



ART PANELS – INSTALLATION GUIDE

Thank you for supporting us and buying our decorative art panels for your **Insulated Layens Hive!** The design is printed on aluminum with exterior-grade paint used for outdoor signage, and should last many years.

We prepared these instructions for a quick and problem-free installation.

CAUTION! SHARP EDGES! Wear gloves and long-sleeved shirt to prevent cuts.

Tools You'll Need

- Tape measure
- Sharp pencil
- Speed square or another tool for marking right angles
- Drill / driver, electric
- Drill bit, 3/32" for pilot hole
- Hole saw, 1-5/8" or 1-3/4" diameter, for metal
- Phillips driver bit (x-shaped)
- C-clamps (2)
- Fine round file (optional)

Supplies You'll Need

- Silicone sealant, 100%, translucent/clear, one 2.8-oz tube
- Metal angles to cover the edges (included with your hive if you bought it from HorizontalHive.com)
- Lath screws, 1/2" long, sharp point; qty: 6 (included with your hive if you bought it from HorizontalHive.com)
- Steel entrance discs (included with HorizontalHive.com insulated hives) **OR** **#20 corks** (as many as you have entrances – see below for this option)
- Two pieces of scrap plywood or board at least 3/8" thick.

Step 1 – Paint Your Hive

Paint your hive with flat exterior acrylic house paint and let the final coat of paint cure for 48 hrs or longer if possible.

Step 2 – Align the Panel and Mark the Margins on the Hive Box

Put the hive on the floor with the entrances facing up.

Put the art panel over the front wall [1]. Align the bottom of the panel with the bottom of the wall. Center the panel on the wall: the panel may be not as wide as the wall (this is normal) – just split the difference, creating right and left margins of equal width. Double-check that the panel does not protrude lower than the bottom, and goes not protrude higher than the top of the wall. When satisfied with the fit, mark the left and right margins with a pencil and measure the width of the margin. Typically, you'll have a 1/4" margin on each side as shown in [2].

Step 3 – Measure Hole Positions (on-center)

Remove the art panel and calculate the distances to the center of each hole to be drilled in the panel. To measure to the *center* of the hole:

- measure from the left edge of the wall to the left edge of the entrance hole [3];
- measure the hole width and divide in half;
- add a+b and subtract the width of the margin you measured in Step 2 - this will give you the measurement from the edge of the panel to the center of the hole to drill.

For example, you measure 4-1/2" from the left edge of the wall the left edge of the entrance; the entrance is 1-1/2" wide; and the left margin is 1/4" wide. Your on-center measurement is: $4\text{-}1/2" + (1\text{-}1/2" / 2) - 1/4" = 5"$.

Repeat for each entrance. Double-check the measurements and record them on a piece of paper. You've figured out the *horizontal position* of each hole to drill.



Now let's find the *vertical position* of hole centers: measure the distance from the bottom edge of the wall to the center of each entrance hole:

- d) measure from the wall's bottom edge to the bottom edge of the entrance hole [4];
- e) measure the height of the hole and divide in half;
- f) adding d+e gives the measurement from the bottom edge of the wall to the center of the hole to drill.

For example, you measured 2-1/4" from the bottom edge of the wall to the bottom edge of the entrance, and the entrance measures 1-1/2" tall. So your on-center measurement is $2\text{-}1/4" + (1\text{-}1/2" / 2) = 3"$.

Do not assume that each hole is the same distance from the bottom and has the same height. Measure each hole individually, double-check the measurements and record them on a piece of paper. You now know the *vertical position* of each hole to drill.

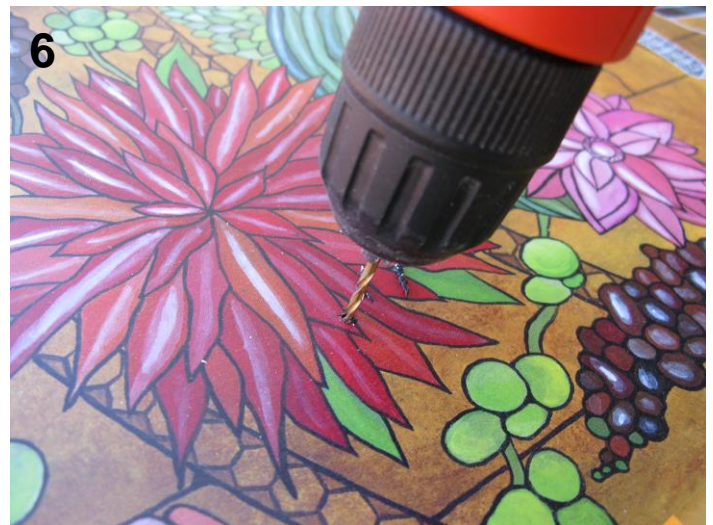
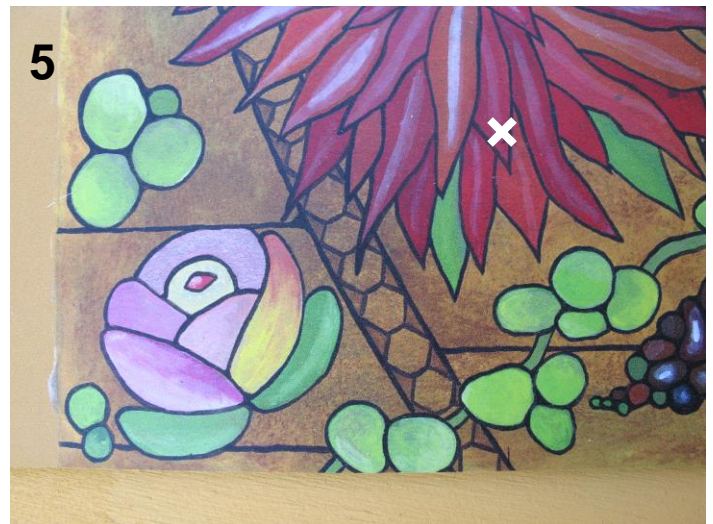
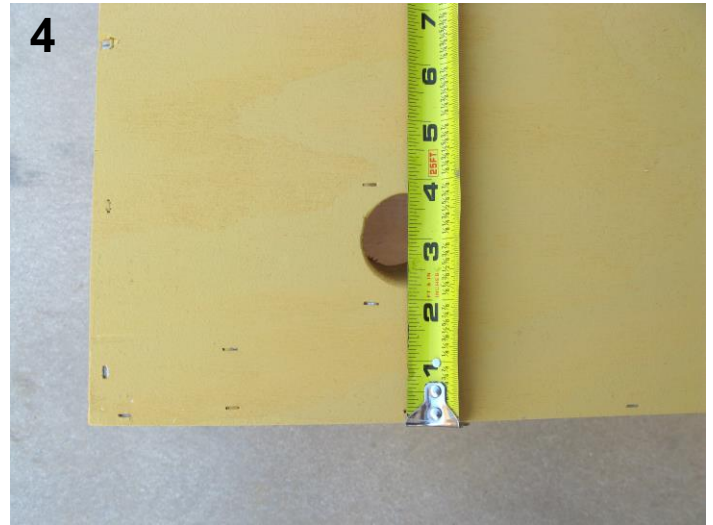
Step 4 – Mark The Panel

Transfer the final measurements from Step 3 to your art panel. Starting from the bottom left corner, pencil-mark horizontal measurements of hole centers on the bottom edge of this panel. Position a speed square on these marks, measure from the bottom edge up, and mark the center of each hole. [5] Double check with a tape measure.

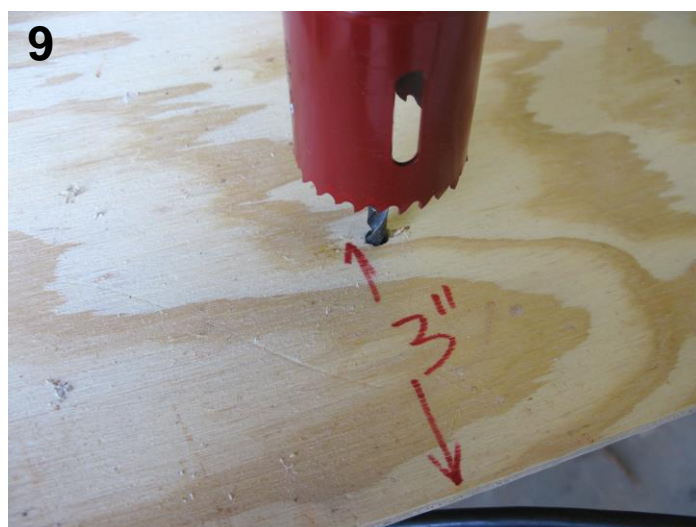
Step 5 – Drill the Panel

Put the panel on a firm support (e.g., a scrap board or piece of plywood). Drill a 3/32" hole on each mark representing the center of the entrance hole. [6] These are your pilot holes that help drill in the exact position without the hole saw "walking" off the mark. Drill 1-5/8" or 1-3/4" holes with a hole saw [7]. This is how to reliably produce best results with a very clean cut:

Take a piece of scrap plywood or wood at least 3/8" thick. Drill a pilot hole with the pilot bit of your hole saw. [9] (Try to drill as square to the surface as you can.) Pre-drill the pilot hole in the art panel and the board under it with the pilot bit of your hole saw [8]. (Don't let the hole saw



itself touch the artwork.) Now insert the pilot bit through the top plywood, artwork, and underlayment plywood. With the pilot bit in place, clamp the three layers together. **[10]** You have a sandwich clamped together: plywood support (under the art panel) – art panel – cover board over the art panel, with the pilot bit of the hole saw holding everything aligned together. Now drill with the 1-5/8" or 1-3/4" hole saw through the cover board, through the art panel, and into the support board. **[11]** Because the art panel is clamped between two surfaces, tear out is minimized. **[12]** Repeat with the other entrances. This produces razor-sharp clean cuts with almost any hole saw bit.



If you don't follow the above method (which produces best results), here are tips for making a clean hole and minimizing tear out *without* clamping your artwork between two boards:

- Use a high-quality bi-metal or carbide-tipped hole saw.
- Have the art panel on a firm support. Clamp it or ask another person to hold it so it does not shift during drilling.
- Use high speed and low pressure.
- Use a drill press if available. Otherwise hold the drill with two hands as perpendicular to the panel as you can.
- Practice on some thin aluminum (e.g. a strip of aluminum cut from a soda can and nailed to a board). These test runs really help.
- Smooth the edge of the drilled hole with a fine round file if necessary.
- Once the pilot bit is through the panel, put your drill *in reverse* and continue drilling. (We don't recommend this option.)



Step 6 – Attach the Panel on Silicone

Apply a 3/16" to 1/4" bead of silicone sealant along the perimeter of the wall - 1/4" from the top and bottom edges, and 1/4" in from the pencil margin marks. [13] Also apply a bead of silicone around the entrances, 1/4" from the edge of the hole. Finally, with what's left in the tube, put two or three vertical beads on the front wall.

Set the panel into place, press it into silicone and weigh it down – books work well as weights. [14] Don't put too much weight: it would only make the silicone layer too thin and could even cave in the wall. Wipe off excess silicone that squeezed out, double-check that the panel is in the required position, and leave it alone until silicone cures, preferably overnight.

Note: you want to use Silicone Sealant in this step. We do not recommend using Silicone Glue or Silicone Adhesive. Silicone Sealant creates a sufficiently strong bond, but you will still be able to remove the panel in the future if you ever have to (for example, to replace it many years down the road after the paint starts degrading from sun exposure). If you use silicone *adhesive* instead of sealant, the bond will be so strong you'll never be able to take the artwork off without damaging the underlying plywood wall.



Another note: instead of silicone, some people just drive a few additional lath screws along the top and bottom edges of the artwork, but we prefer silicone sealant to minimize penetrations through the artwork and seal off the space between the art panel and the wall (if that space is not sealed with silicone, ants may move in and make their next there).

Step 7 – Attach Angles and Mount Entrance Discs or Cork

We recommend leaving the panel weighed down overnight. After silicone firms up, cover the edges with angles and attach with 1/2" lath screws (3 screws on each angle surface, that is 6 per corner – 1" from the top and bottom edge, and one in the middle). If you purchased your Insulated Layens hive from HorizontalHive.com, these angles and screws have been included.

You can now mount the entrance discs. Position a disc with the round hole over the entrance, the screw hole to either side of the entrance. Attach with a 1/2" lath screw, no predrilling necessary.

Cork alternative. Note that the entrance discs cover a portion of the artwork, and scratch the paint when you rotate them. Instead of the discs, we plug up the unused entrances with #20 tapered cork. These corks won't distract from the artwork and won't scratch it. They are available, inexpensively, from many online sources. For the winter, insert a piece of 3/8" or 1/2" mesh into the open entrance to serve as mouse guard.



How To Make Artwork Last Longer

The life expectancy of this art, when exposed to the weather, is at least 5 years, but it will last much longer with a couple precautions:

- Direct sunrays degrade paint. If possible, position your hive so it does not face south (east orientation is very good). Or position your hive in partial shade; or create an overhang (see next point).
- 4" roof overhang protects artwork from sun and rain, and helps extend the life of the hive box as well. The easiest way to add an overhang: place a piece of corrugated metal (called barn tin) or corrugated fiberglass (available in different colors) on the hive roof and weigh it down with several stones. These roofing panels come in the right width of 26"; cut to length (hive top plus 8" or more) with an angle grinder. Used barn tin sells here for only \$1 per linear foot. So it only takes \$3 or \$4 to create a durable cover for your hive. We use barn tin on *all* our hive boxes that don't have peaked roofs, and I highly recommend it. See more details and pictures on HorizontalHive.com under Plans > Peaked Roof. In hot climates put two boards between the roof and the tin.
- You can add a peaked roof to your hive (it will look gorgeous) – see free plans on HorizontalHive.com We'll soon start offering peaked roofs for sale.
- If you consider applying top coats of varnish over the painting as additional protection, make sure it has UV stabilizers and has *matte* (flat) finish. Satin or glossy finishes create unsightly glare over the artwork and cause bees to slip!

Read Layens and Lazutin books

[Keeping Bees in Horizontal Hives](#) by Georges de Layens and [Keeping Bees With a Smile](#) by Fedor Lazutin are essential for successfully managing Layens hives. Both are exceptional resources on natural beekeeping and are available from HorizontalHive.com

Thank you again and with best wishes,

*Dr Leo Sharashkin
Beekeeper and Editor*

