

HOW TO BUILD A NESTING WALL FOR SAND MARTINS

Step-by-Step Guide

(based on Dermot Doran's Thomastown House Project)





Dermot Doran and his Thomastown House Sand Martin Nesting Wall

This publication is based on the successful Thomastown House Sand Martin Nesting Wall Project created by Dermot Doran on his farm in Co. Kildare with help from Feargal Ó Cuinneagáin and Anthony Mooney.

The information provided has been written and compiled by Lynda Huxley (Nature of Ireland) in close collaboration with Dermot Doran in August 2022. It is aimed at providing guidance to anyone who wants to build a Sand Martin nesting wall but no responsibility can be taken for any such projects. Before undertaking your project you may wish to consult a registered builder and/or a civil engineer.

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Photos marked M.P. courtesy of Mike Pearson

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About the Sand Martin

Sand Martins *Riparia riparia* are the smallest member of the European hirundine family, which also includes Swallows and House Martins. They are migratory birds that come here to breed from mid-March to September, spending the rest of the year in sub-Saharan Africa.

They feed on flying insects, mainly over wetlands. They will perch on wires and branches. They are colonial nesters and normally breed in burrows dug into riverbanks, peat banks or quarries.

In Ireland, Sand Martins are now classified as an amber-listed bird of Conservation Concern and so providing secure nest sites in purpose-built Sand Martin nesting walls will help with the conservation of this beautiful bird.



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About the Thomastown Sand Martin Nesting Wall

The Thomastown House Sand Martin nesting wall is built at one end of a man-made lake constructed on Dermot Doran's farm in 2017. You don't need to have a lake to build a Sand Martin wall because many natural colonies are built where there is no lake, however, you must ensure it is safe from predators. The nest entrances for all walls should be at least 1.5 metres above ground level and a sheet of steel added below the entrances (see page 17).

The initial wall was built in 2019 and contained 32 nest chambers. By 2021 all these nest chambers were occupied by Sand Martins so, in the winter of 2021 a further 108 nest chambers were added to give a total of 140 for the 2022 season. When the Sand Martins returned in spring 2022, they immediately adopted the new nest chambers and the colony increased.

The structure is composed of:

- a front wall made up of two rows of cement blocks. Solid blocks up to 1.5 metres and above that an outer row of cavity blocks containing the entrance tunnels and an inner row of cavity blocks containing the nest chambers - see diagram on page 7.
- a passage which runs between the front wall and the back wall. This passage allows the nest sites to be accessed for cleaning, maintenance and research.
- a back wall
- a roof covering the whole structure

Sand Martins are colonial nesters, therefore, we strongly recommend that anyone building a nesting wall for them should provide a minimum of 30 nest chambers and many more if your space and budget allow.

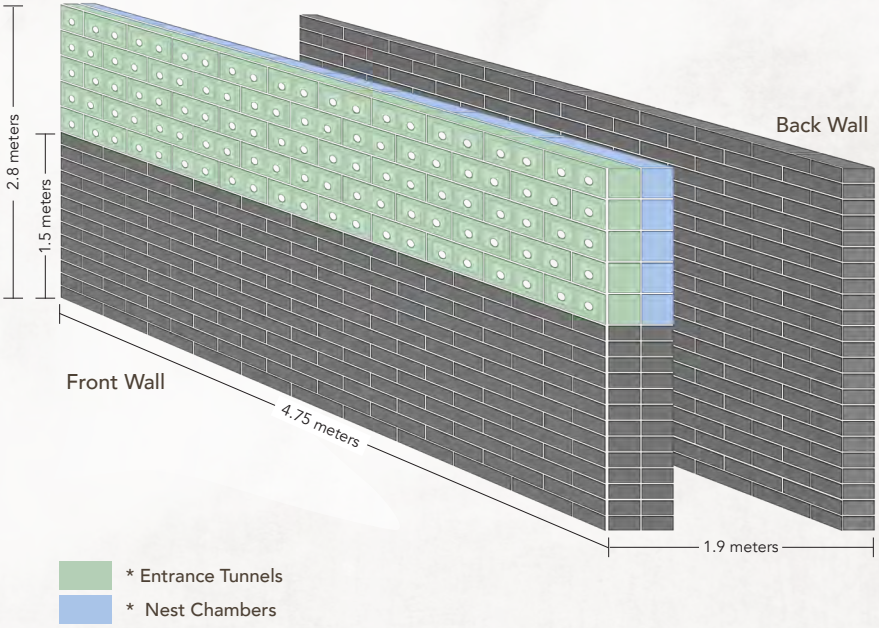
Steps of the wall building process

1) Pre-prepare the nest chamber entrance tunnels in cavity blocks using plastic tubes and cement. One tunnel is needed for every nest cavity e.g. 140 in the case of the Thomastown project.
2) Dig and lay foundations.
3) Build nesting wall using a double row of cavity blocks. The outer row has the cavity blocks with the pre-prepared entrance tunnels and the inner row has the nest chamber.
4) If required, leave a passage way (to enable access the nest chambers) and then build the back wall.
5) Put roof over the whole structure to make it weatherproof.

Dimensions of the Wall

The dimensions of the wall after it was extended in the winter of 2021 are:

- Length: 15.6ft / 4.75 metres
- Height: 9.2 ft / 2.8 metres
- Depth: 1.9 metres (this includes the space for the passage)



Materials used to Build the Thomastown Wall



- Solid cement blocks for base layers of the nesting wall and the parallel back wall

- 9" (215mm) wide cavity blocks for the rest of the wall

Step 1 – Making the Nest Chamber Entrance Tunnels

In the wild Sand Martins build their entrance tunnel so that it slopes slightly uphill, this is to prevent any water entering the nest chamber. At Thomastown House every other tunnel was sloping uphill whilst the one in between was more or less horizontal. It was built in this way to give the wall entrances a more random appearance and so look more like a natural colony.

Pre-prepare the nest chamber entrance tunnels in the cavity blocks before starting any building work. Make as many tunnels as you need e.g. 60 nest chambers equals 60 tunnels.

Entrance Tunnel Dimensions

Tunnel Diameter: two different sizes of silicone sealant tube were used at the Thomastown project 45 and 50mm to make the tunnel.
Note: Instead of silicone sealant tubes you can use 50mm pvc pipe cut to length.

Tunnel Length : 9 inches / 22cm



How to make the Tunnel

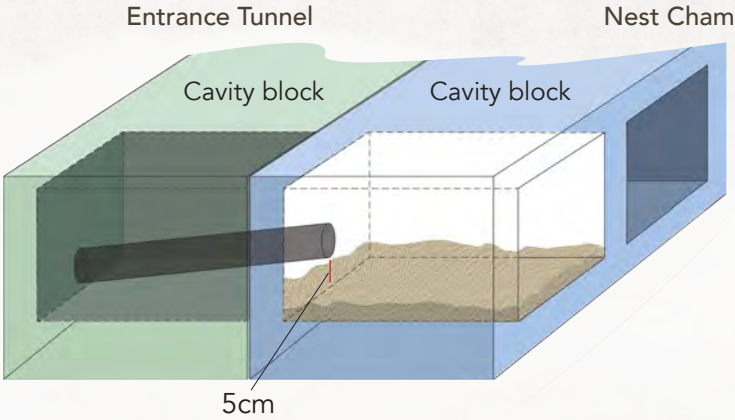
1) Place a silicone sealant tube or piece of pvc pipe in a cavity block.

   NOTE: For a sloping tunnel, one end of the tube should be flush with the bottom of the block and then tilted slightly towards the nest chamber. The end result is that the when the tunnel reaches the nest chamber it is approx. 5cm above it and you will have to fill the nest chamber with builders sand until is it at the same level as the tunnel.

2) Make up a quantity of concrete - approx. 5 parts sand to 1 part cement – see instructions on the cement packet. Carefully fill the space around the tube with the concrete to hold the tunnel tube in place – as specified under 1) above.









Cement placed around the tube

3) Before the concrete has fully set remove plastic tube leaving a perfect tunnel with a diameter of 45 or 50 mm depending on the size of tube you have used. Both diameters are being used at the Thomastown project with no obvious preference so far.





Step 2 - Foundations

Dimensions

Dig and lay foundations to the following dimensions :

- length 5.5 m
- width 2.5 m
- depth 0.3m

NOTE: The dimension of the foundations will vary depending on the size of wall you want to build and the terrain you are building on e.g. peaty, rocky, sandy etc. The Thomastown House Project foundations were made to accommodate a nesting wall made up of two rows of cavity blocks, an access tunnel in the centre and a solid back wall, capped off with a corrugated roof. You may wish to get a registered builder to lay the foundations of your own wall depending on size and location of your project.



Step 3 – Building the Nesting Wall

- The face of the wall must be vertical (Sand Martins prefer vertical walls because they know there is a reduced risk of predators being able to access the nest sites)
- Once the base is cured build two rows of solid cement blocks until you reach 1.5 metres above ground level
- From that point onwards use the cavity blocks - see Step 4.



several layers of cement block to 1.5 metres above ground level

Above 1.5 metres use the cavity blocks



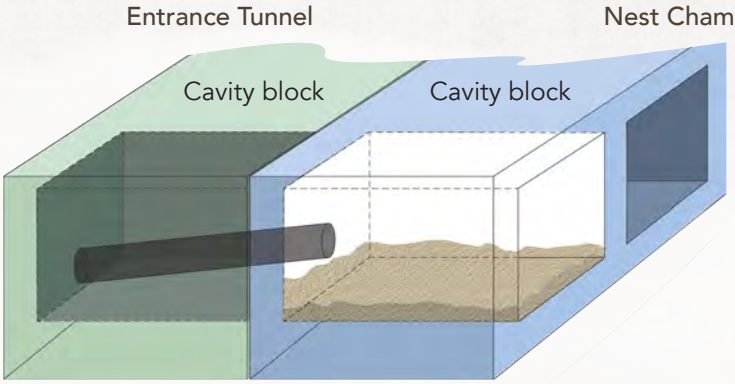
Step 4 – Placement of tunnels and nest chamber

Where to start the first row:
The first row of tunnels should be at least 1.5 metres above ground level or the highest water level.

Outer Cavity Blocks
The outer row is composed of the pre-prepared cavity blocks that contain the entrance tunnels - as per Step 1.

Inner Cavity Blocks
The inner row is composed of the cavity blocks which will be used as the nest chambers - see image below.







The Nest Chamber

Line the floor of the nest chamber with 2"/5 cm of builders sand so that it is level with the bottom of the tunnel.

Closing off the Nest Chamber

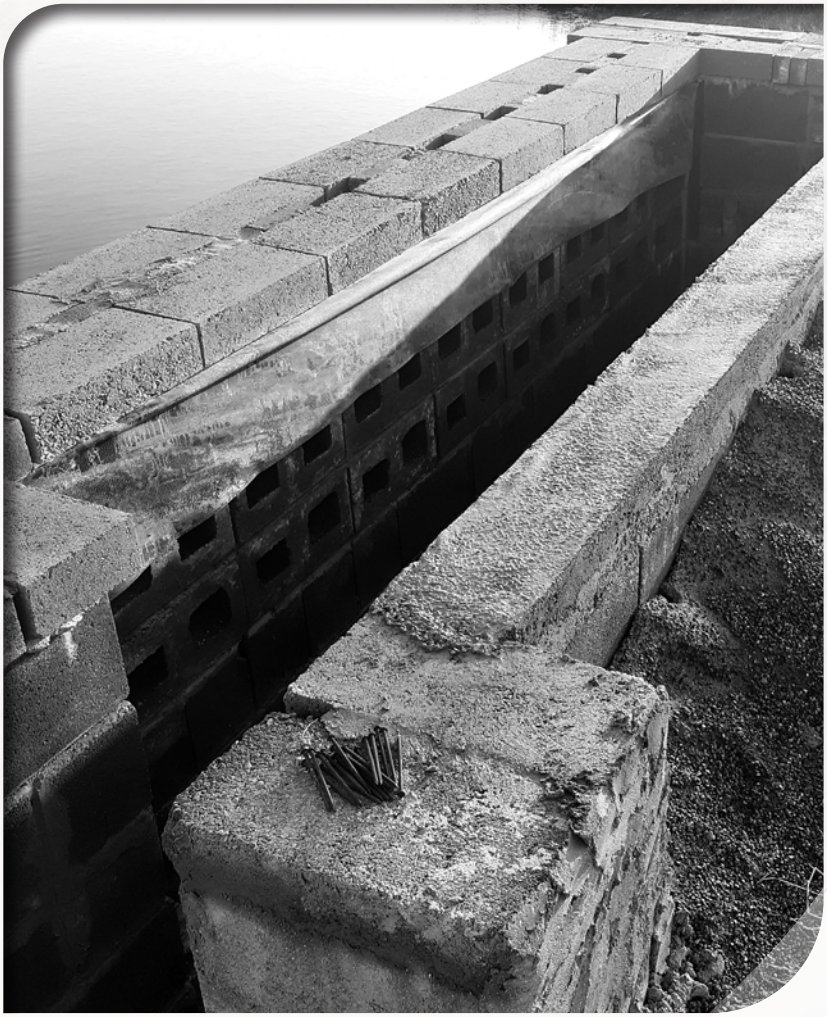
- The back of the nest chambers is closed off with a 9x1" timber plank which is fixed securely in place.
- Some of the Thomastown nest chambers have their own individual door which allows access to the nest chamber for cleaning, inspection, ringing and monitoring *(carried out under NPWS licence)*.



Small door gives access to one of the nest chambers.

Step 5 – Passage and Rear Wall

If you want to have a passage so that you can access the nest chambers then you'll need to build a parallel wall using solid cement blocks to the same height as the nesting wall.



Passage way

Step 6 – Top of Wall and Front of Wall

TOP OF WALL

Cover the top of the nesting wall with waterproof membrane and capping stones.





Step 6 – Continued

FRONT OF WALL

Sheets of steel are fixed to the bottom of the wall (from ground level or the highest water level) to the first row of tunnels - the smooth surface of the sheets makes it difficult for predators to climb up to the nest entrances. Masonry fixings are used to fix the sheets of steel to the wall.



Original wall built in 2019
with the sheets of steel in place under nest entrances

Step 7 - Roof

Place a piece of corrugated sheeting or something similar to act as a roof. This is purely to keep the structure weatherproof and is not for carrying any weight. This should be secured in place.



Approximate cost of the project

The approximate cost for the materials in 2022 was €2,500 which excludes labour and digger hire.

Attracting Sand Martins to the Wall

You can play attraction calls to catch their attention.

You can download a call from the internet and load it onto a USB stick https://www.xeno-canto.org/species/Riparia-riparia

With Power Source :

If you have a power source at your wall you can :

- play the call from a CD player
- or an amplifier system as used for swift attraction calls

  http://www.swiftconservation.ie/wp-content/uploads/2020/04/2020-Notes-on-sound-system-for-playing-swift-attraction-calls-by-Lynda-Huxley.pdf
- or an old laptop with speakers or any suitable device than can play calls through a speaker

No Power Source :

If you don't have a power source at your wall you can use a battery operated or chargeable device such as multi-media player. For example ;

- Auna multimedia waterproof speaker https://www.hifi-tower.ie/HiFi-TV/Multimedia-Home-Audio/Wireless-Speakers/Bluetooth-Speakers/Beachboy-Portable-Bluetooth-Speaker-USB-SD-AUX-FM-Blue-Blue-L.html?gclid=EAIaIQobChMI88X81O_G8AIVgdPtCh0dKQndEAQYBSABEgIH4PD_BwE

More Information

If you'd like more information you can contact Dermot Doran @ dermot1970.dd@gmail.com

In March 2022 Dermot and his Sand Martin Nesting Wall featured on RTE News. It is available to view on YouTube https://www.youtube.com/watch?v=eZJdmXRo-qY

Additional Notes

- This publication has been prepared to provide advice and guidance only and you may wish to seek professional advice before undertaking your own project.
- Whilst every care has been taken in compiling this document, no responsibility can be taken for any other such Sand Martin Wall projects. Please note that access to nest chambers for research and photographing of birds must be carried out under NPWS licence.
- If you plan to build a Sand Martin nesting wall in a protected area please consult NPWS prior to commencing any work to get their approval.
- Consult your local planning office regarding planning permission.
- The methods used in the Thomastown Sand Martin nesting wall Project have been hugely successful. However, we can give no guarantee that Sand Martins will use other such projects – but it's always worthwhile trying because Sand Martins need safe and secure places to nest.



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