**Barrier walls – Installation Guide**

All walls above 15ft (4.5m) in height are engineered on a job by job basis.

**Important:**

Please read all the instruction prior to starting the set out of your wall. Setting out the wall accurately and correctly will be the difference between a good and great result.

The recommendations detailed in this guide produced by IWS are formulated along the lines of good building practice. They are not intended to be an exhaustive statement of all the relevant data. Further, as the success of the projects depends on factors outside the control of IWS (e.g. quality of workmanship, particular design, detail requirements, etc), IWS accepts not responsibility for, or in connection with, the quality of the project or their suitability when completed. If you are in doubt please seek independent advice or contact IWS.

We are always happy and available to answer question regarding installation no matter how small or silly you think they may be.

Technical and installation advice is available on : 1866 990 4865

**First of all – Determine your posthole depths & centers:**

Accurately determine the boundary line to where the wall will be installed, (in some cases a surveyor may be required) mark this with a string line at a recommended 8” – 12” (200-300mm) off the ground.

Determine your posthole centres using the table on page 2 as a guide and mark out your posthole positions on the ground with line marking paint or similar. We recommend you plan your wall set out / post position on a piece of paper first to save any unnecessary digging!

Note: Wall panels may be trimmed with a circular saw if necessary to fit in with an exact measurement (see page 10).

Postholes can be dug by hand or with a mechanical auger. Use the Footing Depth Chart below to determine you posthole depth and diameter.

- Recommended footing depths are for “normal” conditions. If you want to build on the top of a hill, adjacent to an escarpment, on a ridge, or in “other” terrain, you will need engineering advice beyond the scope of this publication.

**NOTE:** Walls in hurricane regions shall be installed in accordance with engineering recommendations for wall panels, post types, post spaces and footings for that area.
NOTE: These instructions are based upon the assumption that your are pouting the concrete via a concrete truck (shute) and not bagged concrete. If you plan to used bagged concrete you can install the posts in a similar way to the “Residential Privacy Walls” installation instructions.

FOOTING INFORMATION:

![Typical footing detail diagram]

Footing depths are best determined by the consulting engineer responsible for the project.

**STRUCTURAL STRENGTHENING OF POSTS** — (e.g., partial concrete filling of the post) will be required for a distance from the free end for four times wall height, i.e., 13ft x 15ft (4m x 4.5m) – post height out of ground = 60ft (18m). Therefore the posts for the first 60ft (18m) from each free end should be concrete filled to a level determined by the consulting engineer responsible for the project. Example – a 328ft (100m) long straight wall may only require the first 7 posts on each end of the wall to be partially concrete filled (as determined by the consulting engineer responsible for the project).

**NOTES:**
1. Consult with engineer on grade of concrete and maximum size of aggregate
2. Concrete shall be compacted after placement inside footing hole or rodded as it is entering the hole.

**POST CENTRE TO POST CENTRE GUIDE** – Barrier wall posts
The table below allows you to work out what your post centres will be. Example – If you have an 8ft (2400mm) panel and you are using barrier wall posts then you will have a 8ft 6” (2500mm) post centre to post centre measurement.

<table>
<thead>
<tr>
<th>Wall Panel length</th>
<th>Barrier wall post 6” (150mm) width, 10” (250mm) depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>8ft (2400 mm)</td>
<td>8’2” (2500 mm) – POST CENTRE TO POST CENTRE</td>
</tr>
<tr>
<td>9ft (2700 mm)</td>
<td>9’2” (2800 mm) – POST CENTRE TO POST CENTRE</td>
</tr>
<tr>
<td>10ft (3000 mm)</td>
<td>Advice upon request</td>
</tr>
</tbody>
</table>
Step 1 – Screwing the posts together:

Place the two halves of the post on a FLAT surface. Align the pre-punched holes in the post exactly (large flange on top) and clamp both ends together – see picture. IMPORTANT: Screw both ends together first then fasten one screw in the middle (with supplied Hex head screws). The remaining screws can be fixed in any order.

Step 2 – Fixing the base brackets to the post:

Attach the panel support bracket into the post with the hex head screws supplied (caution should be taken not to over tighten and strip the screws).

NOTE: Bracket leg should point DOWNWARDS for ease of panel fitment.

The support bracket should be fixed at 1” (23 mm) more than the finished wall height for a wall with an external post cap and 1/8” (3mm) more than the finished wall height for a wall with flush post capping.

Example: For a 14ft (4200 mm) high wall that has an external post cap, the bracket should be fixed at 14ft 1” (4223 mm) from the top of the post. This allows 1” (23 mm) for the post cap to sleeve over the post after the panels have been inserted.

Note: If you are using a flush post capping the bracket should be set at the finished wall height plus 1/8” (3mm) (this 1/8” is to allow for the thickness of the top wall capping and base channel) i.e For a 14ft (4200mm) wall with flush post caps the bracket should be set at 14ft 1/8” (4203 mm) from the top of the post.
Step 3 – Post fitment and alignment:

These instructions presume you are using the IWS jig set up and putting the footings from a concrete truck.

- Measure the depth of the hole and if necessary fit post extensions to the post so the base is approx 2” – 4” (50-100mm) off the bottom of the hole.

- Working to a string line on the face of the post, insert the first post into the hole and slide the ‘support shoe’ under the brackets and level to the correct height with packers.

- Next while holding the post vertical screw the support brace into position (approx 78” (2m) from the ground) and then drive the stake into the ground in the appropriate position.

  NOTE: the post must be in the correct ‘centre’ of the hole position. If this is not the first post that has been erected then you may want to put the spreader bar in first (as per step below) then the brace.
Now insert the next post in the hole using the ‘spreader bar’ as a spacer. Once the next post has been levelled, screw the ‘spreader bar’ into position at the base and use this to get a level off.

The gap between the back of the panel rebates should be 3/8” – ½” (10mm) more than the panel length being inserted. i.e If the panel being inserted in 9ft (2700mm) long then the ‘spreader bar’ should be 9ft3/8” (2710mm)

NOTE: An alternative to the IWS steel spreader bar may be timber spacers (say 3” x 1 ½”) (75 x 35) with two “L” brackets screwed onto each end.

After a general alignment has been performed you can screw the top spreader bar into position. This will hold the 2 posts parallel to each other. Take measurement of 6ft (1.8m) from The bottom spreader bar and mark the post. IT IS VERY IMPORTANT THAT THE TOP SPREADER BAR IS PARALLEL TO THE BOTTOM ONE.

DO NOT SCREW ONE SIDE ON AND USE THE LEVEL TO DETERMINE THE HEIGHT ON THE NEXT SIDE AS THIS MAY BE WRONG IF THE POST WAS NOT LEVELD CORRECTLY TO BEGIN WITH.
- Next level up the posts in the vertical plain with the adjustable braces.

THE POST BEING LEVEL IS VERY IMPORTANT AS IF YOU ARE SLIGHTLY OUT AT GROUND LEVEL YOU WILL BE A LONG WAY OUT AT 13’ + (4M+) HIGH AND CAUSE POOR PANEL FITMENT.

- Lock the post to the ‘support shoe’ with a clamp at the back of the shoe. Also if deemed necessary you can lock the front of the shoe in position with the ground via some pegs. See picture below.

- You must stabilize the bottom of the post to the hole. If you don’t the force of the concrete entering the hole will push the post around and undo all the previous alignments and can make panel inserting very difficult (plus make a poor looking installation).
To do this we recommend using 4 bags of quickset concrete per hole minimum or as much as necessary.
- Go back and have one final check of all post alignments before putting concrete and also check the alignment as you go.

Step 4 – Concreting the posts

- Recommended concrete grade is 32 mpa with a ¾” (20mm) aggregate and 90 slump.
  The concrete should be a wet mix so as not to put undue force on the post as it is entering the hole. MOST IMPORTANTLY...ASK THE DRIVER TO POUR THE CONCRETE SLOWLY! If you try to rush things by pouring it fast you will only cause more work later by having ill aligned posts.
- Be sure to hose off the excess concrete left behind on the support shoes etc. After the pour and before it sets.

Step 4 – Taper the footing away from the posts and coat

- After the posts have set and the support shoes have been removed you should mix up a mortar mix and with a trowel slope the concrete away from the post.
- A rust preventative coating must be applied to the base of the footing and 4” (100mm) min up the post.
Final wall assembly – allow concrete to cure completely before assembly

On tall walls we recommend installing the panels via a scissor lift. Lower walls, the panels can be installed via low portable scaffolding.
Manoeuvre the scissor lift close to the wall (side on if possible) and load the platform with all the panels required plus joining strips and wall capping.

Step 1 – Fitting the first panel - Fitting the base channel to the panel:
The base channel will be slightly shorter than the panel to allow it to be guided down the post easily. Start at one end approx 27” (7mm) in and carefully guide the base channel over the panel. Once fitted tap the base channel to make sure it is sealed correctly.

Step 2 – Inserting the wall panels:
Make sure the base bracket is free of debris.
Then with one person at either end, lift the panel vertically and insert into the top recesses of the post. The panel must be guided down at an even rate or it will jam. This can be done by inserting the panel into the rebate by approx 8”(200mm) and have one person apply a twisting action onto the panel to jam it up in the rebate. This person should then move into the middle of the panel to support it (with a twisting action still applied) while the other scissor lift operator lowers the platform.
There should be 2 people below that then catch the first panel and guide it down onto the base brackets.
These two people should then fit the panel joining strips.
Step 3 – Aligning biscuits.
Insert the 2 plastic aligning biscuits into the bottom panel making sure they are seated all the way down.

Step 4 – Inserting consecutive panels:
Guide the second panel down on top of the bottom panel and press down to seat the aligning biscuits. Care should be taken to make sure everything is in place before attempting to press the panels together. **Note:** If they do not align correctly with light downward pressure remove the top panel and inspect the Styrofoam joint.

*It may be necessary to ‘Tap’ the top panel down using a heavy block of wood in a ‘pivoted slapping action’ to bring it together completely (see picture below).*
**Step 5 – Linking the posts**
The purpose of this step is to link one post to the next. This will help in the top alignment, wall strength and to maintain the correct post centre’s. After the top panel is inserted and before any wall capping is fitted place the steel ‘strap’ on top of the Styrofoam (see below).

Next fit the wall capping (see step 6 below) then fit the top bracket and Tek screw in place. Make sure to ‘pull or push’ the post if required to achieve the correct post spacings before Tek screwing off. As seen in the pictures below the bracket can be fitted either on top or below the capping.

**Step 6A – Fitting the ‘External’ top wall capping: (for walls with external top wall capping only)**
Apply ‘Liquid Nails or PL Premium (400)’ or equivalent, (must be water based or it will melt into the Styrofoam) to the inside of the top wall capping at approx 10’ (250mm) centres (see picture below) Ease the top wall capping over the panel starting at one end (see picture below) and press down. Once set, the bulldog premium will stop any unwanted movement.
Step 6b – Fitting the ‘Flush’ top wall capping: (for walls with flush top wall capping only)

VERY IMPORTANT STEP or your flush wall capping has the potential to lift with heat.

Apply a bead of “Liquid Nails or PL Premium’ or similar, to the inside of the fibre cement sheeting on both sides (full length).
Starting at one end, insert the flush wall capping between the fibre cement sheets and tap down until it is seated against the panel. Tape the flush wall capping down with masking tape or similar while the Liquid Nails dries (approx 48 hours). Make sure to wipe away any bulldog premium from the panel face that may have ‘oozed’ out.

NOTE: A Base channel may also be used on top as opposed to wall capping if desired.

Step 7 – End post inserts:

On an end post, insert the snap-in post infill
Where the post is stepped, this insert can be cut to size to suit the step and inserted in the exposed recess. (see *stepping your wall on page 12*)

**Step 8 - Fitting the post caps:**

NOTE: Remember to core fill any posts that require it before fitment of the post caps.

*External post cap (see pictures below)*

Apply ‘Liquid Nails or PL Premium (400)’ or similar to all four internal walls of the post cap. Sleeve the post cap over the post and set down by hand then level the post cap. It may be necessary in some cases to place a smaller packer in-between the cap and the post to hold the cap level until the liquid nails dries.
Flush post cap

Apply a small amount of sealant or liquid nails to the sides of the flush post top before pushing it into place, and wipe away the excess afterwards. Push the flush post cap into the post and tap it down lightly to seal it. You may have to squeeze the sides of the flush post top to start it into the post. Seal around the post top with an exterior sealant prior to painting. This will provide a water proof seal and prevent the cap from lifting with expansion and contraction.

ADDITIONAL INFORMATION

1) Cutting the panels

The panels can be cut using a circular saw with a timber blade. Remember to always support or catch the piece you’re cutting off as it may break towards the end of your cut if you don’t.

Note: The panel should go approx 1” (25mm) into the rebate of each post.
Example: If the distance between the internal face of posts is 6ft 5” (2000mm) then the panel should be cut at 6ft 72” (2050mm).
2) **Post extensions:** For all walls where extra post length is required

**Examples: Unstable ground or an area with wind issues**

Where a post extension is required the 2 halves must be flexed open and sleeved over the exterior of the post base by 8” (200mm) minimum, then fastened with the supplied tek screws at approx. 4” (100mm) spacings along the flange edges (see picture below).

We recommend digging your hole first, then measuring the depth of the hole and sleeving the post extension on to the base of the post to suit the hole depth.

Before panel insertion the post must be core filled with concrete to cover the post extension internally. This can be achieved by pouring half a bag at a time of dry quick set concrete into the centre of the post followed by water.

Note: The pictures below are only showing one half of the post extension being fitted, the post should be turned over and the other half fitted also.

The 2 halves of the post extension will not quite meet in the middle of the post, this is to allow a small amount of concrete to enter the centre of the post before actual core filling.
3) Gates:
Maximum recommended weight of a swinging gate from a standard post is 176lbs (80kg). Where a gate is to be hung from a post the posthole depth should be increased by 4” (100mm) for that post and the post core filled with concrete to 4’ (100mm) above ground level.

Note: - The post that will carry the gate can be secured to the post next to it to increase the shear strength of the post that will carry the gate. This can be done in a few ways:
- By laying a steel strap under the wall capping with a 90deg bend in each end and secure with a tek screw, then re fit the wall capping.
- Or if you have exterior wall capping you can use the wall capping as the strap by tagging the wall capping back to the inside rebate of the post.
PLEASE CALL US TO CLARIFY ANY OF THE ABOVE AS IT IS SOMETIMES EASIER TO EXPLAIN OVER THE PHONE.

Fixing hinges to post:
- Tek screws directly into the post can be used on lighter gates (around 176lbs (20kgs)) nut great care must be taken as to not over tighten them and strip the thread;
- Galvanised steel rivets can also be used.
- For heavier gates or where a stronger fixing method is required a piece of hardwood timber or steel box or similar) can be inserted inside the post before post cap is fitted and held in place while a second person screws through the post and into the hardwood. This way the steel of the post is being used as a clamp not a carrier. For ease, make sure to pre drill the holes in the post first.

4) Stepping the wall:
Where the ground is falling away, the fall of the ground must be determined first.
Example: If between 2 posts the ground is falling 4” (100mm) on an 6ft (1800mm) high wall with an external post cap the bracket on one side of the post should be set at 6ft 3” (1922mm) – low side. The bracket on the opposite side of the post should be set at just over 6ft (1822mm) – high side. This will leave a gap underneath the wall of 4” (100mm) at one end. If no gap is desired, the base of the panel can be trimmed to suit the fall of the ground. The recess at the top of the post can be filled with an end post infill.
5) Preparing the wall for painting

Note: The wall panels do not need preparation as long as the surface is clean and dry.

To ensure correct paint adhesion you must prepare the steel components of your wall to accept exterior grade paint. The primed grey surface of the posts and trims must be lightly scuffed before painting or texture painting. This can be achieved simply by rubbing the primed surface with a “scotch brite” pad or similar using a medium to firm pressure. The light scuff this will give is barely visible but enough to provide the required surface key. You do not need to scuff the post cap.

6) Finishing the wall

We recommend that a finish is applied within 90 days of installation.

The walls can be finished with exterior paint or textured paint, stucco, brick or stone veneer etc.

Panels:
The fibre cement panels when installed in their raw state are ready to accept a number of exterior finishes including exterior paint or textured paint, stucco, brick or stone veneer etc.

PAINT and TEXTURE PAINTS: Most reputable exterior paints/texture paints are self-priming and sealing, meaning that no primer or sealer is required over the panel surface before application. Check with the paint manufacturer if in doubt.

If you are using a single product then 2 coats is always recommended.

Posts and Trims:
The primed grey surface of the posts and trims must be lightly scuffed before painting or texture painting (with the exception of the post caps). This can be achieved simply by rubbing the primed surface with a ‘scotch brite’ pad or similar using a medium to firm pressure. The light scuff this will give is barely visible but enough to provide the required surface key. You do not need to scuff the post cap.
KNOW YOUR COMPONENTS

Mid post (separated)  Mid post  Corner post  45 deg Post

Top wall capping  Flush wall capping  Post cap  Flush post cap

Base channel  Support bracket  Tek screw  C Channel plus masonry

End post infill  End post infill inserted in post  Masonry wall anchor

Wall Panel  Joining strip  Wall panel plus joining strips