provide the maximum positive and negative load per square metre to be resisted
- Resistance to the maximum load is not always required in all locations on the building e.g. sheltered façades may be subject to much lower wind forces, whereas at corners the magnitude increases
- Insulation may be fixed using mechanical or adhesive methods

Adhesive Fixing:

- Using adhesive fixing typically provides a pull-off resistance many times greater than wind load
- Adhesive fixing also limits the bowing of individual insulation boards and prevents small air gaps forming behind the boards
- It is highly recommended as an installation method for fixing insulation to Siniat Weather Defence – always follow adhesive manufacturer’s recommendations and guidance
- Mechanical fixings are required to temporarily support the self-weight of the insulation board and wind loads while the adhesive cures
- It is always recommended to provide temporary retention by fixing through to studs. Where it is impractical to fix to studs, it is possible to temporarily retain insulation

directly fixed to the board using appropriate fixings – a minimum of five fixings per square metre is required



Weather Defence Joint Tape being applied

Mechanical Fixing:

- The required number of insulation fixings depends on the magnitude of the wind loading per square metre to be resisted
- Historically, the total wind load is divided by a conventional pull-out resistance to give the number of fixings required where each fixing resists an identical load
- Alternatively, insulation fixings into the metal studs, which will typically achieve pull-out of >1.65kN per fixing (Category B in Table 3, overleaf), can be considered to provide the

full resistance to wind loading. This alternative configuration provides an optimised fixing solution

- Suitable additional fixings into the field of the board to limit insulation bowing and support self-weight are recommended (Category A criteria fixings in Table 3, overleaf)
- Figure 3, overleaf, shows typical fixing patterns with fasteners shared between adjoining 1.2 x 0.6 m insulation panels to achieve 1.5 kN/m² wind suction load as an example

- Insulation retention ‘washers’ must be appropriately sized to restrain the insulation without damage and provide the required pull-through resistance
- Additional fixings may be required at jambs, sills or in other areas of frame variation; advice should be sought from the system manufacturer
- When using cavity rails, insulation fasteners should not bridge between rail and board

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Table 3 Insulation fastener categories

Fixing category	Substrate	Minimum load resistance	Purpose of insulation fixing	Examples
Category A	Siniat Weather Defence	0.5 kN (mean ultimate)	Permanently support self-weight and limit deflection/bowing. No wind load	<ul style="list-style-type: none"> • Etanco SK-RB • Spit Isomet CC
Category B	Steel	1.65 kN (mean ultimate)	Permanently support self-weight, limit deflection/bowing and provide wind load resistance	<ul style="list-style-type: none"> • Self-drilling screw fixing, e.g. Ejoyt SW8R

Figure 2 Insulation fixed to studs with typical insulation fixings (Category B in Table 3)

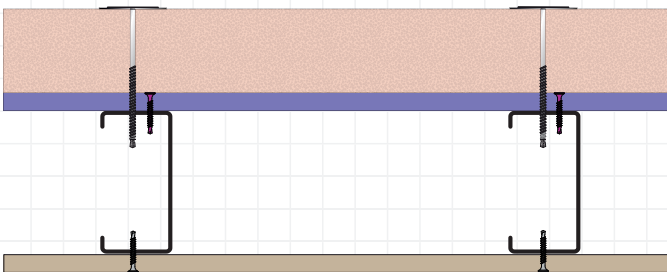
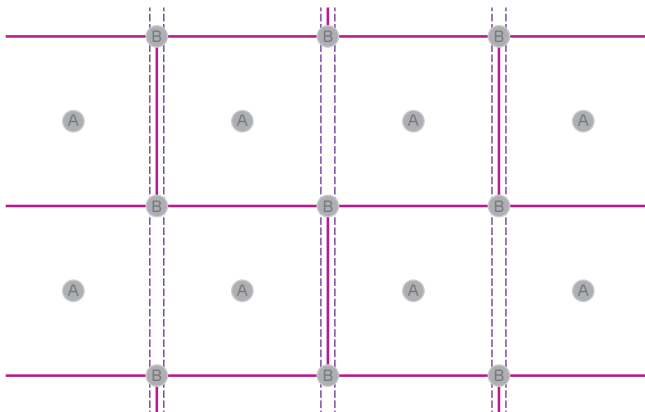


Figure 3 Typical fixing pattern (1.2 x 0.6m insulation board) up to 1.5kN/m² characteristic wind load (See Table 3 for fixing types)



Cladding and Rainscreen Fixing:

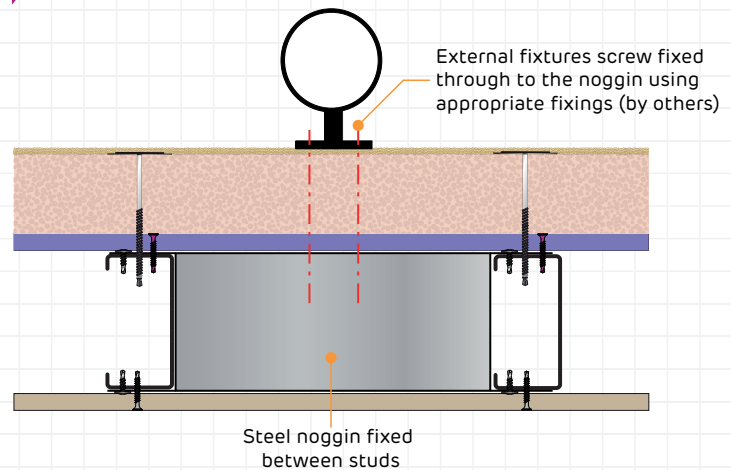
- All cladding loads must be directly supported by the structural frame and not carried by the Siniat Weather Defence Board. Weather Defence may act as an intermediate layer provided the cladding fixings are attached to the frame through the board
- Bearing pressure on Weather Defence from brackets must not exceed 2.5N/mm². Spreader plates will be required in rare instances where this pressure is exceeded

Fixtures:

- Where possible, all fixtures should be fixed back to the frame studs
- Suitable pattresses may be installed into the frame in specific locations to provide fixing capability, e.g. for external lighting or downpipes. Ideally additional metal studs or noggins should be provided for this purpose
- Lightweight fixtures may be fixed directly to Siniat Weather Defence without pattresses using specialist cavity anchors. Generic pull-out data is available from PAPL.mail@etexgroup.com or from fixing suppliers who will conduct testing and fixing selection specific to the site

Figure 4

Lightweight Fixtures attached to Weather Defence



Insulation on Weather Defence