

DURABASE

BUILDING FOR THE FUTURE



Standard & Plus Assembly Instructions

V2 04.24

Pre-Fabricated Bases & Walls



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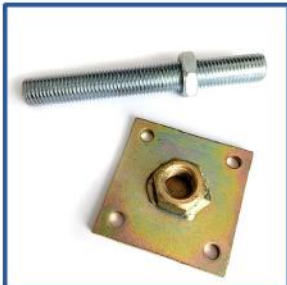
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What's in the box?

Other items like DPC, glue, weed suppressant membrane, mortar and brick slips are included in the box depending on the style of base ordered.



M8 x 20 Hex nut & bolt
Modular wall to Modular wall



Fixing down plate
Base to Pad



10 x 50 Sleeve anchor
Fixing down leg to pad



Jacking leg & plate
Levelling the bass



10 x 110 Hex anchor
Base back sill to house



10 x 19 self-drill screw
Modular Wall to base



10 x 110 Hex Nut & bolt
Splitter beam



M6 x 60 nut & bolt
Joist to hanger



50mm Self-tapping screw
Skirt to base & Standarded flooring to joist



60mm Nylon frame fixing
Modular wall to house wall



60mm self-tapping screw
FH Frame to base fixing



Top hat
50mm insulation carrier

NOTE: Not all items on this list will apply to your order. Base type and spec will vary items.

Contained within this instruction manual are step-by-step instructions to guide you through the installation of your Durabase and wall system.

IMPORTANT

Read ALL the instructions completely BEFORE commencing any work. Understanding these instructions and familiarity with procedures will make the build process much easier and an enjoyable project to undertake. **Not reading the instructions could lead to problems later on in the build process.**

Health and Safety

As with any type of construction work, there are inherent dangers when assembling a Durabase. The following advice is designed to supply the installer with general health, safety and environmental information that may be required during the assembly of a Durabase. The information provided is a guide to 'best practice' but cannot be considered as comprehensive.

You are advised to work safely at all times.

1. General Site Safety

All sites are different and have different hazards. Have a general regard for what can cause harm. The construction site itself should be made a restricted area. Particularly at risk are children and animals. You also need to consider the security issue.

Organise your space. Don't open boxes haphazardly and leave components lying around that can get damaged, lost or pose a trip hazard. Be aware of the weather forecast. Wet conditions cause specific hazards. Put controls in place to manage any possible vehicular movement on site. Protect the environment by disposing of your rubbish appropriately.

2. Personal Protective Equipment (PPE)

The following PPE should be worn throughout the construction:

Safety footwear

The following PPE should be worn under certain conditions:

Safety glasses

Hearing protection

Dust mask

Gloves

Follow machinery guidelines where applicable

Be aware of sharp edges on steelwork

It is advisable to have a first aid kit handy – just in case.

Setting the base out

This section explains the necessity to ensure that your base is assembled in the correct position from the parent wall. Any discrepancies should be noted and measures taken to adjust as necessary.

The wall(s) you are fixing the Durabase and conservatory/extension against must be of sound construction and flat, any render, pebble dash, cladding etc. will need to be checked before the Durabase can be fixed into position.

Setting Out Point (SP)

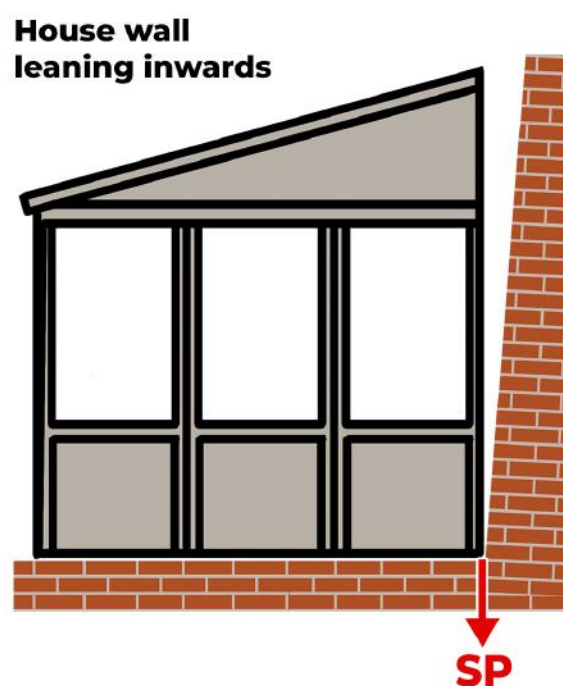
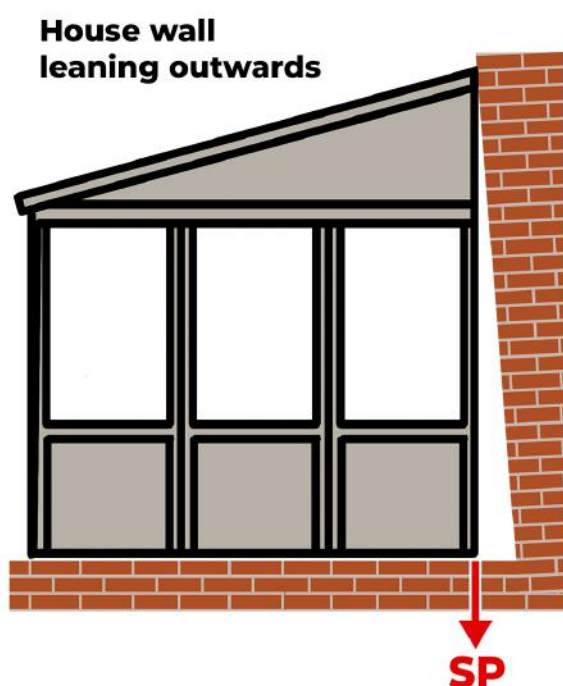
As the conservatory/extension will need to be built at 90° to the ground it is important to check the angle of the wall/s you are building against.

If the wall/s leans outwards, a plumb line should be fixed to the highest point where the roof will touch the wall. Where the plumb line meets the ground is where the base should be set out from (SP). The gap will need to be filled with packers (not supplied). The base and wall size will need to be started from this point.

If the wall leans backwards the base should be started against the wall (SP). The gap in this situation is at the top therefore packers (not supplied) will be needed to ensure the wall is fixed in the correct position and level.

Note

Any additional trims to cover large gaps are not included with the base or conservatory/extension and should be purchased separately.



Preparing the site: pads

Refer to the pad plan

If using ground screws and the Durabase Screw Foot, refer to page 18 onwards.

A Durabase sits on a number of concrete pads which are required under each fixing down leg.

Refer to the pad plan provided for the location and number of concrete pads required.

The back cill does not require concrete pads because this is fixed to the house wall. Any legs fitted to the back cill are used for levelling and need to rest on something firm e.g. paving slabs or blocks.

For each pad dig out a hole, **450mm square x 450mm deep** (the 450mm depth is a minimum and it may be necessary to check the required depth with local building regulations).

The pads should be dug down into firm natural ground, but other factors should be taken into account such as:

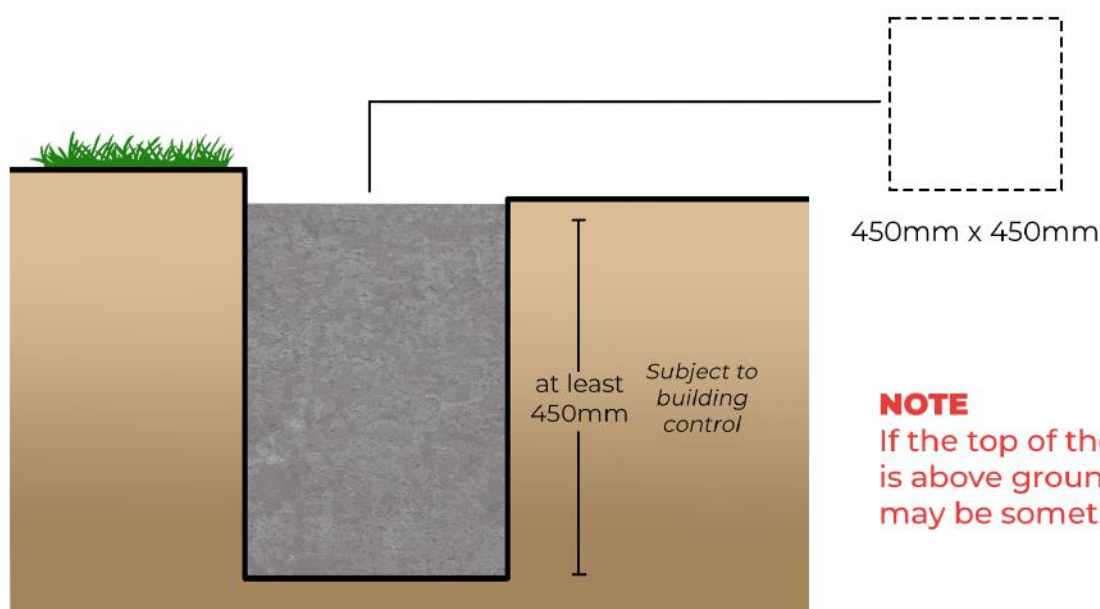
The type of subsoil

Presence of trees/roots

Location and invert of drains

On clay, sand or peaty subsoil further excavation will be required.

Fill the holes with concrete (C40 grade recommended) to the level specified on the pad plan. This measurement is from the top of the pad to the steel (DPC) level.



It is imperative to dig out beneath the base to provide adequate airflow. On all Durabases this is **150mm down from the top of the back sill**.

IMPORTANT

This area should then be covered by the supplied breathable weed suppressant membrane to prevent weed/plant growth.

1. Base assembly: pads

Refer to the steelwork plan

1.0 Screw **lock nuts** onto all **jacking legs**. Screw jacking legs into the nuts welded onto the underside of the back sill section. Position the load-bearing plates (70mm circular washers) under all jacking legs. These jacking legs should be placed on something firm to prevent sinking e.g. paving slabs or blocks.



1.1 Position the 80x80 back sill section against the house wall in the required position, the setting out height of this section depends on the thickness of the underfloor insulation being used. **Refer to the table below.**

Durabase Type	Height (from the top of the chipboard to the top of the back sill)
Standard	18mm
Plus 100	131mm
Plus 120	151mm

IMPORTANT

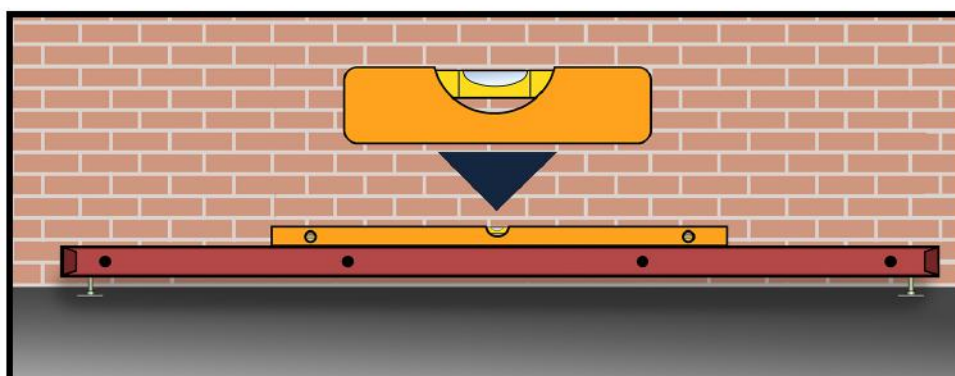
When matching your extension floor level to the existing house floor level you will also need to add the thickness of your floor finish to these measurements.

Durabase Plus Note - The back sill section (against the house wall) will be shorter than the overall base size because of the way the Durabase Plus is constructed. The back sill section is set down lower than the side sills to allow for the ply and underfloor insulation.



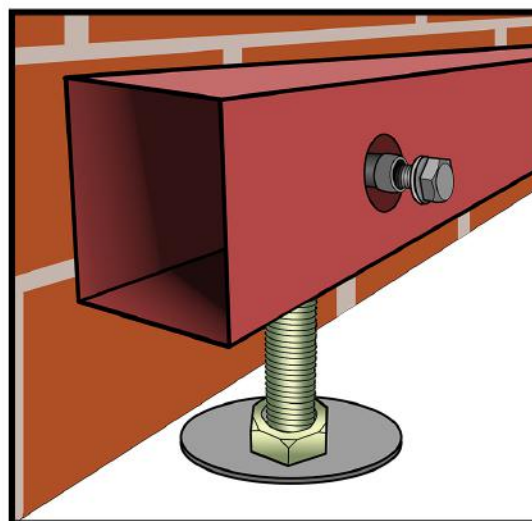
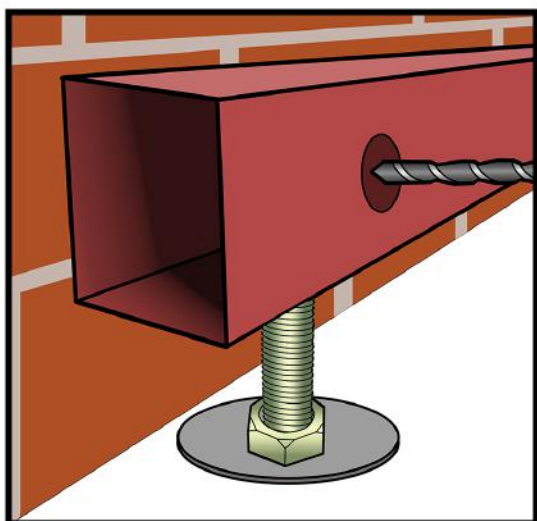
If the chipboard floor panels land lower than the properties DPC it will be necessary to insert a vertical damp-proof barrier.

1.2 Ensure the back sill is level then pilot drill through the fixing holes using a 10mm masonry drill bit.



Base assembly pads continued

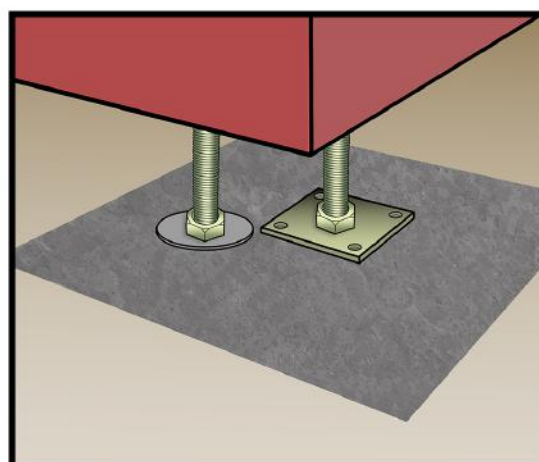
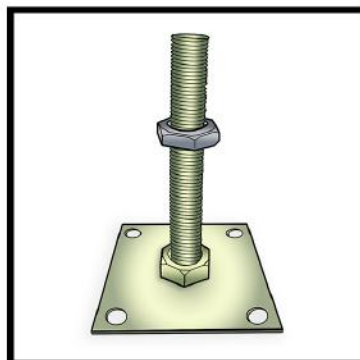
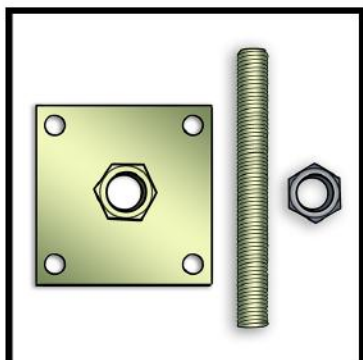
1.3 Remove the back sill section and re-drill pilot holes to a depth of **70mm** using a **16mm masonry drill bit**. Using the **10 x 110 hex anchors**, insert the anchor sleeve into the holes and remove the bolts. Replace the back sill section, insert bolts and tighten using a **17mm socket**.



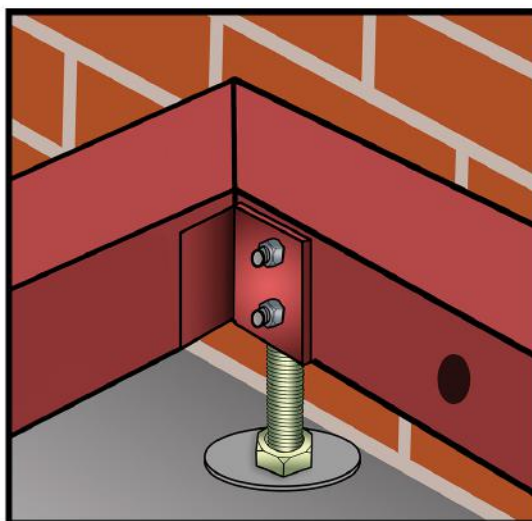
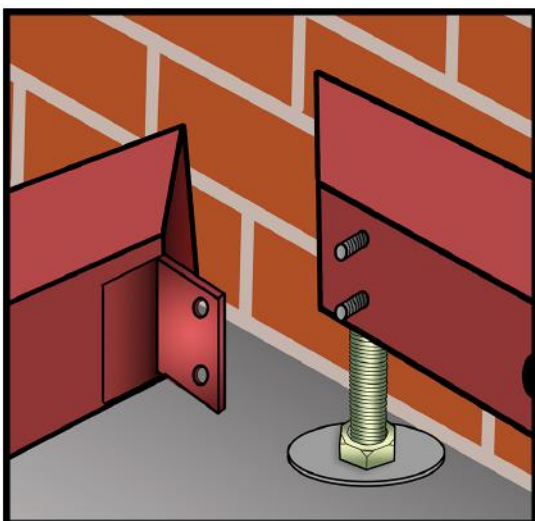
1.4 Assemble **fixing down legs**, including lock nuts, and screw into the nuts welded onto the underside of the side sills where there is a pad.

Note

A fixing down leg is required on each pad to secure the base. In certain positions, there will be a second slot where a jacking leg will also be required to assist with levelling the base.



1.5 Fit the side sills to the back sill section by locating them onto the pre-welded studs with the corner fixing bracket. Fix with nut supplied but do not fully tighten at this stage.



Durabase Plus Note - The side sill sizes vary depending on the model of Durabase you have ordered.



The Durabase Plus 100 and Plus 120 have a larger side section to allow for the thicker insulation required to pass Building Regulations.



1.6 Screw the **jacking legs** and **fixing down legs** into the nuts welded onto the underside of the front sill section.

1.7 Working your way around, adjust the fixing down legs to the required height and level using a spirit level. Check that the base is square and tighten all joints. Re-check levels and tighten lock nuts on the fixing down legs.



Your Durabase should now be square and level!

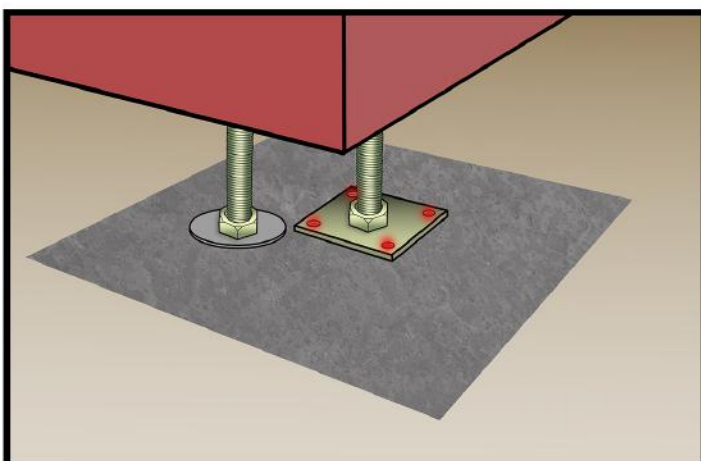
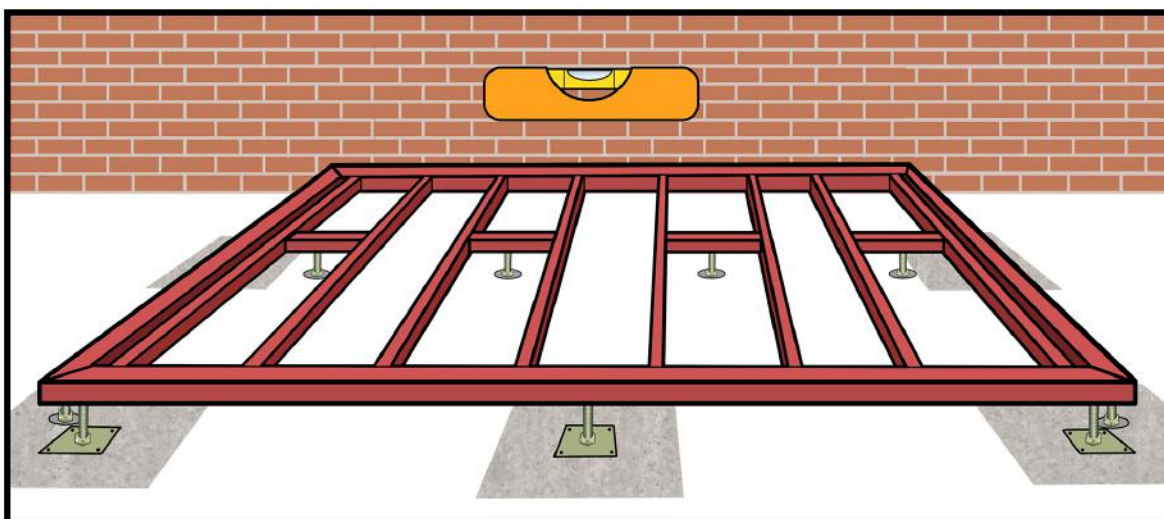
Base assembly pads continued

1.8 Slot the floor joists into the 'u' support brackets, and secure using **M6 x 60 bolts** and nuts supplied. Tighten with **10mm spanner**. The joist supports, if supplied, should be fitted centre of the joist length and the jacking legs should be adjusted and locked at this stage.



Note

Not all Durabase products are supplied with joist supports. Similar to jacking legs, joist supports should be placed on something firm to avoid sinking e.g. paving slabs or blocks.



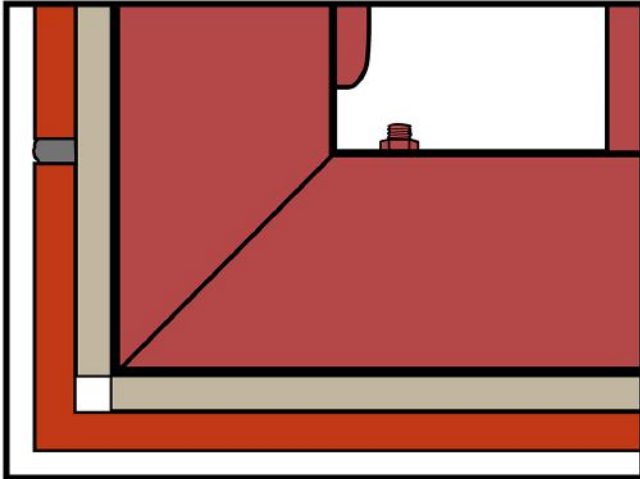
1.9 Fix leg assembly down to concrete pad using **10 x 50mm sleeve anchors** supplied. Pre-drill concrete using a **10mm masonry bit**. Only one fixing is required per leg.

2. Fitting skirt panels

Refer to walls and skirt plan

For plain and rendered skirts, please see additional information at the bottom end of this section.

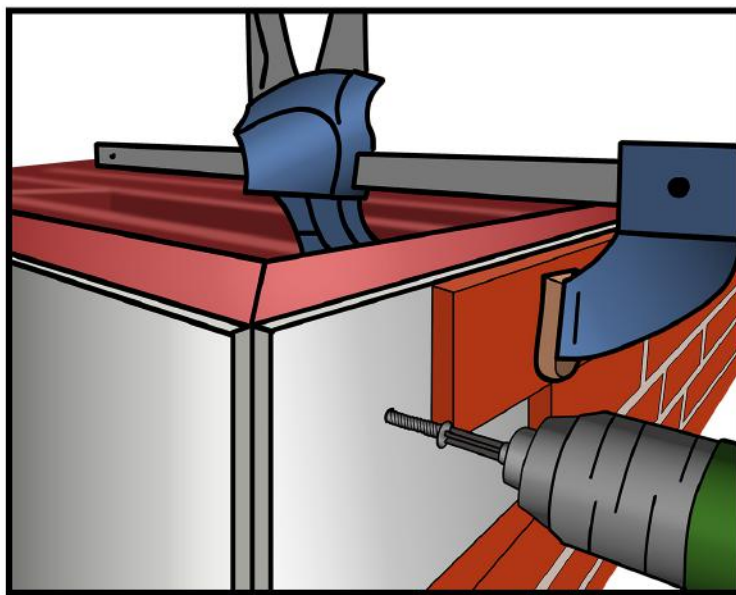
2.0 Lay out the skirt sections in the order they are to be fitted. The panels are lettered to correspond with the skirt plan and ensure the brick slips are flush with the top edge. Fit the panels so the top edge lines up with the top edge of the steel base.



Note

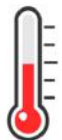
The ends of the panels that correspond with an external corner of the base frame must line up with the edge of the steel base frame. Do not overlap panels on the corners.

2.1 Using the **50mm self tapping screws** supplied, fix where the brick slips are still to be fitted and through perpendicular mortar joints if extra fixing is required.



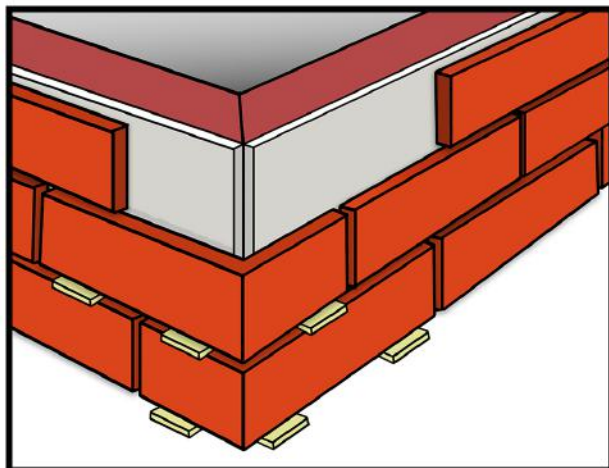
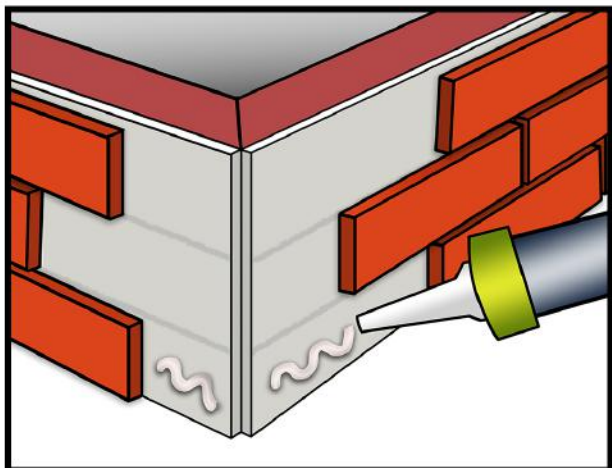
Fitting skirt panels continued

2.2 Once fully constructed, use the adhesive supplied to fix the spare brick slips in place. You will need to use some **10mm spacers** to position the brick slips on the skirt panels. Press the bricks firmly into place.



Note

Be aware of the weather forecast during the building process, the construction adhesive supplied can be used in temperatures between 5°C and 35°C.

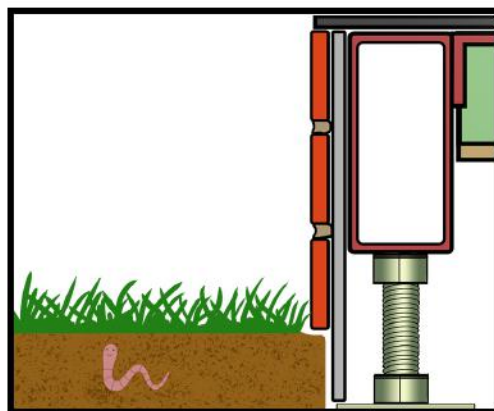


For mortar/pointing instructions skip to [section 4 on page 14](#).



Durabase Plus Note - Plus 100 bases with a 225mm skirt come with an un-bricked 35mm cement board bottom to allow for backfilling from the outside.

This additional 35mm enables us to have the air gap under the base that is required.



Ready to Render and Plain Skirts

Fix in the same way as brick skirts using the **50mm screws** provided. You will need to cut the boards to length before fitting. It is recommended that air vents be fitted in the side skirt panels.



Note: On **Plus bases** the vent location is cut into the steel so vent cut outs in the skirt must match the steels vent locations. Vents are cut oversize in the steel, cut skirts to air brick size.

For render finish guidelines please look at [section 7 on page 17](#).

3. Fitting the walls

Refer to walls and skirt plan

Note

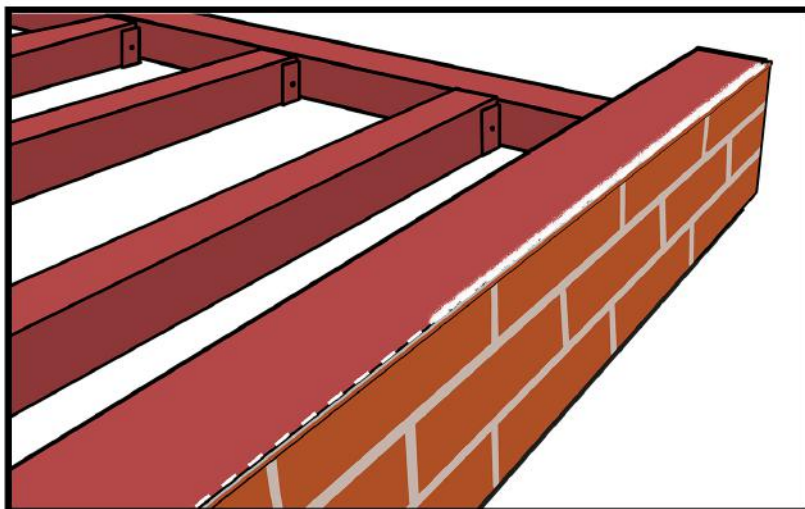
Please check with local authorities if a Radon Gas barrier is required as this may need to be fitted before the walls.

3.0 Before fitting the walls, fill the area of the base below with insulation. This ensures the entire floor area has insulation fitted.



Durabase Plus Note - Make sure you have fitted the additional steel rail to carry the internal edge of the wall carcass.

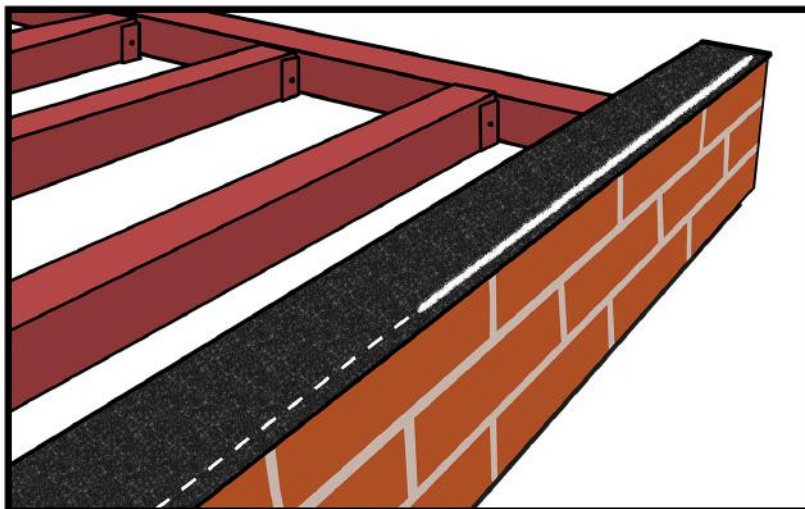
3.1 Prior to fitting the DPC lay a line of construction adhesive (supplied) along the join between the steel frame and the back edge of the skirt panel.



3.2 Lay the DPC so that the outer edge lines up with the outer edge of the skirt panel (allowances may need to be made for render thickness or other external finishes).

Cut to length and press into the bead of adhesive.

Lay another bead of construction adhesive along the top edge of the DPC **approximately 15mm** back from the outer edge.



Fitting the walls continued

3.3 Starting with the first panel against the house wall, place a bead of mastic **approximately 15mm** from the outer edge of the end that butts against the house. Offer the panel up to the house wall but do not fix it in position.

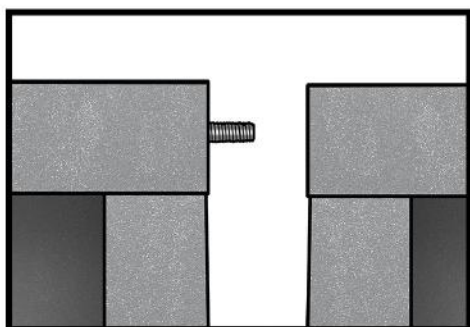
The inside edge of the steel wall carcass should line up with the centre of the first parallel floor joist.

Reminder: The wall panels are heavy on the outer side and could tip over easily.

Note

For walls with more than one level, fix the entire lower level first. Continue to assemble subsequent levels once the lower level is fixed.

3.4 Following the layout plan, place the next wall panel so that it continues on from the first, seal joins with a bead of mastic approx. 20mm from the outer edge. Insert the four **M8 x 20 bolts** supplied to fix the panels together. Do not fully tighten at this stage. Continue until all wall panels are in place.



Note

If you cannot utilise the holes provided, drill a 10mm diameter hole through the metalwork in the required position. Secure with the frame fixings supplied.

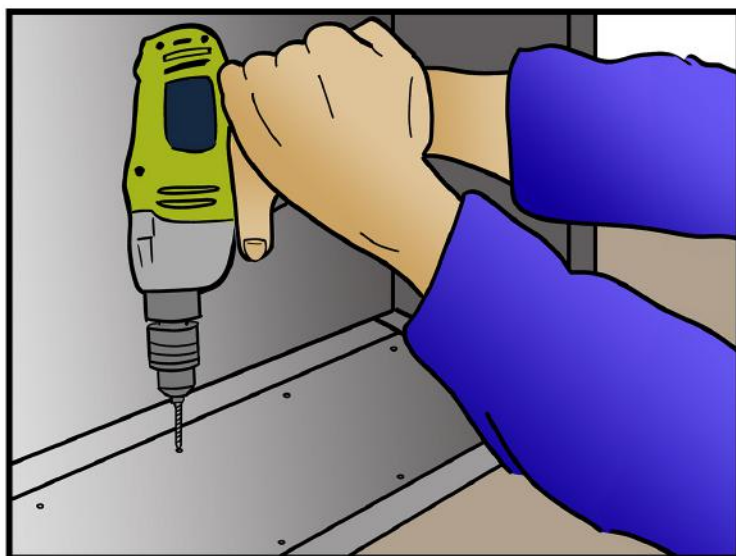
3.5 Once all panels are correctly sited, you can secure them to the house wall using the 60mm nylon frame fixings. Check that the panel is upright before drilling an 8mm diameter hole 80mm deep through the holes provided into the house wall.



3.6 Once fixed to the house wall, check that all panels are in line. Where the skirt has the same finish as the walls, ensure the wall is set flush with the skirt. For render walls and brick skirts, ensure the render wall is set back the thickness of the render finish being applied.



The panels can now be fixed to the steel base using the **10 x 19 hexagon-headed** self tapping screws supplied. Fix the walls to the ring beam and the first joist on the inside edge.



Note

It will help to pre-drill the wall panels with a **5.5mm diameter** drill, taking care not to drill through the steel base. Fix as close to the flange edges as possible and fix through double flanges where possible.

*Max spacing for fixings: **600mm** on each edge.*

Then tighten all M8x20 bolts in the panels making sure that all panels are correctly positioned.

4. Mortaring the walls and skirt

4.0 Once fully constructed, seal the joins in the brick backer panels with the construction adhesive supplied. Use the same adhesive to stick the spare brick tiles in place.

Note

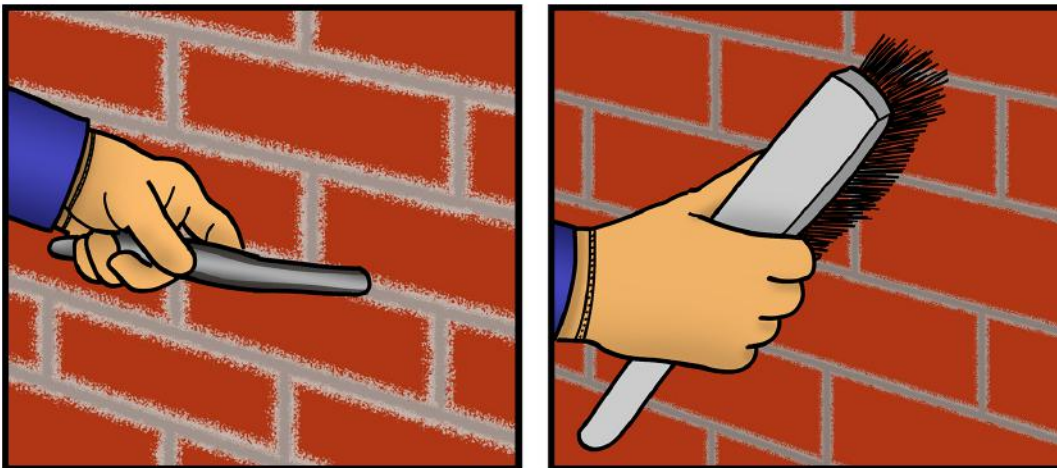
You will need to use some 10mm spacers to position the brick slips on the skirt panels. Press bricks firmly into place.

4.1 To point the joints, mix the mortar supplied with water until a consistency of a stiff cream is achieved. Fill the joints around the bricks completely using a pointing bag, these can be purchased from Durabase. Ensure you follow the instructions on the mortar supplied.

Note

Check correct consistency by filling the bag, the mortar should hang from the end of the nozzle when the bag is shaken down.

4.2 Allow the mortar to dry until fairly firm. We would recommend that the mortar is firm enough that when pushed in with a finger only a small indentation is left behind. It should have a dull finish, be moist but not wet and somewhat gritty. Use a curved pointing tool to strike off mortar and then, when almost dry, remove any remaining mortar with a soft brush.



Note

Do not be tempted to strike off when the mortar is too moist. Overworking the mortar may create colour changes. Every time you work it, the moisture is drawn out and could result in a lighter-coloured mortar when dry.

It is advised to fit the conservatory or remainder of the extension at this stage.

Please follow your conservatory or extensions manufacturer's assembly guidelines.

Conservatory sills can be secured to the top of the walls and steel base, using the 60mm long self-drilling screws supplied.

5. Flooring

Durabase Standard flooring

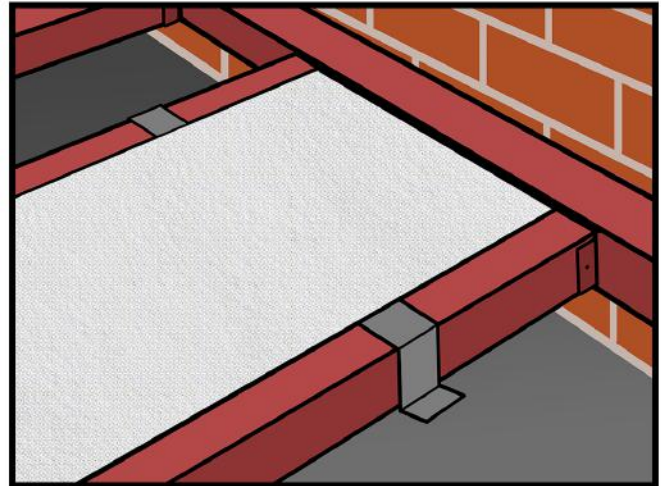
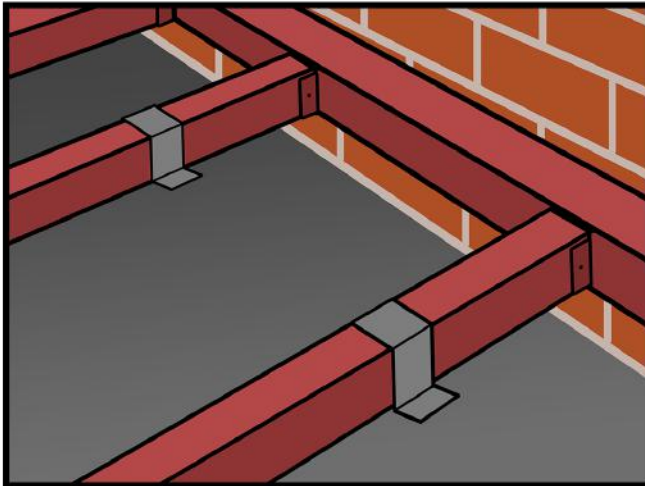


Skip to section 6 on page 16
for Durabase Plus

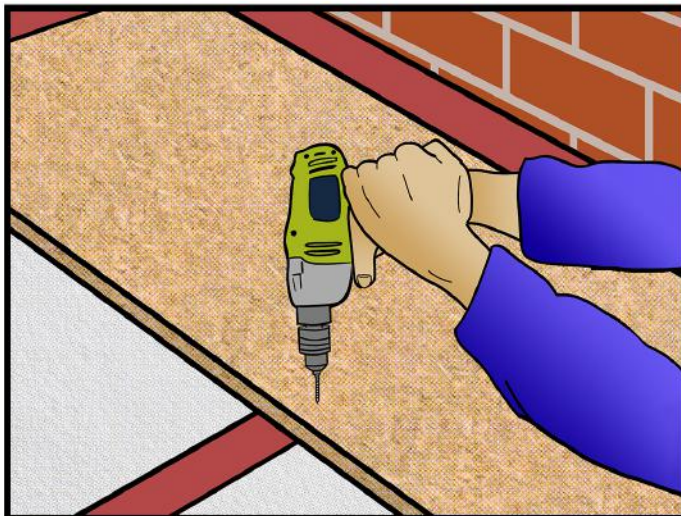


5.0 Place top hat insulation securing brackets at suitable intervals over the floor joists.

5.1 Cut to size and lay the polystyrene to fill the gaps between the joists.



5.2 Start laying the chipboard flooring from the rear left-hand side of the base, looking towards the house. Use the off-cut from the last run to start the next. Always trim the boards to ensure the joints fall on a joist. It is advisable to glue the joints with waterproof wood glue. **All board joints should be staggered.**



5.3 Secure the flooring to the joists using the **50mm self-tapping screws** supplied.

Your Durabase will include some 'Floor Edge Strips', they are plastic angles **approximately 2500mm** long. They are to be tucked under the edge of the chipboard flooring where it is unsupported by steelwork. e.g. where the joists disappear under the modular wall, and in the door aperture, they can be cut to length as required.

6. Durabase Plus Flooring



Note

This is a floating floor, so if finishing with a floor tile or similar, we recommend seeking advice. If extra fixings are required, long self-drilling screws are available from Durabase (price on request).

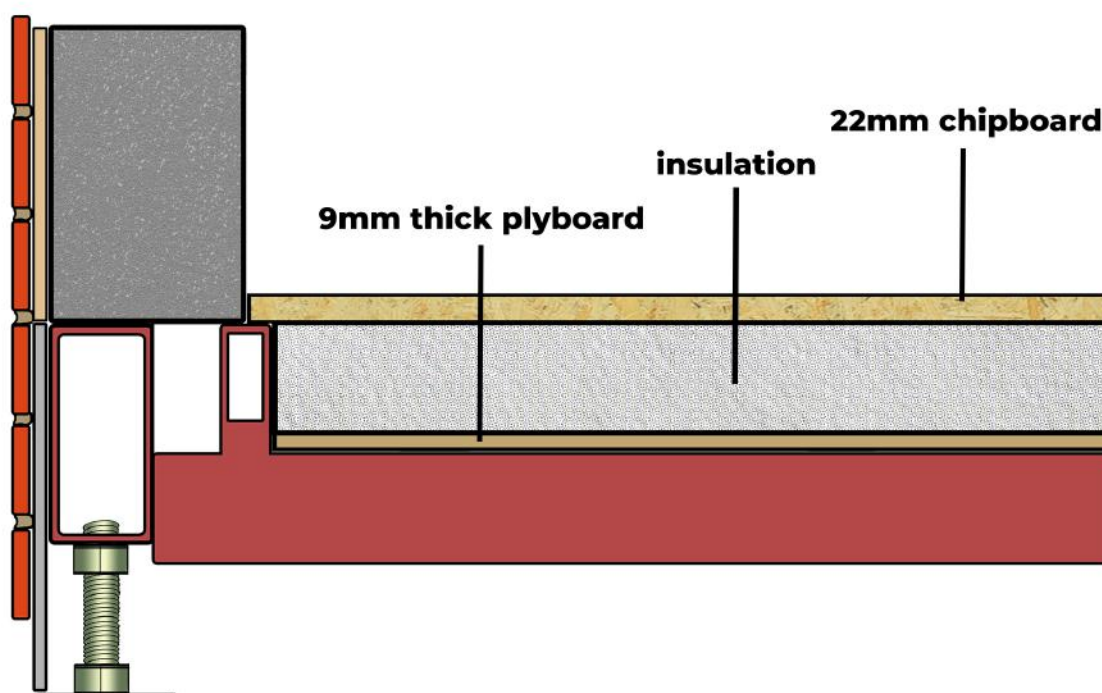
Tip: It is advised to make a note of the joist centres so that lines can be drawn on the flooring to guarantee the correct fixing down positions into the steel joists.

6.0 Deck out the floor area with 9mm thick plyboard, fixing down with the **50mm self-drilling screws** supplied.



6.1 Once the 9mm ply is fitted, fill the same area with the underfloor insulation. The top of the insulation will finish flush with the top of the outer steel frame.

6.2 Start laying the chipboard flooring directly onto the insulation from the rear left-hand side of the base, looking towards the house. Lay the sheets the correct way up as marked. Use the off-cut from the last run to start the next. It is advisable to glue the joins with water-proof wood glue.



Note

It is recommended to allow a 10mm expansion gap around the outside edges of the flooring. The floor is now ready for finishing with your choice of covering.

7. Rendering Guidelines

We advise all work should be carried out by competently trained people who have experience using render.

For Render Walls when the walls are in position, there should be a gap of **approximately 3mm to 5mm** between the edges of the external render board for correct jointing.

DO NOT apply sand and cement, monocouche, dash or thick coat render system to the render board supplied.

Taping and Jointing

Immediately after installing the construction, protect the framework from weathering by filling all the joints. Fill the gaps between the board with exterior joint filler and then spread it over the face of the board, ready to take the tape.

Immediately embed **Exterior Joint Tape (10cm)** or **Exterior Reinforcing Tape**, centred over all of the joints. Scrape the excess exterior joint filler from the exterior tape leaving it just covered.

Cover the screw heads with exterior joint filler.

Corners are protected by applying an exterior basecoat and then embedding a corner profile in a similar way to the joint tape.

Reinforce window and door corners with extra pieces of reinforcing mesh, cut to size **50cm x 30cm**, embedded into exterior basecoat as per corner profiles.

Finishing

Refer to installation instructions from the selected render supplier.

To prevent damage caused by prolonged periods of wetting, it is preferable to stop the render above DPC level. Render should be applied at a minimum 150mm above ground level and above DPC. If applied under, a render drip should be used to stop damp bridging.

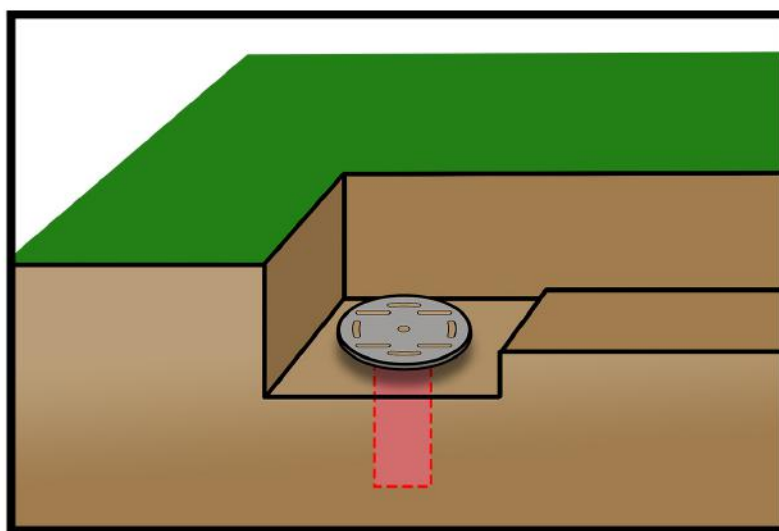
Preparing the site: ground screws

Refer to the screw plan

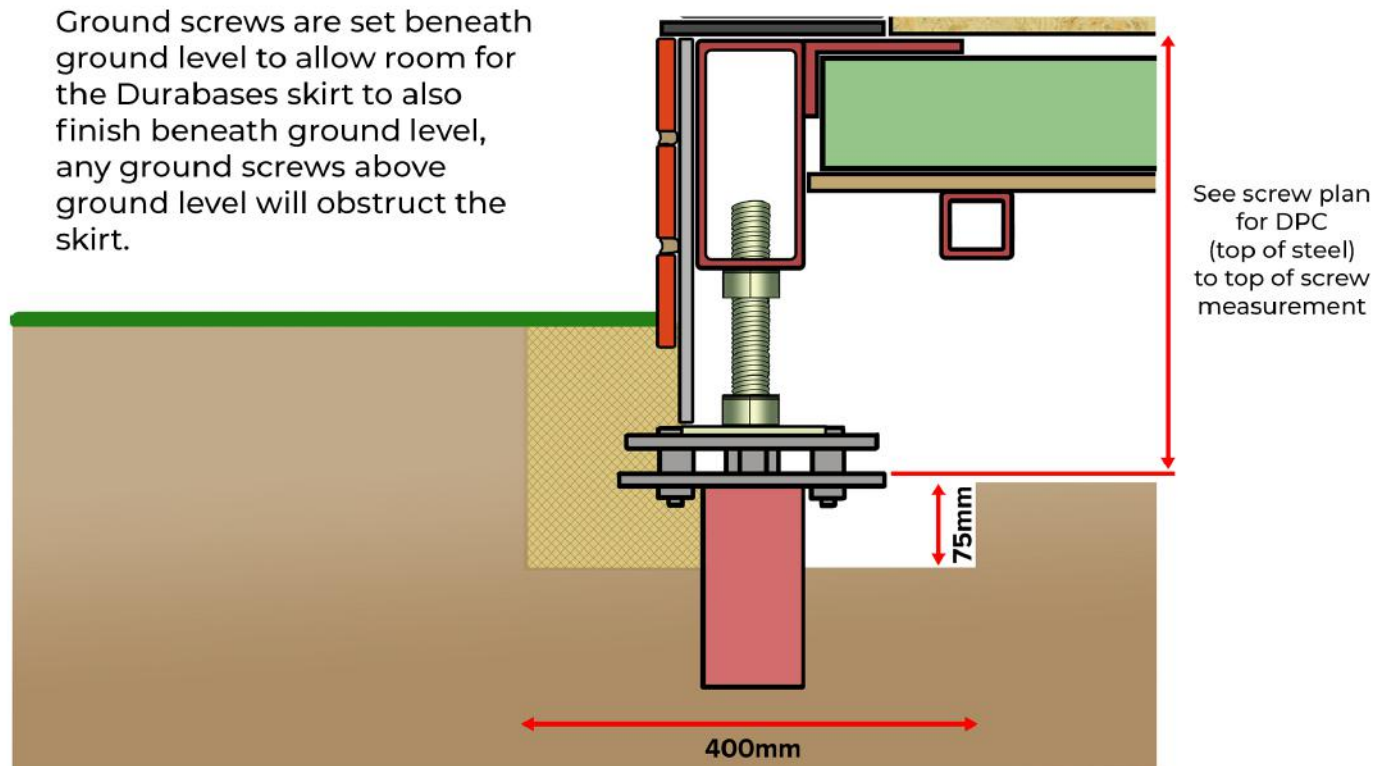
A Durabase can also be fitted on ground screws using The Durabase Screw Foot.

As you would with pads, refer to the screw plan for screw depths and positions. The depth is calculated from the base's DPC to the top of the screw plate.

The screws also require a **400mm x 400mm x 75mm** deep hole dug beneath the top plate of the screw to allow access for bolt tightening.



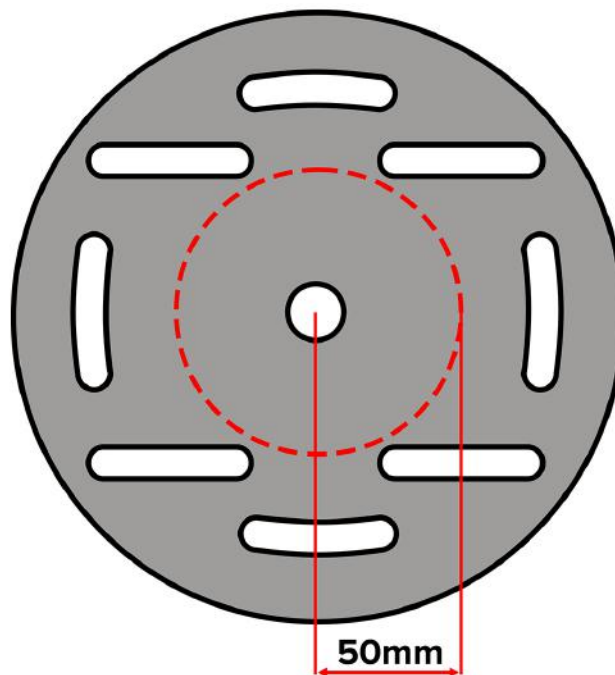
Ground screws are set beneath ground level to allow room for the Durabases skirt to also finish beneath ground level, any ground screws above ground level will obstruct the skirt.



Preparing the site: ground screws continued

Screws need to be fixed accurately to the positions shown on the screw plan. The Durabase Screw Foot has a side to side tolerance of 50mm.

Any screw over 50mm away from the position labelled on the screw plan needs to be corrected by the screw company. It is not suitable to have the jacking leg more than 50mm away from the centre of the screw top.



IMPORTANT

It is imperative to dig out beneath the base to provide adequate airflow. On all Durabases this is 150mm down from the top of the back sill, this area is then covered by the weed suppressant membrane supplied.

It is the responsibility of the ground screw supplier to demonstrate that the applied vertical and horizontal forces can be resisted by the installed ground screws. An assessment of the vertical load, wind pressures and subsequent lateral forces applied to the ground screws must be undertaken by the ground screw supplier or building provider on a project-by-project basis in accordance with the relevant wind loading codes of practice and the geometry of the proposed building.

Test certificates that state the passing of the required standard for building control must also be supplied.

8. Base assembly: ground screws

Refer to the steelwork plan

8.0 Screw **lock nuts** onto all **jacking legs**. Screw jacking legs into the nuts welded onto the underside of the back sill section. Position the load-bearing plates (70mm circular washers) under all jacking legs. These jacking legs should be placed on something firm to prevent sinking e.g. paving slabs or blocks.



8.1 Position the 80x80 back sill section against the house wall in the required position, the setting out height of this section depends on the thickness of the underfloor insulation being used. **Refer to the table below.**

Durabase Type	Height (from the top of the chipboard to the top of the back sill)
Standard	18mm
Plus 100	131mm
Plus 120	151mm

IMPORTANT

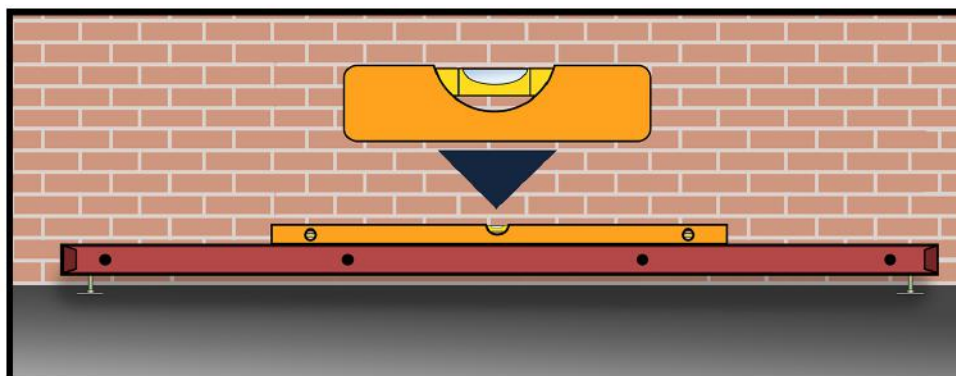
When matching your extension floor level to the existing house floor level you will also need to add the thickness of your floor finish to these measurements.

Durabase Plus Note - The back sill section (against the house wall) will be shorter than the overall base size because of the way the Durabase Plus is constructed. The back sill section is set down lower than the side sills to allow for the ply and underfloor insulation.

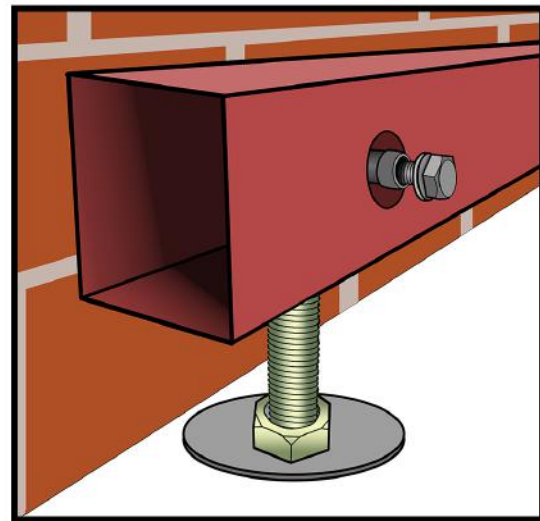
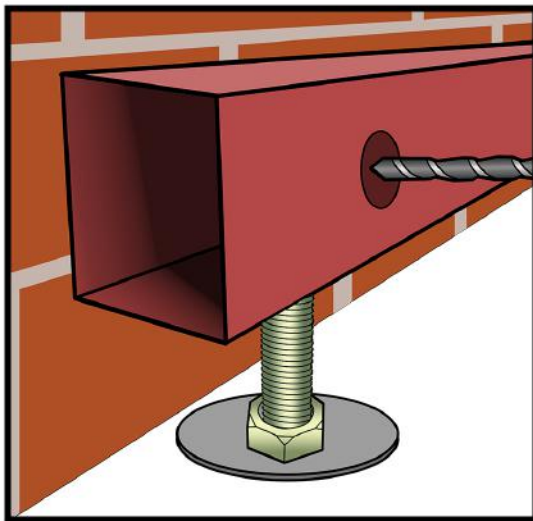


If the chipboard floor panels land lower than the properties DPC it will be necessary to insert a vertical damp-proof barrier.

8.2 Ensure the back sill is level then pilot drill through the fixing holes using a 10mm masonry drill bit.



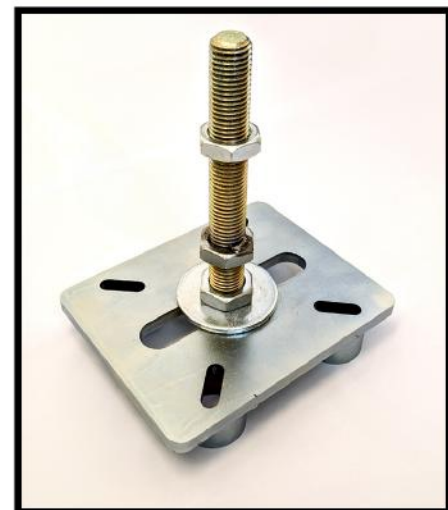
8.3 Remove the back sill section and re-drill pilot holes to a depth of **70mm** using a **16mm masonry drill bit**. Using the **10 x 110 hex anchors**, insert the anchor sleeve into the holes and remove the bolts. Replace the back sill section, insert bolts and tighten using a **17mm socket**.



8.4 Using the preassembled **Durabase Screw Foot and leg** and ensuring the locking nut is fitted, screw the leg into the nuts welded onto the underside of the side sills.

Note

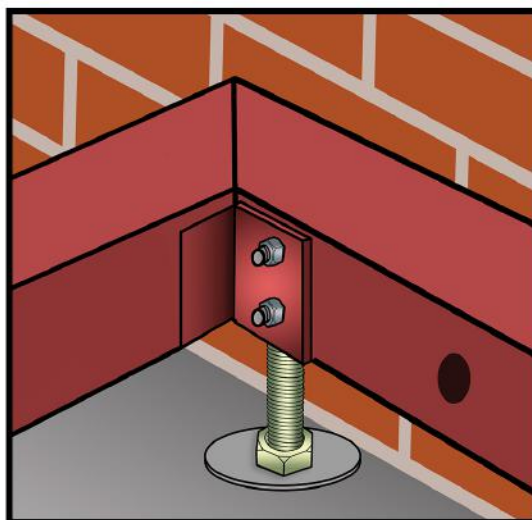
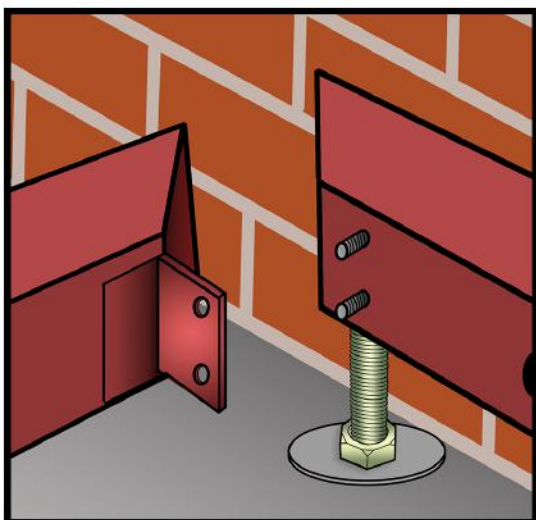
The middle nut is welded onto the leg to assist with height adjustment. You should also have a locking nut above this to lock off the leg to base.



IMPORTANT

While the base isn't finally fixed, be aware that there is a risk of the base moving and dropping off the ground screws. We strongly recommend getting a temporary fixing through the leg and ground screw at this point.

8.5 Fit the side sills to the back sill section by locating them onto the pre-welded studs with the corner fixing bracket. Fix with nut supplied but do not fully tighten at this stage.



Durabase Plus Note - The side sill sizes vary depending on the model of Durabase you have ordered.



The Durabase Plus 100 and Plus 120 have a larger side section to allow for the thicker insulation required to pass Building Regulations.



8.6 Screw the Durabase Screw Foot and leg into the nuts welded onto the underside of the front sill section.

8.7 Making sure the bottom locking nut is lifted and the large 70mm washer is loose, **ensure the 24mm Jacking leg (threaded bar) is taking the weight of the base**, working your way around, adjust the Durabase Screw Foot and legs to the required height using the welded locking nut and level using a spirit level.



Note

No leg should be more than 50mm away from the centre of the ground screw. If this occurs the ground screw will need to be moved.

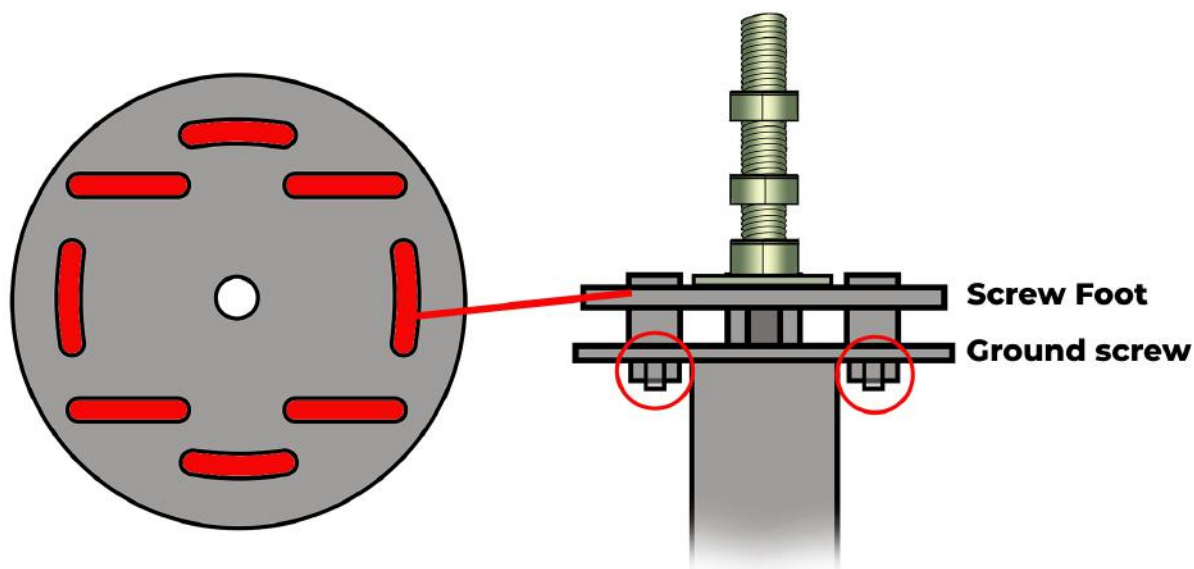
Check that the base is square and tighten all joints. Re-check levels and tighten the lock nuts on the top of the Durabase Screw Foot and leg.

Your Durabase should now be square and level!

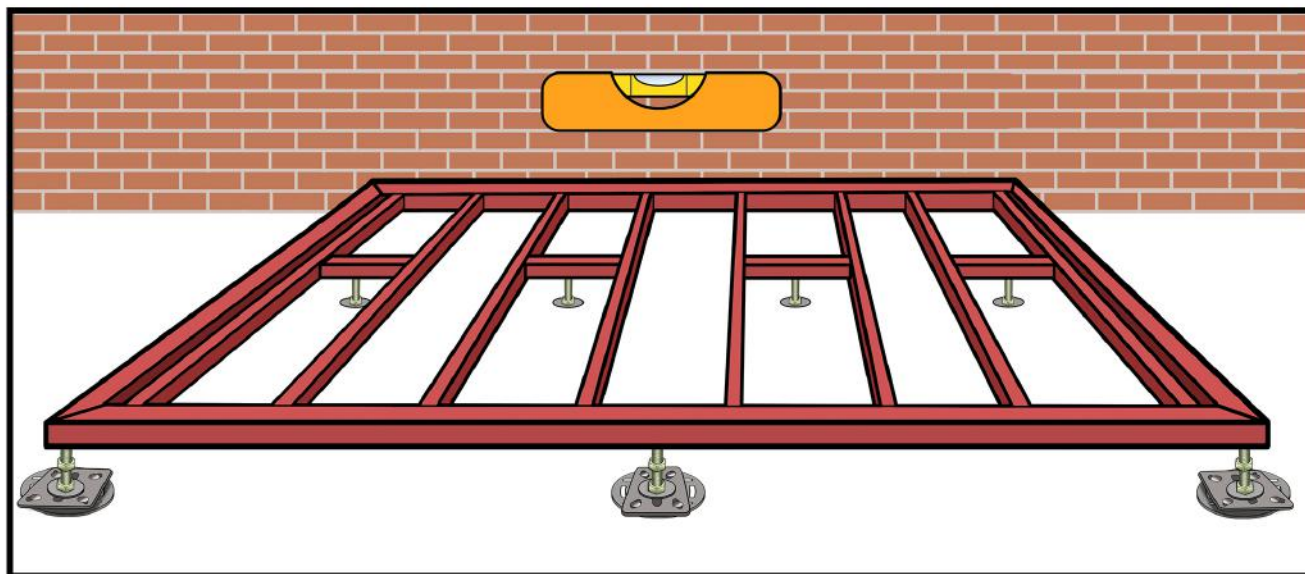
8.8 Now the base is sitting on the ground screws and level, locate the foot plate to make sure 4 bolts can be used to fix it down. Turning the plate and adjusting the position of the slot will help find the best location. Fixings need to go through 4 of the 8 highlighted slots. The plate will always be situated centrally above the ground screw and all 4 spacers will be in contact with the top of the ground screw.

Note

For ground screws that are on a slight angle, use the packing shims supplied to ensure all points of the plate are in contact with the ground screw. The weight of the base still needs to be transferred through to the ground screw via the leg.



8.9 Fix the Durabase Screw Foot down to the ground screw using 4 x 60mm coach bolts supplied. **Tighten using the nuts making sure the washer has been used between the nut and the underside of the ground screw.** Lock into position using the lower locking nut to secure the entire leg.



Continue from section 2 on page 9 for fixing skirt panels.



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