

## MODULAR HOUSING FOR ORCHARD MASON BEES

By Randy Person 2001

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Making housing for orchard mason bees is pretty easy – drill holes in wood. Depending on what you read, the holes should be between 1/4" and 3/8" diameter, and spaced between 3/4" and 1" on center. My first year with the bees, I prepared several nesting blocks, providing over 100 nest holes. My initial five tubes of bees obligingly filled nearly all the holes, giving me far more new bees than I needed. How to divide them up, to redistribute around the property or give away, when they are 50 or more holes in a single block of wood?

Carefully sawing up the blocks, trying not to disturb the nested bees, seemed needlessly risky, although it worked. After that, I developed a modular system for making nesting blocks, that meets several important criteria:

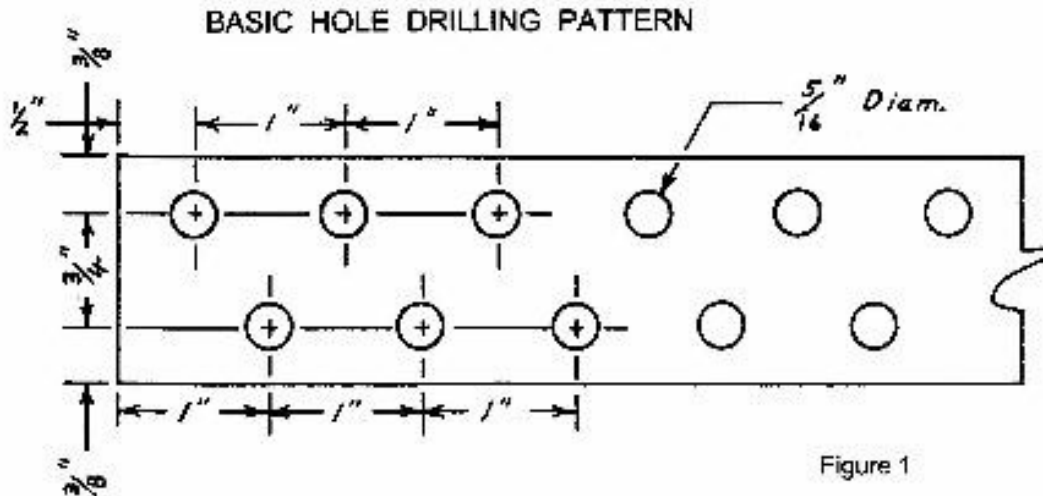
It uses readily available material.

It is quick and easy to lay out and build.

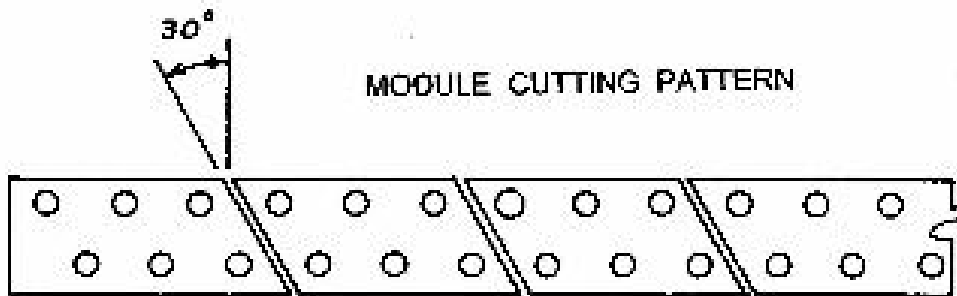
It can be disassembled when the bees mature without disturbing them.

These plans are based on the most typical specifications I found, using 5/16" diameter holes spaced as closely as possible to 1" on center. By alternating the holes, using a triangular rather than a square grid pattern, two rows of holes can be drilled in the edge of a finished 2 x 4 (actually 1 1/2" x 3 1/2"). Stacking finished 2 x 4's side by side continues the pattern as long as you like. Cutting the drilled wood into small pieces, then fastening them onto a backing board, allows disassembly once the holes are filled with new bees, and provides an easy way to fasten the nest in place. Most construction projects generate large quantities of 2 x 4 waste – this is a perfect way to put those random lengths to good use.

First, lay out the pattern and drill your holes. As shown on **figure 1**, the center lines for the holes are 3/8" from each edge of the lumber, leaving them 3/4" apart. Holes are bored at 1" intervals along each line, with one row offset from the other by half that distance. This way the distance between the holes is close to 1" in all directions, and there is about 3/16" of wood at the thinnest part. The quick way to lay this out is to use a tape measure with a 3/4" wide blade. Just hook it on one end of the 2 x 4, center it by eye, draw a pencil line along each edge, then mark off the hole centers, using the full inch marks on one side of the blade, and the half inch marks on the other.



Next, cut up the perforated lumber into your chosen module. You will notice the holes are in a pattern that is very close to an equilateral triangle. The cutting is most easily done on a power saw where the cut angle can be controlled. I use a table saw. Set the angle of cut to 30°, and cut between the holes. As shown in **figure 2**, I usually use a module of six holes. A typical purchased starter colony only has three straws of bees, but I like to be generous when setting out new ones. You don't need to worry about trimming the square ends – these pieces can be used at the ends of your assembled units without affecting the design.



Finally, prepare the base for your unit. A length of 1 x 4 lumber works fine, as does a scrap of plywood or waferboard. Nearly anything you can saw and drill will work. Since the nests should be under cover, out of direct rain, you can even use interior grade materials, at least for a season or two. As shown in **figure 3**, my basic unit is 12" long, and holds six blocks of six holes each. Drill two holes for each block, and fasten from the back with wallboard, deck, or other flathead screws. Drill a hole at each end for the screws to fasten the whole nest to its mount. I usually countersink the holes so the screws are sure to fit flush without having to use excessive force and maybe splitting nesting blocks. I often don't use all the holes. With the angled ends of the nest blocks,

you can use two screws in the anchor blocks. Then, the rest of the blocks in that row will stay put with one screw each, since the angled end keeps it from pivoting out. I drill all the holes anyway, so if I strip out a hole or break a screw, I can just use the other one.

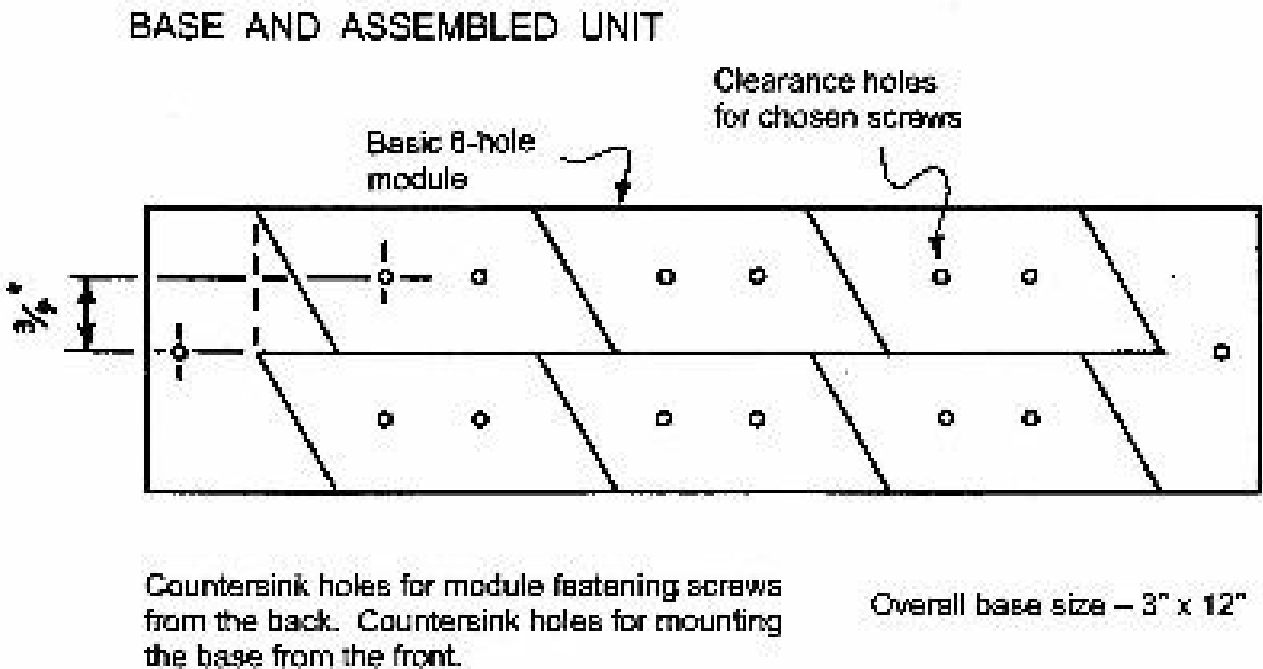


Figure 3

If you want to make housing units different size, or use larger or smaller modules, just follow these techniques as you work out your own layout. Once you have assembled a couple and are pleased with the results, make a template to speed your work. Use a piece of paneling or other sheet material, drill small holes at the screw locations for an awl or nail to fit through. Then just clamp it to your base block, poke through the holes to mark the locations, and you're ready to drill.

**Materials note** – standard softwood (fir, hemlock) framing lumber works well. Most lumber sold today has fairly large growth rings, and accepts screws without splitting. If you salvage some older, dry material with tight growth rings, you may have to drill lead holes for the screws to prevent the small blocks from splitting.

I've read that you can expect your bee population to increase by five times each year. The units shown, made of one filled block and five empty ones, will give your work force room to grow. The modular construction means next year, you can easily disassemble it and use your own recruits to spread the good word. I actually had better recruitment than predicted, so you may want to place additional empty blocks in the area to capture all the potential. Good luck managing your own growing family of these beneficial bees.

This information and the accompanying designs are made available for non-commercial use by the designer, Randy Person. Randy may be contacted at 801 South St. SE, Tumwater, WA 98501, or by e-mail at [rmperson@juno.com](mailto:rmperson@juno.com).