

Pergola - Free Plans



Fig. 1

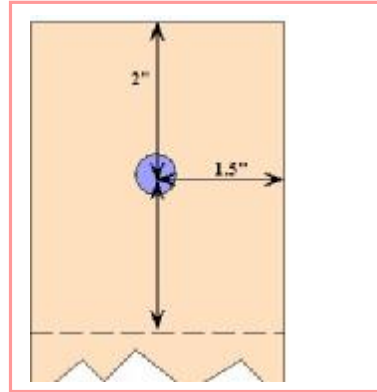


Fig. 2

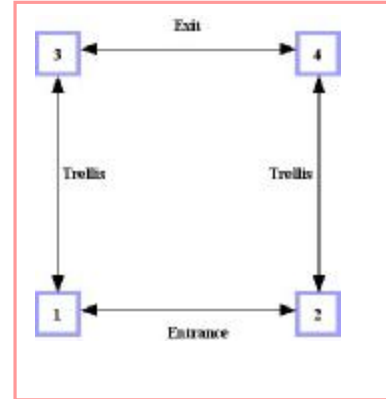


Fig. 3

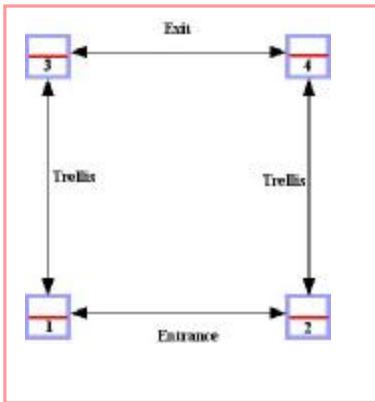


Fig. 4

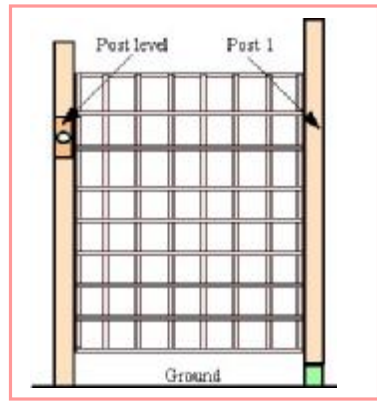


Fig. 5

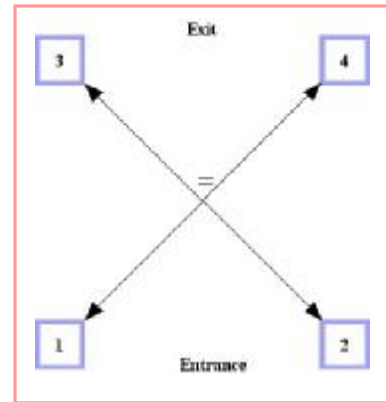


Fig. 6

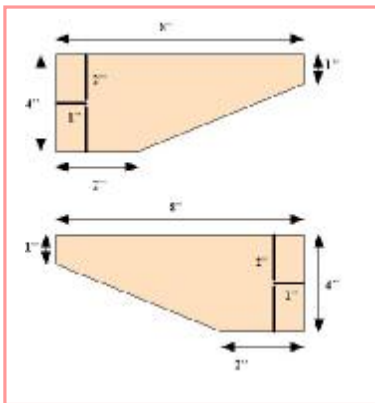


Fig. 7

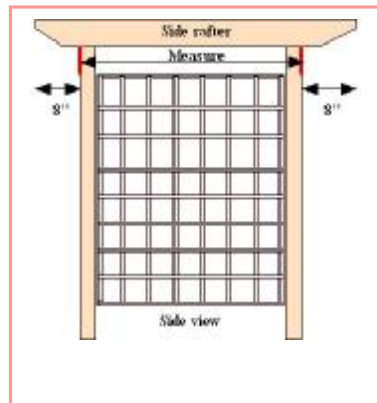


Fig. 8

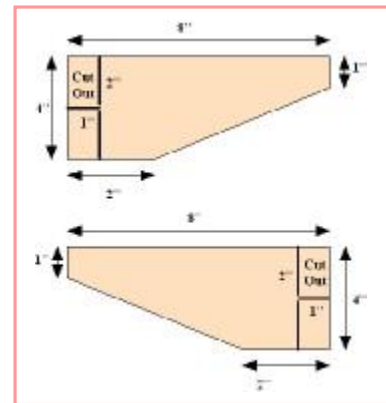


Fig. 9

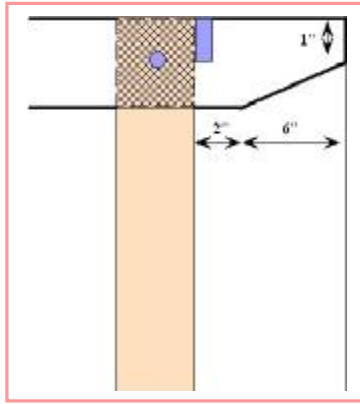


Fig. 10

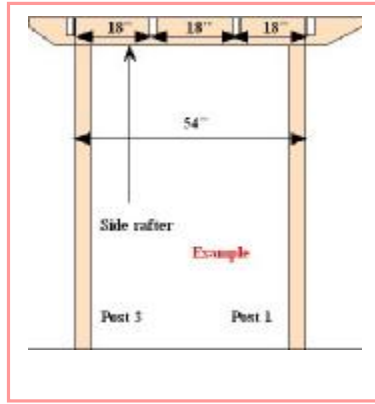


Fig. 11

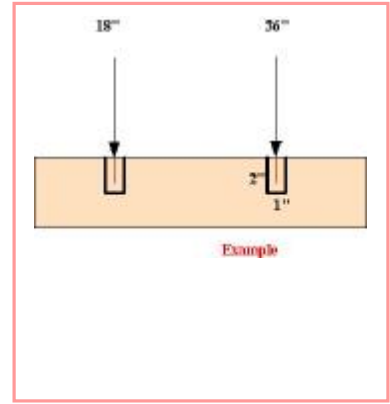


Fig. 12

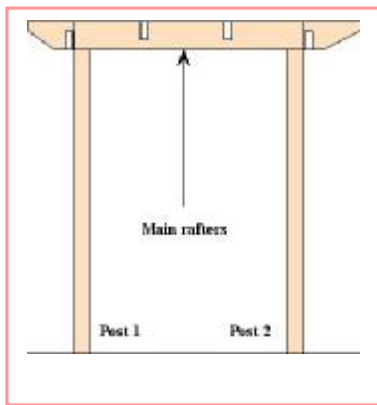


Fig. 13

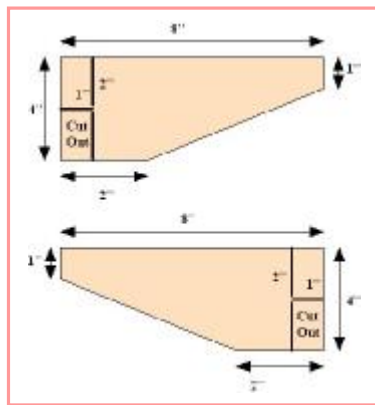


Fig. 14

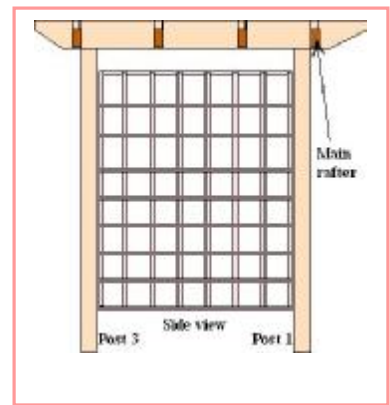


Fig. 15

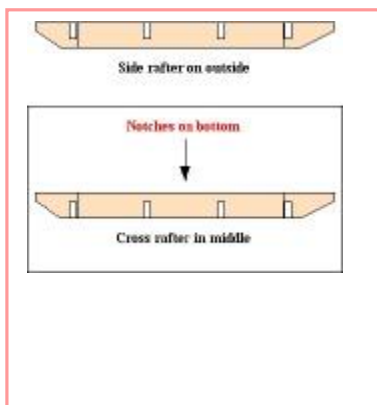


Fig. 16

Organise your project:

- Print the plans
- Print the list of materials
www.pergolaplans4free.co.uk/toolsandmaterials.html
- Place in a ring binder
- Tick off your tools and materials as you find them.
- Ready to begin?

Position the Posts:

1. Check that there are no underlying services i.e. electricity, water and cable, as these can be very expensive to repair!!
2. On the top of each post, measure down 2" and across 1.5" then drill a hole right through the wood, with a 8mm drill bit. These are for the bolts. (fig. 2)
3. Position the Metpost 1 into the ground and drive it in with the driving tool. (fig. 3)
 - Keep adjusting the Metpost to keep it square, using the handle on the driving tool, as they do tend to skew as you hit them in.
 - Insert only the spike into the ground.
4. Do the same with Metpost 2, keeping it in line with where you want the entrance to be.
5. Place the 3" x 3" wooden Post 1 into the Metpost 1, making sure the bolt holes are placed in the correct direction. (fig. 4)
 - You may need to use a mallet if the post is a tight fit.
 - Make sure it is perfectly upright using the post level.
 - Tap lightly on the side to bring it level.
6. Now check the exact width of your trellis panel, if you are using trellis at the sides.
7. Mark the position of Post 3, so that when the trellis is put between the two posts, it will fit fairly tightly. (fig. 5)
 - If in doubt, physically place the trellis panel between the posts, just to make sure.
 - It is better to have a tight fit rather than a loose one, because you will have nothing to screw to, if your post is too far away.
 - Mark around the post, on the ground, where the post falls, remembering to level this post as you measure.
8. Check the distances to make sure everything is square on. (fig. 6)
 - The distance between the inside corners of Post 1 and 4 should be equal to the distance between the inside corners of Post 2 and 3. (fig. 4)
 - The distance between the inside corners of Post 1 and 3 should be equal to the distance between the inside corners of Post 2 and 4.
9. Make any necessary adjustments and check again until your measurements at Step 8. are correct.
10. Drive in Metposts 3 and 4. You should be good at this by now!
11. Put the posts into the Metposts and level them up with the post level.
12. Well done! You are ready to attach the trellis.

Attach the Trellis:

1. Position the trellis at about the same distance from the ground as it is from where the bottom of the side rafter will be – the side rafter will measure 4" from the top of the post.
 - So, if your posts are 8' and you come down from the top 4" for the side rafter, that will = 7' 8" to the ground. Take the 6' of the trellis panel away to give the space left = 1' 8". Divide that by 2 to give the amount of space at both top and bottom = 10".
 - However, you still have the 4" of side rafter, at the top, to take into account so your bottom space will be 10" and your top space will be 14".
2. Hold the trellis flush with the outside edge of the side posts 1 & 3 and pilot drill the first hole near to the top of the trellis panel and through into the post.
 - You can place some brick, stone, or anything really, underneath the trellis to support it, while you are drilling and screwing.
3. Screw the trellis to the post.
4. Go to the other side and do the same. The trellis will be held in place now.
5. Drill about three more pilot holes down one side and then screw to join the trellis to the post, making sure that the trellis edge is to the outside of the side posts, all the way down.
6. Repeat on the other side of the trellis, and then for the other trellis panel on the opposite side between side posts 2 & 4. Wow – looking good already!

Attach the Side Rafters: (Side rafters are those running from posts 1 to 3 and 2 to 4.)

5. Firstly, make a template for your rafter tails/ends. Mark on both sides. (fig. 7)
 - A shoebox or cornflake packet will do.
2. Cut your 4" x 1" wood to the required length.
 - To do this just take the measurement from the outside of the posts and add 16" - 8" for each side. (fig. 8)
 - Note down the measurement for later.
3. Place your template onto the end of the side rafter. Mark all around it and then cut the sloping rafter tail.
 - Take care that you have the template the right way up at both ends before you cut!
 - Always check your markings before cutting.

4. For the side rafters, the notch needs to go at the top edge. Mark it from your template. (fig. 9)
 - Use a square to make sure your lines are at 90 degrees.
5. Saw the notches to the 2" mark and then chisel out the rest. So far, so good?
6. Hold the side rafter up to the top edge of the post and mark the bolt position through the post with a pencil or your drill. Drill the side rafter with the 8mm drill bit. (fig. 10)
 - The notches should lie immediately outside, and flush with, the post edge.
 - Pull the top of the post in slightly, if necessary before you mark.
 - Don't bolt on yet.
7. Do the same with the opposite side rafter and then drill all bolt holes, through the side rafters, with your 8mm drill bit.
8. It is time to cut the notches for the inside main rafters to fit on to. To do this, measure from the outside of one post to the other. This measurement is already marked on the wood, from the line that came at the end each of your templates.
9. Now for the tricky bit! – Don't panic. Just read the instructions carefully and look at the example. The main rafters need to fall about 12" - 18" apart. So divide your measurement by a number (3, 4 or 5 probably) until you get around about that distance. (fig. 11)
 - For example, if your measurement between the outside of the posts is 54" divide by 3 = 18". That will be fine. So the marks for the centre of these notches will be 18" and 36".
 - Remember, this is only an example so you will need to work out your own.
 - Use a calculator if unsure
 - Note down the measurements for later.
10. Mark your notches. These marks are the middle of your notches.
11. Now you need to mark half an inch either side of these marks and 2" down. (fig. 12)
12. Cut and chisel as before, in step 5.
13. Repeat for the other side rafter.
14. You are ready to attach the side rafters.
15. Line up the bolt holes and use a hammer or mallet to push the bolts through. Add a washer and then the nut. Tighten up. Do this for all four bolts.
 - The circular domed end of the bolt should be on the outside of the post.
16. You are nearly there – only the main and cross rafters to put on!

Attach the Main Rafters: (Main rafters are those running from entrance to exit.)

1. Measure across the entrance between posts 1 and 2 .
2. It is important to remember that on the main rafters, the notches are on the bottom, on the outside of the posts. (fig. 13)
 - Check carefully against the diagram before you cut.
3. Cut the wood to length – that is the distance between posts 1 and 2 + 16”
4. Use your template to mark and cut the ends.
 - Check before you cut that you have marked both ends the right way up!
5. Use your template to mark and cut the notches. (fig. 14)
6. Your main rafters should look like (fig. 14). I have not shown the side rafters in this diagram so that you can see the main rafter clearly.
7. Do as you did in step 10. on ‘Attaching the Side Rafters’ – measure distance and divide by a number to give yourself a measurement of between 12” – 18”.
8. Mark these notches that are going to position the cross rafters to lie across the main rafters.
9. Now place the main rafter notches onto the side rafter notches and use your mallet to gently knock them together so that they lie flush (fig. 15).
 - If you hit them too hard the wood will split!
10. Use your pilot drill to drill through the main rafter down into the side rafter.
 - You will need your stepladders here.
 - Take care when using power tools and ladders. Make sure the ladders are secure.
11. Screw in from the top.
12. Repeat steps 3-11 for all main rafters.
13. Nearly done! Only the cross rafters to go.

Attach the Cross Rafters: (Cross rafters run the same way as side rafters, across main rafters.)

1. Cut the same length of wood as you did for the side rafters.
2. You will need the same measurements and the same notch measurements as the side rafters but this time all the notches will be at the bottom. (fig. 16)
3. Cut the rafter tails and the notches.
4. Place into position on top of the main rafters, easing into main rafter notches. Tap in.
 - Support the main rafter from underneath if tight to prevent the wood from splitting.
5. Pilot drill and screw down.
6. Last but not least, take a long cool beer, a glass of wine or a good old cup of tea, stand back and admire your work. Yes – it's finished!!

Now that you have your wonderful pergola, you might like some ideas on planting, which you can find at –

www.pergolaplans4free.co.uk/climbingplants.html