

Home Made Mason Bee Paper Liners That Work

The simplest mason bee homes are holes drilled in wood. While easy to make, they have several disadvantages. Pests, especially mites, are a natural part of the mason bee life cycle. In wood, the mature cocoons cannot be removed for cleaning, so pest populations remain high. It is also nearly impossible to clean the holes for re-use without destroying either unhatched adults or freshly laid eggs.

The bees nest in the tubes (or “straws”), which can be removed when the bees are mature. Fresh liners in the holes provide clean nest spaces for the following season.

If you like to build your own bee houses, and are able to drill long, straight holes, there is a way to make your own lined bee holes. Home-made liners are easily opened to harvest the cocoons for cleaning.

The Block

The heart of the system is the block. The blocks are 3 ½” square and 5 ½” long. After the backs are added, they are about 6” long. Choose a wood with a fairly straight grain – bad grain can pull even a sharp drill bit out of line. Avoid highly aromatic woods like cedar or redwood, unless well weathered. They have insect repellent qualities which affect mason bees too

The ideal hole size for mason bees is 5/16”. if you drill a hole 3/8” the liner material will make the hole smaller which is close to ideal. For clean holes, use brad point bits.

First, lay out the hole pattern. ie 5 x 5 pattern, for 25 holes in each block. Each hole is a little under ¾” from the next, center to center. Various sources suggest spacing from 1” on center on down to bundling the straws and stuffing them into a can.

The first step was done with a standard length bit, about 5” long overall. For the second step, I clamp the block to a scrap 2 x 4, which is then held in a vise. Switching to a longer bit in a hand-held drill, finish boring the holes through and slightly into the scrap.

Be sure the final product has clean holes with no major splinters or burrs in the holes.

The Back

The back of the block needs to be sealed. Cut a piece of 3/8” or ½” plywood or other sturdy material just slightly smaller than the end of the block, so there is nothing hanging out to catch as you install and remove the block. Clamp the end on the block, and drop a long pencil down the sets of four holes at each corner, marking the approximate center of each. Since the holes never come out even, I find this much easier than measuring and guessing. Connect these points diagonally; where they intersect is the optimum spot for screws. Drill lead holes in the back for the screw size you choose – I usually use 1 ¼” drywall or deck screws. Then clamp the back to the block, and use those holes to drill lead holes in the block. Finally, drill clearance holes and countersink the holes in the back. Fasten the back to the block, and then remove the screws. Be sure the block hasn’t split (that’s why lead holes are needed). Repair with a good water resistant glue if needed.

The Rolling Rod

Getting a roll of paper into the holes is tricky. A 3/16" or 1/4" diameter metal rod a few inches longer than the block works well. Make sure it's clean and smooth, and be sure there are no burrs on the ends from cutting it. Smooth wood will also work.

The Paper

Grease proof paper is the best. Wax paper is usually OK. In fact, you may want to line a few holes with it just to watch the bees chew it. It's very strange to see long strings of wax paper hanging down from the holes! The other papers don't work very well. They tend to either absorb moisture from the air or trap it inside the tube. Both lead to mold and mortality – do not use them.

There should be several layers of paper in each hole. To see how big to cut the paper, start with a piece about 3/4" longer than the block, and four inches wide. Roll it tightly around the rolling rod, and hold it against the rod as you slip it through the hole and out the back. When the paper is sticking out both ends, release it. It should try to unroll, and will expand to fill the hole tightly. Push one end flush with the front of the block. To measure the width needed, make a small cut through all layers at the point where the corner of the paper is. Then remove and unroll the paper – the cuts will mark full turns. Measure how much is needed for three full turns, plus a little. Then figure how to use your material best, and cut enough rectangles to line each hole. As an example, the material I have is 15" wide. Dividing that into four equal pieces does not give three layers. Cutting it into thirds, and using pieces 6 1/4 "x 5". - gives nearly a full extra layer, which is better than a weaker lining

Fill the Holes

Gather up blocks, paper, and rolling rod, and enjoy a quiet spot. You'll soon get the feel of getting the paper started on the rod, and getting a good, tight roll is the secret to getting the tubes in place easily. If the tubes don't fill out immediately, push them back and forth a few times. That usually seats them. You're done loading when all the paper ends are flush with the block on one end, and sticking out the back at the other.

Bend the Tubes

Place the block on its face, with the tubes sticking up in the air. Bend each tube sharply down. Bend all the same direction. A sharp crease at the end will maximize available tube space.

Seal the Back

Place the back on the block, and screw it in to secure the tube "tails." Those closest to the edge will be sticking out. They trim easily with a sharp knife. The block is ready to use.

Next Fall

In the fall when the bees are mature, remove the back, grab the tails, and pull the tubes out. They will maintain shape fine. However, you can easily unroll them to inspect your harvest and clean them. Finally, sometime during the winter, cut more paper, re-line the holes, and you're ready for another season.