How to create an Artificial Sand Martin Bank, Step by Step.

Step 1: Put the Kettle on and get a cup of tea.

Step 2: Choose your design to suit the area and your budget. In our case we improved on the design of our current bank to make the bank taller and wider. This was done purely to accommodate ringers and nest recorders working on the inside of the bank.

Step 3: Materials

Order your materials (shop around and get the best prices) , Get these delivered as close to site as 1400 concrete blocks is a lot to shift for a second time! Thank you to the Army for lending some muscle!

(16th Regiment Royal Artillery at North Luffenham Lend a hand shifting 1400 Hollow dense concrete blocks)

Step 4: You are ready to make a start!

Probably should put the kettle on and have a tea! At this point you may have to put the concrete foundations in, but we had this done by Carrillion during the construction of the new lagoons.

So the next step is to mark out where the bank will start and finish.

Step 5: Start Mixing and Laying

Get the mixer going, and start mixing the mortar for laying the blocks, we start with a level at a time, you will find that the lowest ones are the hardest get these blocks in perfectly level and you will save yourself much confusion in the future.

The blocks are laid as a double skin a 62' bank will be around 60 blocks in length.

Continue the process of laying blocks double skinned for 4 levels, making sure that at the start of each new level the blocks are off-set from the level below as this adds strength to the building.

The most important part of the building is to maintain a good supply of tea!

(Starting at the far end getting this up to height ready to run the block work to the other end)

(Running all the blocks in up to the required height ready for blocks for nesting chambers)

Step 6: Create the holes.

When you have completed level 5 you are ready to turn the hollow dense blocs onto their sides. Again these will be laid double skinned and each pair laid will produce 2 nesting chambers, do this in stages building one level at a time. When you come to your second level it is important once again to off-set you blocks to add strength to your block work.

Once you have completed 3 levels of blocks laid on their sides you should have around 487 spaces for nesting chambers.

(Three rows of blocks ready to turn into nesting chambers).

Step 7: The last blocks

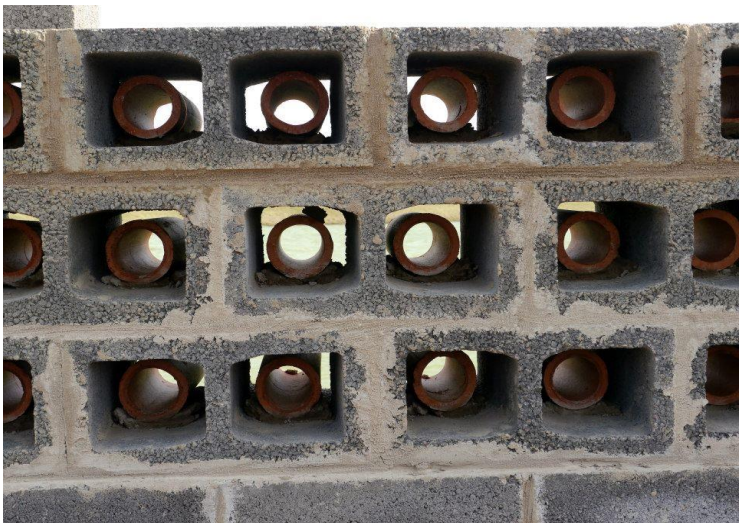
The block work of the bank is finished off with a single level of solid concrete blocks, these will eventually support the wall plate that the roof beams will fit too. And this will add some height between the holes and the bank which is more aesthetically pleasing.

(The last row of Solid concrete blocks going in)

Step 8: How Many Holes!

Get the mixer going and mix mortar for fixing the pipes in. We used 12”x 3” clay land drain, firstly you will need to cement these into each of the holes the pipes will need to be flush with the front of the bank to allow for space as a nesting chamber at the back. After all the pipes are in they will need cementing up around the front to be able to render against later and also at the back to stop chicks scurrying down the sides of the pipe. To do this we found it easy to pack the sides of the pipe with loft insulation, this gives you something to plaster the cement up against otherwise you end up using a lot of cement to fill a small hole.

(Photo showing cemented pipes in place with loft insulation and cementing up around the front).



(Photo showing what will become the nesting chamber).

Step 9: Rendering is Fun!

You are ready to render the outside of the bank. To do this you will need to make a mix of 5 Soft sand, 5sharp sand, 2 Lime and ½ white cement. The block work will need to be wetted to help the mix stick better. It is best to work in pairs with one person plastering on the butter coat and another person following on behind using a Tryolene flicking gun to flick a mix of 10 Sharp sand, 2 Lime and ½ or ¼ white cement. Use the Tryolene flicking gun to flick the sharp sand mixture onto the butter coat, this will leave a textured sandy finish to the exterior to the bank.

(This will take a little while and you will need a strong arm but the finish is well worth it, a bank of 62’ and 7’ in height will take about 3 days for 2 people). (This process also requires lots of Tea)!

You could make a mix with water, mud, sharp sand and lime and flick this over the top again, this produces a more natural colour and helps the bank to blend in more naturally.

(Photos showing rendering and Tyrolene flicking in progress, and render when dry next too un-rendered end).

Step 10: The Roof

You will need to fit a wall plate to the top of the block work, I used 4”x2” pressure treated timber fixed with wall fixings into the top of the solid concrete block this was also sat on a bed of mortar to help it bed down. Run this down both sides, you will need to add another row of 4”x2” on top of the existing wall plate this will give you a drop on the roof in order to allow rain to run off.

Once the wall plate is secure you can begin to fit the roof beams, for this I used pressure treated 4”x2” again these can be cut to length depending on if you would like an overhang on the roof or not. I opted not too, you will need to place these at 1ft centres all the way down the bank, fixed down by tosh screwing the in from both sides.

Once you have completed this you are ready to fit the roof, for this I used 8’x4’x 3/4 sheets of recycled plastic board (I have never worked with this material before so it was a bit of an experiment). I routed a groove on the top side of one board and the bottom side of the same board so that the boards would lock together and hopefully be more water tight. I used a silicone based sealant to put between each joint and screwed through the joint onto the roof beam.

After this is complete I added a facia to the bank with the same material cut down into lengths, allowing for it to sick up 2” above the level of the roof sheet this creates a tray around the roof. The facia can be screwed into the wall plate.

(The idea is that eventually the roof will be turned into a living roof, these are expensive but can be done for much cheaper. I will seal any joint in the roof with silicone sealant and flashing tape. After this the whole tray of the roof will need to be lined with an absorbent matting, after this I will use Inca matting (a Bitumen based mat) to cover the roof this can be brought down the sides to cover the facia and could later be Tyrolene flicked to completely camouflage the facia. After the Inca matting is fixed down I would fill with a mixture of soil and compost and plug plant with Sedum).

Step 11: Fixtures and Fittings.

You will need to fix several battens down the inside of the bank, so that you can use this to hinge a door for each of the nesting chambers. For this job I used roofing lath drilled and fitted using raw plugs and screws.

After this is done you will need to make the doors for each of the holes these were cut from sheets of ply wood and I brought a light duty hinge ‘T’ hinge to fit to each one (you could make a hinge out of strips of damp proof course nailed on with roofing tacks)

Each door will need to be fitted on the inside with a square of carpet, this reduces the draught effect created by the pipes and will increase the number of pairs that you get using the bank.

For this the best thing to do is go down to your local carpet fitters and ask them for any offcuts, normally most people are more than willing to help. The easiest way of fixing these is with a heavy duty staple gun.

The doors are then screwed to the roofing lath batten and all that is needed is a turn buckle catch to enable you to shut the door I made mine from some hard wood off cuts.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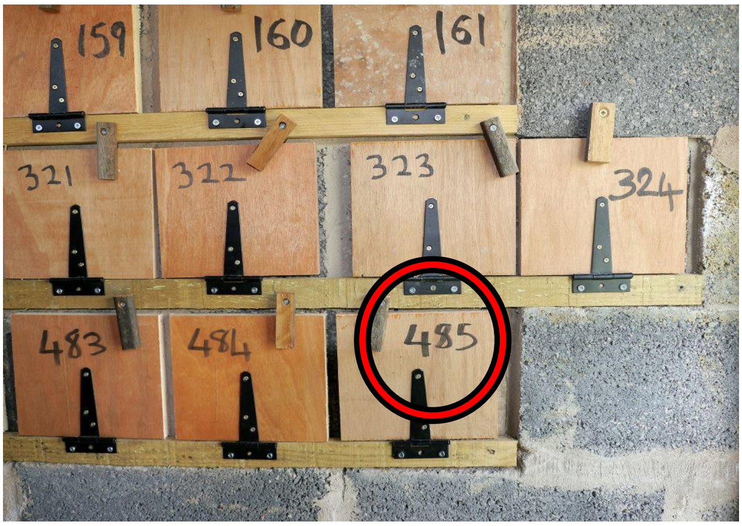
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Step 12: Last but not Least

You will need to find a door for your bank, I made a frame out of 4”x2” pressure timber and made a door from leftover materials we had in the yard.

You will need to fill all of the nesting chambers with 2-3” of sharp sand.

Step 13: That’s not a bad idea.

We fitted our banks with a anti predator metal skirt on the outside of the bank around1 1/2 ‘ off the ground, made from galvanised steel sheet cut into sections with a lip for fixing that fans it out to 45˚this is to stop any predator scaling the wall. You will probably need to paint this a dark green or a sandy brown for aesthetic value.

Step 14: Take a Break (Have a Cup of Tea).

Stand Back and admire what you have created. One of the largest nest boxes you will see anywhere with the potential for 487 pairs of Sand Martins! It may take a few years to get the bank established but a few pairs will always use it within the first year.