

HOW TO BUILD WICKING BEDS FOR SCHOOLS (vs 2 - Sep 2019)

[PLEASE NOTE: Only put soil in wicking beds, do not use rocks or fibre at the bottom. Fibre stops wicking and rocks don't feed plants. See also companion Info-sheet 'Water and soil in wicking beds.']

The approved timber comes only in length of 2,400mm. The instructions below are for two bed sizes: 2,400mm x 1,200mm and 1,200mm x 1,200mm, outside measurements. The photos are of the small one.

1 Tools



- For cutting pipes: A pencil, a piece of lino with one straight edge, an elastic band, a hacksaw.
- For cutting outlet holes: A drill, a 90mm hole-saw, a small pair of pliers to remove the cut-out bits.
- For building the bed: A drill, a 6mm drill, screwdriver bits and a 22mm drill for the outlet hole.
- For safety and appearance: A flat sander to remove sharp edges and smooth the top surface.
- For the watering system: A 12mm drill and a rat-tail file to cut the outlet hole in the fill-pipe, a pair of scissors to cut the liner, clamps to hold the liner while filling, nail scissors to cut the outlet hole.

2 Timber (This timber is allowed by the Qld Education Department – 2nd-hand timber is not.)

Micro PRO Sienna treated pine:	1,200mm bed	1,200mm x 200mm x 50mm,	8x
(See 'Note about timber' in companion sheet p2.)	2,400mm bed	2,400mm x 200mm x 50mm,	4x
		1,200mm x 200mm x 50mm,	4x
ACQ treated decking timber:	both bed sizes	400mm x 90 mm x 22mm,	4x
Screws: Batten screws		Size 10-8 x 100mm,	16x
		Size 10-8 x 40mm	32x

3 Liner

Double layer of 200-micron (0.2mm) concrete underlay, AS 2870. It needs to cover the floor and sides.

Sizes: 1,200mm bed: 2,000mm x 1,900mm 2,400mm bed: 2,000mm x 3,100mm.

Cut and fold 400mm in along each side to fit the dimensions of the floor area.

4 Watering and drainage system



90mm PVC drain pipe and fittings		
<i>Bed:</i>	<i>1,200 x 1,200</i>	<i>2,400 x 2,400</i>
1x	1,000mm	2,200mm
1 x	900mm	2,100mm
2x	500mm	500mm
<i>Both bed sizes</i>		
3x	Elbow	1x End cap 1x Screen cap
1x	Poly pipe-13mm 270mm:	
1x	13mm Tank-inlet	

Measure and mark the lengths you need. Within each length, mark the centres for the 90mm holes. The first 90mm hole is at 150mm from one end, then 300mm apart. Use a 90mm hole-saw and a small pair of pliers to remove the cut-out bits. Cut with a drop saw, or if cutting by hand: circle the straight edge of the lino around the mark, draw a line and cut along the line by rolling the pipe slowly towards you.

Connect an elbow to the fill pipe and drill a hole for the drain pipe in the location shown. Use a 12mm drill and a rat-tail file. Cut one end of the 13mm poly pipe to a 45-degree angle, to fit tightly inside the hole.



Side view, inlet pipe and elbow



The system assembled



Top view without fill pipe

Connect the 90-degree elbows to the watering pipes where the first hole is 150mm the end, and to the connecting pipe. The end cap goes on the longer pipe with holes, the inlet pipe on the shorter one.

The holes must face down. Water flows sideways and wicks upwards, excess rain the reverse to get out.

5 Choose and prepare the site

Find a position that gets at least 6 hours of sunlight per day in winter (e.g. North facing), with easy access and near a tap. Avoid slopes as the bed needs to be on level ground. Avoid windy areas or 'wind-tunnels'.

Level the desired site. Remove sharp objects and/or use carpet or sand to ensure a surface without objects that can penetrate the liner. If nut grass is present, place a metal sheet under the bed.

6 Construct the bed

Place the first course on a level surface so the inside measures are 1,200mm x 1,100mm or 1,200mm x 2,300mm. Pre-drill the holes, two per log, and screw together.

Place the second course on top and screw together. Screw the vertical 400mm x 90mm pieces along the long sides to cover the joints and provide rigidity. Sand the sharp edges and smooth the surface.

Drill a 22mm outlet hole in the long side near the corner where you want to fill the beds with water. The centre of the hole is 140mm from the corner and 110mm from the bottom.



7 Liner and overflow

Place the liner in the bed. Unfold it and hold the tops with clamps. Fold the excess in the corners behind the liner along the short sides. Remove the nut and the O-rings from the tank-outlet. (The O-rings are not needed.) Push it through the hole to mark the centre of a 23mm hole in the plastic. Use nail scissors to cut the liner. Push the tank-outlet through the liner and push the square end of the 13mm poly pipe onto it. Slide the nut over the pipe and screw it on (turning from the outside is easiest.) Place the watering system in the bed and push the angled end of the poly pipe into the inlet, the cut facing downwards.

8 Fill the bed.

Your bed is now ready to fill. For 'how to', see companion Info-sheet '*Water and soil in wicking beds*' p2.

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