

Garden Planters

Nearly two years ago now I drew some plans to build these garden planters and do a guide for UKW - but they never got done till yesterday, with the help of Adam & Tom. I'm glad we've finally done them! They look good, are very strong, easy to build (as long as you have a router) and the woodwork can be done in a day.



Start by cutting the 45x45mm posts and rails to length. We've used the powered mitre saw and set up stop blocks to make the process go quicker and to make sure all the pieces are the same length. Cut the four posts to 450mm long the eight rails to 350mm.



Take one of the four posts and on one face make a mark 30mm down from the top and another mark 10mm up from the bottom.

You also need to take one of the eight rail pieces and mark 10mm in from one end.



Using a square and pencil continue the marks you made on the post and rail, all the way around the wood.



Clamp all four posts together making sure their edges are flush with each other. Then with a square, ruler and pencil follow the 30mm & 10mm lines you marked in the step above, across the other three posts. Loosen the clamps, turn the pieces over and do the same - repeat till the two lines go all the way around all four posts.



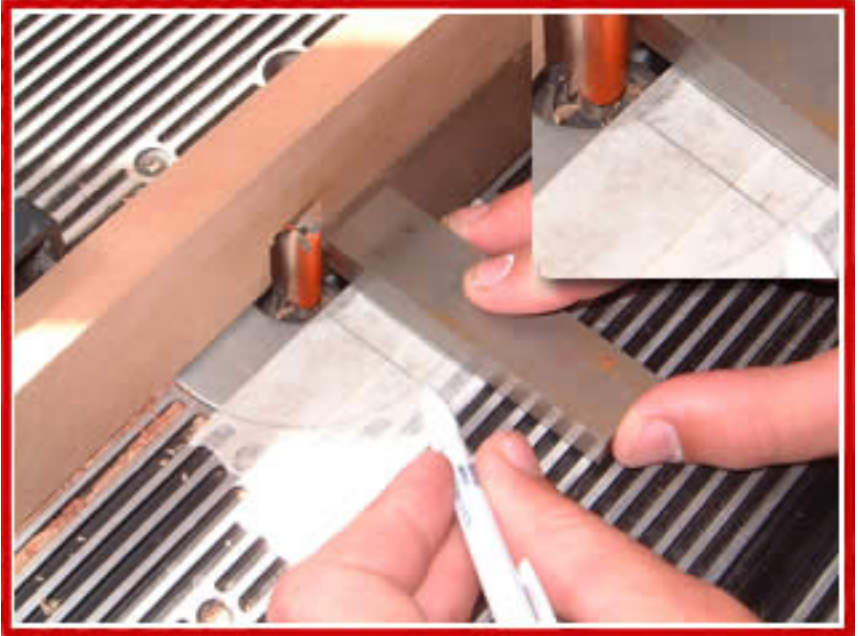
Take one of the posts and put a ruler against its edge (as shown in the picture). With a pencil, mark 16.5mm in from **both** sides, so that's one mark at 16.5mm and another at 28.5mm with a 12mm gap in the middle for the tongue and groove boards. Now set your mortise gauge up to those two marks.



You now want to grab the rail piece which you marked 10mm in from one end earlier and using the mortice gauge, gauge from the line, around the top and down the other side and stop at the pencil line to layout the tenon. You only have to do this on one of the rail pieces and we'll use it to set the router table up.

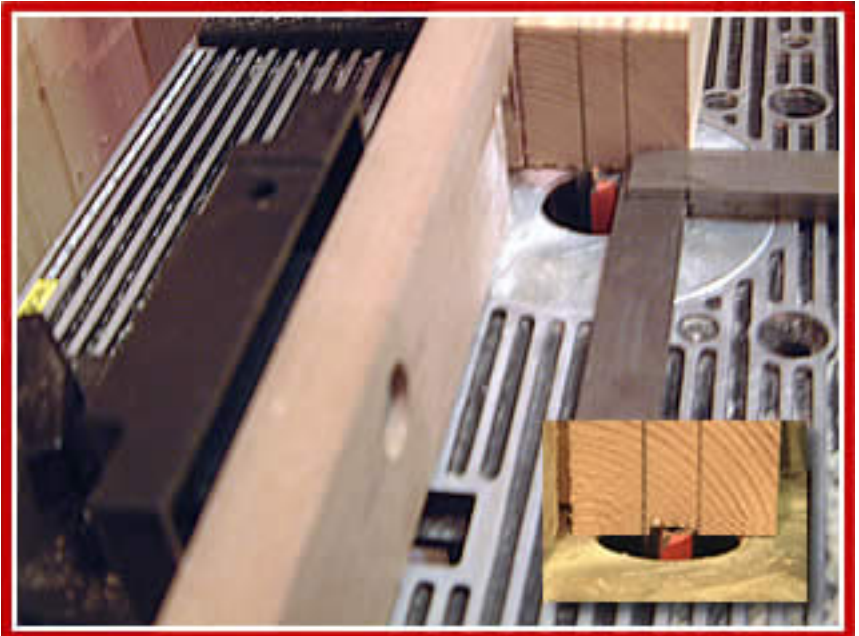


Insert a 12mm straight router bit into the router table. *We're using a 1/4" shank CMT cutter.* Stick a couple bits of masking tape in front of the router bit. Using a pencil and a square you need to mark the two edges from where the cutter starts to where the cutter stops on the masking tape (as shown in the picture to your right).



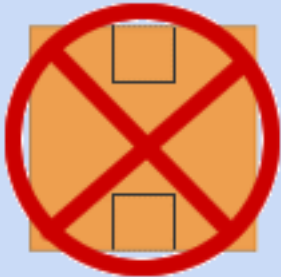
Next, using the rail piece that you've marked the tenon on, set the fence so the cutter is inbetween the two lines on the rail piece. Judge it by eye then use a square to check.

The final depth for the groove needs to be 11mm deep but we don't want to cut that all in one pass so for the first pass, set the router bit height to around 5mm.

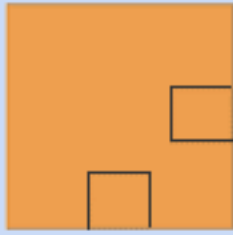


The stopped grooves need to be cut now, in two sides on all four posts. By using the fence as a support and carefully lowering the piece over the router bit - making sure the layout line on the post is slightly after (to the left) of the 'left hand' pencil line on the router table. You need to hold the piece firmly and move it slowly using a steady & even pressure. Just before the 'right hand' side pencil

line on the router table meets with the other layout line hold the post still against the fence and turn off the router. When the router bit stops spinning lift up the post and turn it clockwise 90°. With the post clear of the router bit, turn the router back on and cut the second groove - repeat this on the other three posts.



↑ Wrong ↑



↑ Correct ↑

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Next, run all eight rail pieces through on **one** side only. There's no need to lower these pieces over the router bit as the groove runs end to end.

We are using a push stick to aid the work piece along the fence and our free hand to keep the piece tight up against the fence.

Raise the router cutter height to 11mm and run all the post & rail pieces through again.



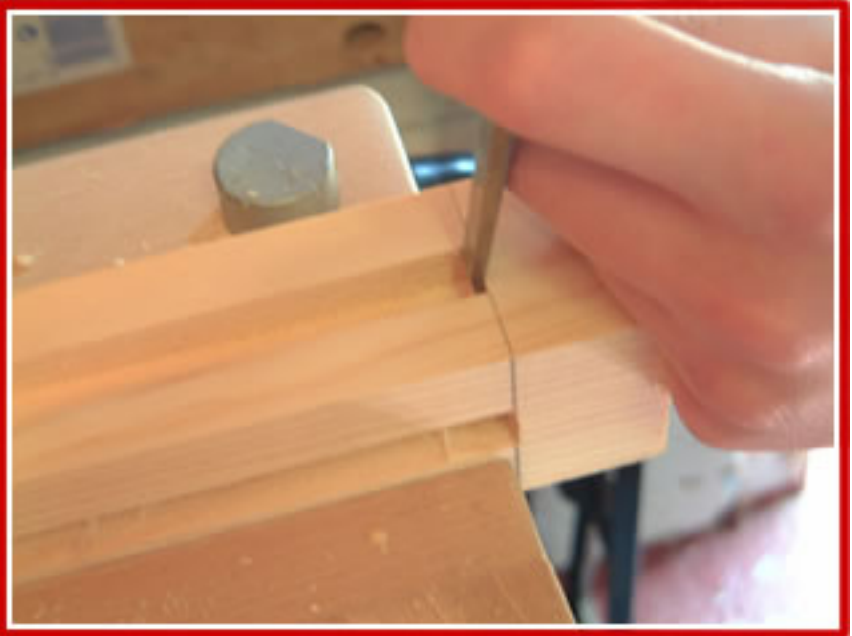
With all the grooves cut to their final depth of 11mm, *we unplugged the router from the power and replaced the router bit with a 18mm 1/2" shank cutter. We used the [tenon jig](#) to cut the tenons on the rail pieces.*

Use the rail piece with the tenon layout (which you marked right at the start) to help setup the router bit height and fence. Don't try cutting the full depth in one pass;

set the router bit height half the way, run all the pieces through, then raise the router bit up to the final height. Running a test piece through first is a good idea to make sure it's all setup correctly



Once all the routing has been done you need to square off the round corners on all four of the posts with a sharp bevel edge chisel.



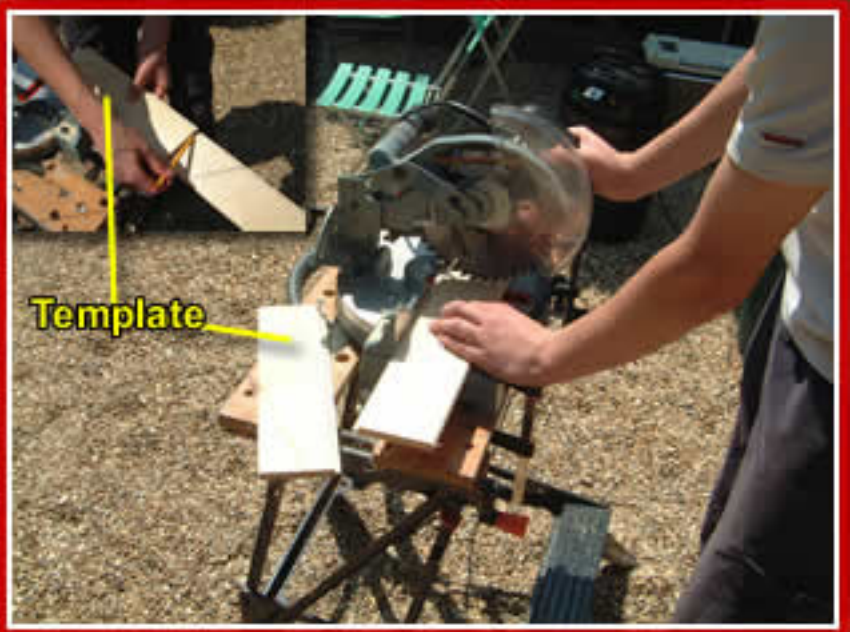
It's time for a dry assembly of the frame. This is where you can see it take shape. Make sure everything's square and the joints all fit snugly.

Label every joint to help save time and mistakes when gluing up i.e. Where one end of the rail joins one side of the post label them 'a' and the next 'b' etc..

For the panels (sides) we're using 95mm x 12mm tongue & groove that has a 'v' groove on only one side. You need to cut 16 pieces 340mm long. *We measured one, cut it and used that as the template for the rest.*

We used four boards of T&G per side but as they are 95mm wide each (including the tongues), that makes the total width 360mm and it needs to be 350mm so we took off 5mm on both of the end boards. On four of the T&G pieces take 5mm off the 'tongue' side and on another 4 take 5mm of the 'groove' side.

You can use a table or bandsaw if



you have one, but it doesn't take long with a block plane. If you use a hand plane as we did, you can mark how much needs to come off with a pencil/marketing gauge.



Glue up time! Glue up's can be a nightmare, you have to be quick enough so the glue doesn't start to go off but when you rush things go wrong! Layout every thing before hand and plan what steps to take to assemble.

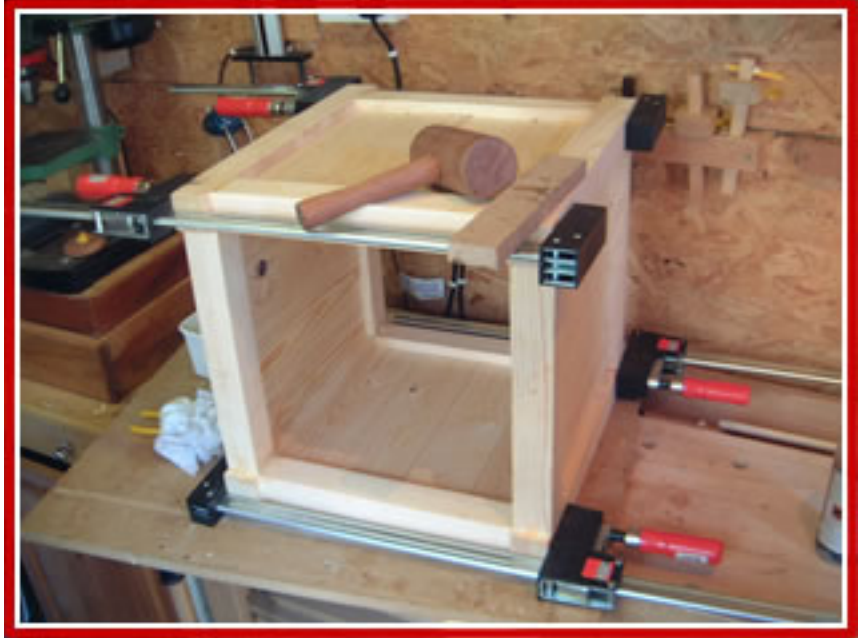
We used a polyurethane glue which cures in the presence of moisture, claims to be 100% waterproof and is very, very strong - so it's ideal for our garden planters. Wear gloves as if you get this stuff on your hands it will be with you for a couple of days.

Apply glue to the tenons and moisten the groove with a damp cloth. Don't glue the T&G panels in place as you want them to be able to move about when the wood expands/contracts.

We glued and clamped one side up first, checked for square by

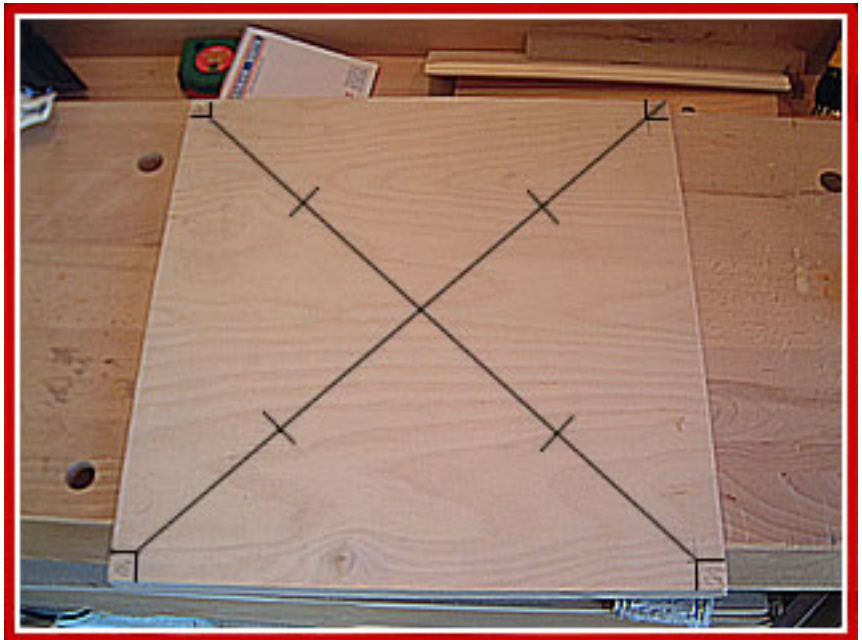


measuring the diagonals & then put it to one side. We then did the same with the opposite side, but layed it down flat on the work bench with inside facing upwards. We glued in place the last four rails, inserted the T&G panels & then placed the first side we glued up, on top of the four rails and aligned the tenons with the grooves. Then, using a mallet and a scrap piece of wood lightly tapped everything into place and finally added four more clamps and measured the diagonals. We can honestly say (beyond our amazement) it was spot on. Normally when we all work together something goes wrong.



While you wait for the glue to cure you can be making the bottom. Cut a bit of plywood to 360mm x 360mm. With a ruler and pencil draw a line diagonally from corner to corner & then from the center point mark four lines 120mm on the diagonal line (as shown in the picture) These marks are to show were to drill the drainage holes.

Then on each corner mark a notch 17mm x 17mm.



Clamp the plywood bottom in your bench vice or workmate and cut out all four notches.





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With the plywood bottom on top of a scrap piece of wood, drill the 5 drainage holes with a 22mm forstner or spade bit.



Once the glue has had chance to cure (left over night is best) remove the clamps and try the plywood bottom in place! If it's too tight use a block plane and you can use a chisel to 'pare' the notch's.



The polyurethane glue foams so we need to carefully remove the foam with a sharp bevel edge chisel.

Give the planter a good sand by hand or with a power sander. A sander like a delta is best as it can get into the tight corners. *We started off with 80G (grit) sandpaper then finished with 100G (a finer grit).*



Using a block plane, chamfer all four posts top and bottom. The bottom ends only need a slight chamfer to help prevent splitting if the planter is ever dragged across the ground.

Hold the block plane at an angle and plane across the grain first, then with grain.



That's all the woodwork done. We haven't decided on a finish for them yet but we're either going to oil or paint them.



For this project we used the router & router table for most of the machining! Don't worry if you haven't got a table, you can still easily build the planter with the router on its own with its guide fence and a simple jig.

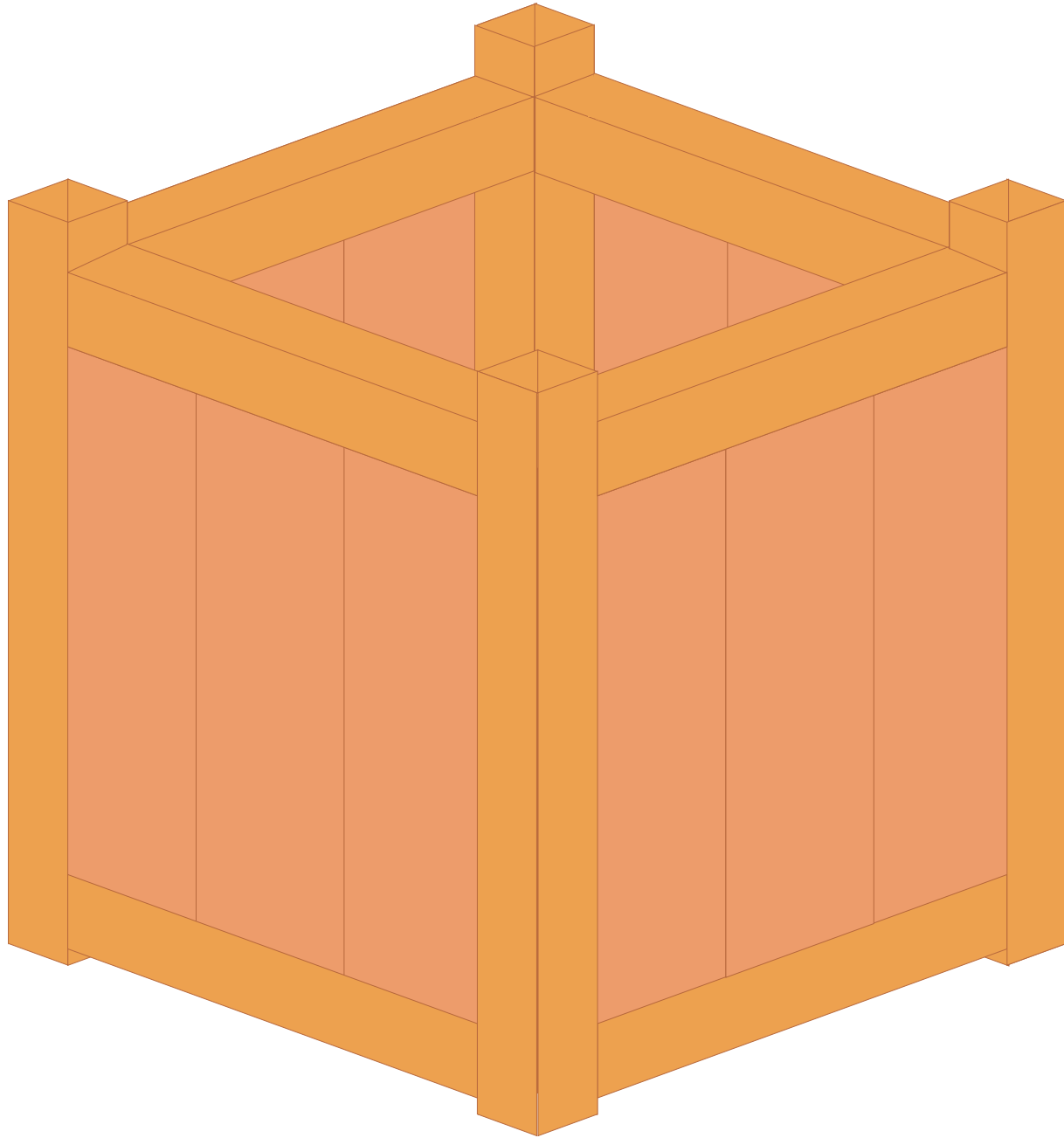
In the inset picture on your right we're cutting the grooves with the router and guide fence and have

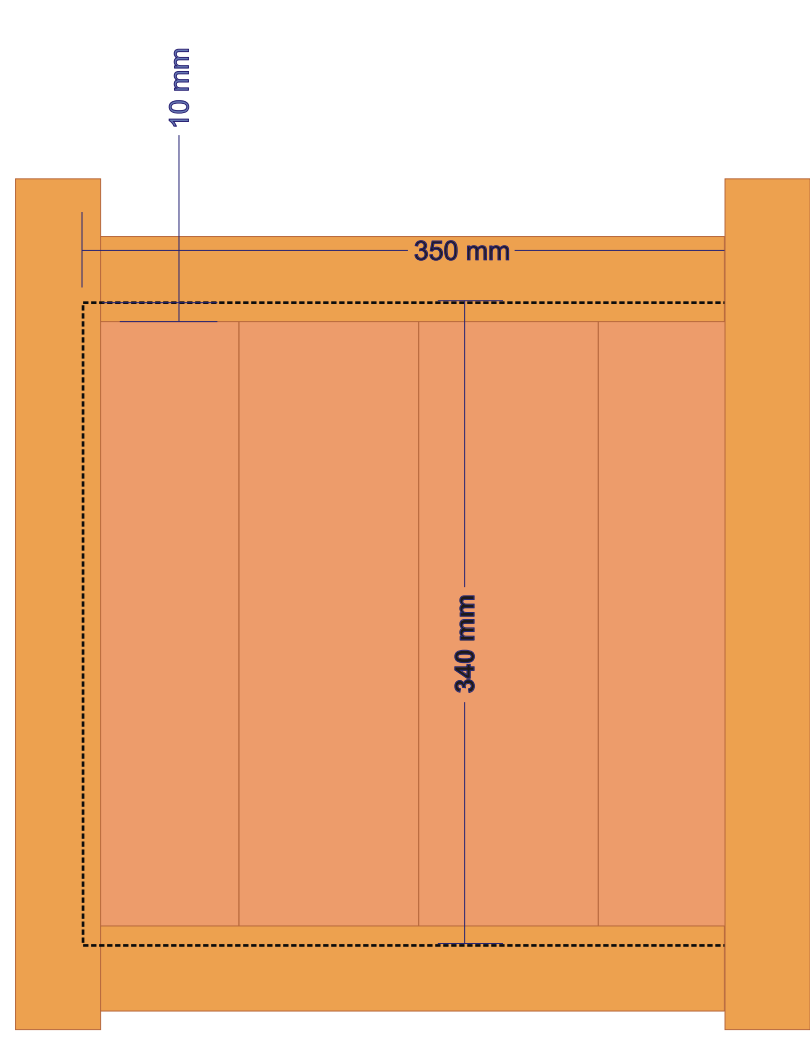
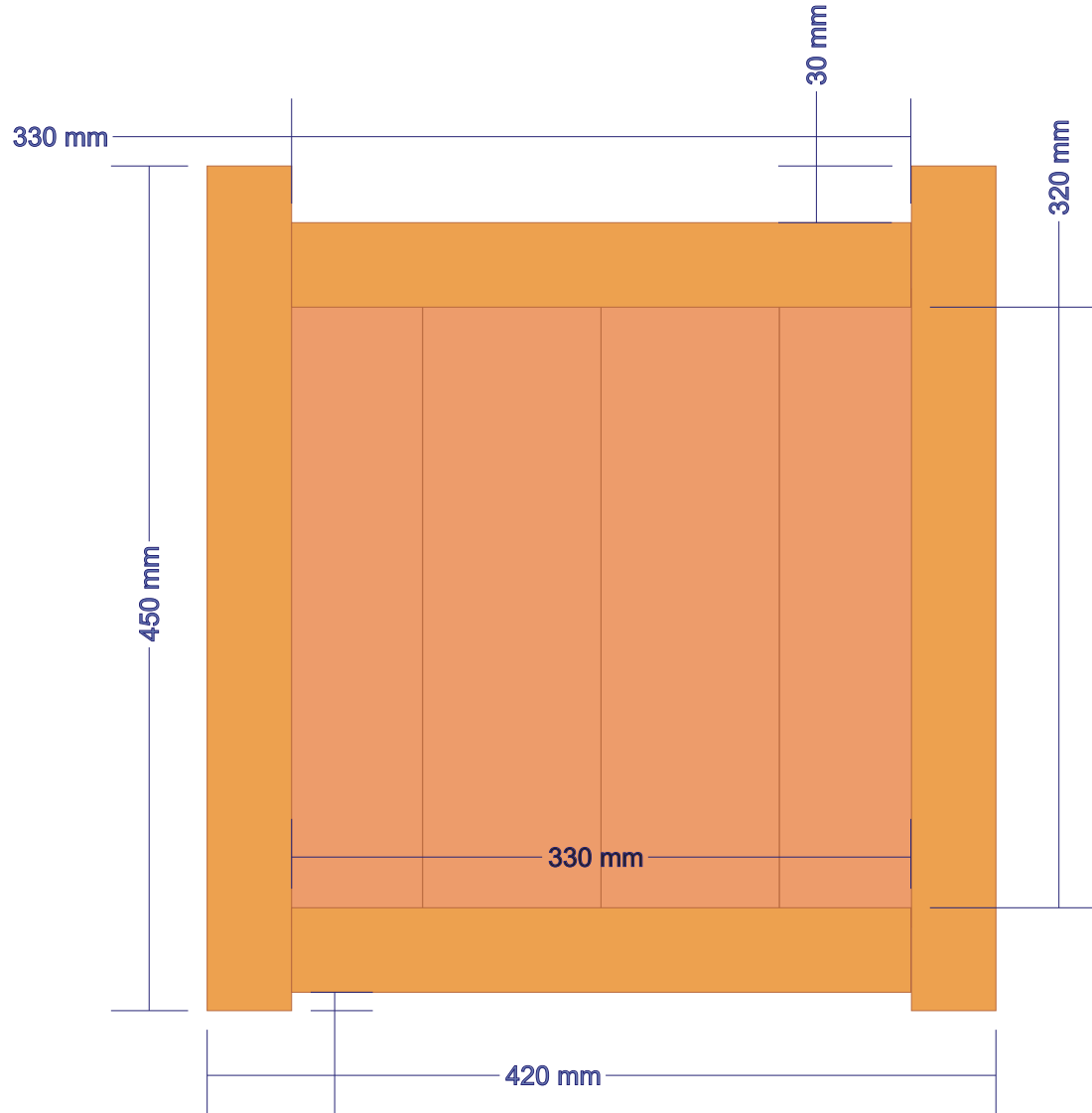
clamped an extra post to help support the router.

The main picture on your right we're cutting the tenons with a router & the help of a simple jig.



Planter





Cutting List

Job Title: Planter (all dimensions in mm)

Member	Material	Qty	Size		
			L	W	T
Post	Pine	4	450	45	45
Rail	Pine	8	350	45	45
Sides	Pine TGV	16	340	95	12
Bottom	Ext Ply	1	360	360	18

Plywood Bottom

