

A Polytunnel for just over £100

Our Polytunnel was based on a design originally provided by Alan Parkin at http://www.overthegardengate.net/UserPages/pp_view.asp?FName=Polytunnel&Page=1 (for which many thanks Alan) but differs in one major respect – it uses inexpensive 40mm polythene waste water pipe which reduces its cost significantly. It cost a bit over £100 for the plastic frame, fastenings and covering. This does not include timber (most of which was obtained from skips) or accessories such as the automatic ventilator opener. The Polytunnel was completed in autumn 2009 and has survived the winter gales successfully, so it is now time to publish its construction details.

The advantages of a Polytunnel are similar to those of a greenhouse – it extends the growing season at either end and allows exotic fruit and vegetables to be grown. An additional advantage we have soon discovered is that it gives a wonderful, warm, dry place to potter in when the heavens open outside! A Polytunnel does not hold heat in the night as well as a greenhouse and is not suitable for winter heating. The plastic covering is meant to last only 5 years or so, though I have heard that it can last for 7 or 8 years.

To build a Polytunnel you will first need to identify a site and then get hold of the raw materials. As I understand it, planning permission is not required for a Polytunnel, but permission is needed at most allotments. The design allows for various sizes and the one I built is 5.5m / 20ft long, 2.4m / 8 ft wide and 2.1m / 7ft high. Ours is on a sloping site and the biggest job was the partial levelling of the ground, digging out some of the builders rubbish and stones and adding compost. Needless to say it is easier to prepare the ground before the Polytunnel is constructed, this includes raised beds and a paved path if you want them, but I didn't bother at this time. Our polytunnel is built very close to and almost under a plum tree which is on the south side and provides shade during the hotter months and no shade during the spring and autumn.



The Polytunnel was anchored using 5ft lengths of scaffolding pole, spaced about every 5ft and hammered 2ft into the ground. These proved surprisingly easy to source – I had a chat with a local scaffolder (thanks Enfield scaffolding) and was offered the chance to come to his yard and cut up some of the bent poles they no longer use. I took along a bit of the 40mm plastic pipe and selected bent poles into which the pipe fitted – only some were suitable. I took my own angle grinder (take a couple of grinding disks!) and could carry the cut lengths away easily in a medium hatchback. The plot was then marked out with pegs and string and the poles were driven in using a sledge hammer. The tops of the poles have to be good enough to receive the pipe and you could use wood blocks to protect them, but I just bashed them in and then cut off the tops

clean again with the angle grinder. Make sure the poles go in vertically.

For the plastic hoops I tried to find the heavy duty plastic water pipe suggested by Alan as scrap but could only find this to buy for about £150, so I decided to take a chance with low cost 40mm waste water pipe (about £20 for 10 x 4m lengths delivered from Screwfix when ordered with other bits such as screws, hinges and bolts). This has worked well so far. These needed to be joined to create long enough lengths for the hoops and this was achieved after some experimentation by using cut lengths of ash pole about 7-8" long which fitted tightly into the pipes and were held with small pins and gaffer tape. The hoops were



fixed by attaching a rope to one end, pushing the other end into the scaffold pole and then bending the hoop using the rope and pushing the other end into the opposite pole. Where the pipe didn't fit well into the pipes, I used additional lengths of ash pole pushed into the pipe ends and fastened with a small nail. The ash pole was then nailed through a hole drilled near the top of the scaffold tubes and more gaffer tape used to firmly attach the hoops to the poles.



Once the hoops were erected, they were strengthened by the end frames which hold the door and windows. These were made of treated 40mm square timber bought in a six-pack from B&Q, screwed to additional scaffold poles driven into the ground and then attached to the hoops using short lengths of aluminium wrapped around the hoops and nailed to the frames to avoid drilling holes in the tubes. Longitudinal battens were screwed to the frames at each end and fastened to the hoops using gaffer tape (same reason). Finally, old scaffold boards were attached to the outside of the scaffold poles using coach screws to protect the polythene covering when digging inside the polytunnel.

It was now time to build the door and single end window using scrap timber and halving joints. At this point the Polytunnel frame was complete (July 2009) and the interior was actually planted with tomatoes, peppers, cucumber and aubergines but I had to wait until the winds eased and the temperature rose a bit – until September 2009 in fact – before fitting the polythene covering. At least the “inside” didn't need watering during this period; in fact the tomatoes succumbed to blight during the rainiest summer since – the previous rainy summer.

The polytunnel polythene was ordered online from First Tunnels www.firsttunnels.co.uk during a spring sale. They have a calculator where you enter the dimensions of the polytunnel and it tells you how much to buy but this seemed excessive to me and I just calculated the dimensions I would need from a drawing (including the 40 cm wide and deep trench) and saved about 1m on each dimension so it cost about £75, with plenty of surplus even then. The polythene is attached using a 40cm wide and deep trench dug around the outside. Choosing the warmest, stillest day you can get, it is initially draped over the frame and then the trench gradually filled in, pulling the sheet to tighten it while doing this. At the same time the sheet is pleated and initially attached to the end frames with a staple gun, and later with battens nailed to the frames. I was initially worried about the plastic becoming loose and flapping but in fact it seems to have tightened with time, and this was helped by using small polystyrene blocks to push it away from the lengthwise battens.





Finally the door and end window are “glazed” using surplus polythene and fitted. Ventilation is very important as without it a polytunnel can rapidly get to 45°C+ in full summer sun and kill its contents. I use a sort of roller blind made of surplus pipe and plastic for the front door and an automatic opener on the back window which seems to keep the temperature down to around 35°C on sunny days in spring, but it will probably be necessary to leave the door completely open on summer days with little breeze, and you will probably have to fit shade cloth if you don’t have a convenient shade tree. On the other hand, during winter the ventilation was closed and the polytunnel achieved a very humid, almost tropical atmosphere on days with some sun, much to the approval of both plants and humans.

When the ventilators are open, watering is required frequently during the warm months. I have an automatic, drip feed system for when we are away but we normally just use a hose or a sprinkler fed by siphon pressure from a bathtub at the top of the allotment. We left the polytunnel completely unsupervised during Feb and March while away and most of the plants within it – leeks, broad beans, carrots and perpetual spinach unexpectedly survived. This was probably because our polytunnel is built at the bottom of a slope and it was very rainy. More importantly, the low-cost pipe design survived the winter gales and in fact hardly moves even in very strong winds. Once we returned and started watering, the plants recovered and are now doing well. I have added quite large shelves at the end and north side for both seed trays and pot plants.



This is the polytunnel's first full year season and at the moment (August 2010) both seedlings and established plants have done well. I have successfully grown tomatoes, peppers and cucumbers and melons are still ripening as I write. I am sure that other warmth loving plants could be grown successfully in the future. There has been no blight, There is one further, unexpected benefit in that the south facing outside of the polytunnel has seemed to create a sort of sheltered, warm spot where outside plants are also doing better than before.