

# SUBFLOOR INSTALLATION GUIDE

V1.1 July 2024

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## INTRODUCTION

The information contained within this guide assumes that all design criteria and engineering aspects have been addressed prior to manufacture and delivery of the material.

These are generic instructions only and will cover a range of matters which may or may not be applicable to you, depending on your qualifications and/or experience.

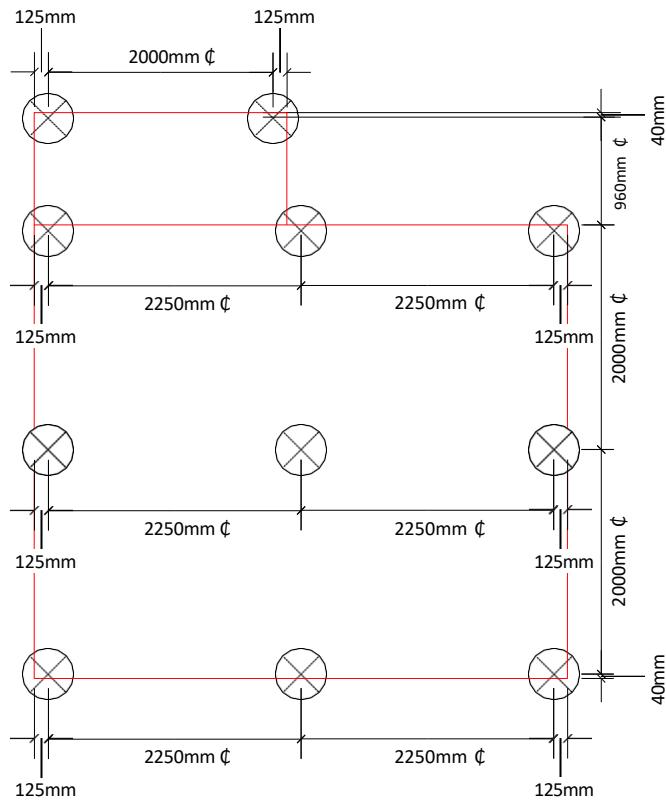
We suggest that you read through thoroughly prior to commencing any work and determine if you are competent to undertake the work or whether you need to seek the assistance of a licensed contractor/builder.

## SITE PREPARATION

- Site specific design and engineering will have addressed soil type and footing size
- Generic engineering and plans include a 450mm diameter footing.
- The depth will be dependent on soil type and other factors assessed in the engineering process.
- Survey will have been carried out and peg out done to determine location and height (FFL, Finished Floor Level) of the building, in accordance with the relevant building construction approvals.

## FOOTINGS AND SETOUT

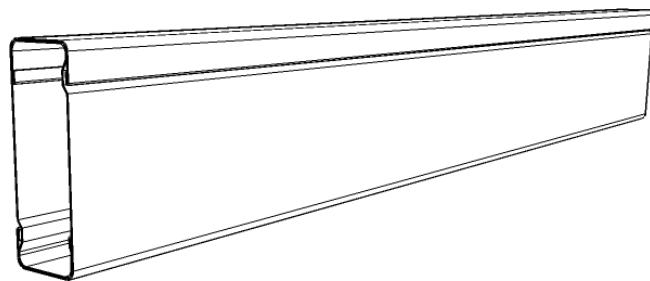
- Correct placement of the footings is key to making the rest of the build happen as effortlessly as possible.
- The peg out indicates the outside line of the building, taking into account the cladding that has been specified on the plans.
- If there is an existing structure, then care needs to be taken in respect to where you start.
- Remember to check for existing services prior to digging.
- The centre of the first footing is approx. 125mm from the end of the bearer.  
NOTE: This will be different if you have insulated wall cladding.
- All centers for the footings should be marked on the ground ready to be dug by auger. If dug by hand, it will probably be square, if so, it will need to be slightly larger at 500 x 500mm.



PICTURED: An example of a Pier Layout for a standard 90mm frame with cladding

- Setout on a sloping block needs to be done level, then positions transferred to the ground.
- Marking out measurements on the slope will put the footings in the incorrect position and posts may miss footings all together.
- Footings must be poured to just above the ground level to ensure the footings do not have water sitting around them, in accordance with engineering.
- If the ground is on a slope, the footing needs to be above the ground level on the high side. It will need some formwork to build up the low side to the same height as the topside.
- The top of the footing should be smooth and trowelled with a minimal fall to one side, to ensure base plate has good bearing and does not hold water underneath.
- Remember that the concrete poured for the footings needs time to cure prior to commencement.

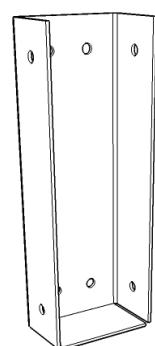
# COMPONENTS



## Allform Roll Form Beam

The Joists and Bearers that make up the floor system

**IMPORTANT-** Take note of any differences in joist height or material thickness before you begin. This will be noted on the plan.

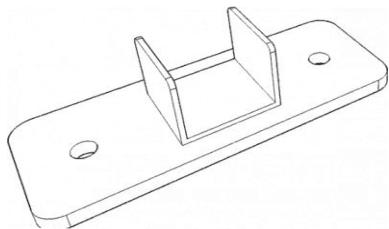


## 4 Hole End Cap

The 4 hole end cap is used to neatly finish off the ends of the bearers

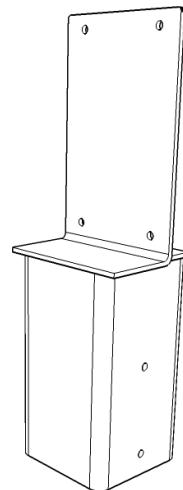
## 8 Hole End Cap

The 8 hole end cap is fixed to the face of the bearer to hang the joists. This is a structural product and must be used in accordance with engineering



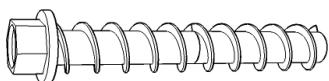
Bottom Connector Plate

The plate is used to fix the post to footings using masonry anchors



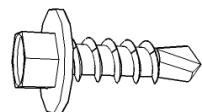
Post to Bearer Connector

The PTBC sits on top of a steel post and holds the bearer in position. It is fixed in place with tek screws – the positioning of which allows for an additional 50mm in adjustable height



Masonry Screw Anchor

M8 x 75mm Screw Bolts are used to secure the base plates into the footings



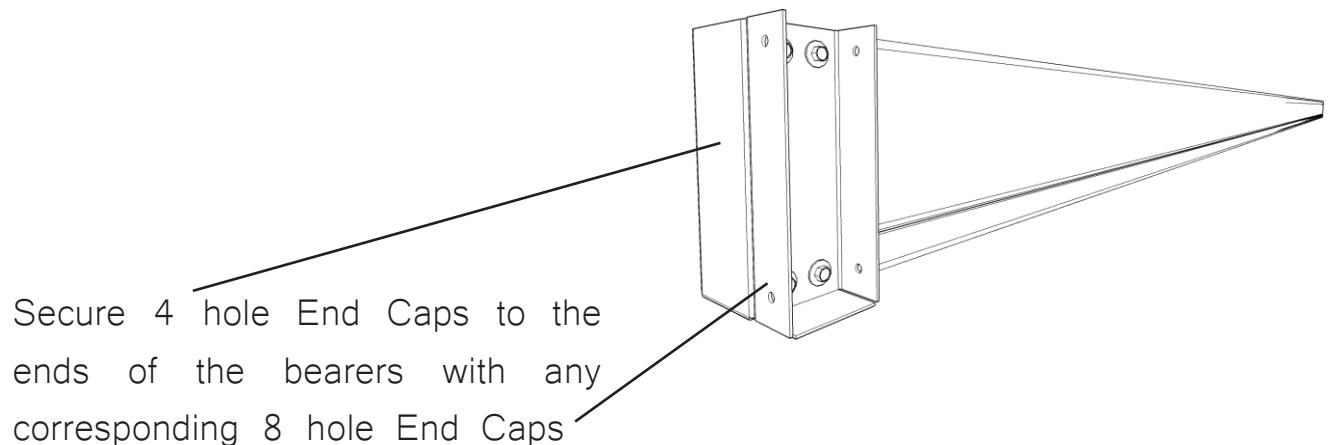
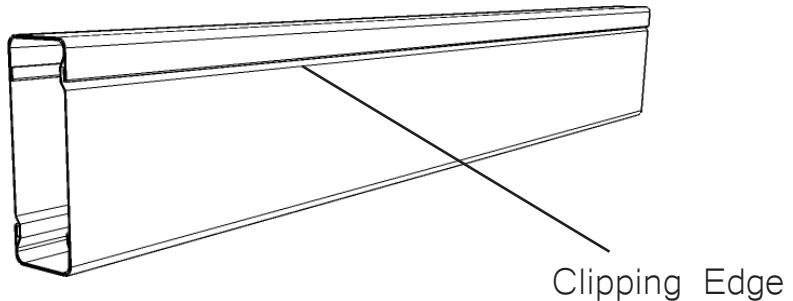
Metal Tek

12-14x20 Metal teks are used to secure the joists, bearers and piercing system

## PREPARE THE BEARERS

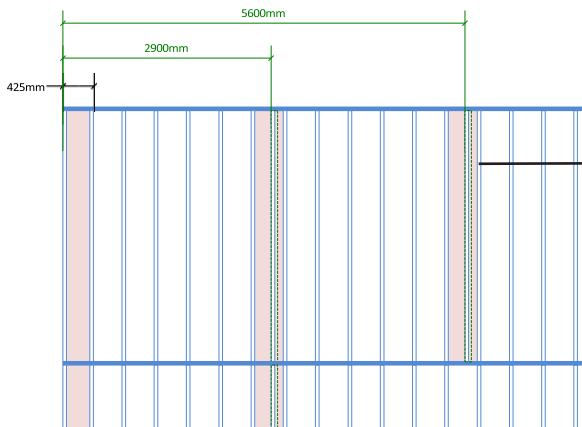
TIP: It is more efficient to set out and install the end caps for the joists on the bearers ahead of time.

- The Clipping Edge must be at the top on the Outside Face of the bearer to ensure water does not become trapped



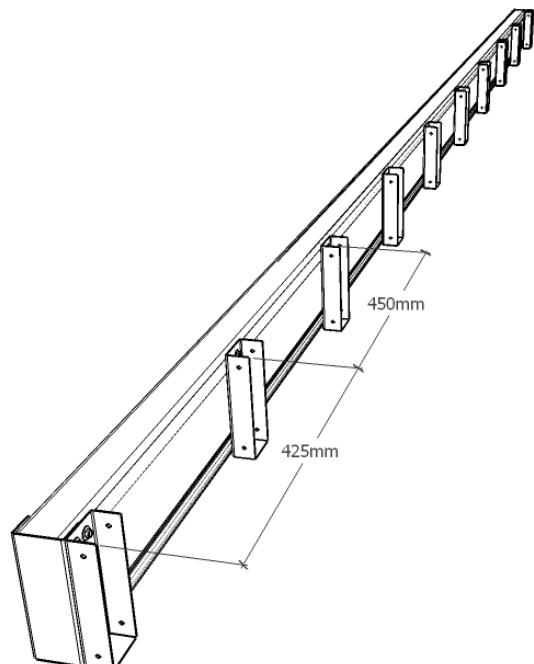
## MARK THE JOIST POSITIONS

- NOTE: All joists need to be marked starting from the same end to ensure there are no alignment issues later on



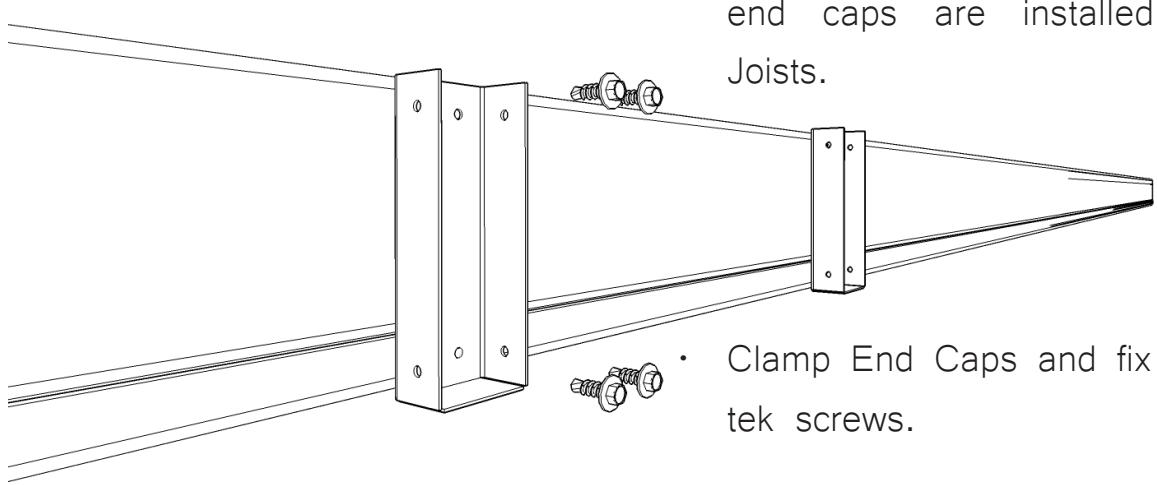
Some joists need to be in specific positions. Mark these first.

- NOTE: Never mark with graphite or lead as this can compromise the coating on the beam



- Fill in your 450 Centres measuring outside of one to the inside of the next one.

- NOTE: Some applications may require 400 centres Eg Composite Decking. Please check the plan to confirm

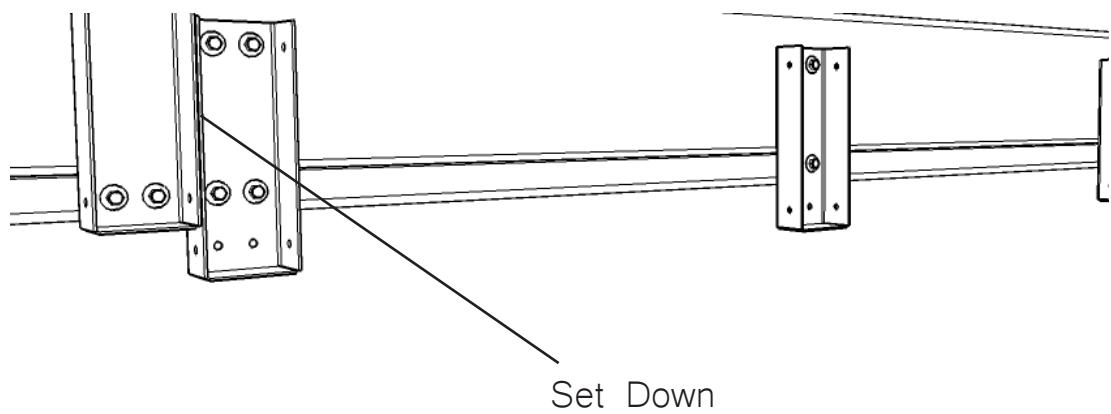


- Clamp Bearer progressively to ensure it is fully together as the end caps are installed for the Joists.

- Clamp End Caps and fix with 4 x tek screws.

## SET DOWN FOR THE DECK

- Decks and tiled areas are often set down
- New holes can be made in the end cap - aligned to secure into the overlap of material near the bottom of the bearer.

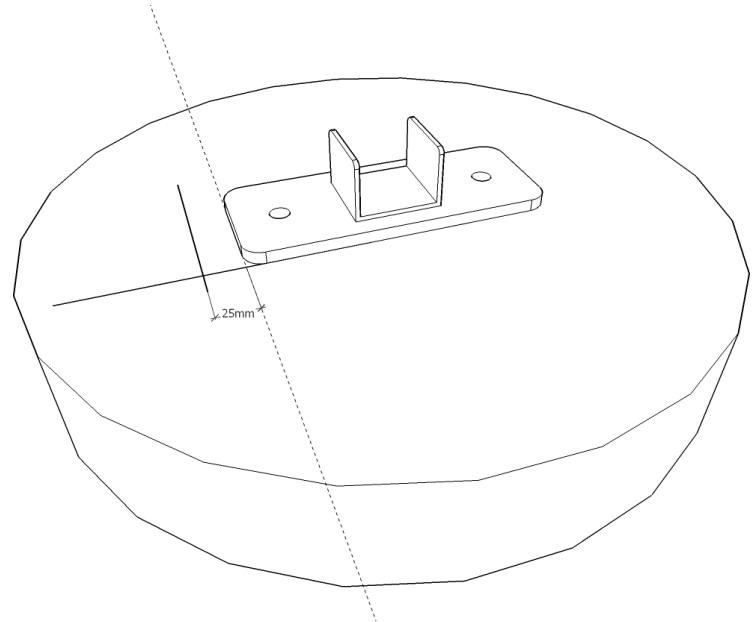


NOTE: End Caps will either be Zinc Coated or Aluzinc (uncoated). Zinc Coated End Caps are to be used for decks and for outside joists where there is more exposure.

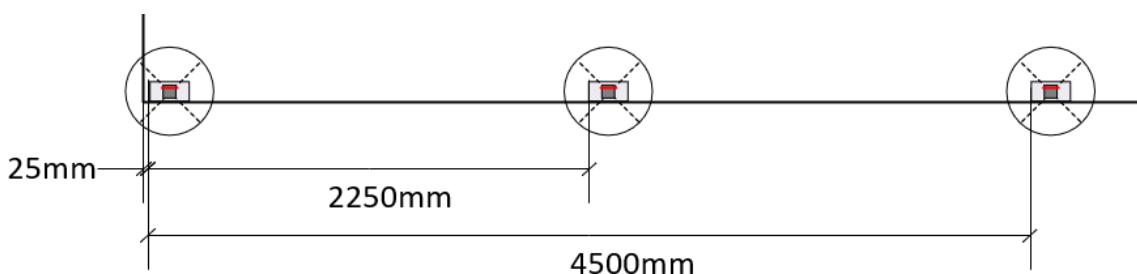
## INSTALL THE BASE PLATES

NOTE: The following assumes you have already completed your set out, frame corner is marked and you are ready to install your base plates.

- Start with the same bearer that you started your setout with.
- The short side of the base plate will sit 25mm in from the outside joist frame line
- The long side will sit flush with the bearer frame line.
- Ideally, your base plate will be located in the centre of the footing.
- Mark the Base Plate hole positions onto the footings
- Check that the posts will not be in the way of the joists.



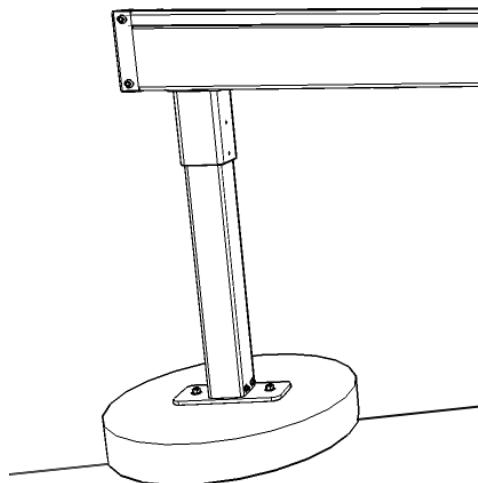
NOTE Check the Engineering for Bearer span capacity loads before you adjust the location of the base plate/post positions to cater for the joists  
If you cannot move your post, unscrew the end cap to re-attach after the Peir Cap is in place. This may require the bottom of the Joist End Cap to be cut down slightly to fit.



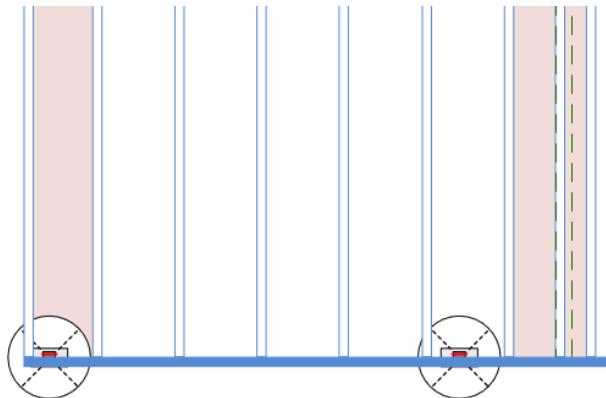
PICTURED: A sample Base Plate Layout showing running measurements from the first base plate

- NOTE: The direction of the base plate is important for adding additional bracing to the structure.
- Refer back to your plan

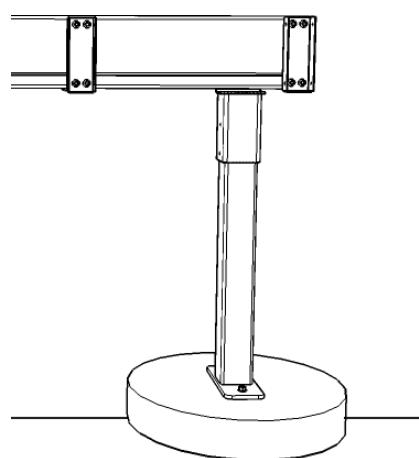
The base plate generally runs parallel with the outside bearers



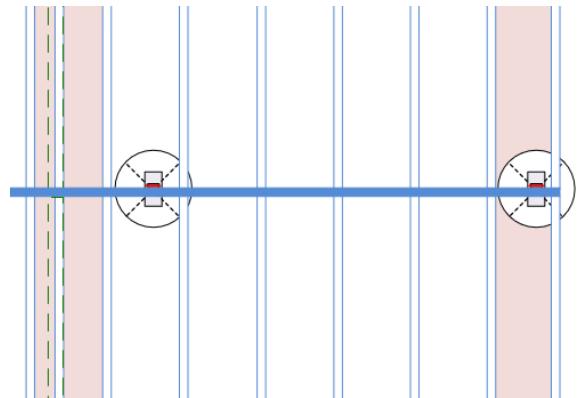
PLAN VIEW - OUTSIDE BEARER

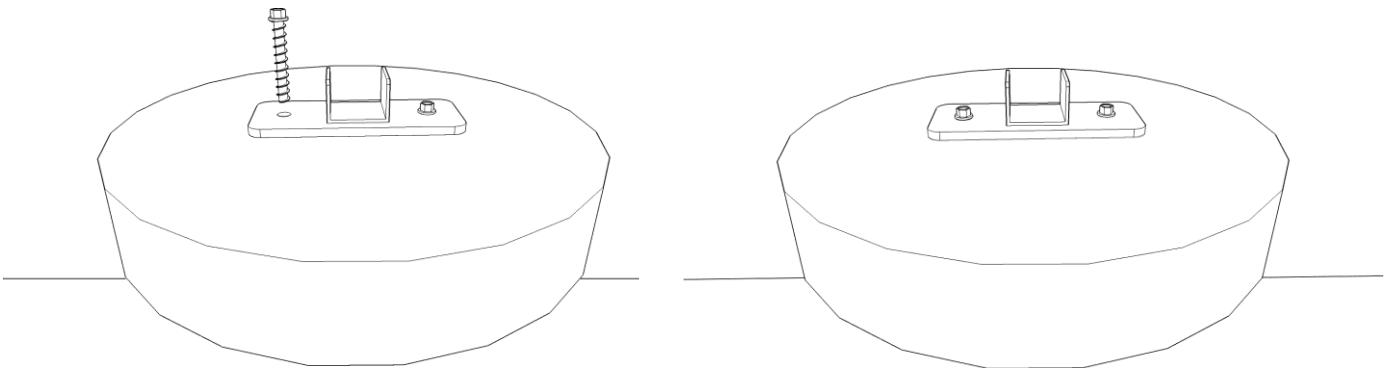


The base plate might be rotated 90 degrees for the central bearer



PLAN VIEW - CENTRAL BEARER





- Drill the holes in the footings with an M8 masonry drill, making sure it is at least 10mm longer than the bolt, then blow all the dust out of the hole.
- Cut posts to the calculated height – M13 impact bit and wrench works well.

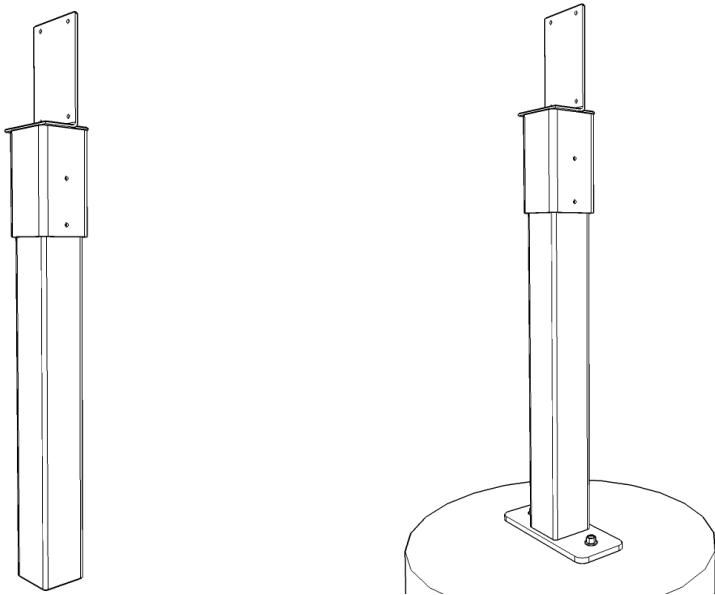
NOTE: The post length needs to be calculated before cutting to length and each post may be different depending on the finished floor level (FFL) required and the height of the footing. (If assistance is required with this, see separate sheet)

Exposed base metal/cut posts needs to be protected by spraying with a proprietary cold gal onto the cut surfaces.

- Fix the base plates using M8 x 75mm Masonry Screw Anchors

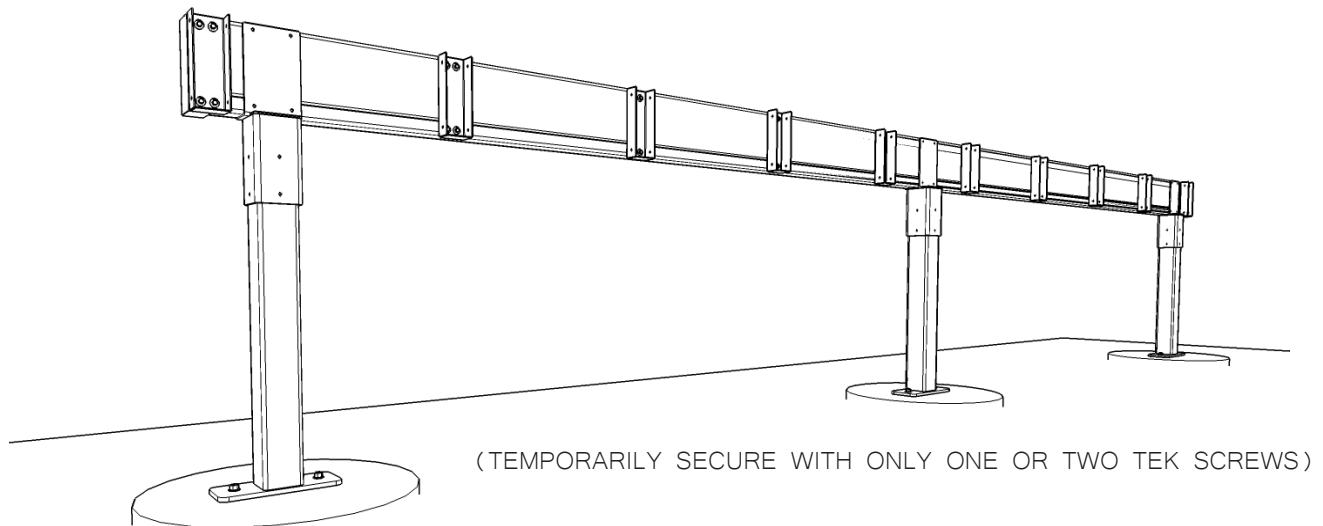
## SET UP YOUR POSTS

- Place your Post to Bearer Connectors on your posts.
- Do not screw off yet as you may need to adjust the heights
- NOTE: Double check your sizes. Some designs utilise more than one size beam. 140mm and 150mm Bearers are common so you will need to ensure the correct cap goes on the correct post.
- Stand the posts in place with the bearer caps facing the correct direction
- Again, do not install tek screws yet.

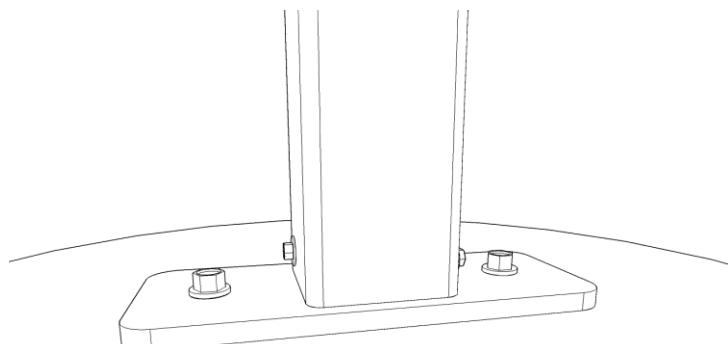
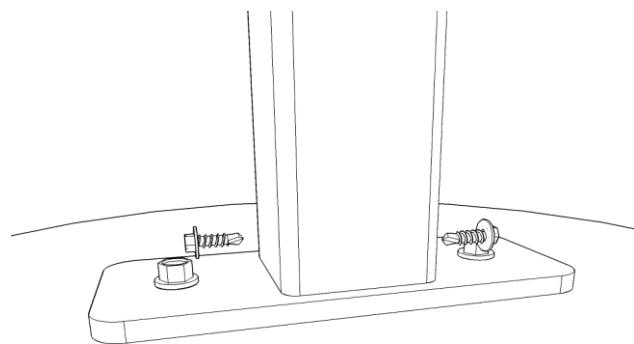


## STAND THE BEARERS

- Start with an edge bearer first and place it on the Post to Bearer Connectors.
- Clamp the bearer in place.

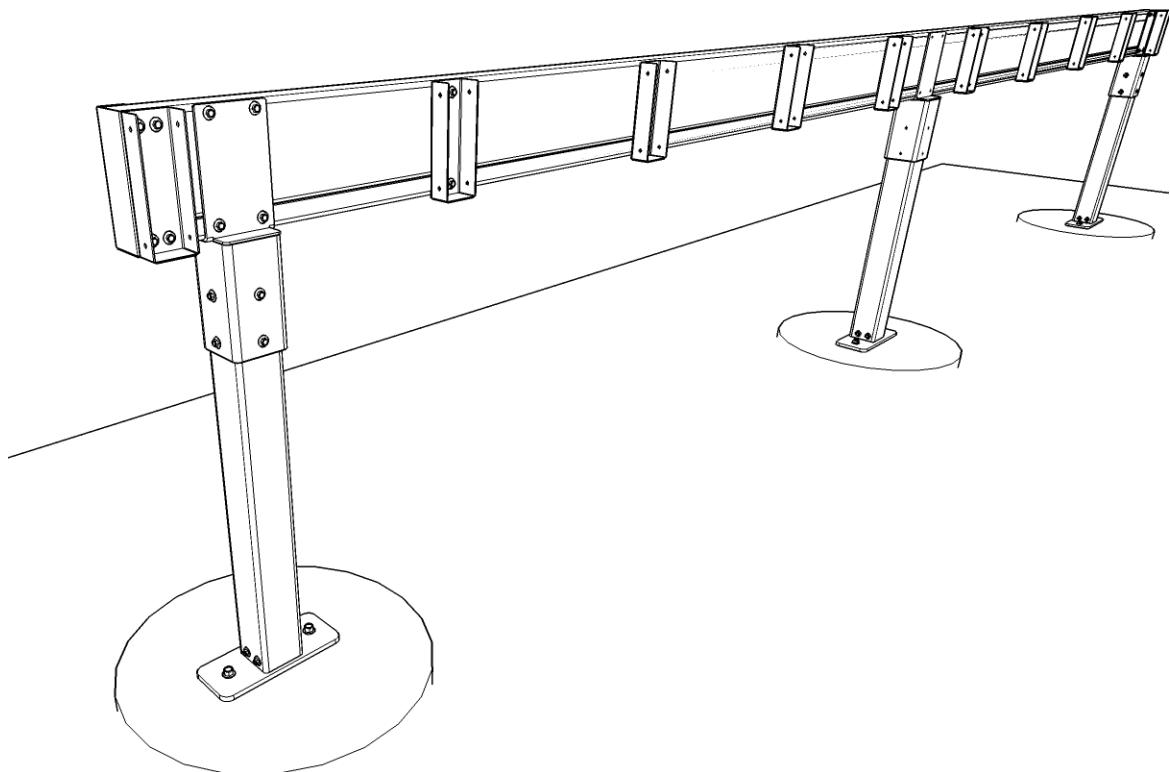


## PIN CORNER POSTS TO BASE PLATES



- Plumb end posts and pin using two tek screws
- Remember to leave room for a second tek screw on each side. There needs to be four per post.
- Take care not to over tighten or strip.

## FIX OFF POST TO BEARER CONNECTORS

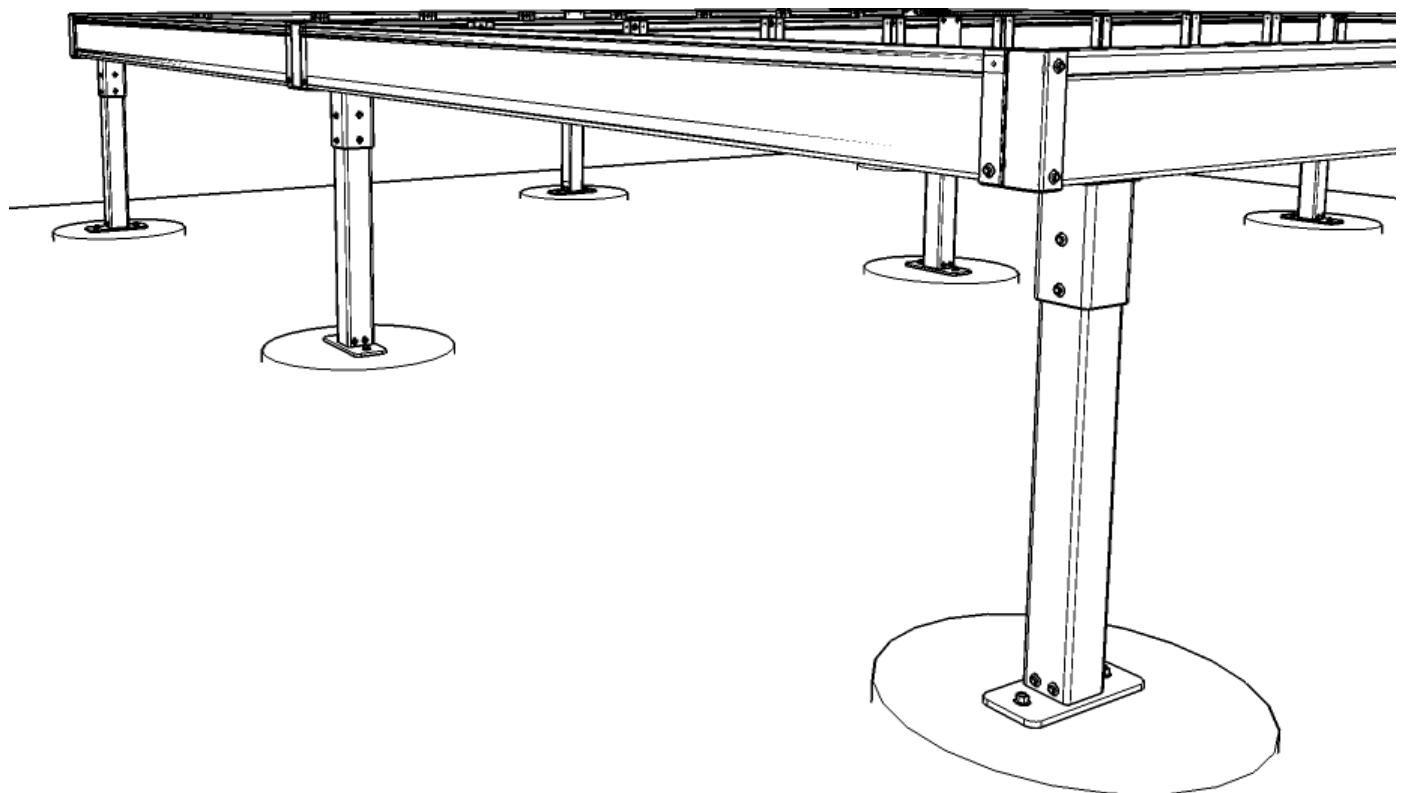


- Check that the bearers are level.
- If the post is low, raise the post to bearer connector to correct height on the post and pin connector to the post.
- Pin your post to bearer connector (This can wait until the Frame has been squared up provided clamps are used on corners.)

• NOTE: It is important to ensure the tek screws are not partially into any previous holes in the post. Adjust location if necessary but ensure all components are still in contact with the tek screw.

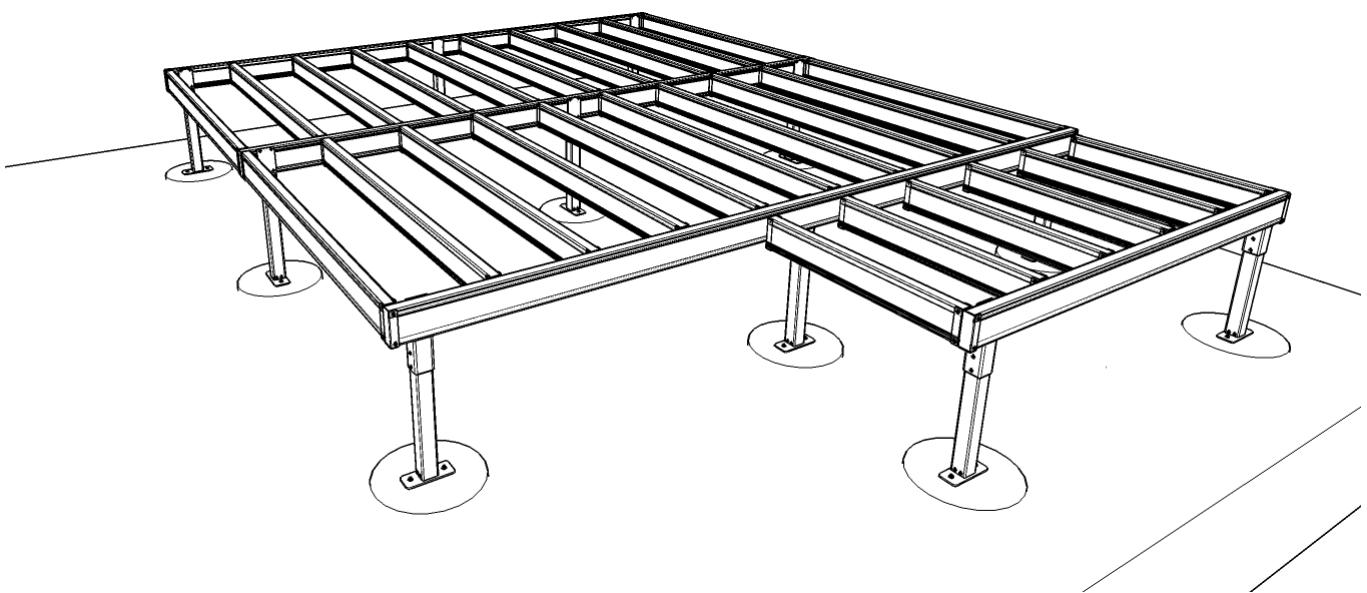
## SQUARE THE SUBFLOOR

- Place your outside joists into the end caps
- Check the measurement between the bearers overall is correct
- Pin the joists with one screw at each end. Pushing down on the Joist into the End Cap to ensure the Joist is together properly before/as it is screwed.
- Check your diagonals are the same to ensure the frame is square. Adjust as necessary whilst keeping posts plumb.
- Install remaining Joists.
- Check the Joists/Bearers are level.



## FINISH THE INSTALLATION

- Confirm the frame is square.
- Progressively plumb remaining posts & pin.
- Re-confirm diagonals and overall measurements are correct.
- All posts, Base Plates and Post to Bearer Connectors are to be fully screwed off.
- All Joists are then fully screwed off.



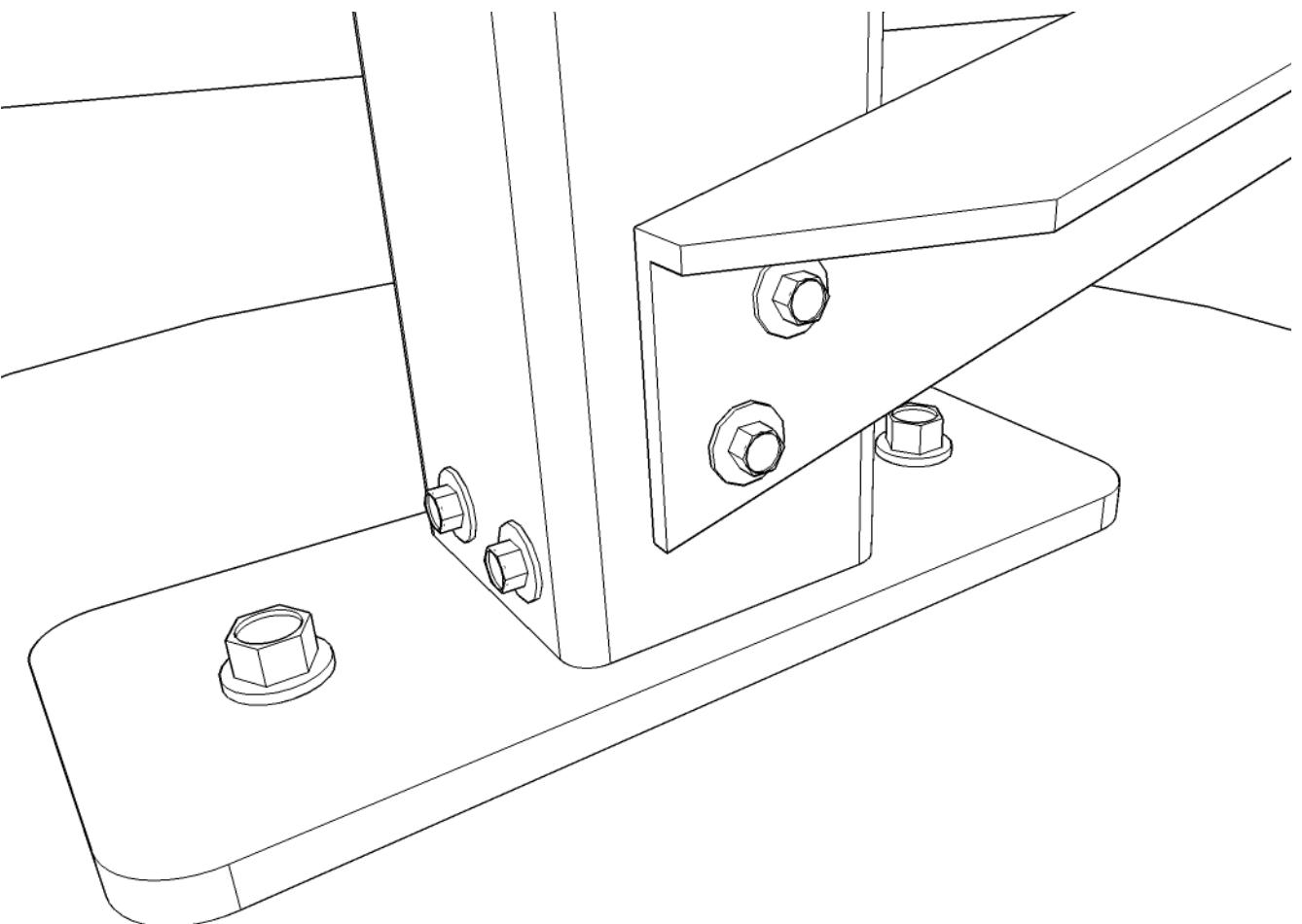
## BRACING

NOTE: Not all structures need bracing (refer to engineering details) but it is still a good practice to assess on site. If there is movement or doubt exists, put in some bracing.

- FFL at 900mm and above, the sub floor is engineered to have some bracing installed. Equal Angle (EA) is to be used.
- Measure from the highest corner from the Post to Bearer Connector to the bottom of the next post along.

- TIP: Use a plumb cut and then cut off the sharp corner, so that a sharp and potentially dangerous angle is not sticking out. Install on inside of posts.
- Make sure the EA is not cut/let into the post, this reduces effectiveness of the bracing.



- Clamp the EA into the correct position, this reduces vibration when installing with the teks.
- Use the tek speed on your driver, the 12-24x32 (series 500, long screw tip) will go straight in without snapping off and with no pre-drilling required as it is at a slower speed.
- Ensure that all the teks are installed at 90 degrees and it will work more efficiently.
- Spray the ends of the bracing with cold gal.

