

# BBQ Pergola from Metal Fencing

by Peter Harle, December 2011



# Starting

- This slide show is intended to give a general idea only, someone handy with basic tools could do it. You will need to draw up the actual detailed plans and measurements to suit your needs and available materials.
- I was quoted around \$2000 for a commercially built unit. I built it for around \$300 in materials and a day or so assembling it with minimum tools. A helper could reduce the time taken and prevent errors, especially if both know what is needed!

# Tools U need.

- Two or three battery operated drills are handy, saves changing drill bits back and forth, fully charged batteries will make it easier too.
- A decent pop rivet tool with extra long handles is great, especially for 3mm thick aluminium or steel pop rivets!
- Ruler, tape, set square and several 120mm metal “G” clamps are a must. So is a thin permanent marker or steel tube “liquid paper” pen.
- A thin cut off disc 120mm x 1.0mm or 1.5 mm thick is ideal for cutting the rails and posts. A few blocks of wood that fit inside the rails are great for clamping things in place while minimising marking the metal surfaces.

Two drills and a “magnetic” hex head socket driver saves time and energy! Fully charged batteries are less frustrating.



# Safety first!

- A hat, long sleeved shirt and safety glasses are a must when using cut off wheels and a pop rivet gun, not only for you but everyone that's helping as well!
- A shady area under a car port is great, but make sure your car is well away from any air borne sparks! You don't want to end up with rust marks from grinding dust on the duco! Same applies to concrete surfaces, make sure you sweep it all away before finishing your work. Overnight humidity will result in unpleasant tiny brown rust spots everywhere.
- Grinding over a grassy area adds additional iron to the lawn and saves sweeping it up! But make sure you don't shower the cream coloured fence or your neighbour with sparks and grinding dust.

The (almost) finished BBQ Pergola in place. I used the two existing fence posts to attach my BBQ Pergola to. A little tricky to get the correct measurements so everything fits neatly.



# Materials

- I used a combination of fencing posts and rails. Several brands are available with differing patterns. Basically all are "U" shaped channels that fit inside each other. Usually rails fit inside posts. Sometimes two "U" channel posts will mate to form a four sided post. They are not normally used that way for fencing, that is the flat parts of the two "U" channels are screwed together to form a single post. Similarly rails fit inside a post so that combination may be used to form a four sided post which can then be simply screwed together with self tapping screws or pop rivets.
- As you will see from the photos, I used only "U" channel posts and smaller rails that fit inside the "U" channel posts to hold the "roof" sheets in place.
- Many combinations could be used. I spent considerable time chasing up various designs but eventually settled on material supplied from an Australian Supplier called "Stratco". It has many distributors Australia wide.
- In my design I used 12 lengths of 2400mm posts
- 4 lengths of 1500mm rails.
- 4 posts of 1600mm length
- 4 sheets of fencing panel for the roof measuring 1600mm x 800mm
- 1 off ridge capping of 1600 mm
- 1 can of touch up paint for posts and rails and to spray over pop rivets.
- "Tex" self tapping hex head screws and pop rivets plus 2 bags of ready mixed concrete.
- Your measurements may vary depending on your requirements and availability of materials.
- I also purchased a cheap "cutting off" grinder attachment that allowed me cut the post and rails squarely, but after a little practice I could do almost as well by clamping the work piece securely and manually cutting it off from scribed marks. It does require a steady hand!

Start with roof construction- 4 rails for ridge and 3 posts for each A frame



Two fence rails are riveted to form the roof ridge.  
2 fence posts are pop riveted to the ridge rails.



Close-up of roof rails pop riveted to fence posts, fence rails fit inside fence posts.



That's where it's going – using the existing fence posts. Distances are crucial, measure carefully for the next step. 2 BBQ Pergola posts are pop riveted to the existing fence posts. Another 2 posts are pop riveted to the "A" frames, these then fit inside the posts previously riveted to the fence posts! A few mm out and it wont fit! So measure several times, make sure you know what fits where!



“A” frame bracing (made from fence post channel) determines angle and distance between fence posts, measure carefully! Posts are attached to “A” frame next to bracing. Measure existing fence post distances carefully! Know what fits where!



One half of Roof – A frame. 2 sheets per side then locked in place by bottom rail.



The other side – without bottom rail  
needed to hold 2 sheets in place.



The finished roof with ridge cap folded over and pop riveted.



This is tricky, a “U” channel posts is first pop riveted to the existing fence post. Then a post is pop riveted to each side of the “A” frame. The distance between the two “A” frame posts is critical and determined by the length of bracing rail of the “A” frame. The “A” frame post fits inside the corresponding post already pop riveted to the existing fence post. (“U” channel posts fit inside each other as per slide 18) This has to be done for both sets of posts so measurements need to be “spot on”. Clamps and two helpers make it a lot easier. Think about it carefully, sounds confusing doesn't it? Clamp bits of post to the fence and try it out for yourself so you know exactly what you are doing before cutting anything!



Vertical posts attach to "A" frame next to horizontal bracing. Photo shows two posts interlocked and screwed together for additional strength. Same applies to the horizontal bracing, without the interlocking rail a "channel only" post or bracing would look less attractive and have far less strength, especially for those keen on "chin-ups" .



Two posts inside each other make a strong single post, The second post is only fitted after the first is already riveted to the "A" frame. Same applies to the two "A" frame bracing "rails", which are actually made from fence "posts".



Galvanised self threading screws pull the sides of the posts together to form a single post. This was done to the 4 vertical posts and the two horizontal bracing “rails” which are actually fence posts. I used 6 screws per post, 2 each end and 2 in the middle. To make it easier, predrill holes for the self threading screws. First a small hole through both walls, then a clearance hole in the outer wall only. This is where two drills and socket driver are very handy.



I left the sides their standard length, saves cutting them to size. Post has just had the “outer post” screwed in place as has the horizontal bracing.



This view shows the bottom rail of the roof fitted in the side channels made from fencing “posts”. Four 3mm Galvanised steel pop rivets on top and bottom hold it all together.



Screw holding the outer Post to the Inner post. That makes it a closed 4 sided post, looks good and strong too!



Plastic end caps glued with “liquid nails” to the 4 sharp ends stop dents in soft heads. Drill a 5mm hole in the bottom of the hollow round ball to allow water to escape. You know which ones I mean don’t you?



Fill the ground hole with concrete first, then place post in the concrete, tap post so concrete flows into the hollow centre of post. Clamp post to a piece of wood for correct height etc. Initially I was going to use a large earthenware pot plant container around each post with a large hole through it for the post. That would prevent damage to the pole when grass cutting etc. The container could hold colourful plants around the pole, but I was impatient. Besides the wet soil in the pot would eventually cause the post to rust. Although a piece of plastic drain pipe around the post for the height of the container would prevent that, etc., etc., food for thought, maybe.



# Not perfect but better than a square end!

Well, that's about it, this project was intended to be a starting point for anyone that needs to build a cover over a Barbie to provide shade from the Ozzie summer sun and light rain.

I could not find anything similar on the Web so I decided to give it a go. The only criteria was that it could be built using simple tools available to most home handymen (and women).

Friends have built similar "pergolas" and added to the basic design.

That's all it was meant to be; a starting point for someone with the basic metal working skills to have a go.

Who knows, fencing suppliers may be able to put together a suitable "kit" as there is nothing similar on the Web at this time.

Enjoy;

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