Insulated Glider Nestboxes for South East Queensland 2024 Steve Chumbley

Contents

1) Nestboxes: Why We Need Them

- 40 percent of Australian mammals are hollow dependant at some point in their life cycle (and 20% of birds)
- Australia has lost 40% of its forests
- The greatest losses are in the hollow bearing eucalyptus forests
- Hollows are only found in old trees (100 years plus) but logging protocols mean there is very little old growth or remnant forest left.
- In Queensland the rate of clearing is especially high. It went up 168% in the 2010s. Only 44% of remnant forest remains. Weed trees and development exacerbate the problem.
- Even remnant forest is degraded and fragmented compared to its original state so there might be as little as 10% of the original number of useful hollows.
- All the Glider species are very vulnerable to habitat and hollow loss – so these nestboxes focus on them.

2) Nestbox Types: Pros and Cons

- Ideally, we want a nestbox type that is easy/cheap to make, reasonably durable, the correct shape/size, doesn't create litter and remains at the correct temperature.

- **Artificial Hollows:** Rather than making nestboxes, carving an artificial hollow in a tree is one method – either with a chainsaw or a specially designed drill (e.g. the Hollow Hog drill). However, a big hollow high up means the upper branches must be thick, so must use a very big tree. A very big tree will already have natural hollows. It will also be a valuable part of the habitat so we shouldn't endanger it by carving more hollows in it.
- **Hardwood Nestboxes:** From offcuts, these have their uses but aren't as insulating as you might think (hardwood has half the insulating capacity as soft wood). It may also encourage the cutting down of hardwood trees.
- **Manufactured Plastic Nestboxes:** Maybe well insulated and durable but they are expensive and in the long term they litter the environment with plastic.
- **Traditional nestboxes (single walled thin plywood, dark coloured):** They have their uses and have been used for a long time with some success, but they are not very good at keeping the correct temperature. Many animals will expend double the energy and water keeping cool as their nests approach or exceed 40 ℃ (as is often the case with non-insulated nestboxes). They can give human observers the impression they are beneficial because animals will use them, but often animals aren't able to complete their lifecycle successfully. Nestboxes like these can also be death traps for animals. Overall, they do help, but they aren't optimal. However they have provided a lot of data to build upon.
  A fantastic source of information for these- giving the dimensions and installation heights for many species is **https://nestboxtales.com**

- **This Design:** Uses internal dimensions from Nestbox Tales but is constructed to have an insulation airgap and is painted white, in order to reduce temperature fluctuations. It is similar to Australia National University/WWF research nestboxes tested at Tallaganda forest with great success. (Not too hot, not too cold: Getting greater glider nest boxes just right! | WWF-Australia). I have altered it slightly to make it more potentially durable internally and with no polystyrene.

- **Tree Attachment:** This design uses galvanised or stainless-steel coach screws to go through the Outer Back wall at the top and bottom- into the tree. Three screws at the top and two at the bottom will hold the nestbox secure whilst causing limited cambium damage to the tree and not dropping too much litter when the nestbox finally falls apart. If you like you can easily adapt them to the Habisure bent wire method of attachment, but this may be less secure and attractive for an animal as well as causing more abrasion to the cambium; and it will eventually result in plastic hose and metal wire being dropped into the environment

3) Three Different Nestboxes Sizes

The nestbox design we use can be altered in dimensions to make 3 different sizes of Nestboxes.

a) **Small:** For Antechinus, Pygmy Possum and Feathertail Gliders. Overall nestbox size is smaller than a shoebox. Entrance hole diameter is 30 mm. Installation height is 2-4 metres.

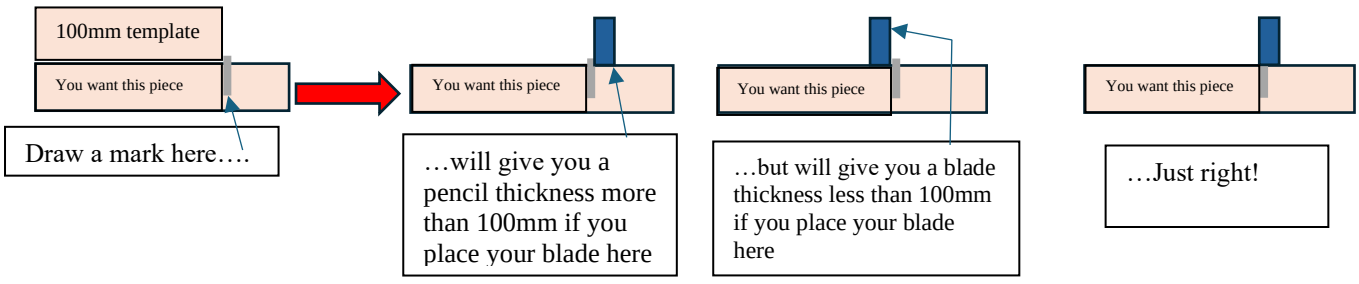
b) **Medium:** For Sugar Gliders and Squirrel Gliders. Overall nestbox size is slightly larger than a shoebox. Entrance hole diameter is 40 – 50 mm, (40mm for Sugar Gliders in Queensland, 50 mm further South. Squirrel Gliders are bigger so 50 mm in Queensland and 45 further South). These variations are an estimate – as new regional information on speciation and morphology is still emerging. Installation height is 4 – 8 metres.

c) **Large:** For Greater Gliders (and possibly Yellow-Bellied Gliders). Size of several shoeboxes. Entrance hole diameter of 90 mm is standard in Central and Northern Australia, **(new research suggests southern Queensland Greater Gliders have a 3mm wider head than northern ones so I have been using a 92mm hole as that is an available hole saw size)**. This is using a circular entrance hole design. In southern parts of Australia, a larger triangular entrance hole shape is used with the 2 right angles sides each being 130mm. More detailed information on this available on request. Installation height is 15-30 metres.

4) Panel Cutting and Layout

These designs are made to work with **12mm thickness plywood.** Any other thickness will throw the measurements out- creating gaps and errors.

Using a 2400 mm long by 1200mm wide sheet of 12mm thickness ply there are several ways you can cut it to make the required panels. Some options are shown below. With all the options there are some principles to bear in mind.
a) The straighter the cut then the less work you will have to do later (filling gaps or sanding edges).
b) If you have a belt sander then the best way is to cut over-size and then sand back to the correct size precisely.
c) The blade has a thickness so leave a space for it when drawing out your panels on a sheet of plywood
d) The blade and pencil line both have a thickness so think which side of a drawn line you should cut (on one side it will be cutting into the panel you want, on the other side it won't). It's easy to be lazy in your thinking and not plan this, then you end up cutting with half the blade on one side of your drawn line and half of the other side- this is never accurate (as you wobble about indecisively!).



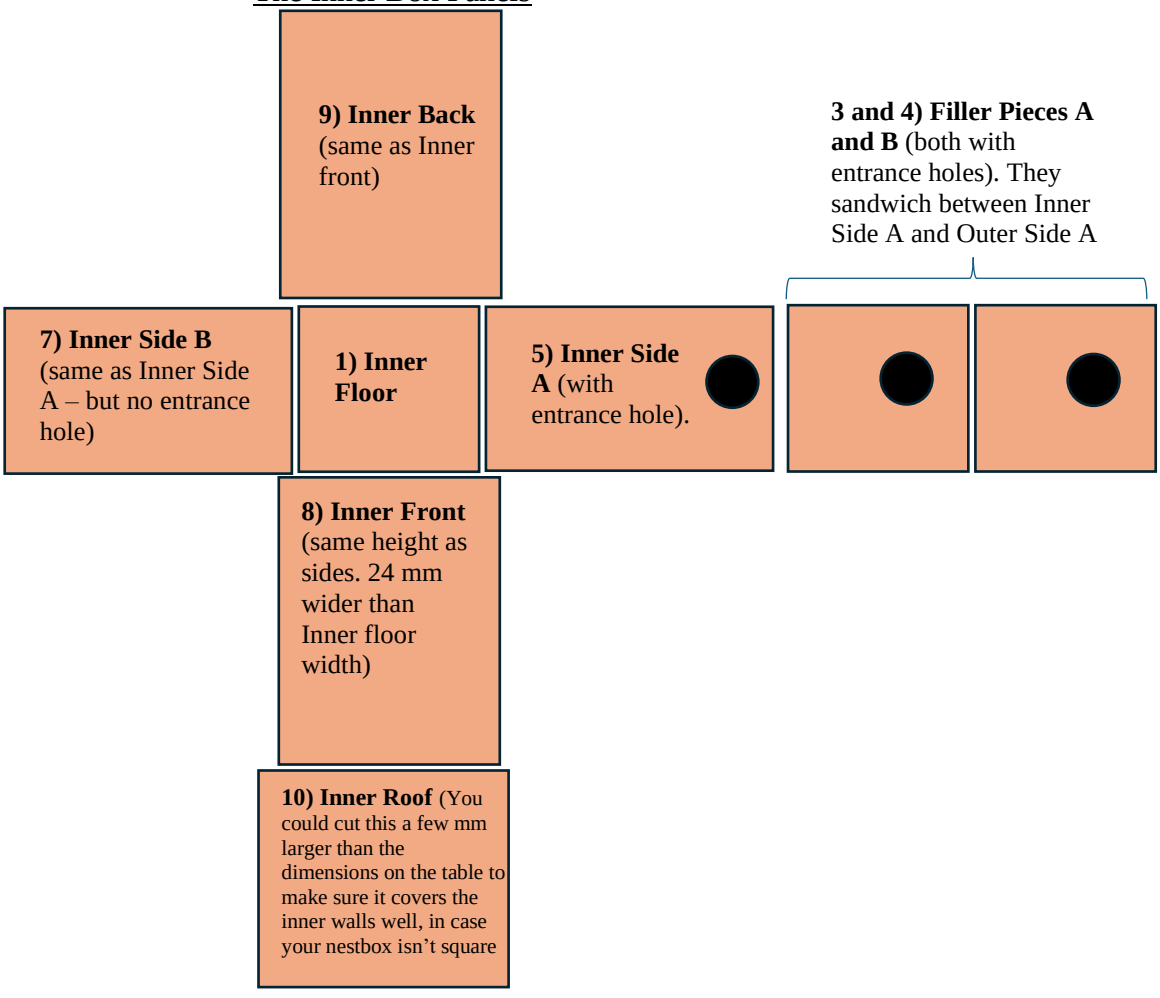
The Panels

This table shows the dimensions of each panel for each of the three sizes of nestbox.

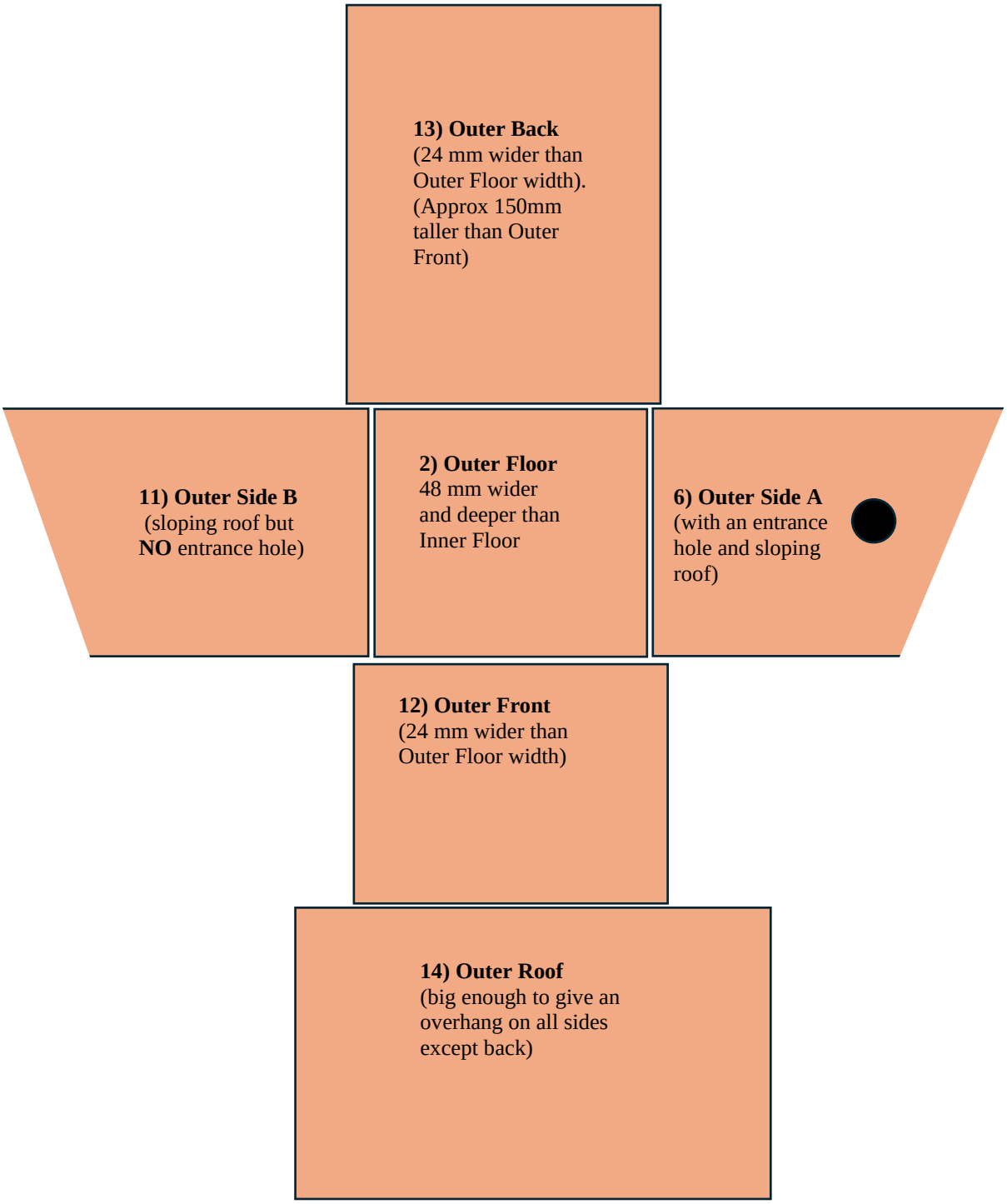
Nest Box Size (and internal size - W,D, Height at Front)		**Large** 350,300,420		**Medium** 170,150,385		**Small** 80,80,195	
Panel No.	Panel Name	Width	Height/Depth	Width	Height/Depth	Width	Height/Depth
1	Inner Floor	350	300	170	150	80	80
2	Outer Floor	422	372	242	222	152	152
3	Filler Piece A	300	210	150	193	80	98
4	Filler Piece B	300	210	150	193	80	98
5	Inner Side A (with entrance)	300	432	150	397	80	207
6	Outer Side A (with entrance)	372	555 at back(480 at front)	222	483 at back(445 at front)	152	275 at back (255 at front)
7	Inner Side B (without entrance)	300	432	150	397	80	207
8	Inner Front	374	432	194	397	104	207
9	Inner Back	374	432	194	397	104	207
10	Inner Roof	376	326	194	174	104	104
11	Outer Side B (without entrance)	372	555 at back(480 at front)	222	483 at back(445 at front)	152	275 at back (255 at front)
12	Outer Front	446	480	266	445	176	255
13	Outer Back	446	710	266	640	176	430
14	Outer Roof	576	432	400	285	306	212
15	Optional Front Reinforcer -approx	446	100	266	100	176	100
16	Optional Back Reinforcer - approx	446	180	266	256	176	140
17	Optional Top Cap - approx	450	40	270	30	180	30
	Entrance Hole diameter		90		40		30

Below is a simple look at the panels - to give an overview. We will look more closely at them further down. Numbering represents order they are used during construction – so look at the next page ("Outer Box Panels" for some pieces (Number 2 and 6) that you will need early on)

The Inner Box Panels



The Outer Box Panels



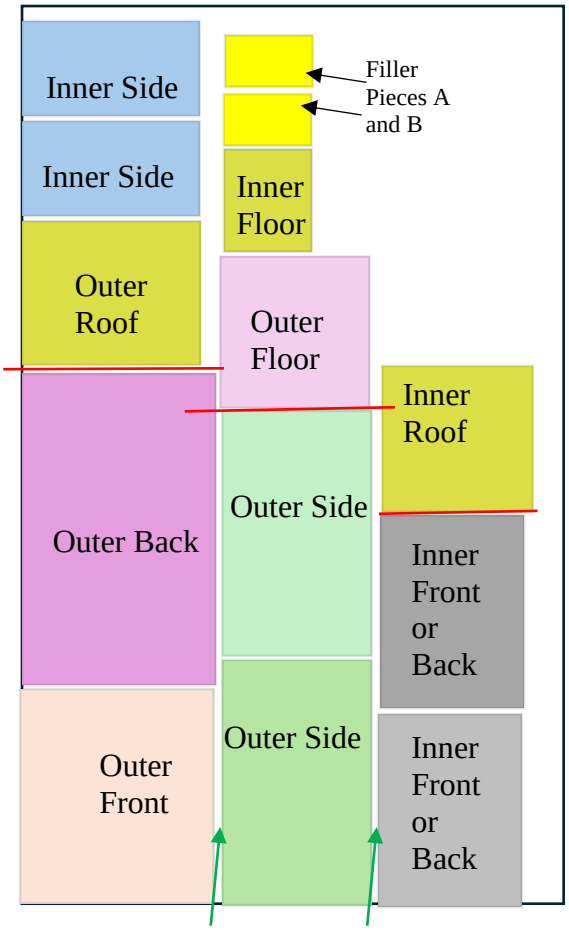
There are 3 more optional panels not shown here, (to keep it simple), but they are explained in the detailed notes further down.

Now we understand the main components, we will look at how you can actually lay them out on a piece of plywood in order to maximise the wood, minimise cutting and consider ease of transport from the hardware shop to home.

Below are various ways you can layout the panels on the plywood.

However, you can decide on your own layout- there are lots of options depending on how you approach the work.

A good piece of software to help you is CutList Optimizer



Large Nestbox Layout

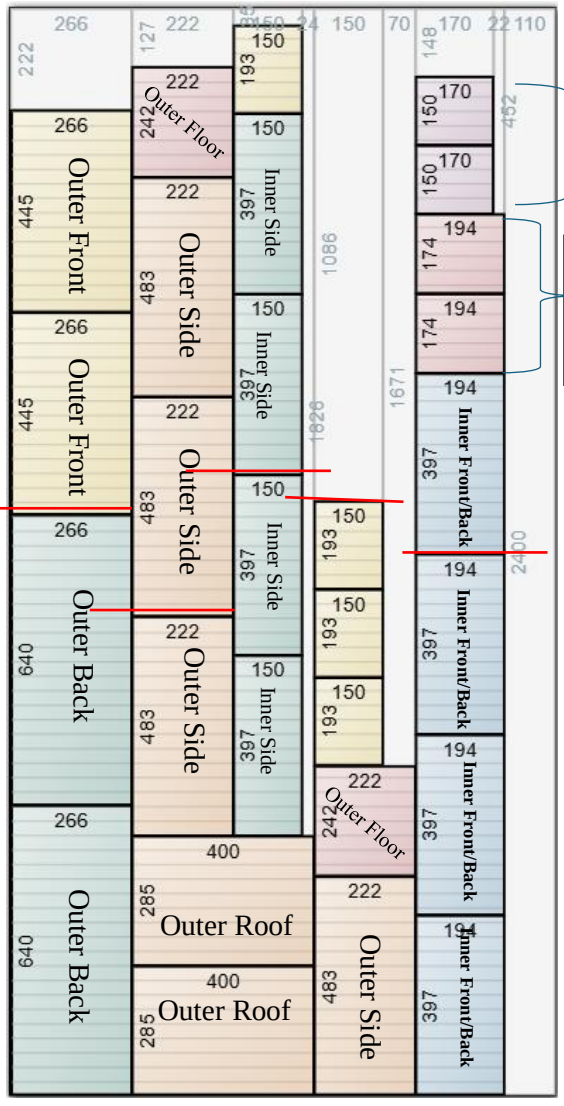
This is one way of laying out the panels for cutting. Take the dimensions from the table above. Then at Bunnings you can ask for them to cut down the length to make three strips. Each cut costs a dollar. The pieces should be slightly oversize so you will have to sand them down.

It makes one large nestbox from one 2400mm x 1200mm sheet of plywood

Strip 1) 446mm wide (best ask for 448 wide to allow for their errors)
Strip 2) 372 mm wide (ask for 374 wide)
Strip 3) 374 mm wide (ask for 376 wide)
Green arrows show where to get the strips cut. Red lines show where to get each strip cut into shorter lengths. **Remember to allow for blade thickness.**

Ask for one strip, wait until they cut it and then ask for the next one - to avoid confusion.
Mark each strip 1., 2., 3. As they hand it back to you.
Then get them to cut strip 1 at the 1200 mark. This will leave one piece for you to cut the Outer Front and Outer Back out at home; and one piece for you to cut the Outer Roof and 2 Inner Sides out at home.
Get them to cut Strip 2. At the 1120 mark. As long as you are careful this will leave you with one piece to cut 2 Outer Sides out at home and one piece to cut Outer floor, Inner floor and 2 filler Pieces out at home.
Get them to cut strip 3 between the Inner roof and the Inner Front/Back

You can then cut the Reinforcers and Top Cap out of the spare wood.
You could also choose to cut the Outer Roof out of the spare section in order to make it bigger still.



The 2 purple ones with 170 x 150 dimensions are Inner Floors

The 2 pink ones with 174 x 194 dimensions are Inner Roofs

The 4 yellow ones with 150 x 193 dimensions are Filler Pieces A and B

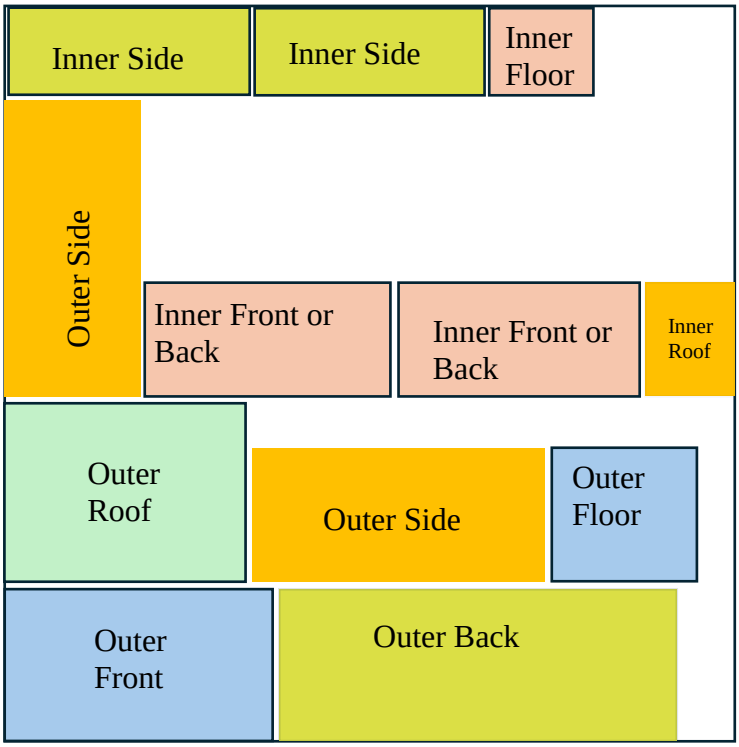
Medium Nestbox Layout

This layout makes two medium nestboxes out of a 2400 x 1200 sheet of plywood.

At Bunnings you can ask for them to cut down the length to make 3 or 4 strips and then get each strip cut at an appropriate place (e.g. where the red lines are).

You can then cut the Reinforcers and Top Cap out of the spare wood.

Sometimes at Bunnings they say they can only cut strips more than 300 wide – in which case this layout may not work. In that case you can just get the sheet of plywood cut in half, so you have 2 pieces of 1200mm x 1200 mm. And then use the next layout option.



Medium Nestbox Layout

This layout makes one medium nestbox from a 1200x 1200 sheet of plywood

Ask Bunnings to cut a 2400 x 1200 in half **so you have two 1200x1200 sheets**. Easy to take home and just work on it yourself. It only just fits in but if you make an error there is a spare piece to use.

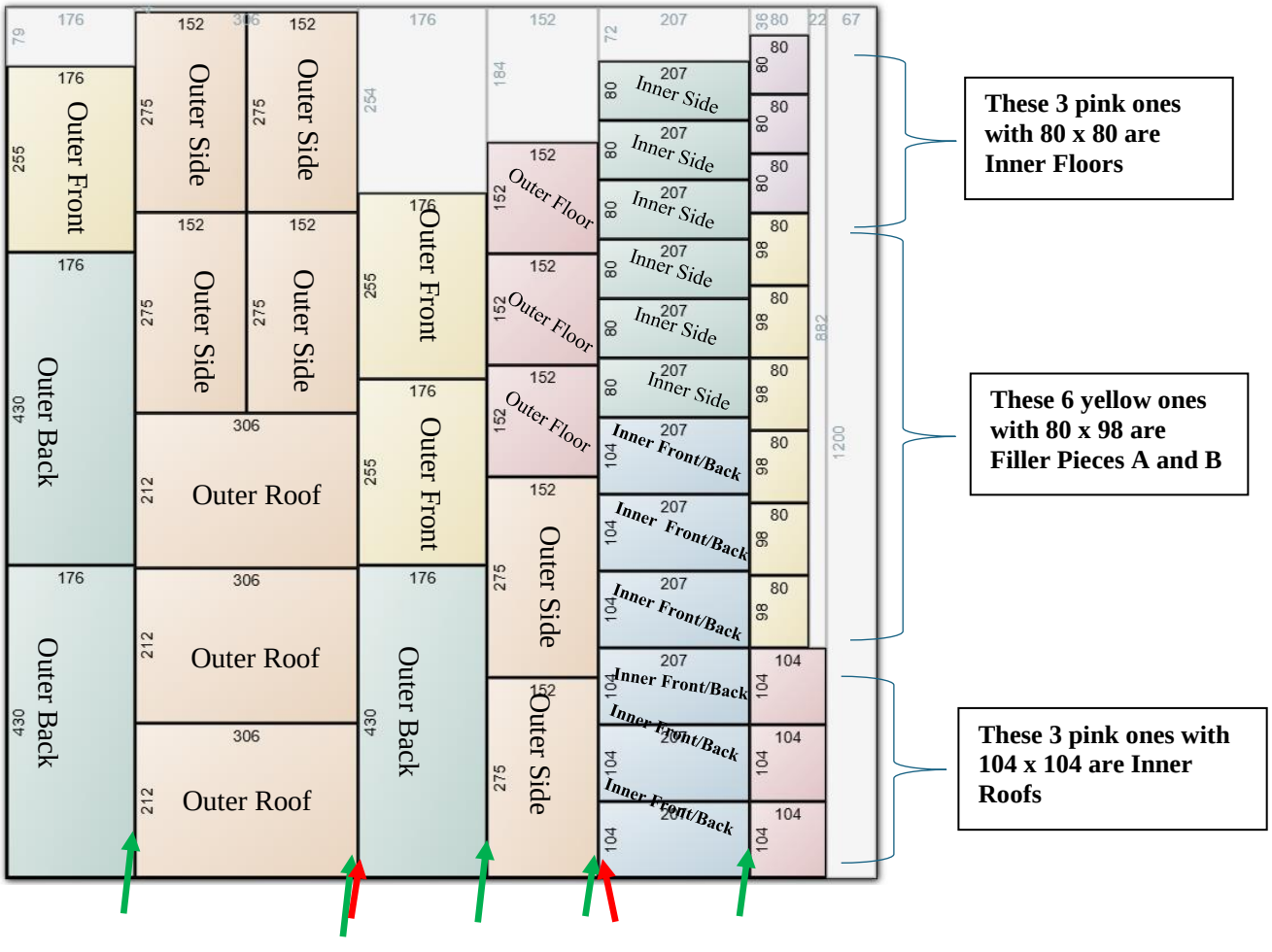
You will have to mark out and cut the Reinforcers and Top Cap on the leftover wood.

You then have the second half of your sheet to make another one – or make some Small Nestboxes

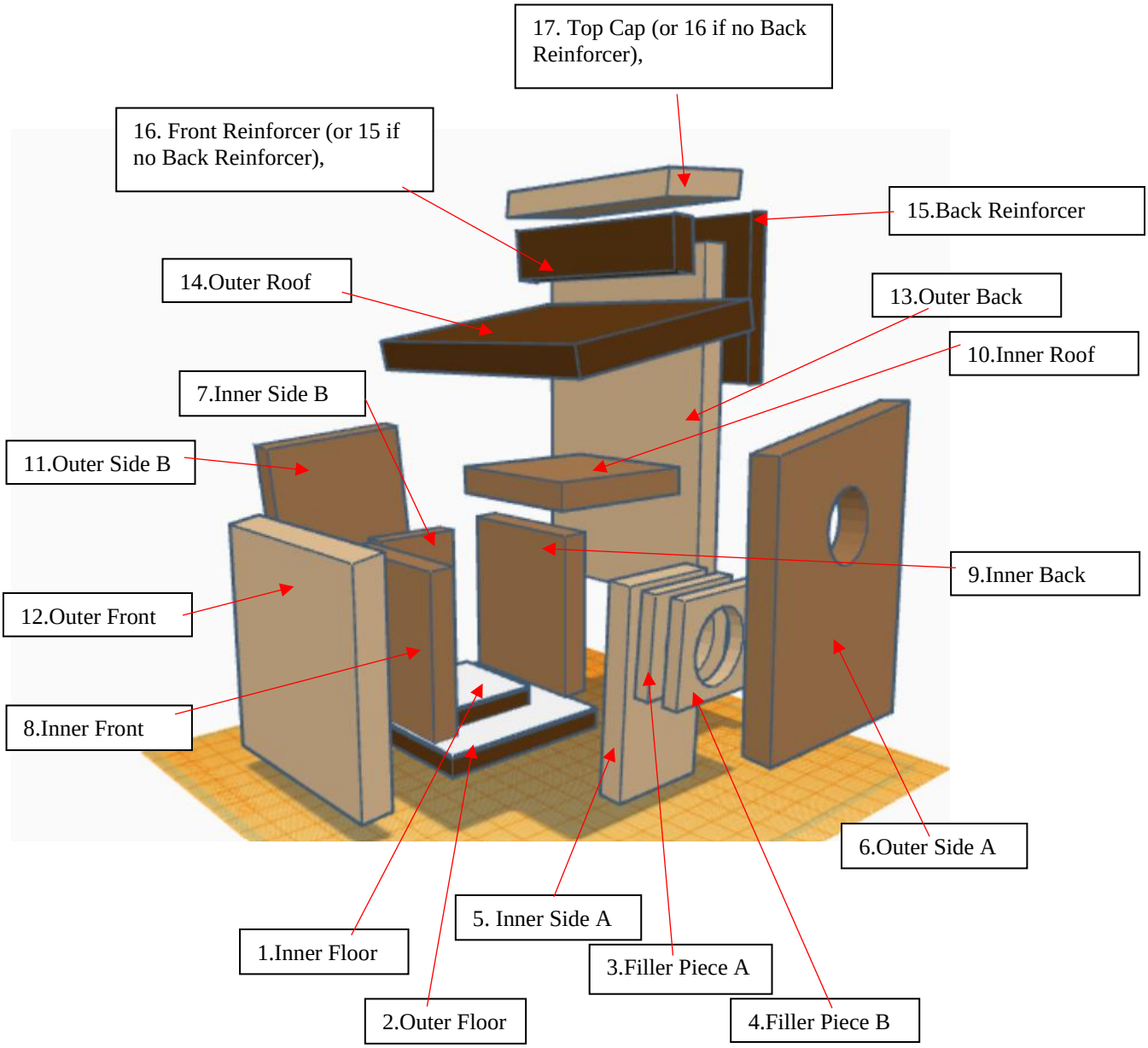
Small Nestbox Layout

This layout makes three small nestboxes from a 1200 x 1200 sheet of plywood (i.e. half a sheet of 2400 x 1200 - maybe you used the other half for a medium nestbox).

Bunnings may cut it where the green arrows are but if not then they should cut it where the red arrows are (they won't always cut less than 300 mm). Then finish cutting into individual panels at home, (remember to take into account blade thickness).
Mark out and cut the Reinforcers and Top Cap at home.



5)Exploded Diagram and Construction Summary



Construction Summary:

- Basic Description: You have 14 main pieces and 2 or 3 optional pieces. The structure is 2 boxes- an Inner box and an Outer box. One inside the other. Both boxes screw onto the sides of the two floor pieces and are held to together by two Filler Pieces (A and B) around the entrance hole. The entrance hole is on the right-hand side as you look at the front of the nestbox.
  Instruction Summary
- Put Inner Floor onto Outer Floor – centre both and line up the front facing edges. Screw together. Drill some drain holes.
- Screw Filler Piece A and then Filler Piece B onto Inner side A. Screw Inner Side A onto Inner Floor. Make sure its edges are flush with the corners of Inner floor Then screw Outer Side A onto Outer Floor and Filler Piece B. Make sure entrance holes in each are aligned. Make sure all edges are flush and corners are flush.
- Attach Inner Side B to the Inner Floor. Make sure its edges are flush with the corners of the Inner Floor.
- Attach the Inner Front and the Inner Back by screwing on at the bottom and up the sides. Ensure edges are flush with edges of the Inner sides. Ensure the top edges are all level.
- Screw on Inner Roof.
- Attach Outer Side B and then Outer Front similarly to how you attached Inner Side B and Inner Front.
- Attach Outer Back- making sure it is lined up and that there is approx. 50mm protruding below and 100 mm at the top.
- Attach Outer Roof – read the detailed instructions to see how to line up properly.
- Add the optional Back and Front Reinforcers and Top Cap- see detailed instructions.

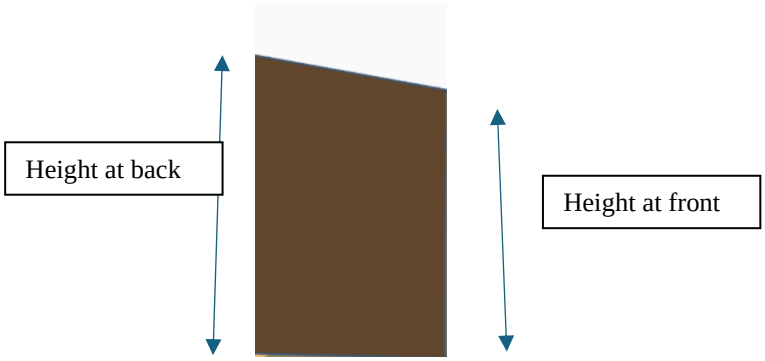
6) Detailed Construction Instructions

Once you have all the panels cut, lay them out so you are familiar with them. Label them (including their number) on the side the screws will be going in. This will be on the outside for all panels except Inner Floor and Outer Floor (where the screws will go on the inside). On my templates, I have painted these sides white.

The numbers on the panels (and in the instructions below) indicate the order that you will be using each panel.

You don't have to write the dimensions on the panels, but it can be worth checking your panels are the right size as you proceed, (i.e. compare with the table above).

For the Outer Sides- make the roof slope by cutting out a rectangle based on the height at the back, then cutting the slope down to the height at the front. Make sure Outer side A and B are both the same shape.



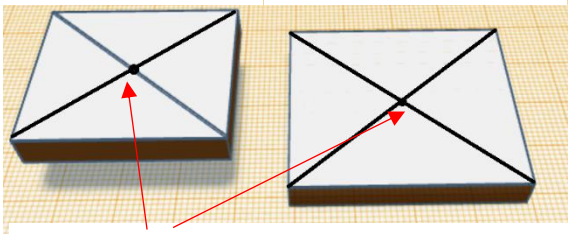
Don't cut out the entrance holes just yet, this will be explained below.

As you start building, draw an arrow on each panel to indicate where the front and where the top is (if you get confused and put a panel on the wrong way it causes problems – sometimes even with symmetrical pieces).

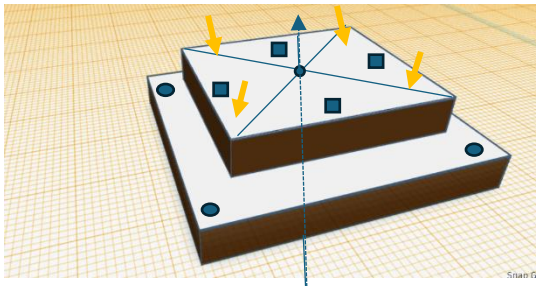
When the instructions mention screwing, if you are making it permanent then also glue as well.

1) On **Inner Floor**, draw a diagonal line from one corner to the other. Do the same with the other two corners. This will leave you with an X, the centre of which is the centre of the panel. Drill a 2 mm hole.
2) Do the same for **Outer Floor.**
Then, from below - put a thin **nail** through the hole in the Outer Floor and then also through the hole in the Inner Floor. Make sure that the edges of Inner Floor are parallel with the edges of Outer Floor. Check it is orientated correctly (i.e. that the long edges of the Outer Floor are parallel with the long edges of the Inner Floor.

1) Inner Floor 2) Outer Floor



Drill Centre holes here



Temporary nail from the bottom through both centre holes – to centre them both

■ = 5mm drain holes through both floors

● = Optional 5mm drain holes through Outer Floor only

= Screw from the top - in the corners

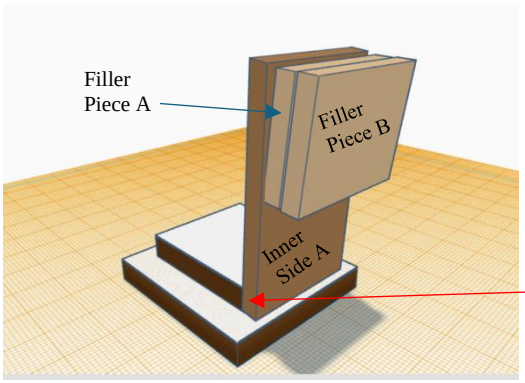
Using 20 mm screws, screw Inner Floor to Outer Floor. Put the screws in from Inner Floor down into Outer Floor. Put them close to the corners of Inner Floor and screw them well in so they are countersunk. This is so there are no sharp bits to irritate the animal where it is most likely to sit.
Remove that temporary centre nail. Use a 5 mm drill bit to drill a drain hole in the centre and one at each corner of Inner Floor. Choose whether to drill drain holes in the corners of the Outer Floor as well (this might provide some ventilation in the air gap cavity – which might be a good thing.

3) Screw **Filler Piece A** onto Inner Side A.

4) Screw **Filler Piece B** onto Filler Piece A.

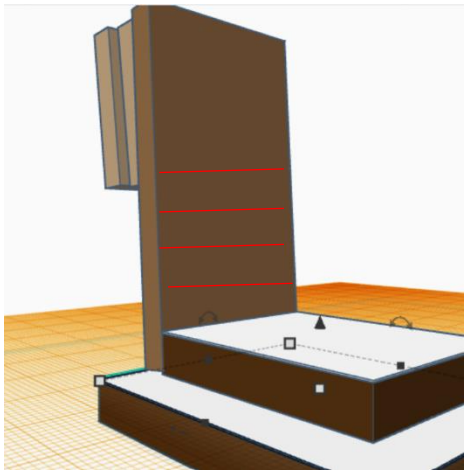
Make sure all the edges are flush.

5) Make sure 3mm climbing grooves have been cut on the inside of **Inner Side A**. Then place Inner Side A so it is sitting vertically on the Outer Floor, butted up against the edge of the Inner Floor. Make sure the edges are flush with the corners of the Inner Floor. Screw Inner Side A it into position along the bottom.



Screw Filler Piece A to Inner Side A. Then Filler Piece B onto Filler Piece A. Ensure all edges are flush.
Make sure your screws from each piece are in different locations so they don't clash/
(e.g. – First two at 12 and 6 O'clock. Second two at 3 and 9 O'clock)

Line Inner Side A up with Inner Floor to check its edges are flush then screw it into position

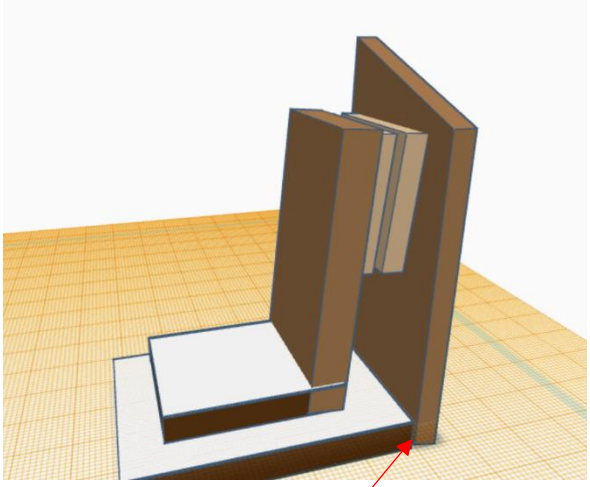


All nest boxes should have climbing grooves on the inside leading up to the entrance. 2-3mm deep, either cut carefully with a circular saw or a craft knife and ruler. Most nestboxes also have climbing grooves on the outside (however Greater Glider nestboxes do not)

6) Check **Outer Side A** is the correct width so that its edges are flush with Outer Floor corners. (this is also a good time to check it is identical to Outer Side B and they both have the same roof slope). Put Outer Side A in the correct position (i.e. bottom edges flush with Outer Floor AND **with the roof slope sloping down towards the front of the nestbox).** Then attach it to Outer Floor (2 or more screws at the bottom) and also attach it to the Filler Pieces.

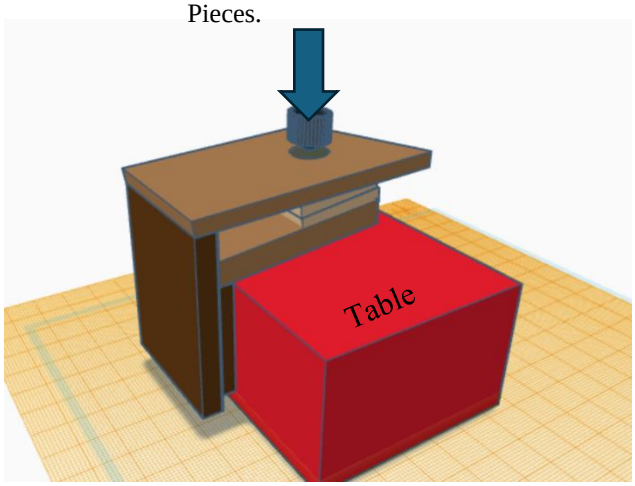
You can now turn the box on its side and brace it on a horizontal surface (be careful not to knock the Floor which isn't very well attached at this point). Choose the correct diameter hole saw (see table above). Use the hole-saw to drill through Outer Side A, Filler Piece B and A; and Inner Side A (as you do so, do some of the drilling from one side and when the drill bit emerges from the other side, tun it over and do some of the drilling from that other side. This helps prevent splintering as the hole-saw bursts through).

If you are not using a hole-saw you can assemble all these parts without glue, then use a drill– drill through all 4 pieces of wood to identify various points on the entrance hole (i.e. corners or points on the circle) You can then disassemble and cut through each piece separately and then reassemble them with glue.

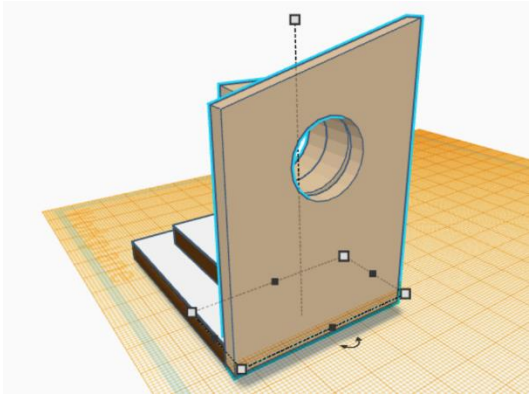


After attaching Inner Side A and Filler Pieces A and B, attach Outer Side A ensuring edges are flush with corners of Outer Floor. Also if it needs outside climbing grooves (small and medium nestboxes) – don't forget those

Drill the entrance hole with a hole-saw. Position the hole to be in the centre of the Filler Pieces.



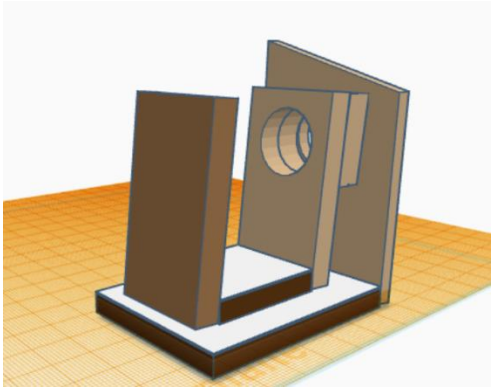
Put the nestbox on its side, braced on a table to drill. (put some scrap plywood under it to save your table)



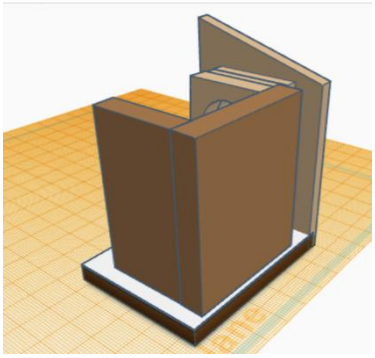
The nestbox so far…. Inner Floor is screwed onto Outer Floor. Filler Piece A is screwed onto Inner Side A. Filler Piece B is screwed onto Filler Piece A. Outer Side A is screwed on. Entrance Hole is drilled.

7) Attach **Inner Side B** in a similar way to attaching Inner Side A by screwing it onto the Inner Floor at the bottom. Make sure the edges of Inner Side B are flush with the corners of Inner Floor, also make sure it is the same height as Inner Side A. You don't need to worry about Filler Pieces or entrance holes though.

Inner Side B is attached opposite Inner Side A. It has no entrance hole. Its sits on Outer Floor and is screwed into Inner floor.
Ensure it is attached at 90 degrees to the floor.

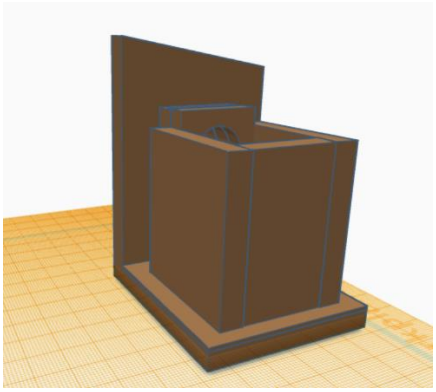


8) Attach **Inner Front.** Screw onto Inner Floor at the bottom and also on the sides (into Inner Side A and B).

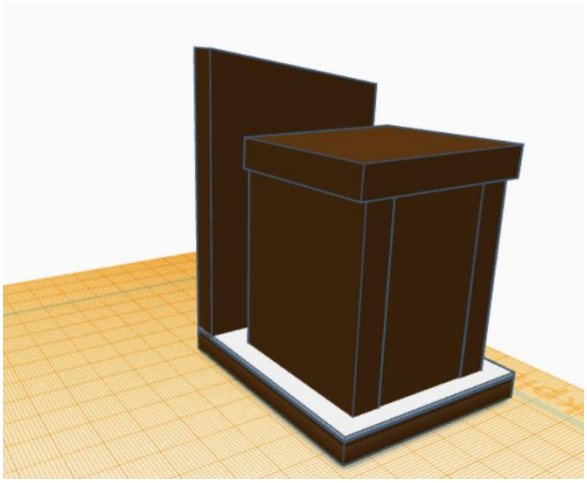


Inner Front sits on Outer Floor. Make sure the edges are flush with Inner Sides A and B. Also make sure the top is flush with the tops of Inner Sides A and B. Check the whole structure is reasonably square (it will never be perfect and there is usually flexibility in the panels to get them into shape – but it shouldn't look like the Ettimoggah Pub!

9) Do exactly the same with **Inner Back**. Make sure the top edges of each of the four vertical panels are flush.

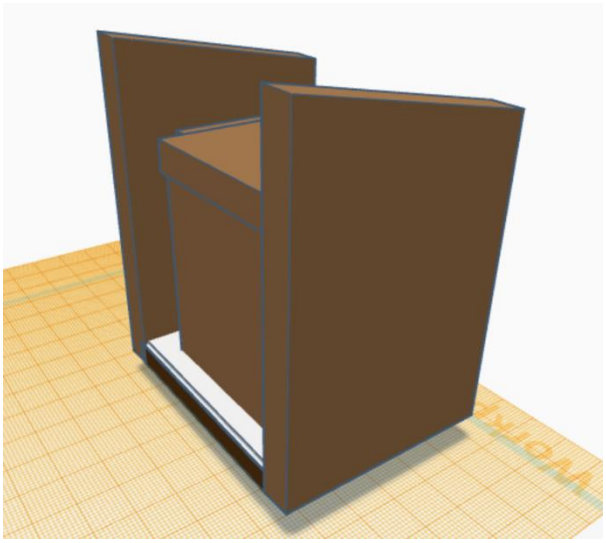


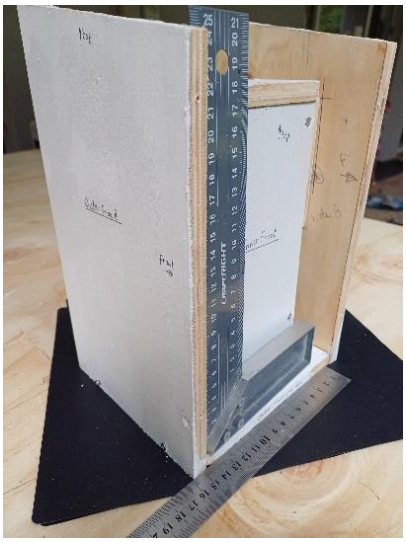
10) Attach the **Inner Roof** on top of the Inner Sides and Front/Back. At the cutting stage you could cut this a few mm too big tocover any errors in case your nestbox isn't completely square. However, it shouldn't be so big that it protrudes into where the Outer walls will go.



Screwing Inner Roof down onto Inner Sides, Front and Back

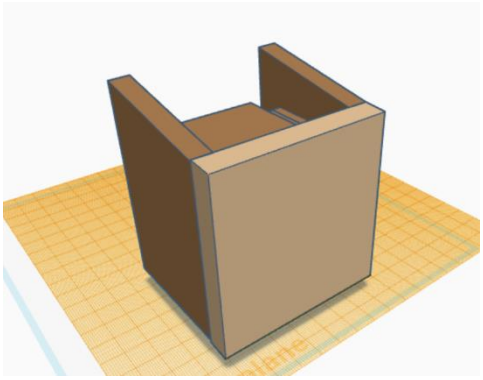
11) Position **Outer Side B** by placing it vertically so that's it sits on the work surface, butted up against the side of Outer Floor then screwing it into the side of Outer Floor, using the same method as attaching Outer Side A. Ensure it is vertical with a Set square and by putting 2 pieces of plywood in the cavity between Outer Side B and Inner Side B as temporary spacers to ensure the gap is the same width the whole way up (remove them before attaching the roof). Also before you fix it in position check that outer Side A and B have the same height and angle of slope (just sit the Outer Roof on top and see that it sits level and with no gaps).



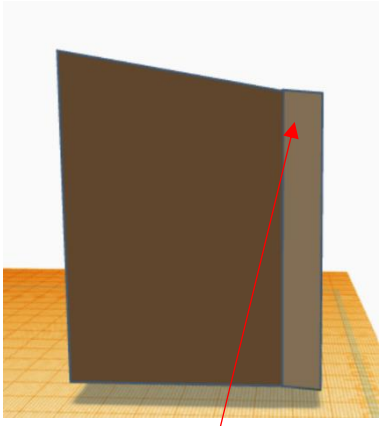


Outer Side B showing how it needs to be kept fairly perpendicular as is being screwed in. Also kept flush with Outer Floor.

12) Position **Outer Front** vertically so that its lower edge sits on the work surface, and it butted up against Outer Floor. Make sure the edges and top are flush with the Outer Sides edges and. Before fixing in place, you may need to file 2 mm off the top outer edge of the Outer Front so that the roof-line made by Outer Sides isn't altered, (you may want to do this once it is attached). Attach into place with screws at the bottom – into Outer Floor and also up the sides – into the edges of Outer Sides.

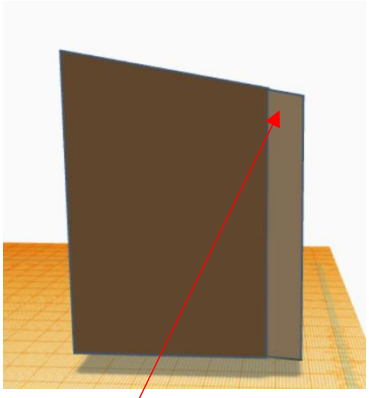


The Outer Front is in place



Side profile showing slope of the roof-line before shaving a 2mm bevel off the Outer Front – notice the roof-line doesn't run straight

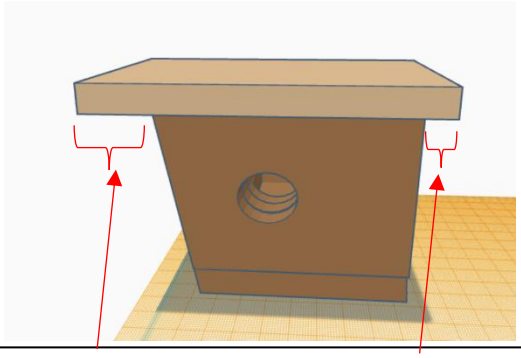
Filing a 2mm bevel on the top, outer edge of Outer Front so that the roof-line runs straight



Once the bevel is shaved off the front edge of Outer Front then the roof-line runs straight

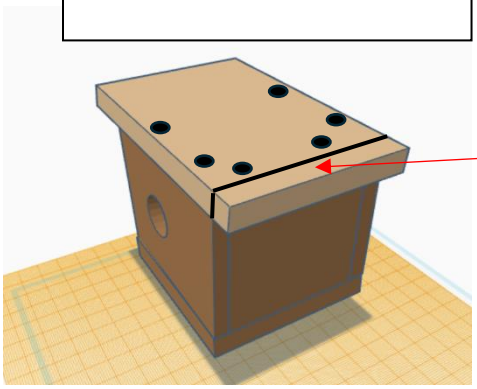
13) To attach the **Outer Back**, carefully turn the nestbox so it has the Outer Front lying on the work surface. Place Outer Back on, so that it is sitting on the rear edges of the Outer Sides. Makes sure the edges of Outer Back are flush with Outer Sides (this is when you may have to flex the box to make it flush and a second pair of hands to hold it while you screw in). Slide it up or down until 50 mm is protruding below the nest box and 100 mm above (it doesn't have to be exact - these will be the brackets that you use to screw the nest box onto the tree so can be a few mm out). Mark the position of the Outer Back against the bottom corners of the Outer Sides and draw a line between those positions- this will help you get it lined up squarely and help work out where to screw it onto the nest box. This line SHOULD be accurate. Screw into position. Screw into the Outer Floor and the Outer Sides (not into Outer Roof).

Position the nestbox "Front side down" and place the Outer Back on it. The sides should be flush. There should be approx. 100mm protruding at the top and 50 mm from the bottom



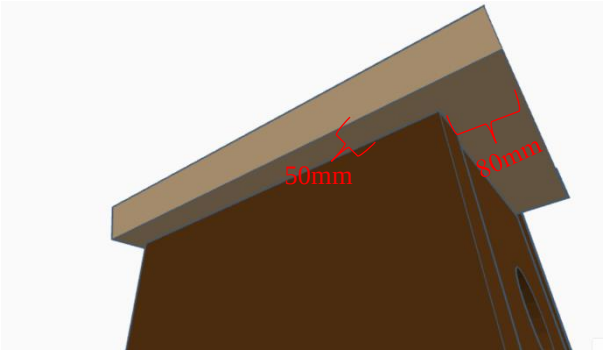
Approx. 100mm protruding at the top. 50 mm from the bottom

● = Position of screw holes

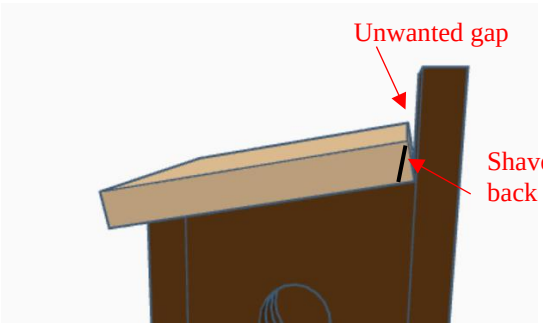


Draw a line to mark the bottom of the nest box, in order to help position the screw holes

14) To attach the **Outer Roof**, turn the nestbox right side up again. Use something to prop up the front edge so the roof line is roughly horizontal – it just makes it easier to work with. On the Outer Roof - file a bevel off the **lower side** of the back edge- this will help it press up against Outer Back without leaving a gap. To position the Outer Roof press it snugly against the Outer Back. Make sure there is roughly a 50 mm overhang at the front, a 50 mm overhang on the side without the entrance hole and an 80 mm overhang on the side with the entrance hole. Draw reference lines on the top where Outer Roof meets the edges of Outer Back. Without letting it shift – mark round underneath where Outer Sides and Outer Front meet Outer Roof, (i.e. an outline of the nestbox shape). This will give you a line to plan where to make your drill holes. Take the roof off – use the outline you have just drawn to drill 2mm guide holes where the screws should go (i.e.- a bit inwards from your outline). Position the Outer Roof back in place (using the reference line marks you made to line it up with Outer Back). Check with a drill bit that the drill holes you made go into wood below – not fresh air. Then without shifting anything glue and screw Outer Roof into position. Ensure the gap between Outer Back and Outer Roof are fully sealed (a mix of glue and sawdust might help).

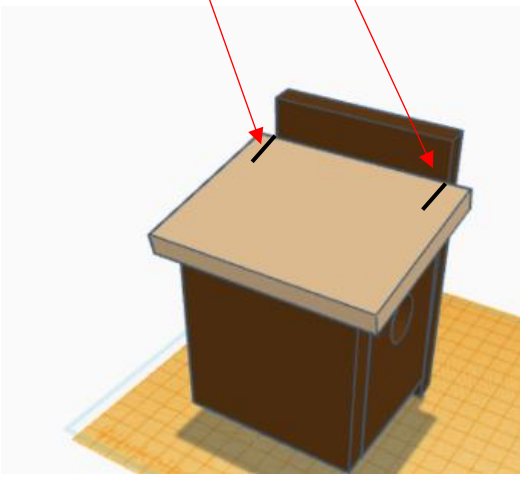


Underside of the Outer Roof showing overhangs (80mm on the entrance hole side, 50 mm on the other side, 50mm on the front)

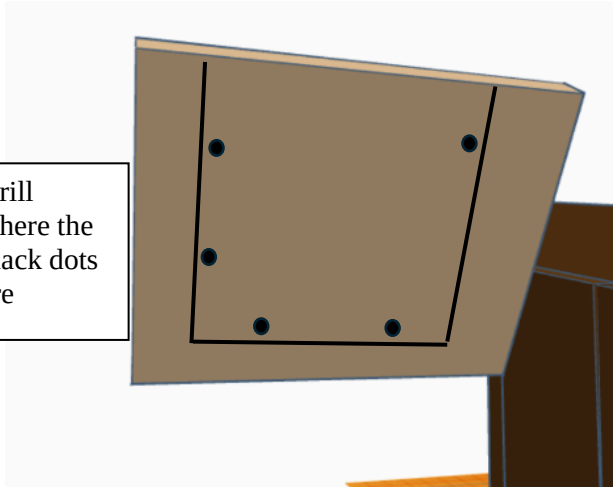


Side profile showing gap at back of Outer Roof because no bevel has yet been shaved off

When the Outer Roof is in position mark the outer edges of the Outer Back. These will act as reference marks to reposition the roof correctly in a minute

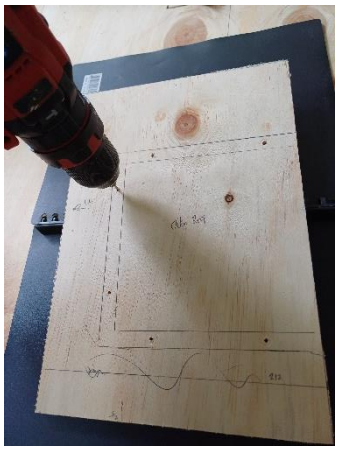


With the Outer Roof still in its correct position, mark the outer edges of the Outer Sides underneath



Drill where the black dots are

This will show you the outline of the nestbox on the underside of the Outer Roof and so provide a guide where to drill screw holes.

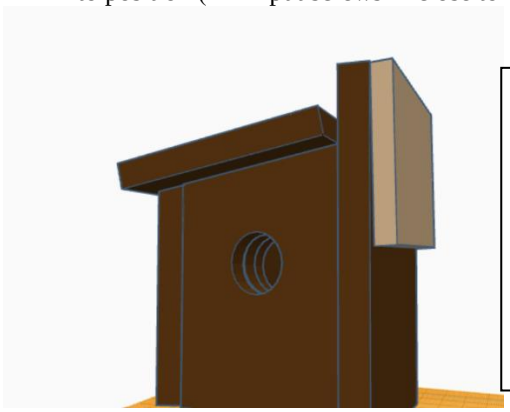


Drill screw holes from the underneath. Try to get these correct – no one wants a leaky roof! After drilling, place the Outer roof back in the correct position (using the reference marks you recently drew). The drill holes should now be in the correct position to screw into.

Outer Roof is repositioned and screws are put in (test with a drill bit that the holes do go through to wood- not fresh air)

These next pieces are optional. However if you do include the Back Reinforcer or the Front Reinforcer then you should probably do the Top Cap as otherwise you leave a vulnerable gap for rain to collect and rot to start. You might also decide to include a Front Rreinforcer if you don't do a good job of installing the Outer Roof snugly against the Outer Back

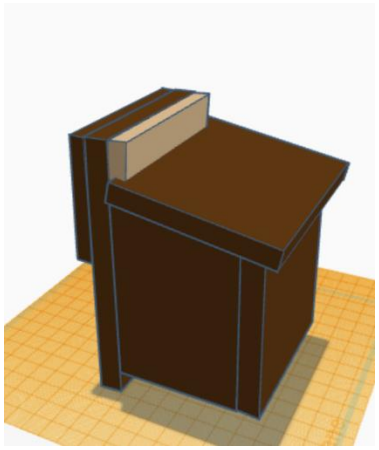
15) **Back Reinforcer**. **Only for large nestboxes- skip this stage for small and medium nestboxes**, (only the large templates have it included). It is a panel to reinforce the Outer Back where screws will hold it to the tree. Only cut it out after the rest of the nestbox is made – that way you can get the measurements correct (in case your nestbox has diverged from the plan at all). It should be as wide as the Outer Back and high enough to reach from the top edge of Outer Back until below the first set of screws holding Outer Back onto Outer Sides- something like 180 mm. Screw it into position (don't put screws in close to where you plan to put the tree fixing screws).



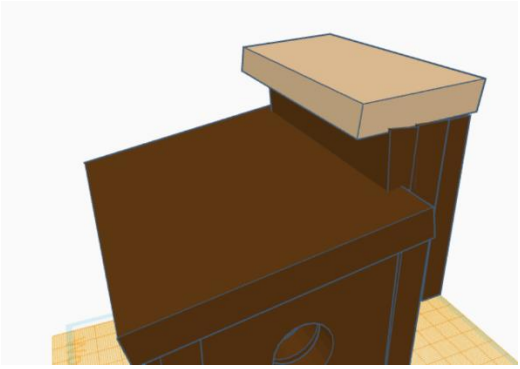
Make sure it is flush with the top and sides of the Outer Back.

Make it long enough to extend down past the first set of screws holding the Outer Back onto the Outer Side

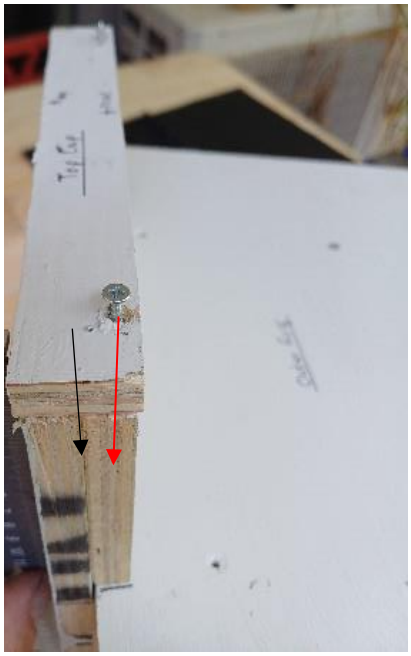
16) **Front Reinforcer.** (or number 15, on the medium and small nestbox templates since on those templates the Back Reinforcer is missed out). This is a small panel that sits on the Outer Roof, in front of Outer Back. Its job is to cover up the crack between Outer Back and Outer Roof. It is probably more important than the Back Reinforcer. Cut it once everything else is made. It should be as wide as the Outer Back and high enough to reach from where Outer Back and Outer Roof meet – to the top of Outer Back. Screw into place.



17) **Top Cap.** (or number 16, on the medium and small nestbox templates since on those templates the Back Reinforcer is missed out). This is a small, thin panel that sits on top of Outer Back and the Front and Back Reinforcers. It is a cap to stop rain trying to ooze down between those three panels. Cut it after everything else is done. It should be as wide as Outer Back (or a few mm more – to cover things completely) and deep enough to cover Outer Back and Front and Back Reinforcers, (or a few mm wider – to cover them completely) 40 mm is probably about right. Screw it in position ensuring it covers both ends and the front of the Front Reinforcer. However make sure it doesn't protrude more than 2 mm over the back (or else it might end up rubbing against the tree). Ensure the screws go into wood below – not the gaps between Outer Back and Front and Back Reinforcers.



The Top Cap- slightly wider than the Outer Back. Protrudes a few mm over the front and flush or maybe 2 mm over the back.



Position the screws to go into solid wood below – not between pieces of wood. Like the red arrow, not like the black arrow.

7) Finishing and Camouflage:

Make sure you have cut any climbing grooves into the outside of Outer Side A – below the entrance (not needed for Greater Glider nestboxes but for most other species).

If there are any rough edges – sand them smooth, (but don't go overboard on this -it's just so there are fewer small cavities to collect water).
If there are any gaps between panels use glue or glue and sawdust mix to fill them.

When the glue is dry, prop the nestbox up so the roof is horizontal. Paint it white or cream all over except for the underside of the roof and the underneath. Focus on the roof and any seams, knots or errors. Two coats. Maybe three on roof and seams.
When dry – turn it over and paint two coats on the bottom and underside of roof. No paint on the inside.

Camouflage: You can then choose whether or not to camouflage the nestbox- a few swirls of LIGHT grey and maybe a few touches of darker contrast at the edges to break up the outline might help in not attracting predators or unwelcome human attention. A lot of small detail may look artistic, but probably all looks grey from a distance. Don't get carried away and add too much dark colour.

Camouflaged Nestbox

But how much difference does it really make…can you tell which is which?

8) Materials:

Plywood: 12mm thick. 2400mm long, 1200 mm wide. Bunnings Non-Structural Ecoply. Made from softwood (but uses the higher of the three grades of glue so is Ok for exterior use). Cost in 2024 is 43AUD a sheet. It has a Sustainable Forestry sticker on. This seems to offer the appropriate mix of price, sustainability and durability.
Or for 71 AUD at Bunnings - same size, Structural imported. I think it is hardwood. Probably lasts a bit longer

Then there are more expensive plywood types – including hardwood ply from Brazil. **Please don't use it.**

Screws: Should be 20mm long and be galvanised/stainless steel. I use Zenith Timber Screws (Type 17 20mm, 6 G Gold passivated, countersunk). 8 AUD for 100 at Bunnings in 2024. 100 screws is enough for 1 large nestbox and just about enough for 2 small nestboxes. The screws that hold the floors together should only be 20mm, but the other screws could be longer – however I tend to use 1 pack of 20 mm for the whole nestbox.

Glue: A good quality PVA wood glue. Not all PVA glues are very water resistant. I use Shelleys Aquadhere Exterior wood glue. If you make a precise nestbox without too many gaps to fill, then a 500ml bottle will do 1 or 2 large nestboxes or several small ones. Cost at Bunnings in 2024 16 AUD.

Paint: A good quality white exterior timber paint. Water based emulsion is less toxic and easier to work with. I have used British Paints 4 Seasons Defence which says it is good for 25 years and doesn't need an undercoat. Dulux Weathershield is good but might need an undercoat (some paints say they need an undercoat, but it is more about cosmetics than durability). 1 litre will do 3 coats on a large nestbox.
Bunnings often has "mistints" reject tins leftover form their colour mixing. These are a lot cheaper.

For camouflage I just put some white in a jar and add a dab of black.

9) Equipment:

The bare minimum is something to draw straight lines, something to measure with and something to cut with.

However, to make a better job and make it easier than the following is really needed…

Builders square: The larger the better and preferably a tri-square with a short side thicker than the long side – to butt it against the edge of the wood.

Measuring: Metal metre long rule and a 30 cm one is best but a tape measure will suffice (but less accurate)

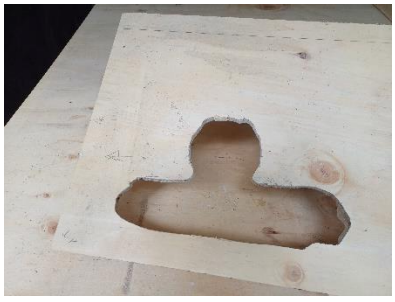
Marking: I use a biro as it never changes sharpness and there's always one around somewhere, but a propelling pencil would be even more accurate.

Drill: with 2mm drill bit (and a 5mm bit for the drain holes)

Screwdriver: Of an appropriate size for your screws – probably a small Phillips head. An electric screwdriver or Impact driver speeds things up a lot. If you have a drill and an impact driver you can save a lot of time changing bits. Ozito or Xu cable electric ones at start at about 50 AUD in Bunnings in 2024.

Saw: You can make do with a handsaw but it is laborious and not very accurate. A cheap one is worse still and a good one is often more expensive than a power tool. A jigsaw is cheap (Bunnings 2024- Ozito or Xu cable electric start at about 40 AUD) and quite versatile but hard to get a perfectly straight line. You will need quite a fine-toothed blade for it. A circular saw is good, but care needs to be taken with accuracy and you might need to buy various sleds and sliders for them to be perfect (as well as a plywood appropriate blade). Prices start at 60 in Bunnings 2024. If don't have many tools and need to start buying from scratch, I would recommend a jigsaw used in conjunction with the belt sander below as the main initial investments.

Sanding: You will need a file, surform of sandpaper to put bevels on some edges. Your nestboxes will probably benefit from a belt sander to get the edges perfect. I use a Xu belt sander (50 AUD Bunnings 2024) mounted sideways, then most of my saw cutting can be oversize and inaccurate and then made perfect with the belt sander.



If you cut out a belt sander shaped hole in a piece of plywood, then it is easy to mount your belt sander sideways – which is the best position to sand the edges of your panels

Hole-saw: A set of cheap Craftright hole-saws is about 20 AUD at Bunnings in 2024. It has several appropriate sizes (check you are getting a set that includes the hole size you want. You will need an electric drill to use it. Or you can cut the entrance holes with a jigsaw, but it is slower and less accurate (as each piece of wood needs to be cut separately).

With all tools, especially power tools make sure you know how to use them correctly and safely, with the correct protective wear (e.g. safety glasses and earplugs).

10) Installation:

Small and medium nestboxes are at low heights so can often be installed with a ladder (make sure it is stable and tied on and don't over-reach)
Larger nestboxes at greater heights will often need to be installed by a tree climber with a rope and harness.

Either method can benefit from using a rope and pulley to hoist the nestbox up.

Try to find a shady, secluded spot that the target animal can access. It is preferable to position nestboxes to point South East (so that in side entrance nestboxes like these the entrance hole will be facing East). This is to avoid the afternoon summer sun. However, if facing it in a different direction provides more shade, then that should take priority.

These nestboxes are designed to be screwed to the tree through the Outer Back. If you use the optional Reinforcing pieces then you will need longer screws, so bear this in mind. You will probably need to drill through the Outer Wall first and also possibly into the tree with the nestbox in-situ. For alternative attachment methods see Nestbox Types: Pros and Cons above.