EPB Plasterboard Bracing Supplement

May 2026

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EPB Plasterboard QuickBrace Systems

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Extensive bracing tests have been conducted on Elephant Plasterboard. The bracing ratings published in this document have been obtained by independent testing and opinions sourced from New Zealand organizations with accredited quality assurance.
Detailed in this document are some unique design solutions available to the New Zealand Building Industry to satisfy the bracing requirements of the New Zealand Standard NZS 3604:2011 Timber framed buildings.

This document should be read in conjunction with the EPB Plasterboard QuickBrace Systems Manual.

Panel End Hold downs-Bracing Anchor Brackets

For systems which require panel end hold downs e.g. ES-H, EM-H, any proprietary panel end hold down bracket with a minimum performance of 15kN can be used. E.g. Pryda ® Bracing Anchor or GIB Handibrac ® etc.

Fasteners:

Timber framing: 32mm x 6g High thread Drywall screws

Fastener Brands Allowable

Fortress® , Grabber® or Senco ®. (Other fastener brands need to demonstrate equal or better performance).

Corner Pattern Layout

The Condensed Bracing Corner Pattern is;

50, 50, 50, 50, 50, 50 and thereafter 150 from each corner

This applies to all QuickBrace™ Systems.

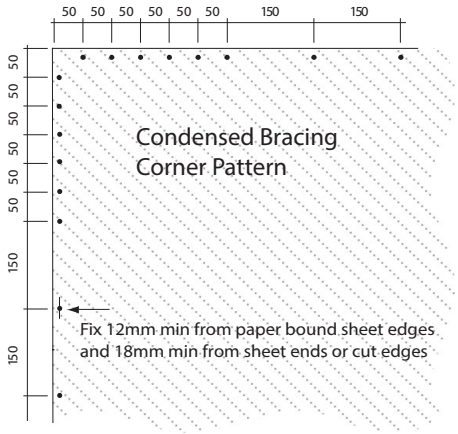
Refer to the Condensed Bracing Corner Pattern below.

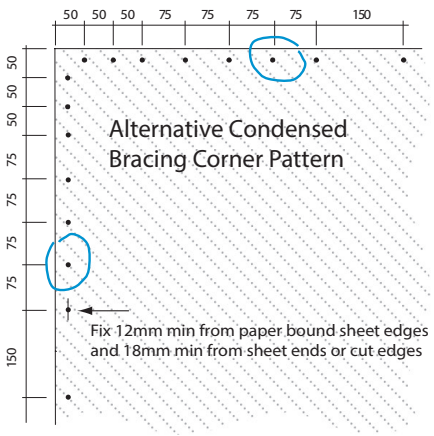
Alternative Corner Pattern Layout

If the installer has used the 50, 50, 50, 75, 75 and thereafter 150 corner pattern then this can easily be remedied by simply placing an extra screw between the next 150mm (where possible).

Therefore 50, 50, 50, 75, 75, 75, 75 and thereafter 150.

Refer to the Alternative Condensed Bracing Corner Pattern below.





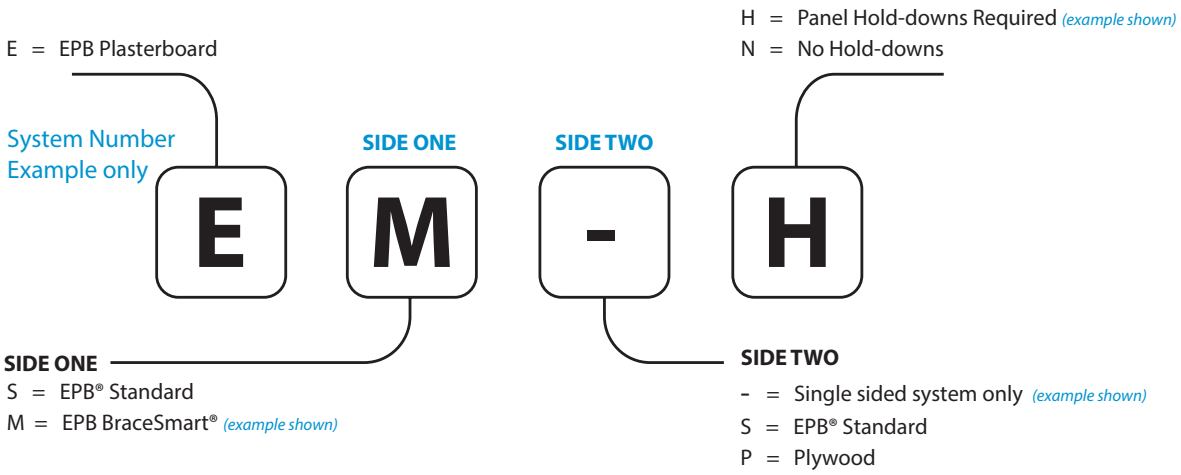
Independently Appraised

All tests, opinions and re-evaluated performances have been fully Appraised by Independent Consulting Engineers.

Compliance to NZS 3604:2011

The QuickBrace™ Systems detailed in this document are fully compliant to the requirements of NZS 3604:2011 Timber-framed buildings. Design and installation must be in accordance with the EPB Plasterboard QuickBrace Systems Manual.

QuickBrace™ Numbering System



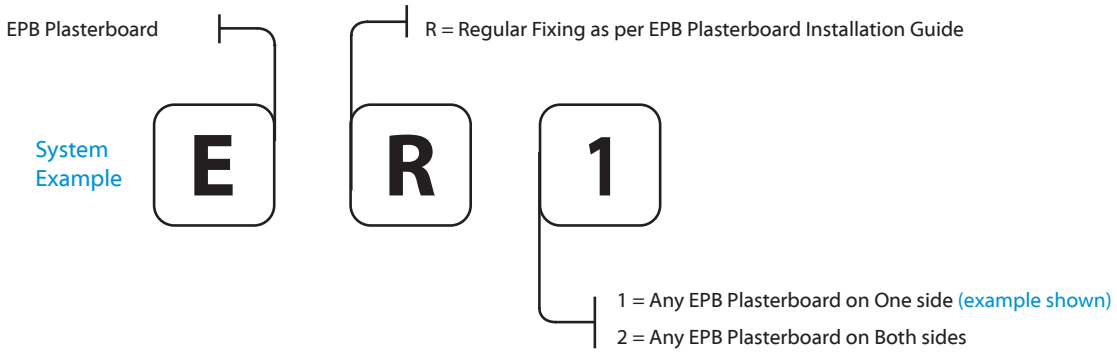
QuickBrace™ Systems & Performance Table

System Number	*Lining Requirement*	Min. Length (m)	BU/m		Panel Hold-downs	Bracing Corner Pattern
			Wind	Earth-quake		
Plasterboard on One Side						
ES-N	EPB® Standard on One Side	0.4	55	55	**No**	**Condensed**
		1.2	70	60		
		1.8	75	60		
ES-H	EPB® Standard on One Side	0.4	75	70	**Yes**	
		0.8	90	75		
		1.8	105	85		
EM-H	EPB BraceSmart® on One Side	0.4	90	100		
		0.8	110	100		
		1.2	125	105		
Plasterboard on Both Sides						
ESSN	EPB® Standard on Both Sides	0.4	75	70	**No**	**Condensed**
		0.8	90	80		
		1.2	95	85		
ESSH	EPB® Standard on Both Sides	0.4	90	105	**Yes**	
		0.8	130	125		
		1.2	150	135		
EMSH	EPB BraceSmart® on One Side EPB® Standard on the Other	0.4	110	115		
		0.8	140	130		
		1.2	150	145		
Plasterboard One Side, Plywood the Other						
ESPH	EPB® Standard on One Side Plywood on the Other	0.4	100	115	**Yes**	**Condensed**
		0.8	140	140		
		1.2	150	150		
EMPH	EPB BraceSmart® on One Side Plywood on the Other	0.4	120	135		
		0.8	145	150		
		1.2	150	150		

* Timber Floors - It is required by NZS 3604:2011 to limit BU ratings to 120 BU/m for timber floors. For a higher floor frame uplift, a specifically engineered design will be required.

General Wall Installation with Regular Fixing

Regular Fixing Code



Regular Fixing Walls & Performance Table

Regular Code	*Lining Requirement*	Min. Length (m)	BU/m		Panel Hold downs	Fixing Method
			Wind	Earth-quake		
Plasterboard on One Side						
ER1	Any EPB Plasterboard on One Side	0.4	40	30	**n/a**	**Regular**
Plasterboard on Both Sides						
ER2	Any EPB Plasterboard on Both Sides	0.4	50	50	**n/a**	**Regular**
		1.2	55	55		

Note: The Regular Fixing Numbering System and the sub components thereof are protected by copyright.

Regular Code	Lining Requirement	Min Length (m)	BU/m		Panel Hold-downs	Fixing Method
			Wind	Earth-quake		
ER1	Any EPB Plasterboard on One Side	0.4	40	30	n/a	Regular fixing
ER2	Any EPB Plasterboard on Both Sides	0.4	50	50	n/a	Regular fixing
		1.2	55	55		

Framing

Framing heights and dimensions to comply with NZS 3604:2011 stud and top plate tables for load bearing and non load bearing walls.
Refer to relevant sections and clauses of
NZBC B1 – Structure: AS1 Clause 3 – Timber (NZS 3604)
NZBC B2 – Durability: AS1 Clause 3.2 – Timber (NZS 3602)

Bottom Plate Fixing

There are no specialised bottom plate fixings beyond the requirements of NZS 3604:2011

Timber Floor:

Fastening within the bracing element must be done in accordance with NZS 3604:2011.
i.e. Either pairs of 100 x 3.75mm hand driven nails or three 90 x 3.15mm power driven nails at 600mm centres.

Concrete Floors:

External walls: Within the bracing element fix the bottom plate as per NZS 3604:2011.
Internal Walls: Within the bracing element fix the bottom plate as per NZS 3604:2011.

Note: Alternatively use 75 x 3.8mm shot-fired fasteners with 16mm discs at 150mm & 300mm from end studs and thereafter at 600mm centres.
Ensure a minimum penetration of 30mm into the concrete foundation.

Wall Lining (As per System Code above)

ER1: One layer to One side of frame

ER2: One layer to Each side of frame

The Plasterboard sheets can be fixed vertically or horizontally. Use full height or full length sheets when fixing vertically or horizontally where possible. Sheets shall be touch fitted.

Fixing of Plasterboard Linings

Fastening: (Corners and Perimeters)

25mm x 6g High thread Drywall screws. (See page 3 for adhesive fixing options)

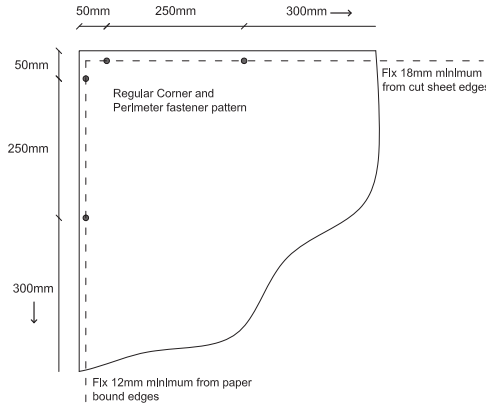
Fastening Centres: (Corners and Perimeters)

Corner and Perimeter Pattern: Refer to the regular corner fixing pattern on the right.

Place all fasteners no less than 12mm from paper bound sheet edges and 18mm from sheet ends or cut edges.

Fasteners and Fastening Centres in the Field of the lining

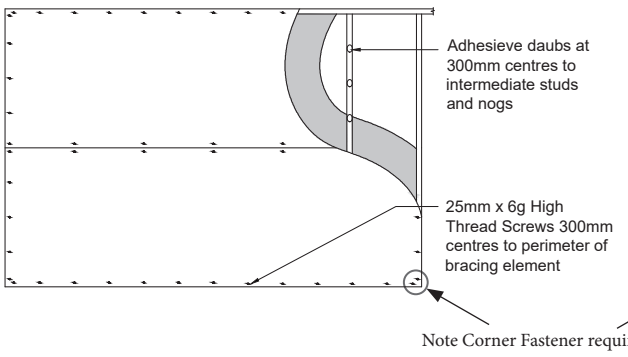
For vertically fixed sheets place fasteners (screws or adhesive daubs) at 300mm centres to the intermediate sheet joints. For Horizontally fixed sheets place screws at the sheet edge that crosses the studs. Place daubs of Drywall adhesives at 300mm centres to intermediate studs.



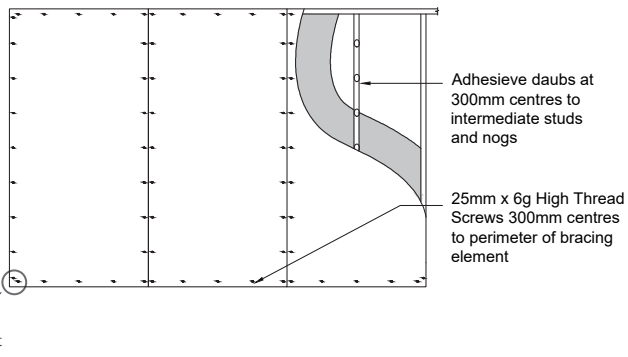
Jointing

Jointing is important in order to achieve published bracing performances. All fasteners stopped and all sheet joints reinforced with paper jointing tape. All in accordance with the Elephant Plasterboard Installation Guide.

Horizontal Fixing



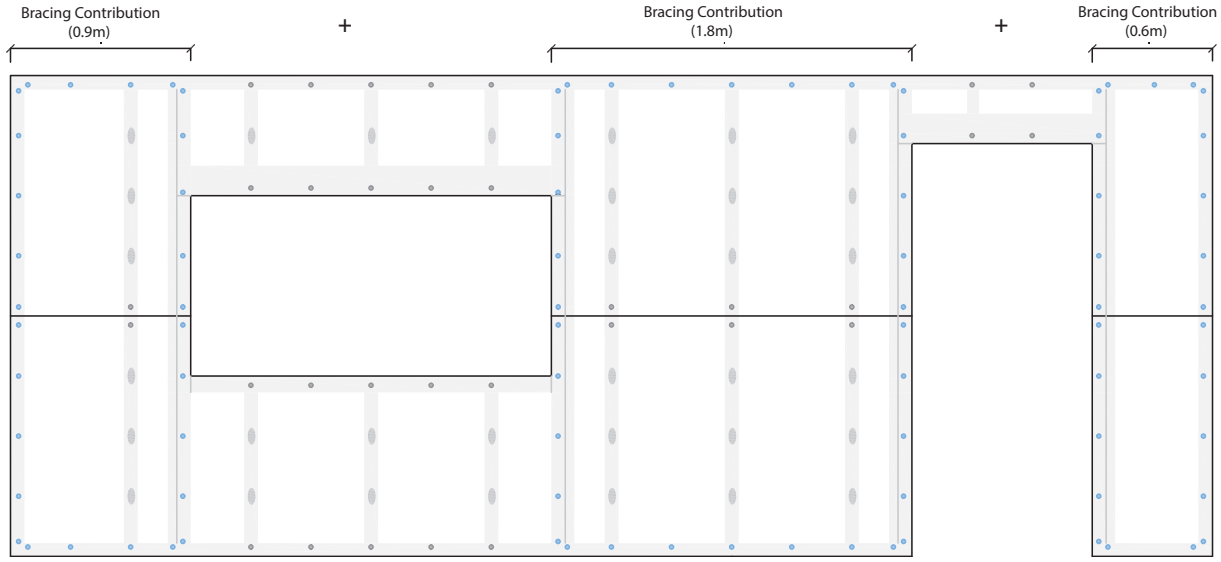
Vertical Fixing



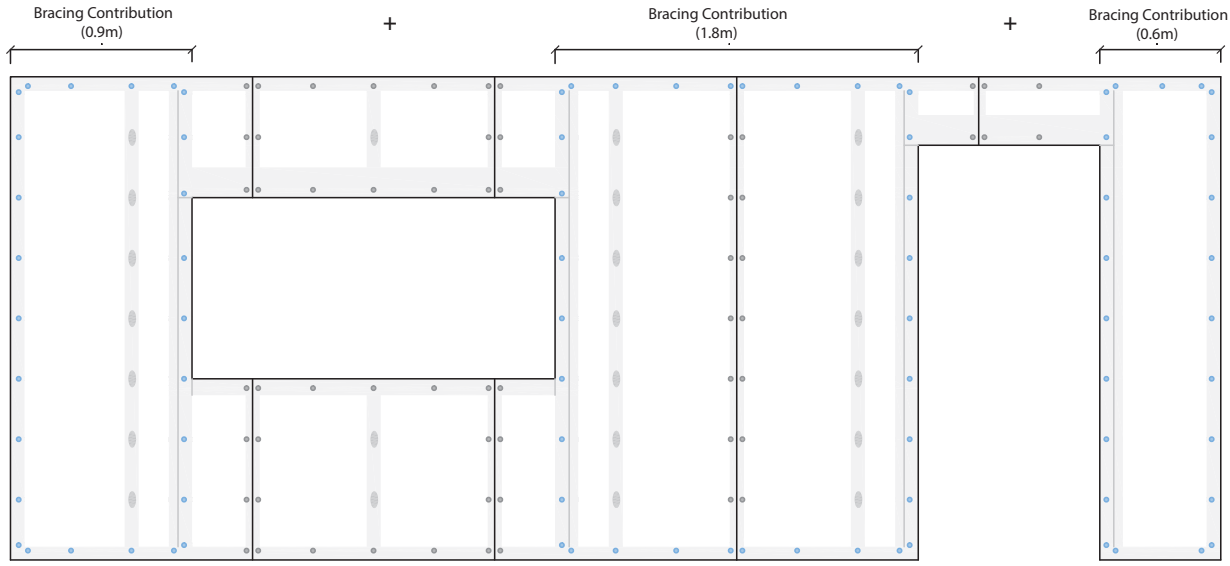
ER1 & ER2 Regular Fixing Method

N.B.The screws colored blue in the diagrams below are forming part of the bracing element. The screws and adhesive daubs colored grey are inconsequential for bracing purposes and are only shown for overall regular fixing methodology

Horizontal Fixing Method



Vertical Fixing Method



Key Points of the Regular Fixing Bracing Systems

- The EPB Regular Fixing Systems allows for internal and external walls to contribute to the bracing design when regularly fixed as per the method described in the EPB Plasterboard Installation Guide.
- Regular Fixing significantly reduces the number of screw fixings, resulting in a better overall finish.
- ER1 & ER2 elements do not have to be specifically checked off in a post-line inspection. The building official only needs to ensure that the overall fixing of the plasterboard has been fixed generally as per the EPB Plasterboard Installation Guide.
- Adding the ER1 & ER2 systems into the initial bracing design, invariably results in the total bracing resistance well exceeding the bracing demand. It is recommended to exceed the bracing demand by a margin of approximately 10%.
- ER1 & ER2 published bracing performances are conservative.
- When inspecting plasterboard in the post-line inspection, consideration should be made for the overall design margin.
- If the design margin is tight and some elements are found to be narrower than initially designed, or some elements need to be eliminated, then converting adjacent ER1 & ER2 to ES-N & ESSN systems (by using the QuickBrace screw pattern) would significantly increase the bracing performance of those elements.
- ER1 & ER2 require fixing to be at 300mm centres on top and bottom plates (screws only) and up each end stud (screw or glue daubs). Closer fixing is permitted.

ER1 & ER2 Alternate Fixing Option - Adhesive & Screw Method

Where the bracing element does not end at a corner wall junction and is adjacent to a window or door, the screws can be replaced by daubs of adhesive. This will further reduce the number of screws required. There is still a requirement to have screws on the top and bottom plates.

Replacing screws with daubs of adhesive is especially preferred where the element is adjacent to a window or a door as these areas have a higher degree of screw popping, as it is difficult to dry out multiple jack studs.

Only adhesives with a 50 year durability are acceptable as replacements for the screws at either end of the bracing element.

E.g. GIBFix® All-Bond solvent-based adhesive. Keep evidence of the adhesive used to show the building official if necessary.

This adhesive fixing method only applies to the Elephant Regular Fixing Bracing Systems.

The EPB QuickBrace Systems cannot utilise the adhesive option as described above.

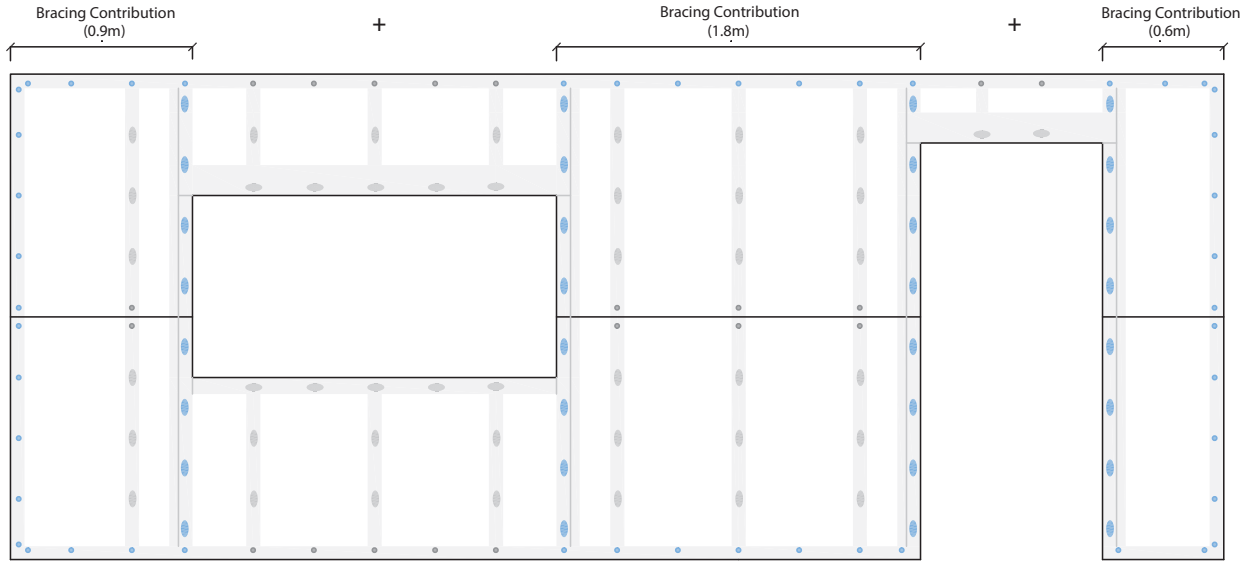
If the building official has doubts about the adhesive application, a number of small core holes can be drilled with a small hole-saw in areas that are likely to have the adhesive daubs and as agreed between building official and installer. If adhesive is evident, it is up to the building official to accept, on reasonable grounds, that the ends of the bracing elements have been glue fixed.

If the building official rejects the adhesive method then the regular screw pattern can be applied. However it is important to remember to leave at least 7 days from the time the adhesive was applied to allow the adhesive to set before applying screws. This will reduce the likelihood of screws pops.

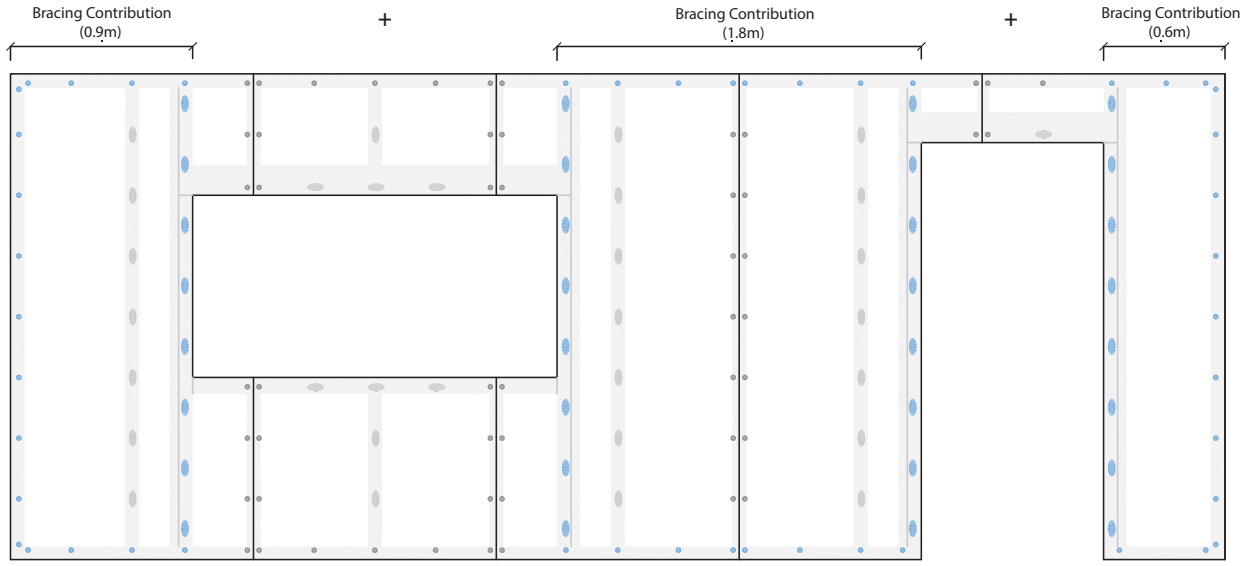
ER1 & ER2 Regular Fixing Method (with adhesive)

N B. The screws and adhesive daubs colored blue in the diagrams below are forming part of the bracing element. The screws and adhesive daubs colored grey are inconsequential for bracing purposes and are only shown for overall regular fixing methodology

Horizontal Fixing Method



Vertical Fixing Method



Small Openings in Bracing Elements

Sheet linings used in bracing elements often need to be cut to allow for penetrations such as light switches, power points, or service pipes. The number, size, and location of these openings directly influence how the bracing element performs.

Positioning of Openings and critical strength zones

Penetrations such as power points, light switches, plumbing pipes, or cabling require placement suited to their function. However, their location within the bracing element is critical to maintaining performance.
The strongest part of a bracing element is along its perimeter, where the unique fastener pattern is installed. Openings are not permitted within 90 mm of the bracing element perimeter, however they may be positioned within 90 mm of sheet joints within the element.

While the entire surface of the linings contributes to overall strength, the bottom 300 mm of the element carries the highest demand. It is best to minimise openings in this area. In addition, clustering several penetrations close together can create a "perforated" effect — therefore, avoid grouping too many openings in one area.

Round vs Square Cutouts

Round holes are preferred over square or rectangular ones as curved openings distribute forces smoothly, while sharp corners create weak points where cracks can form. Holes drilled with a hole saw provide the best performance. The acceptable number of penetrations may vary depending on their shape.

Installation Guidance

The following recommendations are provided to support the correct use of EPB bracing systems as a guidance to help maintain strength. If openings outside these parameters are required, contact EPB Technical Support (0800 353 742) for advice.

For more than one small penetration in an EPB bracing element, follow these guidelines:

- Openings must not exceed 90 x 90 mm or 100 mm diameter.
- Openings must be at least 250 mm from the top and bottom of the element.
- Openings must be at least 90 mm from the edge of the bracing element.
- Limit to maximum two openings per group, with a minimum of 45mm gap with timber between them.
- Maximum of 4 opening per stud bay.
- Openings to be minimum 600mm apart betweens group in a single stud bay.