TECHNICAL NOTE – AUGUST 2024 – REV 6

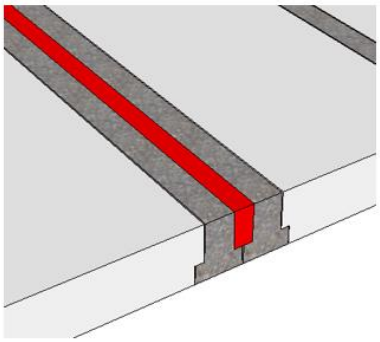
# JETFLOOR INSTALLATION

This Technical note aims to give the user guidance on how to install the different components of the Jetfloor system.

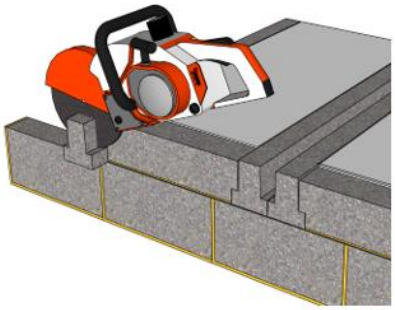
## Concrete beams

Bison precast supply beams in 150mm depths and 225mm depth. Follow the layout shown on the approved drawings. Beams shall be placed on top of a DPC.

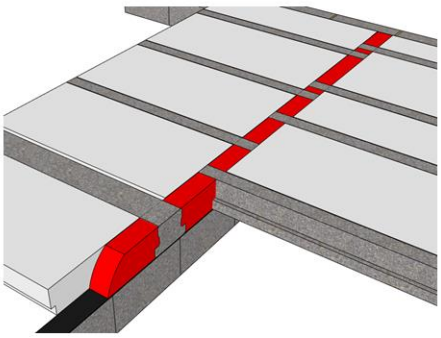
All beams are manufactured in 50mm increments and square ended. Other beam lengths and splays are to be cut by the installer.



On staggered bearings the gaps between the beams shall be filled in with either cut and bedded blocks having equal strength to the blocks used in the super structure of with minimum C20 in-situ concrete.



Pairs of beams must be concreted together with a minimum C20 grade concrete.



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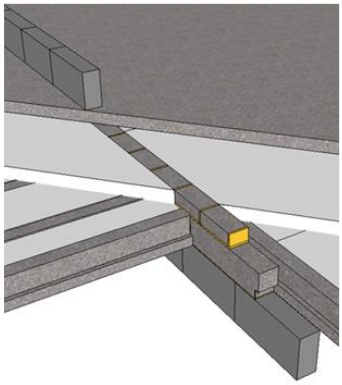
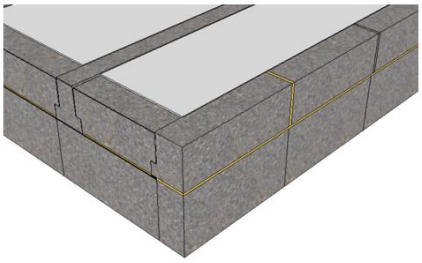
## JETFLOOR INSTALLATION

### Blockwork



Loadbearing internal walls must be built through with concrete blocks. Never lay polystyrene in this zone.



Thermalite corner details. Thermalite blocks are always bedded, and perp joints fill on the edge block JL.

Blockwork (by others) forms the screed rail.

### EPS components

Within the Jetfloor system there are four EPS components, infill blocks (wide / narrow block), inlay sheet, overlay sheet and perimeter strip as shown in white in *Figure 1*.

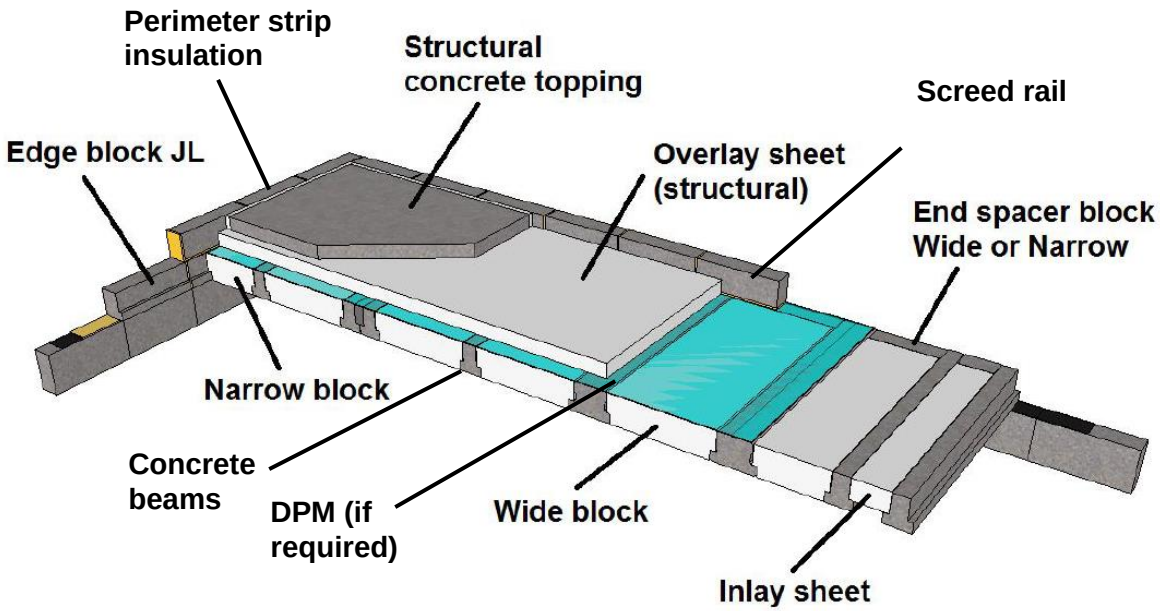



***Figure 1 – Jetfloor components***

The quantity of EPS supplied includes an allowance for small offcuts which can be recycled. Additional polystyrene can be purchased from Bison Precast as required. Surplus material should be retained and used in adjacent plots resulting in zero waste.

The quantity of polystyrene utilised in the installation will vary depending on the methods adopted by the installer. Following the methods contained within this technical note will result in the minimum amount being used.

Bison Precast supply the materials for the floor as shown on our drawing. You will not have the correct materials if you change the installed layout.

If you need to make a layout change, speak to us for advice.

Further advice can be obtained from our Jetfloor installation video which can be found here:

***https://www.forterra.co.uk/bison/insulated-ground-floors/***

***https://www.forterra.co.uk/wp-content/uploads/2021/02/forterra-jetfloor-installationguide.mp4***

Polystyrene should be stored where it is sheltered from wind and direct sunlight to avoid UV degradation.

## Infill blocks – narrow / wide

The infill blocks are supplied in two widths, 340mm (narrow) and 530mm (wide), with 150mm thickness and length of 1200mm. Working from a start point in the corner, a full-length narrow block [*Ref 1* in *Figure 1*] is inserted between the prestressed concrete beam and the L-shape perimeter Psi block (edge block JL). Working down the length of the beam full length blocks are inserted [*Ref 2, 3* and *4*]. Should the last block [*Ref 4*] need cutting then the overlapping offcut is used to start the adjacent bay in the same way that a laminate floor is laid. Note that the minimum length of offcut that can be used is 300mm. There is no requirement to start / finish each row with a full length block nor is there a requirement to lay the blocks with staggered joints between adjacent bays.

If the length of the offcut [*Ref 4*] is less than 300mm [100mm in this example] then the infill block shall be cut to a length that leaves a 300mm gap [*Ref 4a*]. The offcut [*Ref 4b*] can be used to start the next run. To complete the first run 300mm [*Ref 5a*] is cut off a 1.2m full block and inserted with the remaining 900mm [*Ref 5b*] used in the next run.

The above rules are used to fill in the remaining run between the beams. In the example shown below the stated rules resulted in 29 full length narrow blocks being used to complete the entire plot and a 350mm surplus piece which can be used to start the next plot resulting in zero waste. If a simple method is used whereby full blocks are used and the 100mm overlap [*Ref 4*] simply cut off with no regards to the minimum 300mm length, then the floor would require 30 full length narrow blocks being used and an 850mm surplus piece which can be used to start the next plot. There would also be 7No. 100mm long pieces that cannot be used as they are too small and thus require placing in a skip.

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On some occasions there may be a need to start with a beam tight to the perimeter wall, in this case a wide block can be used to fill in the first bay.

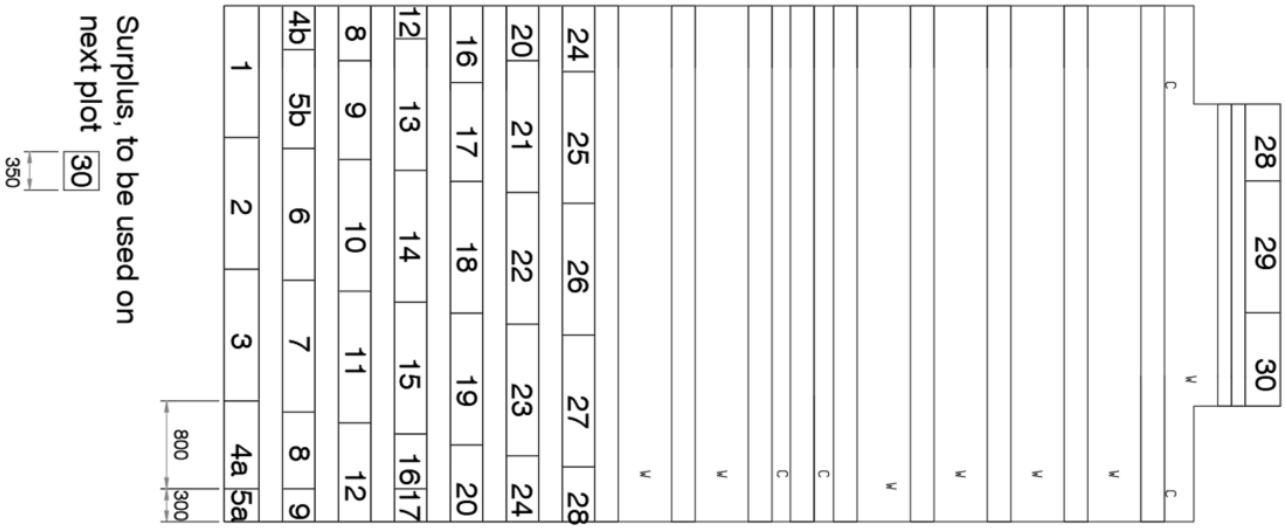


***Figure 1 Example Layout - Following Rules***

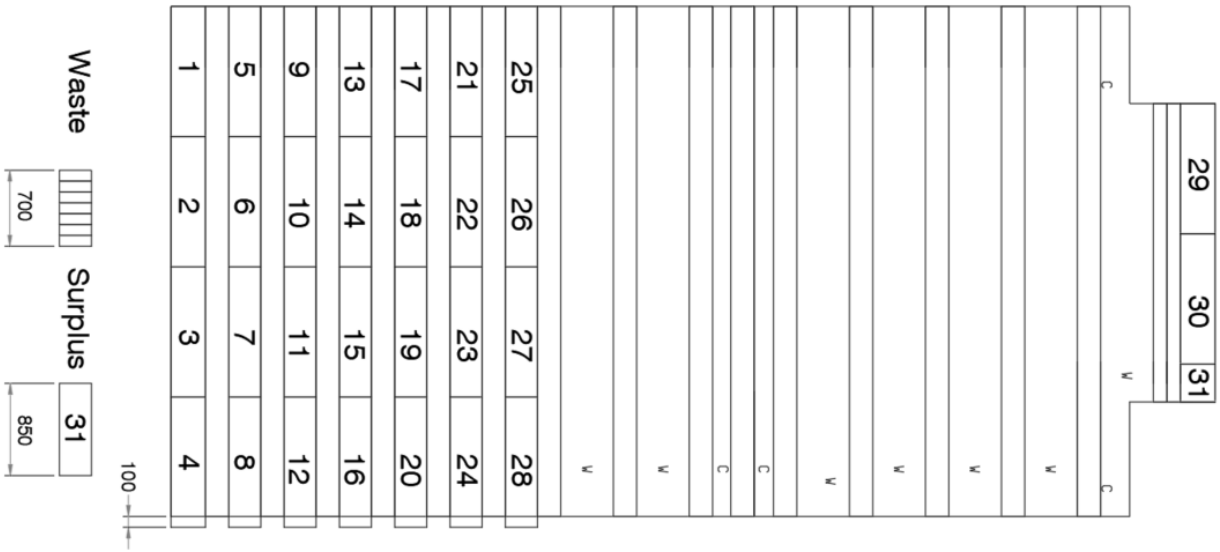


***Figure 2 Example Layout - Not Following Rules***

The location of the EPS infill blocks are shown on the drawing, see extract in *Figure 3*, and denoted by the following:

**W = Wide poly blocks**
**N = Narrow poly blocks**
**C= Cut 100mm inlay sheet**


***Figure 3 Extract showing EPS Legend***

It is important to not stack materials on the polystyrene blocks. Wherever possible operatives should avoid walking on the EPS infill blocks to avoid damaging them.

## Inlay sheet – 100mm thick

The infill sheet is supplied in full sheets with a width of 1.2, length of 2.4m and depth of 100mm. It is to be used when a floor layout can not be filled with standard narrow or wide EPS infill blocks, i.e., there may be a need for a run that is smaller than a narrow block.

In this case the 100mm thick inlay sheet is cut to suit the required width and inserted in the run following the same method as for the EPS infill blocks. On some occasions there may be a need to start a floor with the cut inlay sheet along the perimeter wall.

It is important that no run can be wider than 295mm between the bottom edge of the beams as shown in *Figure 4*.

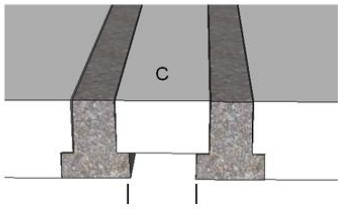


***Figure 4 Maximum Cut***

When filling in the runs between the beams you will need to work towards the cut bay 'C' if shown on the drawing to ensure that all components fit tightly together.

The 100mm thick infill sheet is not a structural grade EPS and can not be used over the floor or in the door threshold. It can not replace the structural grade overlay sheet.

Where multiple beams are used, i.e. pairs or triples where the bottom of the beams are in contact with each other, then the beams shall be concreted together with minimum C20 grade concrete. The 100mm inlay sheet is NOT to be used between these beams.

## Perimeter insulation – 75mm or 150mm high x 30mm wide

Depending on the height of the perimeter insulation being used there are two methods used to install it.

- 75mm high – this is to be installed after the overlay sheet has been laid. From a start point place the strip of insulation against the wall and secure in place. This can be achieved via the use of adhesive tape, nails, or screws into the aerated concrete screed rail. Shown in *Figure 5*.
- 150mm high – this is placed against the perimeter wall and secured in place by wedging the overlay sheet against it. Shown in *Figure 6*.

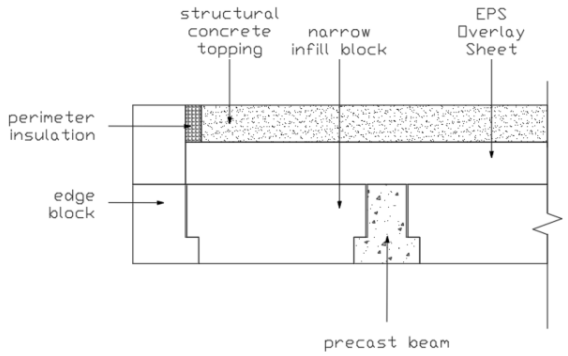


***Figure 5 - 75mm perimeter strip***

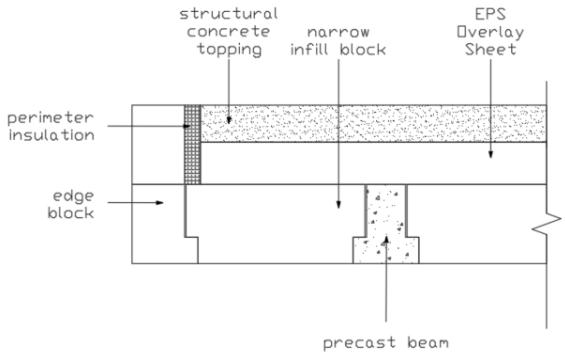


***Figure 6 - 150mm perimeter strip***

## Overlay sheet – 80mm thick or 150mm thick (1.2m x 2.4m sheet size)

The following instructions are used to place the overlay sheet over the beams / EPS infill blocks on the example beam layout shown in *Figure 7*. Several options are shown in *Figures 8, 9, 10, 11 and 12*. There is no requirement to lay the overlay sheets parallel or transverse to the span of the beams nor is there a requirement to lay in a stretcher bond pattern.

Working from a corner place a full sheet [*Ref 1*, *Figure 8*] over the beams / infill blocks, working along the floor place full sheets [*Ref 2, 3* and *4*] adjacent to each other in the same manner as for the EPS infill blocks. Should the last sheet [*Ref 4*] require cutting the offcut [*Ref 4b*] can be used to start the next line of overlay sheet. Or in this example the next line is at a door threshold position and thus a full sheet is used to start with the offcut [*Ref 4b*] being used as the next block.

There are no restrictions on the minimum size of offcut that can be used nor in the position of them as the concrete topping distributes the load. Where possible two cut edges placed adjacent to each other should be avoided. If this is not possible then expanded foam can be used to seal up the gap between the adjacent sheets and taped over if necessary with 50mm wide black cloth tape. Working along subsequent lines the entire floor is covered in overlay sheet. However, the size of the offcut should be a practical size. If the offcut from [*Ref 4b*] was only 50mm for example then the same rules as for the infill blocks are to be adopted, i.e. cut 350mm off [*Ref 4a*] and 300mm off [*Ref 5a*] with [*Ref 5a*] used to finish line 1 and [*Ref 5b*] used to start the next line. See figure 9.

The layout example shown in *Figure 10* follows the same initial method but address the last line differently as the sheets are through 90 degrees with the line starting with [*Ref 17a*].

The layout example shown in *Figure 11* shows a layout where the sheets have been placed working down the plot as opposed to across the plot. Also full sheets have been used at the start and end of each line with the last line featuring all sheets running down the plot.

It can be seen that all three methods use the same number of full sheets [*20No.*] but have varying sizes of offcuts left over. Following these methods will result in minimum waste being generate with leftover infill blocks / inlay sheet being able to be used on subsequent plots. It is also evident that depending on how the EPS components are installed can result in different sizes and hence usability of offcuts and surplus material.

The key point to remember is that the EPS components should be installed using the same philosophy that is used to lay laminate flooring.

In the example shown in *Figure 12* there has been a focus on using full sheets with 1 No. cut. This has resulted in 4No. additional sheets being used and has generated numerous large size offcuts.

If the methods used in the former above examples are not used then large quantities of waste material is generated as shown in *Figures 13* and *14*.

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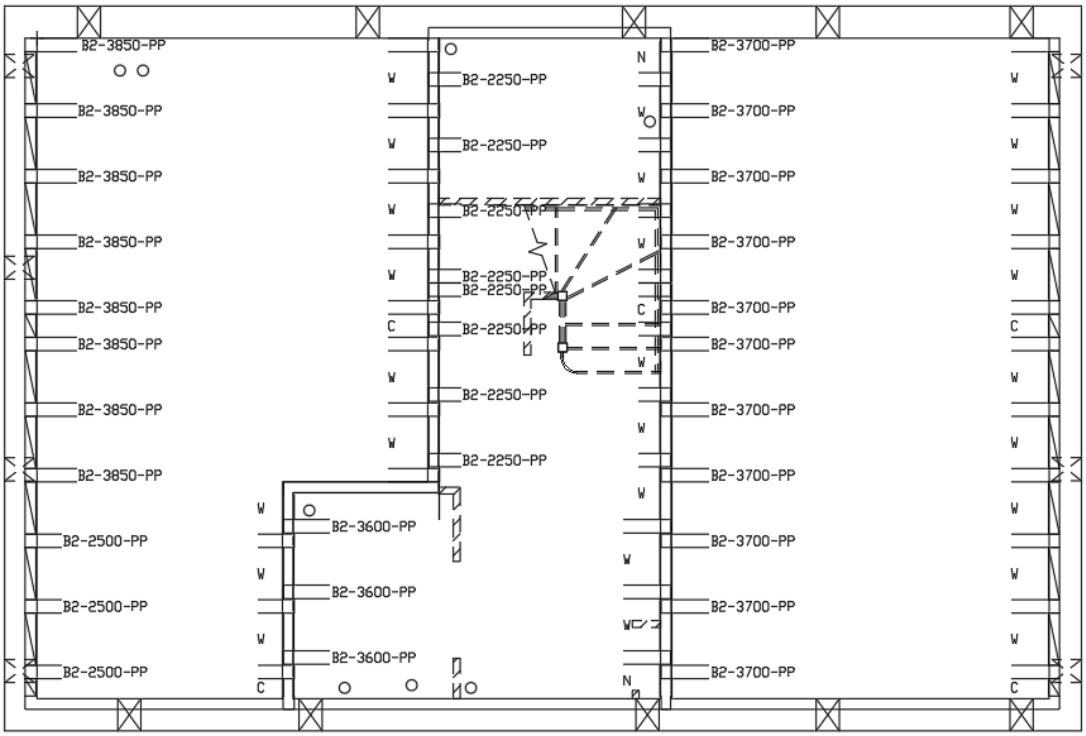


***Figure 7 Beam Layout***

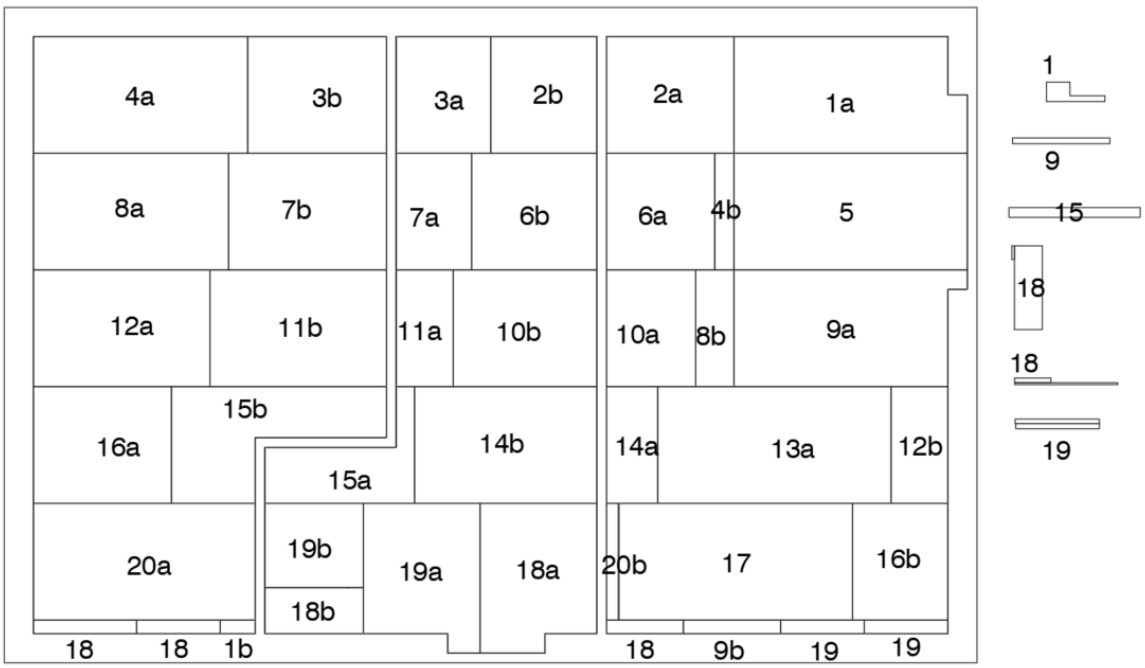


***Figure 8 Top sheet laid into threshold***

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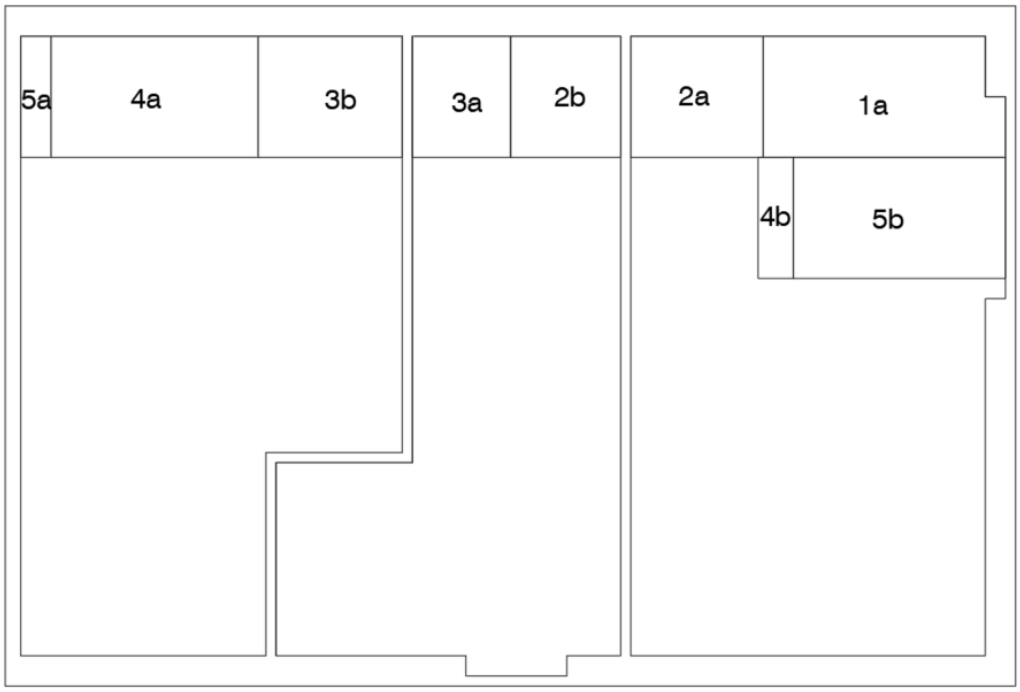


***Figure 9 Top sheet following same method as infill blocks***

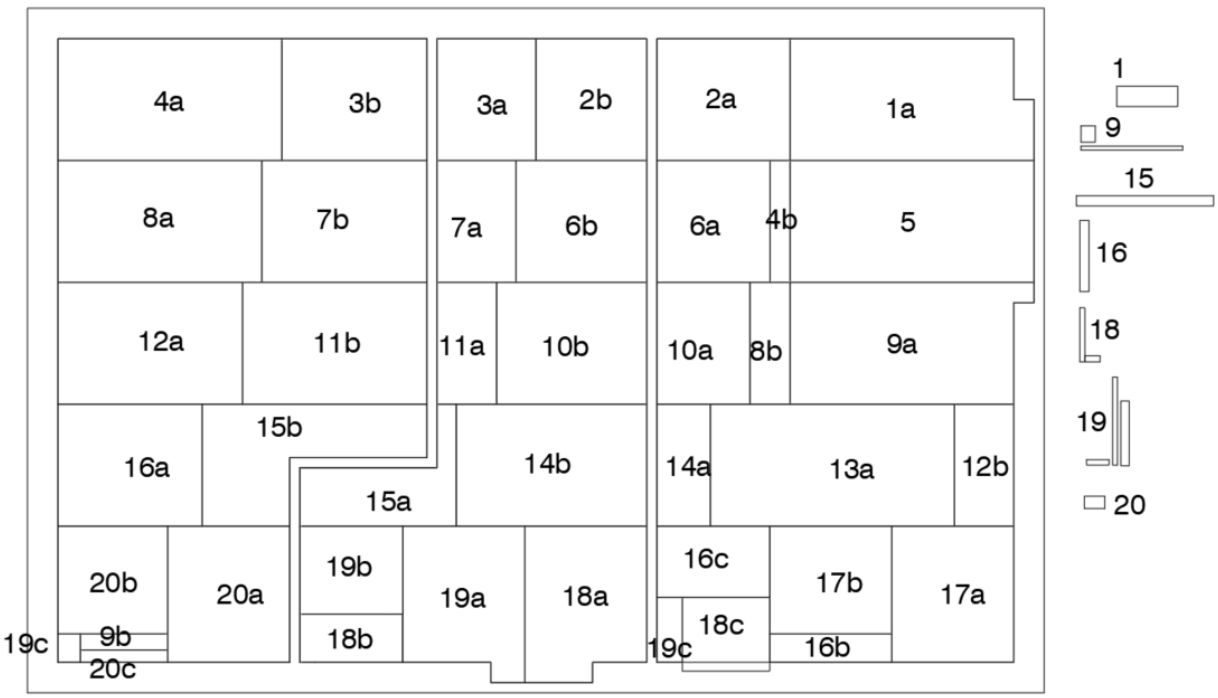


***Figure 10 Top sheet laid perpendicular to beam span***

## JETFLOOR INSTALLATION


*Figure 11 Top sheet laid parallel to the beam span with end bay rotated 90 degrees*

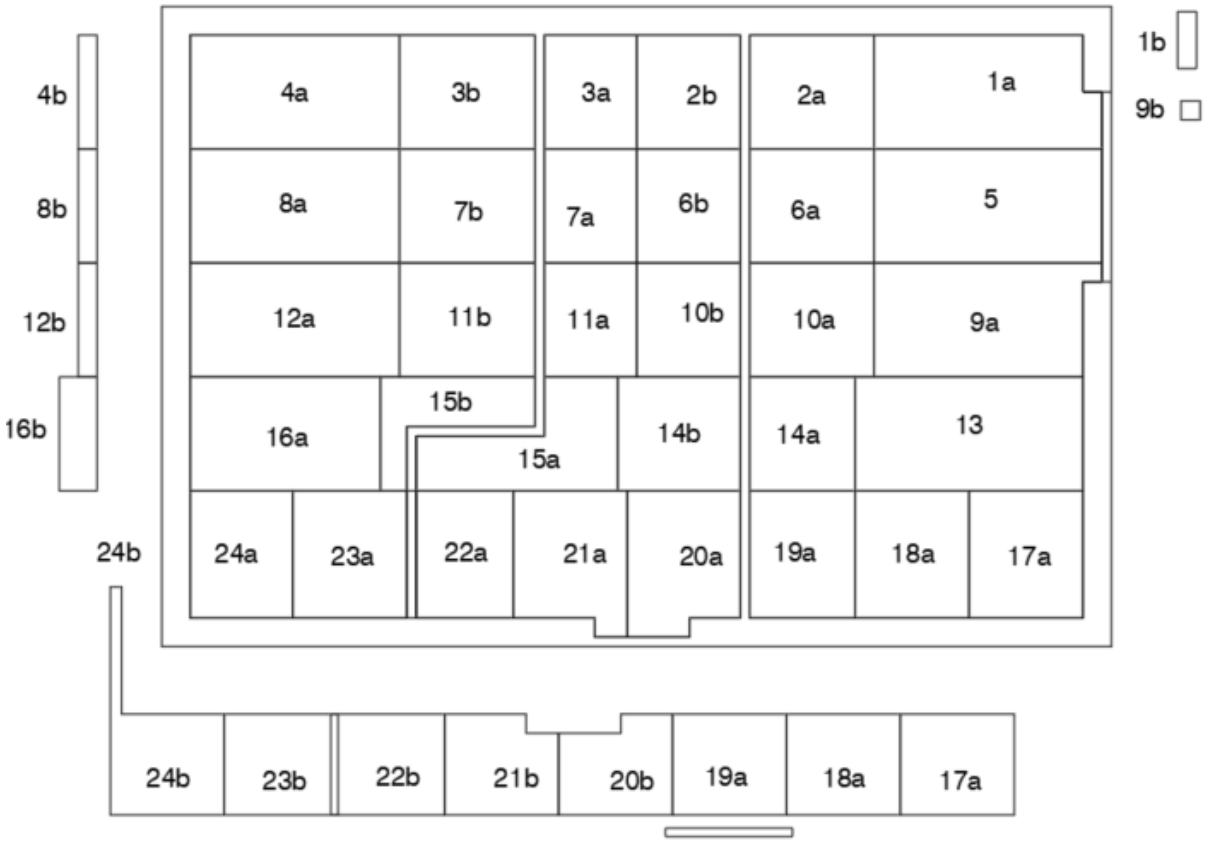


*Figure 12 Top sheet laid parallel to beam span with maximum full sheets laid first*

## Membrane

If using a membrane consideration should be given to the follow:

- A membrane can be placed above or below the polystyrene overlay sheet
- Placing a membrane below the overlay sheet can protect it from damage

## Concrete topping

The concrete topping must be reinforced with either steel mesh, macro fibres or steel fibres. Please refer to our third-party certificate for further information.

## Sealing around pipe penetrations.

Gaps between service pipes and the polystyrene elements can be sealed up with either offcuts of EPS, mineral wool or expanded foam. If using expanded foam there needs to be a barrier placed around the pipe to prevent long term degradation of the pipe as certain foam / plastic combinations are not compatible with each other.

## Recycling scheme

Surplus EPS components can be collected from site and recycled through our recycling scheme. Please contact us for further information.

***Figure 13 Waste material***

***Figure 14 Waste material***

**For technical support contact us on**
**01636 832000 / technicalquery@bison.co.uk**