

# In the Workshop

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*Making an entire hive can seem like a daunting prospect. We will go through the hive parts piece by piece so that you can explore self-build options if you wish. This month, we talk about brood boxes and supers.*

We would all like spare brood boxes and supers, especially if they are a bargain. If you are expanding your beekeeping enterprise, the cost of equipment can be somewhat prohibitive. This article will talk about making a basic but effective National brood box or super. The principles equally apply to nuc boxes, bait boxes (more about those in the April article) and to any other size of square bee box. We will discuss six general options and how they are made.

## Buy or make?

Your first box will take you ages to make. You may even have to buy tools. If you only ever plan to make fewer than six boxes, turn the page and read the next article. It won't be worth the effort. If you wish to make 10 or more boxes however, things become much more efficient and economical with a self-build approach.

## Brood box design options

Your chosen method(s) will depend upon personal preference, material availability and the tools/time you have to hand. If you can stick to one method, skills and savings will be acquired more quickly.

### 1. Scaffold plank

Scaffold planks are made to a British Standard so the sizes are pretty consistent. They can be used just as they are to make brood boxes if you have a standard design of floor underneath.

The two longest pieces are each 46cm long. The two shorter pieces are each 39cm long.

They are held in place with glue and three screws in each corner, typically 65-75cm long.

Decking screws are ideal.

You will need to cut out some wood for the frame lugs. This is typically around 33 mm wide by 16mm deep. If you have some brood boxes, take a measurement from them as guidance.

Ideally, each brood box should be made from the same piece of scaffold plank to cater for slight variances between planks. One standard scaffold plank (13 feet long) can easily make two brood boxes. Sawing it in half may help with getting it home.

These boxes are simple to make and have a higher level of insulation than the standard bought wooden brood boxes. They may be too heavy for some people to use as supers.

[Insert picture brood box, scaffold plank](#)

### 2. Pallet wood (vertically)

Stacking and gluing pallet wood together can make a strong and durable brood box of any height. Not all wood has straight edges but you will find pallets with wonderfully straight, unwarped and consistently sized slats from time to time. By gluing some slats together, you can recreate the box sides that are similar in thickness to purchased boxes and then saw them to size. Three slats will typically suffice for a brood box and two slats typically for supers.

[Insert picture vertical slat hive part](#)

3. Pallet wood (horizontally)

Requires more wood, is easier to make and offers a much higher level of insulation than traditional boxes. Probably nearest to replicating the inside of a tree trunk in terms of material thickness. These can be fun to make. Place slats in the right position to make space for the frames in the middle and stack them so that the corners are overlapped. Copious glue and several screws hold the whole lot together. Note that the top two slats are sawn lengthways to reproduce the area for the frame lugs to sit.

[Insert picture Horizontal slat hive box](#)

The overlapping corners are sawn off and you have a somewhat heavy but very habitable box.

[Insert picture Horizontal corners sawn off](#)

4. Insulation

Easy to cut and shape and has excellent heat retention depending on the thickness of material used. Expanded foam comes in sizes from around 25mm thick to 100mm+ thick. Use what is freely available, mainly from new build construction sites. Ask permission to go dumpster diving for materials. Construction method is very similar to the scaffold plank approach but the thickness can easily match or surpass the look of the horizontal pallet wood approach.

5. Plywood

Simple, effective but requires cutting to shape and may need weather proofing  
See YouTube video *"How I Build My National Beehive Brood Boxes From Ply"* by Simplify Gardening for a fairly clear example of how it is typically done. Coat any ply with a generous layer of waterproof PVA and, ideally, paint to preserve it.

[Insert picture Ply nuc box](#)

6. Floor boards (tongue & groove)

Similar to the vertical pallet wood approach but the joints can be both stronger and more weather proof. Bought wood is expensive. Wood from a skip when renovations are being done is both free and often in abundance.

## Outside, in or inside, out design?

When you decide on what materials to make your brood box from, there is one fundamental design decision to make. Assuming that National frames will go inside, do you want the box externals to be the typical (46cm x 46cm) size or would you prefer that, say, up to 12 frames are stored within the box and the box externals can be as large as they need to be based on the materials used?

For the scaffold plank design, I suggest you retain the usual external dimensions and accept whatever internal frame space is left inside the box. With scaffold planks, it may mean that one frame won't fit into the box. If you choose to use the horizontal pallet wood or insulation approach, it may be more sensible to retain the usual internal dimensions and build the box around that shape.

For the vertical pallet wood or ply hive design, you can choose either approach. By making the boxes slightly more rectangular in shape, you avoid having to cut out or add wood on for the lug rests.

## What about supers?

Supers are handled regularly so they must be reasonably light and robust. This tends to rule out the scaffold board, insulation and horizontal pallet wood options. There is no standard sized wooden plank width in the UK that can be used for a brood box but a super can be usually made from a standard 6" x 1" timber plank (depends upon the supplier). Be sure to buy untreated timber, especially for supers.

## Cut wood out or add wood on?

The space where the frame lugs rest can be cut out of the wood or a piece of wood can be pinned and glued in place to create the same effect. If you are cutting out the wood there are two main options. Firstly, to use a router, maybe with several passes of the cutter. Secondly, to use a circular saw to make the two cuts. Gluing and nailing a piece of wood onto the top of the box does not require special tools.

## Handles

Some of the designs have a simple 'slab' face on each side. You will need to lift the supers and may want to also have handles on your brood boxes. With Langstroth boxes, the lifting handle is cut into the wood. You will need special equipment if you want to try this approach. The simplest way by far is to screw two pieces of pallet wood to opposite sides of the box. Are you a warm-way or cold-way beekeeper? Your choice will determine which sides you put the handle on.

## Download

To download some free of charge sketches, parts list, dimensions and additional information, please visit [www.beesinourcommunity.org.uk/resources](http://www.beesinourcommunity.org.uk/resources)

## Supplementary Information

Additional information to the BBKA article, omitted due to space restrictions.

### How it all started

I had a variety of hive designs (National, Modified National, Langstroth, home-made Warre, home-made top bar, home-made WBC etc) and they were expensive to buy and the parts were not interchangeable. I also had a load of supers were smaller than the brood boxes.

I made a decision to standardise on the National hive design, mainly because of the market for nucs on National brood frames. I also rationalised my hive setup so that the supers were also brood box sized boxes. That reduced me to one box size and one frame size. In a previous article, I mentioned how my floor and crown boards were a common design also. So, lots of flexibility but a dilemma of having to spend more money again.

### Brood boxes from scaffold planks

There is no widely available source of wood for making conventional brood boxes. The scaffold plank is a very close size and it's controlled by a British Standard so its dimensions are pretty consistent. Cutting them with a chop saw is both fast and easy. My only tip is cut the wood to make two whole boxes from each 13' scaffold plank. That way, the dimensions and wood colouring are consistent on the boxes.







I acquired some planks that had been damaged at one end for a massive discount so it was a natural progression to make nuc boxes with the lesser amount of wood.

Brood boxes aren't often lifted so it makes sense to build them from thicker wood if it is available. The thickness also increases the insulation effect which will certainly benefit the brood within the brood box. Usually advisable to put some lifting handles on the side. I personally tend not to bother as I put the boxes on at an angle and can hold the box from underneath.



## Rustic hives

A blast with a blowtorch can make the boxes look somewhat antique in nature. For me, it helps to get rid of the splinters and sharp edges. The boxes are also fairly well camouflaged so less likely to disappear from an out-apiary.