

Corrugated Plastic Sign Board Nuc Box Instructions



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<http://beehive.org.nz/sites/default/files/newsletters/2016/WBA-Newsletter-2016-01.pdf>

All beekeepers should have a couple of nuc boxes as well as a couple of hives. This design was copied from one I saw at the President of the Auckland Beekeepers Club's house a few years ago. Reasons for making nucs:

- To stop swarming. Removing four frames of brood and bees will reduce crowding.
- Queen introduction: Nucs are the safest way to introduce a new queen to a hive. Unite the whole nuc to a queenless hive when the queen is laying in the nuc.
- Insurance: As a standby hive to replace a failing queen.
- To be kept over-winter to replace any hives that die or to sell.

Most nucs are either four or five frames wide and are big enough to provide a bee space $\frac{3}{8}$ inch all the way around. I prefer to make my nucs slightly deeper than a standard nuc box (an extra $1\frac{1}{4}$ inch deep) so the box is capable of holding the five full depth frames of bees AND the equivalent of another frame of bees underneath. Otherwise when a nuc fills up with bees, it will swarm. This idea came in 1912 from Dr. C. C. Miller who wrote "Fifty Years Among the

Bees". <https://sustainablebeesblog.files.wordpress.com/2017/12/fifty-yrs-among-the-bees-dr-cc-miller-1911.pdf> This one of the classic beekeeping books. Miller tells you what went wrong when he tried many things, which sort of thing is missing from today's modern bee books.

Nucs can be made out of any untreated timber: pallets, boxing grade timber or if you live near a board factory, any reject untreated plywood. Or some cardboard boxes that products come in (at supermarkets) are exactly the size for a nuc. If cardboard is used, an additional inner sheet of timber and an outer handle provides the strength and support to hold the frames. The plastic sign board nuc box I showed at the meeting is made of two identical wooden ends to give strength to the structure.

The outside structure is 5-6 mm core flute (corrugated plastic) (used in New Zealand for real estate signs). From a very large sign you can cut both the lid and box surround out on one sign using a table saw. I staple the core flute 3/4 of the way around at each end then staple on a thin strip of wood to the sides to hold the core flute in place as the core flute doesn't hold well to the timber with rough handling.



These measurements are a little rough as I just use an old cut out as a template when I want to make more rather than re-measure everything again. The timber ends are 7 1/8 x 11 1/16 x

3/4s inches made of one by material. The top edge has a rebate cut in it 3/4 inch deep (down from the top to make the frame rests).

This gives a bee space above the frame so the bees can move across the top of the frames and allow the core flute to distort inwards which some do without squashing too many bees. I drill a 3/4 inch hole in one end board and 1 1/2 inch in the other end about half way down. The small one is the entrance and the larger one is for ventilation covered with fly-screen 4 inches down from the top, all the way across the outside on each end is stapled a 3/4 inch board which is your handhold. Some put this further down so that the entrance hole is just above it, which then provides a landing board for the bees (your choice).

The core flute wrap around is 37 1/2 x 20 1/8 inches. Saw cuts are made across the width, half way through the core flute so it can be bends easily at 11 3/8 inches, plus 7 3/8s inches and plus 11 3/8 inches (not counting the width of the saw cut but it gives you the idea). Try this around a wooden end section to see if it's been cut correctly at each corners. If slightly out don't worry as the hot air gun will correct any mistakes. Preserve the ends and then with a hot air gun, run it backwards and forwards slowly along the first cut until the plastic starts to bubble slightly.

Then fold into position holding it square for 30 seconds until the plastic reforms and seals the joint. Repeat with each fold until you have a square then staple or nail the ends in place making sure the rebate side is inwards (otherwise it won't hold the frames). Check with a frame before nailing on the second end so that there is a couple of mils free movement of the frame.

The top cover or roof is easy; this overall size begins at 25 3/16s inches 12 1/2 inches. Set the saw to cut half way through the core flute at 2 3/16s inches from the edges and run around the four edges. Then take a knife and make the over-lapping flap that folds around the ends to secure them. Use the hot air gun again to heat the joint but this time fold the sides past 90 degrees so it slopes slightly inwards; (this is to hold the roof on the nuc box tightly). Heat the ends and hold at 90 degrees. Heat the inside end of the cut-away flap (on each side) until it bubbles slightly and then press this hard against the end surface so it joins (it will be hot so watch your fingers). Vice grips might be safe to hold this in place while it cools. I then take a couple of 3/8 in staples, fire them into each outer corner of the flaps from the outside, and then hammer over the inside tips of the staples to secure the ends a bit more (I hold these down with cargo straps on the truck so they have to be strong). The original design had a section cut out of the bottom (approx. 2 inches x 6 inches) and this is covered with screen wire. With this design, more ventilation is essential as bees give off water vapor and can condense on inner surfaces so it can run out the bottom. I put half a dozen thin 3 inches cuts at each end underneath with a cutting blade on a grinder. The width of this cut is too small for the bees to get through but allows moisture to escape. Nail a piece of wood under the ends to form a small stand and allow air to circulate under the box. Small bee boxes tend to disappear so fire brand them. Enjoy!

Frank Lindsay (inch conversions from millimeters by Joe Lewis at Sustainablebees.blog)