

WaterUps® Installation Guide



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The WaterUps® Cell

When planning your new garden think about the benefits of using WaterUps® and incorporate wicking systems into your design

Dimensions of the Wicking Bed

WaterUps® are recycled plastic modular units, which allow you to construct a wicking bed of almost any length, width, shape and size.

Consideration needs to be given to the height of the bed. From your base, which can either be in ground or above ground, you will need to allow 13cm for the cell height.

Given that a good potting mix will generate efficient wicking up to a height of around 30cm, we use a height of 40cm for our standard raised beds.

The final height of the walls of your bed may also depend on what you intend to grow.

- There is no reason, for example, why you couldn't put WaterUps® cells in a window box or a herb garden with a potting mix depth of only 20cm.
- You could also put a citrus tree in 60cm of potting mix, provided that the base of the root ball sits at around 30 to 35cm above the wicking bed.

Construction Materials

Raised beds for WaterUps® wicking systems can be constructed out of most landscaping materials, eg. timber sleepers, corrugated iron and recycled plastics such as eWood® etc. We do not recommend the use of CCA treated pine due to issues around leaching of the toxic treatment materials. Ironwood® Sienna sleepers, which are treated with MicroPro® micronized based preservative, are, however, graded by the manufacturer as suitable for sensitive applications such as vegetable gardens.

TIP: If you are using Ironwood® Sienna sleepers, then it is probably worth running the pond liner up to the level of the soil and securing it with staples. This will prevent any possibility of your soil coming into contact with the timber, and will also give the timber sleepers greater longevity.

Other Materials Needed

- **Pond liner** – You will need:
 - 0.5mm or 0.8mm PVC or 0.7mm EPDM liners are suitable;
 - The amount required is calculated as the length of base + 40cm x width of base + 40cm; and
 - If you want to fully line a timber bed that is 40cm high, then the amount required is the length of the base + 80cm x the width of the base x 80cm.

TIP: Roll out your pond liner and place it in the sun for an hour before putting it in your wicking bed. This will soften the liner and make it easier to install.

- **Geo Textile fabric** – may be required in some situations:
 - We normally recommend that Geotec be placed around the internal walls to cover where the cells join the walls. However, if the bed has been constructed so that the gap between the edge of the cells and the walls is less than 5mm, then Geotec will not be required.
 - Geotec can be also used in the base. Refer to *Level Base* section on page 2 for more detail.

- Where you have had to cut through the feet of a WaterUps® cell in order to retro-fit an existing bed, you will need to use Geotec to cover this area to ensure that soil does not get into the water reservoir below.

- **Silicon sealer or waterproof adhesive** – This is needed to seal the inlet pipe and overflow pipes.

TIP: It is best if you silicon seal the inlet pipe a few hours before completing your installation and adding the soil mix. This will give it time to adhere and harden and therefore minimise the chance of the pipes being dislodged later.

- **Hole Saw/Speed Bore** – You will need a 22mm hole saw or a speed bore to drill the wall of the bed/planter to locate the overflow pipe.
- **Cable Ties** – Should be used to secure the overflow pipe to the underside of the WaterUps® cell.

Level Base

The first requirement for installation of a WaterUps® wicking bed is the selection of a site suited to the plants or crop to be grown, which is both level and solid from any sinkage. If necessary, level the site and compact the area so the wicking bed will always remain level. Depending on the condition of the base soil you may wish to add 5cm of compacted road base or crusher dust to make the base more solid. If the base is level, but includes rough materials such as blue metal, you may wish to cover this with Geotec to protect the pond liner.

New Constructions

If you are constructing a new wicking bed, the optimal internal dimensions should be in multiples of WaterUps® cells - 40cm x 40cm, plus an allowance for the pond liner of say 5mm on each side.

If you are adding WaterUps® cells to a large base area you need to ensure that the walls of the bed are braced to ensure that they don't bow with the weight of the soil. If you are using a pre-made raised bed frame you may need to cross brace the longer sides.

Retro-Fitting

You can also retro-fit WaterUps® cells to most existing raised beds. Wicking beds can also be made in most pots, troughs and planters, which can be sealed or waterproofed. The WaterUps® cells can be cut to shape and an inlet pipe and overflow pipe installed.

WaterUps® cells can be cut to fit the desired internal dimensions and shape of the growing area by using a saw, or jigsaw for rounded sections. The best way to do this is to lay out a base of cells larger than the area required. Then, place the border, eg. raised bed frame, on top as the template for any cutting required. Trace around the perimeter with a white paint marker.

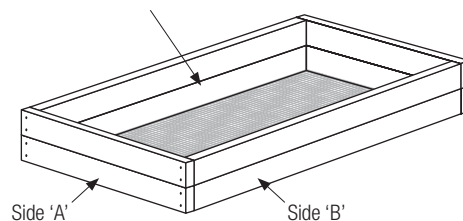
Work out the best positioning of the frame, aiming as much as possible to avoid cutting through any of the feet. This may not always be possible, but is not a problem as the affected area can be covered with Geotec fabric to ensure that soil does not penetrate the water reservoir. If the resulting hole in the top of the cell is particularly large, you can also screw on a piece of Corflute (corrugated plastic) and then cover with Geotec.

Pond Liner

Ensure that the compacted base of the bed is free from sharp objects that could damage the pond liner. This can be achieved by laying Geotec fabric or Corflute underneath the pond liner. Refer Figure 1 below.

Figure 1.

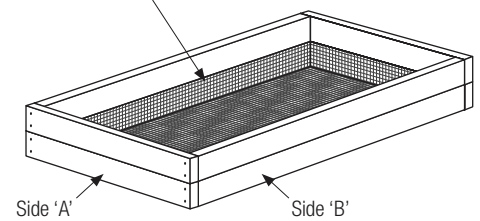
If the ground surface is a little rough you could place a layer of Geotec fabric or Corflute on the ground under the bed to provide additional protection to the pond liner



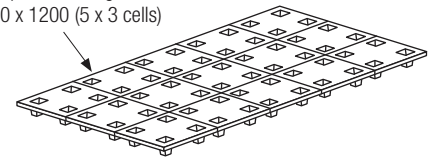
Ensure that the pond liner is pushed into each corner of the base. Before the liner is fitted in position and the overflow pipe is installed, ensure that it extends 20cm above the base. Refer Figure 2 below.

Figure 2.

Install the pool type liner but do not complete until the overflow has been made. Refer Figure 3.



Example of wicking cells of 2000 x 1200 (5 x 3 cells)



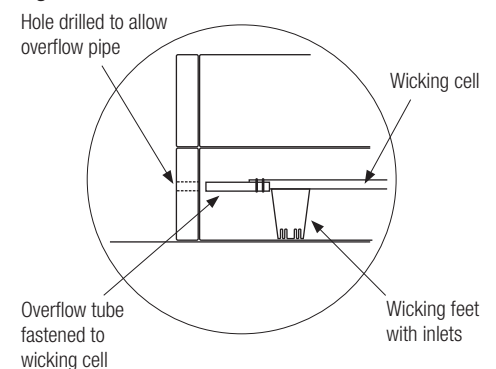
TIP: At this stage you can attach the liner to the internal walls using 30mm Galvanised clouts, staples or tape. This will make it easier to add the remaining cells.

Overflow Pipe

In deciding where to position the overflow pipe you also need to consider the position of the inlet pipe. Whilst not essential, we suggest that they be located close to each other so that you can see when water is flowing out of the overflow pipe when you are filling the reservoir. This will indicate that the water reservoir is full.

Attach the overflow pipe to the space provided on the underside of the WaterUps® cell and secure with cables ties. Refer Figure 3 below for drilling instructions.

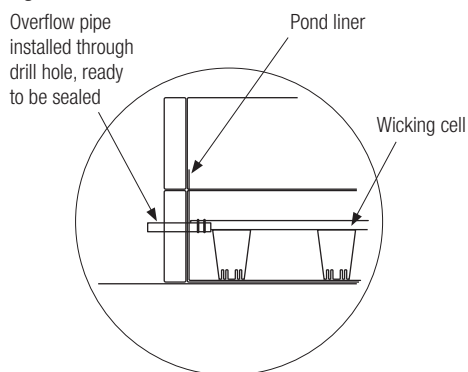
Figure 3.



How to mark hole to drill and allow for overflow tube. (Section of planter box)

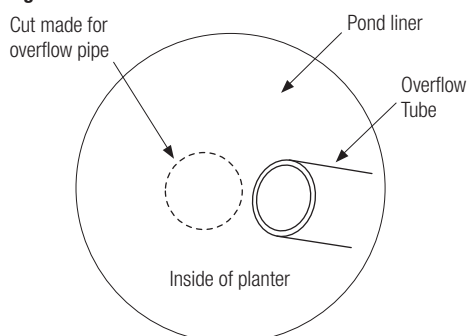
Move the cell into place where the location of the overflow pipe can be marked against the inside wall of the bed for drilling (see Figure 4 below).

Figure 4.



Once the hole has been drilled, using a 22mm Speed Bore or Diamond Hole Saw, mark the position of the overflow pipe on the pond liner with a white marker. Then using a Stanley knife, or equivalent, cut out the hole as marked on the pond liner to align with the pre-drilled hole. Refer Figure 5.

Figure 5.



Insert the Inlet Pipe

It is a good idea that you glue the inlet pipe into place in the WaterUps® cell using Silicone sealer or waterproof glue at least 24 hours before you start construction of your wicking bed. This will give the sealant a chance to harden, ensuring that the inlet pipe stays in place.

TIP: Whilst not essential, we suggest that when planning the layout of your garden bed, that the Inlet pipe is located close to the overflow pipe so that you can see when water is flowing out of the overflow pipe.

To insert the inlet pipe:

1. There is a marked circle on each WaterUps® cell to indicate where to attach the inlet pipe.
2. Use a Stanley knife, or equivalent, to cut along the inner groove to remove the circle containing the text.



3. Before inserting the inlet pipe add silicon to the bottom of the pipe and at the insert point.
4. Insert the pipe WaterUps® cell and add additional sealer if required.
5. When filling the water reservoir push the hose down to the bottom of the bed. This helps prevent reflux up through the top of the WaterUps® cells.

TIP: You may find that the cap for the inlet pipe is a tight fit. Do not push it on tightly as this may make it difficult to remove and you may dislodge the inlet pipe from the wicking frame. We suggest that you sand or file down the top of the inlet pipe and the inside of the cap to achieve a less tight fit.

Adding the WaterUps® Cells

You will already have positioned the WaterUps® cells containing the inlet and overflow pipes. The remainder of the cells can now be added and linked together using the joiners supplied.

The last step, prior to filling with potting mix, is to lay some Geotec, if required, around the outer edges of the WaterUps® cells where they meet the wall. The Geotec should overlap the top of the WaterUps® cells by approximately 5cm. It can be anchored to the top of the base using the joiners. This is to ensure that dry soil does not get into the water reservoir below, which could occur if the gap is more than 5mm.

TIP: Before adding any potting mix spray water over the WaterUps® cells. This will help combine any dry particles of soil and prevent them from contaminating the water reservoir below.

Potting Mix

It is important that your soil/potting mix should contain a good amount of composted material and organic matter, together with some coarse sand to ensure efficient wicking. For best advice we suggest that you speak to a local nursery or landscape supply company to discuss your plans and to get their input on your requirements.

Further information about how to calculate the amount of potting mix required etc are included in the FAQs on the website.

Adding your soil mix

TIP: Before adding any potting mix spray water over the WaterUps® cells. This will help combine any dry particles of soil and prevent them from contaminating the water reservoir below.

In order to achieve the most efficient wicking outcome, we suggest:

- 1 that your soil/potting mix should contain a good amount of composted material and organic matter, together with some coarse sand.
- 2 Mix your soil/potting mix with Perlite (50/50) and then add this to the wicks, which are the 4 feet at the base of each cell, and push down.
- 3 Adding Perlite to the "wicks" will improve airflow through to the soil.



- 4 Give the top of the bed a light spray of water. This will help compact the potting mix in the feet.
- 5 Then, add potting mix evenly across the top of the wicking cell platform to a depth of around 10cm. Once this base level has been established give the mix another light spray to assist the compaction. Continue filling the bed with potting mix in layers, giving each layer a light spray of water.

TIP: For the right choice of soil/potting mix we suggest that you speak to a local nursery or landscape supply company to discuss your plans and to get their input on your requirements.

Further information about how to calculate the amount of potting mix required etc are included in the FAQs on our website. www.waterups.com.au

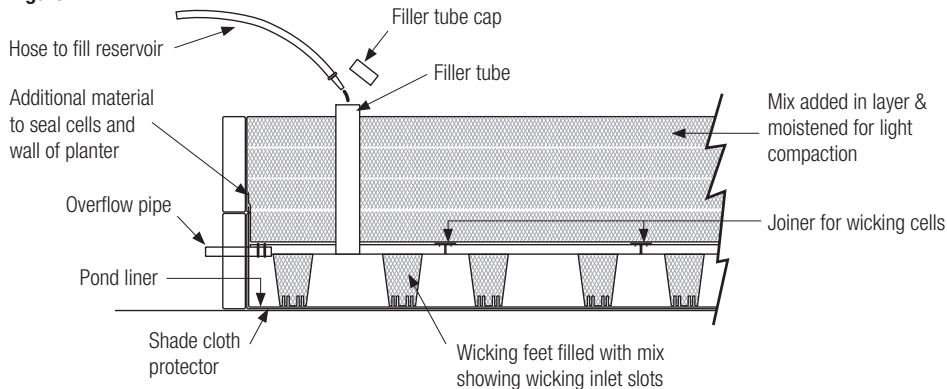
Give the bed a final soak and then insert the hose into the filler pipe and fill with water until you observe the overflow pipe discharging water, which indicates the reservoir is full. Then place the cap on the inlet pipe to prevent insects or other debris entering the reservoir. Refer Figure 7.

A wicking bed of 120cm x 200cm (15 WaterUps® cells) will contain almost 300 litres of water.

Ideally, allow 24 hours for the soil to 'wick' water up into the bed and then fill the reservoir again via the inlet pipe.

The wicking bed is now ready to use. If planting small seedlings, the bed will need surface watering until their roots develop to reach the wicking beds moist soil.

Figure 7.



Add Mulch

Mulching is vital to keep the top of the soil moist. The plants may need occasional surface water during the first week or so while the roots become established.

A wicking bed will operate at its optimal efficiency when approximately 2cm of fine mulch is applied to the top of the bed. The ideal mulches are:

- Lucerne;
- Sugar cane; and
- Tea Tree.

TIP: Ensure that the mulch is kept away from the stem of each plant to avoid collar rot.

After the mulch is applied give it a light watering to settle it in.

Observing the Water Level

To check the water level in your wicking bed place a dip stick (e.g. piece of dowelling or bamboo) down the inlet pipe to check the levels each week and only fill when the level drops to around 3cm.

TIP: Do not top up the wicking bed's water reservoir too often. Allow the water level to fall before refilling. This helps with the aeration of the soil.

Continue to improve your soil biology with the addition of manures, compost and organic matter and your WaterUps® wicking bed will reward you with nutrient rich, homegrown, healthy plants and produce while saving time, water and money.