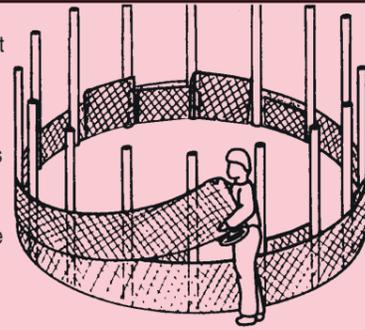


Ferro-cement Tank

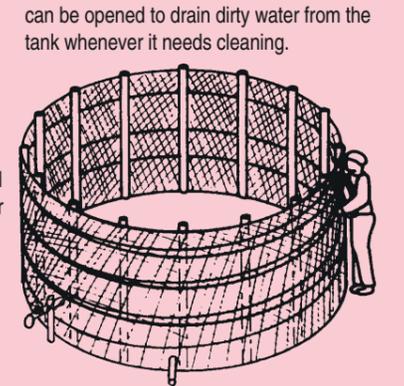
Ferro-cement water tanks can be used to store rainwater collected from roofs. They use wire mesh to reinforce the walls. This means that the

walls do not need to be thick, so less cement is needed. If mesh is not too expensive, the tanks can be much cheaper than ready-made alternatives.

8 Prepare the wall reinforcement by winding mesh around the outside of the poles so that everywhere is covered by at least two layers. Make sure that the poles remain vertical. Apply a second layer of mesh so that its holes are not at the same level as those of the first mesh. Tie the meshes together with fine wire.

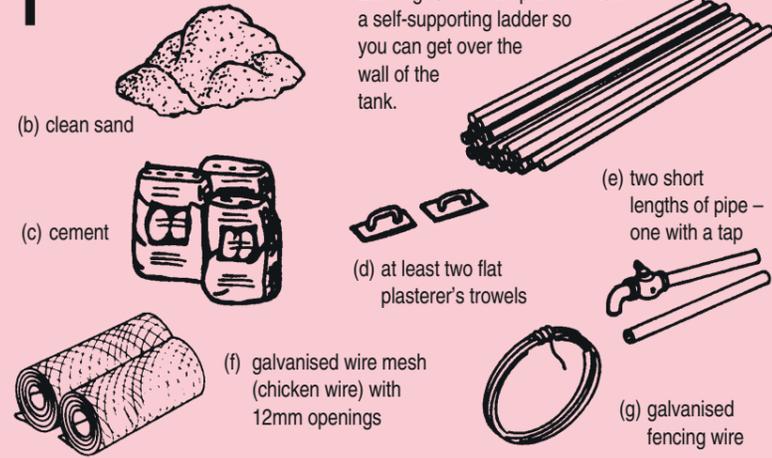


9 Strengthen the mesh by winding a continuous spiral of wire around the structure. The rings of wire should be 150mm apart near the bottom of the wall, increasing to about 300mm apart at the top. An extra ring of wire should be used right at the top of the wall. Place a pipe and tap through the wall 100mm above the floor and hold the pipe firmly in place by tying it to a strong pole driven into the ground. Also add a pipe level with the floor. This pipe should have a lockable valve or removable cap on the outside end which



can be opened to drain dirty water from the tank whenever it needs cleaning.

1 This is what you will need...



(a) strong wooden poles or timber – at least 2m long. Use some poles to make a self-supporting ladder so you can get over the wall of the tank.

(b) clean sand

(c) cement

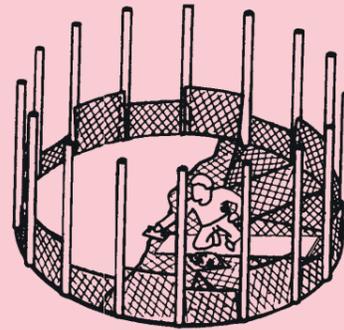
(d) at least two flat plasterer's trowels

(e) two short lengths of pipe – one with a tap

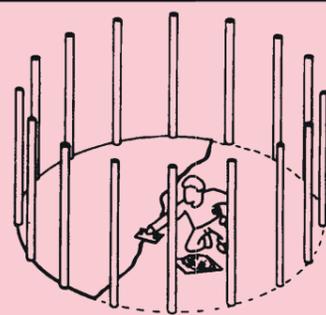
(f) galvanised wire mesh (chicken wire) with 12mm openings

(g) galvanised fencing wire

7 Before the cement hardens, carefully replace the mesh you removed in step 5. Stand or kneel on planks of wood to spread your weight and avoid damaging the first layer of mortar. Sprinkle water on the first mortar surface if it has begun to dry out. Then quickly add another 25mm layer of mortar. Plaster to within 25mm of the poles and leave the surface rough. You must now keep the surface of the new mortar damp until the whole tank is finished – old sacks, grass matting or polythene sheets can help.

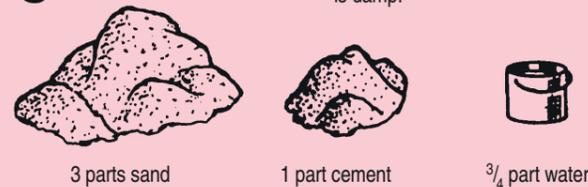


6 Make the ground damp. Spread 25mm of cement mortar across the floor of the tank. Plaster to within 25mm of the poles so that they can be removed later. Make the surface of the mortar flat, but roughen it by scratching or brushing it. Work as quickly as you can.

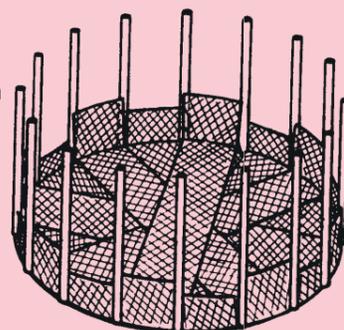


5 Mix up the mortar. The mixture must not be too

wet, so do not add all the water immediately, especially if the sand is damp.



4 Lay two layers of wire mesh across the floor of the tank. Bend it upwards at least 300mm between the poles so it can be cast into the wall formed outside the poles. Tie the meshes together using fine wire (you can get some from unravelling the mesh). Now remove the mesh or at least raise it enough for step 6 to take place.



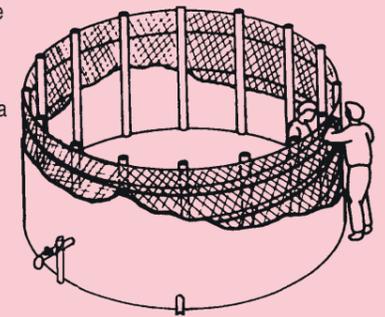
10 Begin plastering the tank walls with the mortar mix. This needs at least two people – one on the inside and one on the outside. They work together, pressing in the same place to compress the mortar into the mesh to form a layer about 10–15mm thick.

mortar against this surface. Remove the sacks once the mortar is dried.)

Scratch or brush both surfaces to make them rough. After a day, add a second layer of mortar to the dampened outside surface of the tank, giving it a smooth finish.

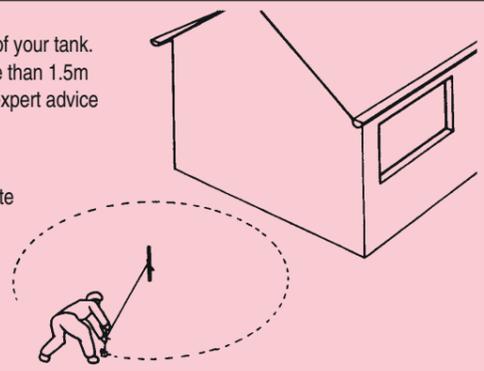
Always keep the hardened mortar damp and shaded for at least two weeks after you finish the tank or cracks will occur.

(An alternative and easier plastering method for the first layer is to wrap the outside of the tank with sugar sacks or matting held in place with a spiral of string with 50mm spacing between each turn. Someone inside the tank can then push the

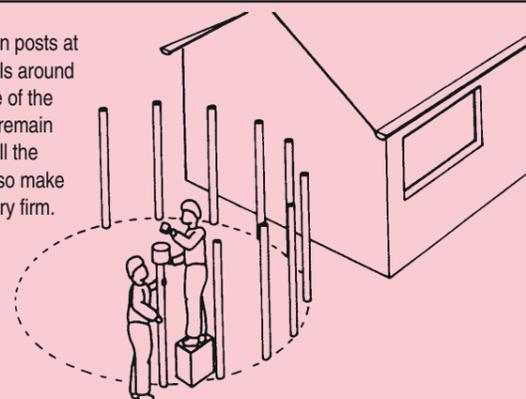


2 Decide on the size of your tank. Do not make it more than 1.5m high without some expert advice because it will need more reinforcement.

Clear soft topsoil off the site so that the tank is constructed on firm ground.



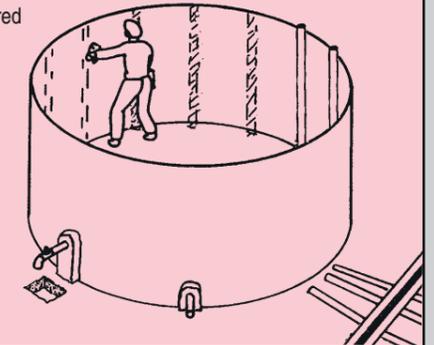
3 Drive in wooden posts at 400mm intervals around the inside edge of the circle. They need to remain vertical when you pull the mesh around them, so make sure that they are very firm.



11 One day later carefully remove the poles. Compact stones into the holes left in the ground and carefully fill these with mortar. Dampen the exposed slots and fill these gaps with fresh mortar. Now add a final smooth layer of mortar (10–15mm thick) to the inside of the tank and to the floor. Again, keep surfaces damp all the time. Make the wall thicker where the pipes go through it. Support the

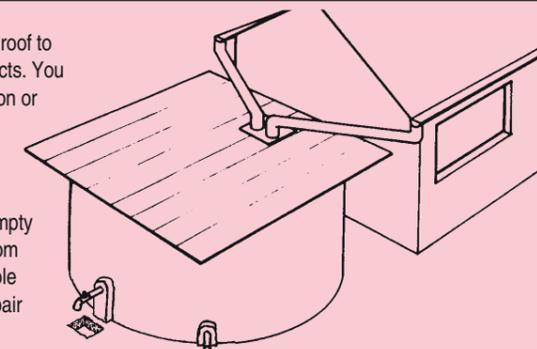
tap pipe on the outside with mortared brickwork. You may want to make a small pit under the tap so that a bucket can fit under it. Make sure this pit drains into a hole filled with stones.

Keep the whole tank damp for at least two weeks before filling.



12 Cover the tank with a roof to keep out dirt and insects. You can use corrugated iron or a domed ferro-cement roof. Fill the tank very slowly with water.

If you find any cracks you can repair them when the tank is empty by chipping away the mortar from the mesh and then filling the hole with fresh mortar. Keep this repair damp for at least two weeks.



Let us know how you got on!