

Long Hive Plans

The hive is made out of $\frac{3}{4}$ inch thick pine. Because this hive is designed with an attached bottom board, we have to add in the space that is normally taken up by the bottom board, which is $\frac{3}{4}$ inch. To get the standard height of a deep hive box plus the bottom board using dimensioned boards you need to start with 1 X 12 boards. A standard deep Langstroth box is $9\frac{5}{8}$ inches deep, but the total depth including the bottom board is $10\frac{3}{8}$ inches. The 1 X 12 is $11\frac{1}{4}$ inches deep, so you would need to rip the 1 X 12 down from $11\frac{1}{4}$ inches to $10\frac{3}{8}$ inches. The first hive I made, I did not rip the boards down to $10\frac{3}{8}$ inches but left them at their full width of $11\frac{1}{4}$ inches. We discovered that the bees would build on to the bottoms of the frames and that the extra space was a good thing. So I continued to make them using the full width of the boards. In practice, if the frames need to be transferred to a regular deep hive body, the extra comb can be removed. In a northern climate, the extra depth is probably helpful in the winter, but in a warmer climate, probably not necessary.

The hive body and bottom can be made out of two 12 foot 1 X 12's. The lid can be made out of one 10 foot 1 X 6 and two feet of 2 X 6 and a partial sheet of plywood. The outside dimensions of the hive body are $48\frac{3}{4}$ inches long by $19\frac{5}{8}$ inches wide by 12 inches deep. We decided on these dimensions so that the hive would fit three standard purchased inner covers, which are $16\frac{1}{4}$ inches wide.

Hive Body

The hive body is just a box with butt joints and screws. The top edges of the long sides have $\frac{5}{8}$ inch deep by $\frac{3}{8}$ inch wide rabbets (frame rests) in them. The front has a $\frac{3}{4}$ inch deep by 8 inch long slot cut in the bottom for the entrance. Each corner has five three inch screws in it. Glue and screw each corner. It is good to try to get the hive as square as possible but it doesn't have to be perfect. The bottom is a series of 1 X 12's except for one in the middle which has to be ripped down to $6\frac{3}{4}$ inches. The end board hangs three inches out on the front to give the bees a porch to land on. Screw the bottom boards down. Don't glue them down to the hive to allow for wood movement. I cut the bottom boards a $\frac{1}{4}$ inch over the finished length I want ($19\frac{5}{8}$ inches) and then plane them flush. This makes everything flush even if the hive body is not perfectly square. It also allows for adjustment if the dimensions aren't exactly correct when cut.

Porch Roof

The porch roof is not necessary but it keeps snow off the porch and adds artistic appeal to the hive. The porch roof supports are three inches on the back and one inch on the front and four inches long. They are attached to the hive about five inches up and two inches in. They are glued to the front of the hive and screwed through from the inside. The roof part of the porch roof is five and a half inches wide with a bevel cut on it to match the angle on the supports. It is glued and screwed to the hive and supports.

Hive Roof

To determine the angle for the roof I start with the middle rib. The middle rib starts as a two foot long piece of 2 X 6. I first find the center and then I measure two inches in and two inches up on each end. Then I connect the two points. This line becomes the pitch for the roof. Cut out the mid rib and drill a couple of 1 inch diameter holes in the center of it for ventilation. Use the mid rib as a template to lay out the two end pieces from a piece of 1 X 6. Once you have the ribs cut out you can cut the joinery in them. Rip out the side pieces from the 1 X 6 and cut a bevel on them to match the angle of the roof and

cut joinery on them to fit the joinery on the ends. Once you have the framework for the roof done you can start on the plywood to cover it. Plywood comes in four foot by eight foot sheets. You need to cover a 56 inch long space, there are two ways to do that. One way is to cut one 12 ¾ inch by 56" inch piece of plywood and one 13 inch by 56 inch piece of plywood. This way works fine but I usually cut a piece of plywood into three 28 inch by 48 inch sections and then cut those down to the widths I need. If you chose to cut a 56 inch long piece you can substitute a piece of 1 x 6 for the 2 x 6 used for the center rib. Whichever way you chose to cut your plywood once you have it cut out, cut a bevel on the wider side so that there is not a gap at the peak.

Finishing Up and Hardware

You can make your own inner covers but I find it cheaper to buy them. We use notched inner covers to double as ventilation. We add an extra notch to each inner cover to make this more efficient.

Paint all of the parts of the hive that are not in contact with bees - the outside of the hive body, the outer edges of the inner covers and the outside of the roof, including the exterior parts of the roof ribs and the underside of the plywood. After the paint is dry put the roofing material on. We use asphalt roll roofing material because it's lighter than shingles and easier to install than metal.

This hive is designed to have a hinged lid and latches to secure it on the side the beekeeper wishes to open the hive. There are three hinges and two latches and a chain to keep the lid from opening too far.

Next set the inner covers and roof on the hive and line everything up and attach the hardware. .When placing hardware, be sure not to block the ventilation notches. If your hardware came with screws that are longer the ¾ inch you either have to use shorter screws or cut them down to ¾. Do not place screws where they will interfere with the rabbet. Remember your rabbet is your frame rest. Use lap links to attach the chain to the eye bolts. Cut the chain to a length which will allow the top to stay open at just past 90 degrees. You don't want it too far, or the hive will tip over, but it has to be at least 90 degrees to stay open without falling closed while you are working in the hive. Center a metal entry disk (available from any bee keeping equipment supplier) on each end and drill a 1 ½ inch hole in the appropriate place.

Buy and assemble 32 deep foundationless frames (or you can use frames with foundation if you prefer). The frames hang parallel to the entrance because the frame rests are on the long sides of the hive. This orientation is different than that of a vertical hive.

When placing the hive, make sure to level the ground and the hive stand, especially if you are using foundationless frames. We clear a spot, put down playground sand, level that, then put our cement blocks down, level those, then place the hive and level it, using shims if necessary. It is good to re-check the level now and then, especially when there has been a lot of rain and the ground settles.

For further reference for standard Langstroth dimensions and construction of beehive components we used: Bee Equipment Essentials by Ed Simon, published by Wicwas press.

Double Walled Hive

If you keep bees in a colder climate and want the advantage of a double walled hive, you can add a second wall to the outside. This requires making the top bigger and will also require making custom inner covers. The advantage of this is that there is nothing you have to do to get it ready for winter, so

the extra effort in the building of the hive pays off with less annual effort. This is especially desirable to people who may be limited in mobility. If you live in a warmer climate, or don't mind the extra effort to insulate the hive for the winter, this is not necessary.

To make a double walled hive start with the single wall hive body. Make it the same as for a single wall hive except change the dimension of the board on the bottom that you rip to 8 ¼ inch to extend the porch to accommodate for the extra wall. Also don't put the porch roof on the inside end, add it to the outside wall but you need to attach it before you install the front. Leave the bottom the same width. Put a ¾ inch by 2 inch frame around the bottom on the sides and back, cover up the edge of the bottom with this frame. Put ¾ inch by ¾ inch blocks around the entrance. Now cut out your second wall pieces making each end 22 ⅞ inch and each side 50 ¼ inch. Cut an entrance hole in the second front to match the one in the first front. You can put ¾ inch thick blocks in between the walls on the sides to keep your spacing. Attach your outer walls on top of the frame around the bottom. Fill the gap with wood chips. Then cut one inch by ¾ inch blocks and put them in the gap around the top. The widths of the spacer blocks don't have to be exact, the widths given are just a guide line. The lid is constructed in the same way as the single wall hive lid. The dimensions are just a little longer. The ends and mid rib are 27 inches long and the sides are 50 ¼ inches long. Make the ply wood pieces bigger accordingly.

Long Hive Cut List:

NO.	Part	Dimensions (Inches)			Material
		T	W	L	

Hive Body

2	Sides	$\frac{3}{4}$	11 $\frac{1}{4}$	47 $\frac{1}{4}$	Pine
2	Ends	$\frac{3}{4}$	11 $\frac{1}{4}$	19 $\frac{7}{8}$	Pine
4	Bottom pieces	$\frac{3}{4}$	11 $\frac{1}{4}$	20 $\frac{1}{8}$	Pine
1	Bottom piece	$\frac{3}{4}$	6 $\frac{3}{4}$	20 $\frac{1}{8}$	Pine
1	Porch Roof	$\frac{3}{4}$	5 $\frac{1}{2}$	20	Pine
2	P R Support	$\frac{3}{4}$	3	4	Pine

Hive Roof

2	Ends	$\frac{3}{4}$	5 $\frac{1}{2}$	24	Pine
1	Mid Rib	1 $\frac{1}{2}$	5 $\frac{1}{2}$	24	Pine
2	Sides	$\frac{3}{4}$	2 $\frac{1}{4}$	48 $\frac{3}{4}$	Pine
2	Roof Boards	$\frac{1}{2}$	13	28	Plywood
1	roof board	$\frac{1}{2}$	12 $\frac{3}{4}$	28	Plywood
1	roof board	$\frac{1}{2}$	9 $\frac{1}{4}$	28	Plywood
1	roof board	$\frac{1}{2}$	3 $\frac{1}{2}$	28	Plywood

Additional Parts:

3 Tee Hinges

2 Safety Hasps

3' of Chain*

2 Eye Bolts

2 Lap Links

2 Metal Entry Discs

1 1# Box 3" #8 screws

1 1# Box 1 $\frac{1}{4}$ " #6 screws

1 Bottle of Exterior Grade Wood Glue

3 Inner Covers

32 Foundationless Deep Frames**

Asphalt Roll Roofing

*Strong enough to support the weight of the roof

**Only available from Kelleybees.com





