A Plan for a *Very* Simple Observation Hive.

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Observation Hive Philosophy.

In my opinion, observations hive fall into two broad categories

- Nicely constructed, permanent-type furniture hives.
- Simple, quick glass box type hives for short term use.

Furniture grade hives are much more satisfying from a furniture quality standpoint, but such hives are normally too heavy and cumbersome to take to a single talk. I frequently need to put a frame into an observation hive and dash off to a talk. Upon my return, I return the frame to the colony and life goes on for both me and the bee hive. In my lab, at Wooster, in years past, I constructed a nine frame observation hive that is permanently positioned, yet I need a smaller, simpler observation hive more frequently. Having both types of observation hives is a good idea for beekeepers who commonly give talks on various aspects of beekeeping.

The hive I am describing below is intended to be as simple as possible to construct. This is not intended to be a high quality, visually pleasing observation hive. I have used various designs, but for the present time, I have settled on the design given below.

The Observation Hive Design.

Though I have built observations hives as high as three deep frames with the concept presented below, I like the single frame deep best. Only one frame of bees are required so I can establish the hive quickly and break it down quickly. The hive is constructed from low grade wood and screws available at any building supply store.

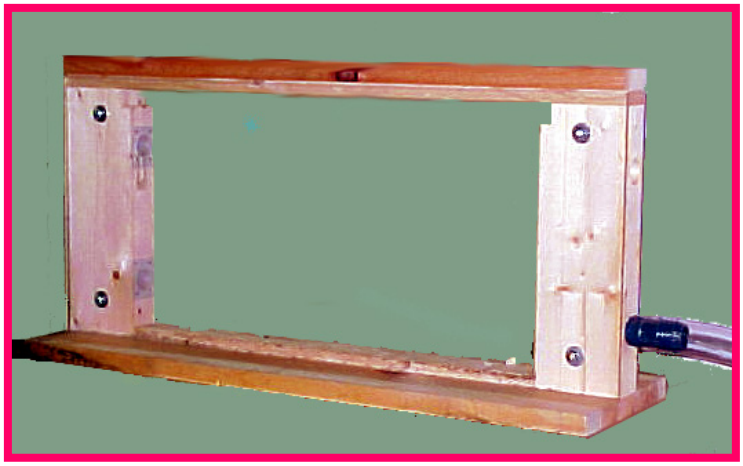

Figure 1. The Observation Hive with an Optional Entrance.

In theory, only simple tools such as a drill and a handsaw are required to build the unit, but power tools are still very handy to use if they are available to you. Six wood pieces and two Plexiglas®

pieces comprise the hive. A top, a bottom, two slats, two end uprights and two Plexiglas® sides form the hive.

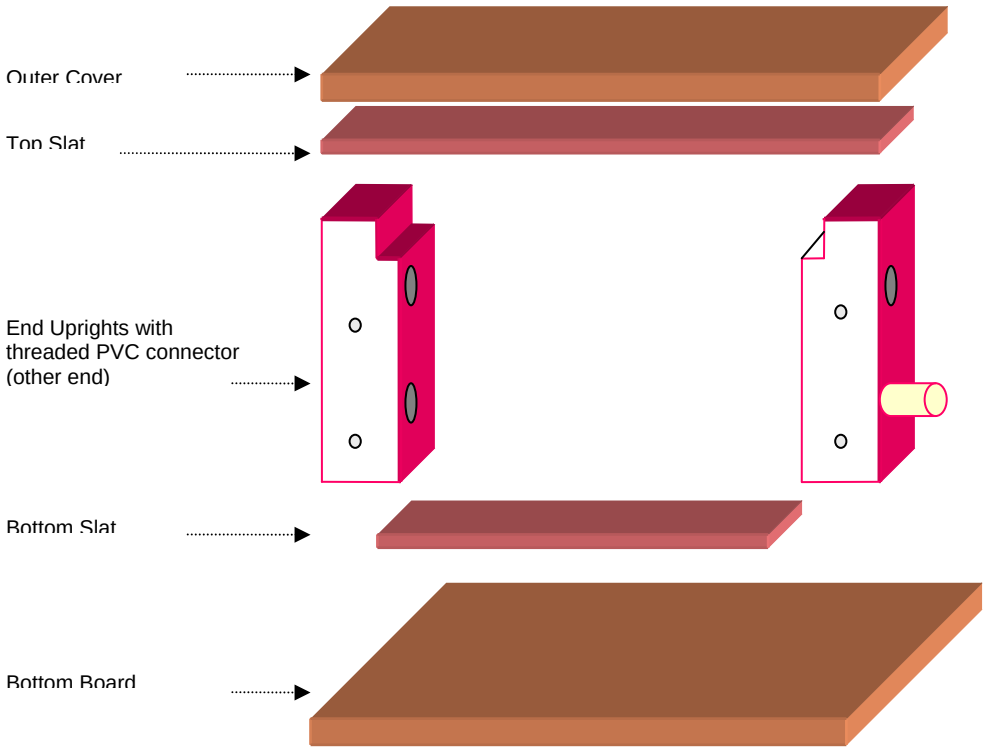

Figure 2. An exploded view of the observation hive.

The Building Materials.

The building materials required are:

- 1 standard 2”x4” board (stud) as straight and clear as possible.
- 1 common pine board ¾” x 8” x 8’
- ¼” Plexiglas® (Two pieces cut to fit the observation hive sides.)(Probably 10 ¾” x 25”)
- 2 ½” pan head screws with washers and nuts (4 required)
- 2 ½” drywall screws (6 required)(For attaching uprights)
- 1” drywall screws (4 required) (For attaching the bottom slat to the bottom board.)
- Wood Glue
- 8-mesh hardware cloth (or aluminum window screening)

The Cutting List.

Beginning from the bottom and moving upward, the sizes of each of the required pieces are:

- Bottom – ¾” x 8” x 25” (one each)
- Bottom slat - ½” x 1 ½” x 18 5/8” (One each)
- End uprights – 1 ½” x 3 ½” x 10 ¼” (Two each)(This is a standard dimensioned 2 x 4 board)
- Top slat – ½” x 1 ½” x 25” (One each)
- Top – ¾” x 2” x 25” (One each)

Frame Rests.

Cut a notch in each of the upright tops. The notches should be ¾” down and 7/16” over. See Figure 3 below.

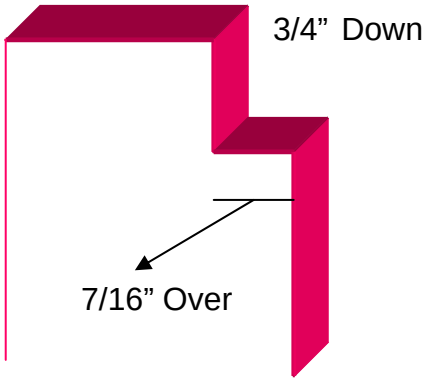

Figure 3. The frame rest notch cut into the top of one of the uprights.

Assembly Instructions.

- Cut all wood and Plexiglas® pieces to specified dimensions.
- Bore ventilation holes (7/8” spade bit)(two in each upright - one 2” from top and a second 2” from bottom of both uprights)
- Cover ventilation holes with screening and staple or tack in place. If a hive entrance is desired, leave one of the lower ventilation holes unscreened for later use.
- Attach the top slat to the tops of the uprights. The top slat should completely cover the upright tops from end to end.
- Center the bottom slat on the bottom board and attach with 1” drywall screws. The bottom slat should be between the uprights.
- Position the previously assembled top slat and upright component astraddle the attached bottom slat.
- Using the bottom slat as a guide, glue and screw the end uprights to the bottom board. Screw from the bottom surface of the bottom board.
- Attach the top to the top slat with two 2 ½” (one in each end) drywall screws that penetrate the end uprights. There should not be a reason to ever remove the top. The hive will always be loaded from the side.
- Paint with latex varnish or paint or leave as bare wood.

If an entrance is desired, glue clear, flexible plastic tubing into the unscreened vent hole. The length of the tube should be whatever meets your needs. Alternatively, glue a short piece of PVC tubing into the vent hole and stretch appropriately sized flexible tubing over the PVC nipple. A more complicated procedure is to thread a ¾" PVC coupler into the vent hold and attach plastic tubing to that. A 7/8" thread cutter is handy if this procedure is used.

The Plexiglas® Sides.

In the center of the uprights 1" down from the top and 1 ½" up from the bottom, drill a ¼" hole through the glass and the wood uprights. Using 1 ½" pan head screws, attach the sides to the uprights.

The Exterior Entrance.

If an entrance is desired, using part of the 8" pine board cut it to length to fit within your desired window. Drill a hole of the necessary diameter to allow the plastic tube to pass through to the outside. Position the board within the window and close the window onto the board. If the hive is to be used for short periods only, all the vent holes can be closed with screening and the entrance eliminated.

Quirks of the Observation Hive Design.

- After installing the selected frame with adhering bees, extraneous bees are sometimes crushed between the glass and the uprights. A bee brush is handy to keeps bees off the sides of the uprights while positioning the glass walls.
- It is difficult to bore holes so precisely that the glass walls are interchangeable. It is handy to use a couple of 1" screws to permanently attach one glass wall and always load the frame from the removable side.
- Due to the lightness of this unit, a feeder hole was not provided. Either replace the frame with one full of honey or feed the unit from outside the window.
- This is a temporary hive and will not survive even a mild winter.
- The dimensions of the upright are very tight. By sanding or planning, do not remove any more wood from the uprights.
- Scrape all propolis or comb from the selected frame before attempting to put into the unit. Combs bulging with honey should not be selected.
- Be careful not to drill the side holes through the vent holes.

Your Confidence.

These have been tedious instructions that describe the building of a remarkable simple observation hive. You ***can*** build it. Make any changes you desire that will make the unit more appropriate for your use. The primary requirements are that the frame rest on the frame rests and that bee space bee respected. Otherwise, it is nothing more than a glass box used to take a frame of bees to a demonstration. Good luck.

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