

'Alteration' Base Box ideas

Since the base of the tower will be supported by a weighted box I have to design one that is able to do this. I will have a very simple box that has bags of sand in the bottom to stop it from rocking and moving by the leverage of the tower.

I know that a 1m by 1m by 1m cube holds one tone of water and so bearing this in mind a 50cm by 1m by 1m will hold half a tone of water and sand weighs more then water so a 50cm by 1m by 1m box will hold half a tone of sand. Half a tone of sand I feel will be more then enough to stop the tower from moving.

I will build a 50cm by 1m by 1m box from re-used materials. This box will support the tower.



The main frame is made from 10cm by 5cm timber which I have used as it is cheap an easy to get hold of. Also this timber has been treated under compression to make it rot resistant which means it will need less maintenance.

I have covered the frame with old floor boards from a house refurbishment company. These floor boards will hold in the bag of sand and also add rigidity to the box structure.



Once the floor boards where nailed on I found that there was gaps and holes in the floorboards so I decided to use some 6mm ply wood to cover the floorboards. This has two benefits it blocks the holes in the floorboards and it gives the box even more strength as the ply has a larger surface area to transfer the forces away from the tower.



I also added some steel angle iron to the corners of the box to stop them from getting damaged during moving and positioning.

The picture below shows how I used some noggins to hold the bottom part of the tower upright:

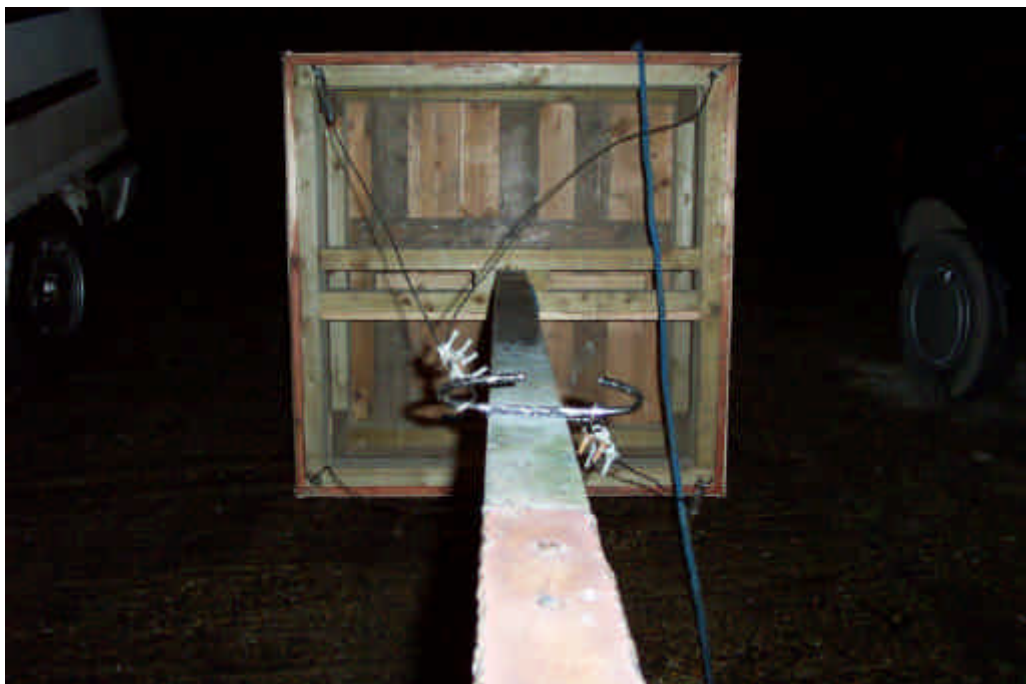


I also added two floor boards at 90 deg to the other floor boards around the socket at the bottom of the box to give more strength around this point. This socket allows the tower to sit on a concrete slab that is in shallow hole beneath this base box. This makes the tower sit on the ground at 90 deg to the floor 'straight up – vertical'

I tested the tower to see if it would sit vertically and to see if the forces of the tower was being removed and supported by the tower base. I did this by standing on two of the corners and pushing on the top of the tower. I found that the box was strong and held the tower well but that there was a little movement when I pushed on the tower like the wind would.



To solve this excess movement I decided to use some hooks in each of the four corners and weld a bar to the tower. I then installed some stainless steel wire between these two points and tightened them up on the screw in hocks. This removed all of the excess movement that was occurring.





I then moved the tower into Mr Bigins location and filled it with 20 bags of builder's sand this weighs approximately half a tonne.

