Horizontal Hive
You can keep bees, naturally!

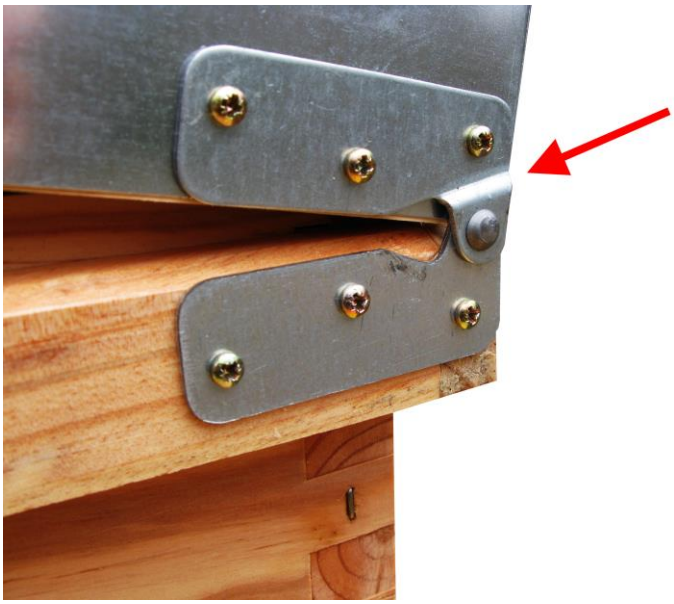
25-FRAME LAYENS HORIZONTAL HIVE

*** * * IMPORTANT ! * * ***

1. **Hive lid SHIPS SEPARATELY and may arrive on a different day** — *see p. 2*.
2. **Install the hive slightly leaning forward (1°-2°)** so rainwater doesn't run into entrances.
3. **Prime all frames with wax foundation prior to use** — *see p. 2*.
4. **Wedge the frames during transportation** so they don't rattle — *see p. 3*.
5. **Don't let your hive overheat** — shade it and use other precautions — *see p. 4 and 5.*
6. **Manage hive volume & make artificial swarms (splits) for bee health** — *see p. 7*.
7. **Provide additional winter insulation in cold climates** — *see p. 9*.

PREPARING THE HIVE FOR USE

1. RE-ATTACH THE LID



To prevent damage in transit, the lid is removed and shipped in a separate box; it may arrive on a different day. The hinges and 12 screws are included with the lid — please locate that hardware and don't accidentally discard it with the packing material. All holes are predrilled so re-attaching the lid is quick with a Phillips screw driver. IMPORTANT: the two hinges are NOT interchangeable, there's a right hinge and a left hinge. When placed correctly, the hinge has a protruding lip above the hinge's central pivot point, as shown in the picture.

2. NO NEED TO PAINT

Your hive comes treated with paraffin wax and does not require painting before the first use. Paraffin offers long-lasting protection and normally does not require renewal or painting over the life of the hive.

3. TENSION FRAME WIRE if needed

On this model, hive frames come fully assembled, wired, and tensioned. If wire slack develops, tension the wire before installing foundation. *See Appendix, p. 10.*

4. INSTALL WAX FOUNDATION INTO FRAMES

Detailed illustrated guide is available at **HorizontalHive.com** (see the FAQ section).

You'll need 12V to 20V DC current source around 120 W (for example, 20 Volt DC x 6 AMP), such as a car battery or, better still, an old laptop adapter.

1) Position the frame flat on the table with the frame's top toward you and its bottom raised 4" or so (e.g., put a mug under the frame's bottom bar).
2) Put a sheet of wax foundation on the wires so it touches the top bar.
3) Run 12 to 20 Volt DC electric current (120 Watt) through the wires: for example, use jump wires to connect one pole of a car battery to one end of the frame-wire, and the other pole of the car battery to the wire's other end. The electric current will heat the wire and embed it into wax. As soon as you see wires embedding into the wax (looks like "stitches"), disconnect the power. Repeat with the remaining frames.

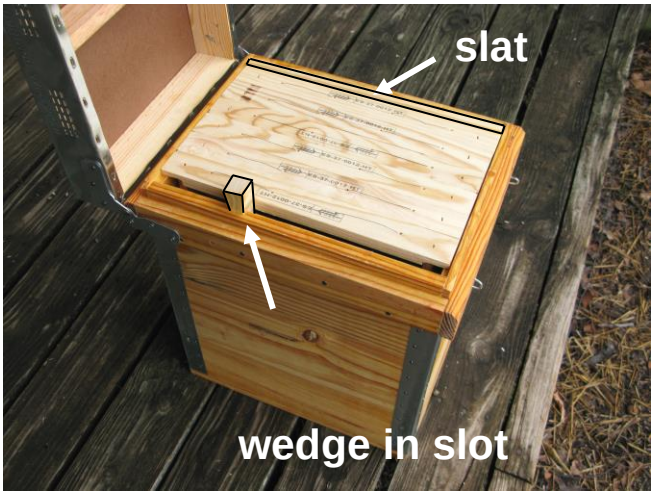
NOTE 1: If you want to run this hive as “foundationless”, you can install just a 3” strip of foundation in the top of the frame (or you can use 1/3 or 1/2 sheet per frame). If you don't use full sheets of wax, you *must* make sure the hive is level left-to-right (or bees will build according to gravity and connect frames together). Unless you have good experience with foundationless frames, we recommend that you use full sheets of foundation.

NOTE 2: Installing wax foundation (or at least 3” strip of it) in each frame is absolutely essential, else the bees may build comb crosswise across several frames, making them impossible to remove/handle. Frames with full sheets of wax make for strongest comb.

Premium-quality eco-pure Layens foundation from Europe is available from **HorizontalHive.com**

5. WEDGE FRAMES TIGHTLY TOGETHER IF MOVING THE HIVE!

Layens frames come in two designs: with end bars that are straight (like in this hive — 1" wide) and end bars that are tapered (1-1/2" wide at the top, and 1" wide at the bottom). The straight bars are the original classic Layens design making ventilation and bee traffic easier; bees don't propolise the top of these frames as much & you don't crush bees when sliding frames together. But frames can swing when the hive is moved, so take these precautions:



VERY IMPORTANT: only move or transport an active hive with frames tightly clamped together. If your hive is full of frames, drive a **wedge** between the last frame and the wall, into the special slot, as shown in the picture. This will clamp and immobilize the frames so they don't shift and kill the bees when the hive is moved. The wedge can be made from some scrap lumber or it can just be a piece of tree branch of suitable size, wider at one end than at the other.

If the hive is *not* full of frames, secure the frames by pushing them against one wall, then screwing the side bars of the last outer frame, 1-1/2" down from the top bar, into the front and back walls of the hive. If the frame has no built comb in it, you can go from the inside (through the end bar into the hive wall) using a 1-1/4" to 1-5/8" screw *OR* drive a 2" screw from the outside through the wall and into the end bar. With each option predrill so the side bars of the frame don't split. Use small-diameter screw (#6 or #8). Going from the outside is quicker, but doing it from the inside prevents making a through hole in the wall.

6. HIVE STAND

It is best to elevate the hive to the height that is comfortable to work with. You can use:

- Concrete blocks (2 blocks high) — put the blocks under the slats at each end of the hive box. Don't let the blocks touch the bottom itself, otherwise water trapped between the concrete and the hive bottom will start degrading the wood.
- Wooden stand — *Hive stand plans available at* **HorizontalHive.com** — just increase stand length to 40".
- Metal stand, cross-braced (see color photos in *Keeping Bees with a Smile*) is a good option but you'd need to get a welder to make you one.
- Wood pallets make excellent hive stands in places with black bears. Use a sturdy ratchet strap to secure the hive in the middle of a heavy standard 40" x 48" pallet — this makes it impossible for the bear to open the hive or tip it over.

IMPORTANT: make the hive lean forward 1°–2° so rainwater doesn't run into entrances.

7. NO LANDING BOARD NECESSARY

Landing boards are not really necessary, but if you like, you can attach small blocks of wood under the entrances to hold the metal gate, when open, propped up and slanting away from the hive, to serve as a landing board.

8. ROOF OVERHANG

If your hive sits in full sun and you frequently experience temperatures over 85°F, a 4" roof overhang will shade the roof and the walls, helping to prevent overheating and resulting comb sagging or comb collapse. The overhang also sheds rainwater away from the box, extending its life. The easiest way to add overhang: place two pieces of wood 1.5" x 1.5" x 24" along the right and left edges of the hive top, with the ends of these boards sticking out in front and in the back of the hive. These boards are important: they create an air gap to prevent the roof from overheating. Cover the boards with a piece of corrugated metal roofing (also called barn tin) 26" wide x 48" long and weigh it down with several stones. We use barn tin over *all* our hive boxes that don't have peaked roofs and sit in the sun, and we highly recommend it.

See more details and pictures at **HorizontalHive.com** under Plans > Peaked Roof. To add peaked roof to your hive, see free plans at **HorizontalHive.com** (note that peaked roofs are pretty but make the hive much more difficult to move). Also see more tips on preventing overheating in the FAQ section.

9. DIVIDER BOARD

In certain instances you may need to use a divider board in your hive — see *Keeping Bees with a Smile* for details. In warmer climates a *frame with a full sheet of foundation* can serve as a decent divider board when you don't need the divider to be bee-proof. A more versatile divider board is simply a piece of plywood fitting inside your hive box. It can also be a piece of Styrofoam completely wrapped in plastic or shipping tape. Divider width is the inner width of the hive box less 1/16" to 1/8"; divider height is the inner height of the hive box less 3/8". Screw two drywall screws into the bottom edge of the divider board, to serve as legs (the screws stick out by 3/8").

If you have two colonies living in one hive, the divider needs to go all the way to the bottom (legs up). Make sure the bees cannot go *around* the divider using the entrances! — place it off-center so it is not against the entrances or stuff both entrances with rolled burlap. When you are just using the divider to cut off the unused volume and don't need it to be bee-proof, leave a 3/8” gap under the divider (legs down).

10. GAP AFTER THE LAST FRAME IS GOOD

The top bars of the frames touch. When the hive is full of frames, there may be a small gap after the last frame or divider — this makes removing the last frame easier and aids ventilation; this gap is best left open. The bees will have access to the space above the top bars, which is OK, but if you want to exclude them, cover the gap with metallic insect screen and pin it in place.

11. ENTRANCES

Under normal operation, only the bottom entrance is open. Additionally open the upper entrance when three conditions are met: 1) strong colony; 2) hot weather; 3) abundant nectar flow. If bees beard outside the entrance, this is a sign that the top entrance should be opened. Note that it can also mean that the hive is getting congested by the entrance — see #18 "Before bees run out of room" below.

12. MAKING ADDITIONAL ENTRANCES

Depending on your hive management, you may need to make additional entrances. The easiest way to add an entrance is to drill a 1-1/4" hole in the desired location (drill at a slight incline so it sheds water), then add a disc entrance gate available from **HorizontalHive.com** Using a hole saw rather than a paddle bit helps minimize tear out.

13. PREVENT OVERHEATING

See detailed illustrated guide at **HorizontalHive.com** (in the FAQ section).

A hive can overheat to the point that combs melt and collapse. Please read and follow the detailed advice at the above link. Basically:

1) Put your hive in partial or full shade.
2) If you ever paint your hive, use white or light color.
3) Shade the roof.
4) Don't put the hive near large sinks of heat (e.g., over pavement) or in front of the south- and east-facing walls that will reflect heat onto them.
5) Open the top entrance.

MANAGEMENT SUGGESTIONS

The 25-frame hive is very versatile: you can house one strong colony for honey production; make artificial swarms (splits) in the same box; house two smaller colonies in the same box; and even use the two-queen system — or connect two 25-frame hives together to make a bee bed!

14. FOR BEST RESULTS

Be aware of these two points when managing a large-volume horizontal hive:

- IF the brood next becomes congested AND the hive has a queen from the previous year or older, they are likely to swarm even if there's still free space in the depth of the hive. *Solution*: renew queens every year (make artificial swarms) AND, when adding new frames, put them in front of the entrance, not in the depth of the hive (but keep all brood frames together).
- IF the hive has many more frames than the bees can cover AND these frames have dark comb, bee bread (pollen), or brood, the unprotected frames can become infested with small hive beetle or wax moth larvae. *Solution*: until the colony reaches full strength, add frames gradually, in increments of 2–4 frames, instead of all at once.

Here are some basic management suggestions:

15. INSTALLING A COLONY

Your hive is only as good as the bees you put in it. Use swarm traps to catch local wild swarms, and make splits from your best overwintered treatment-free colonies.

When installing a new colony, place several frames in front of the entrance, then a feeder (*available from* **HorizontalHive.com**), then a divider (legs down) on each side of the frames, to cut off the unused empty space, leaving 3/8” gap between the divider and the bottom. How many frames to start with depends on the strength of the swarm, on the ambient temperature, and on whether you have small hive beetles in your area. A very large swarm needs 6–7 frames, medium swarm (4 lb) — 4–5 frames, small swarm (2–3 lb) — 3 frames. You can give a bit more than that if a) you don’t have small hive beetles where you live and b) the weather is reliably warm. We do not recommend package bees at all, but if you install package bees, give them 3–4 frames initially.

16. FEEDING A SWARM OR PACKAGE

Complete feeding guide is available in the FAQ section of **HorizontalHive.com**

If unfavorable weather (cold, rain) prevents bees from foraging, feed your swarm or package — otherwise they may starve to death or become severely weakened. Feed using the Layens frame feeder and follow all precautions in *Keeping Bees in Horizontal Hives*, particularly:

1) give the feed in the evening to prevent robbing;

2) cover the feed with a layer of small wood chips or bits of twigs, to serve as floats and minimize bee drowning;
3) only give as much as they can consume overnight (to prevent robbing) — about 1 cup (more for strong colonies).

Best feed is 1 part honey to 1 part water, as long as the honey is genuine and from a source that is free of foulbrood. If unsure, use 1 part organic sugar to 1 part water. See *Keeping Bees With a Smile* for details on feed preparation and feeding. Remove the feeder when done feeding, or bees will build comb from the feeder's bottom. Feeding is rarely needed for more than a week to 10 days maximum.

17. EXPANDING THE HIVE SPACE

Check your new colony periodically (every 1–2 weeks). If the bee population is strong and they've built out the initial frames at least 2/3 down, time to add more frames. To prevent congestion in the brood nest, shift the existing frames to the side and put new frames *in front of the entrance*. In general, adding new frames in front of the entrance is a good way to alleviate congestion and prevent swarming.

18. BEFORE BEES RUN OUT OF ROOM...

See the complete discussion of this topic in the FAQ section of **HorizontalHive.com**

Despite the large volume of this hive, a strong overwintered colony may run out of room. If you do nothing, the bees will *swarm* (possibly more than once), meaning the loss of bees and smaller honey production. Also, as bees bring in a lot of nectar, the hive may become *honey bound* (i.e. most cells are used for honey and the queen has nowhere to lay, weakening the colony). So for best results stay ahead of the bees and don't let them run out of room. You have several good options for that:

a) Make artificial swarms (splits) in a timely manner. **Best option, highly recommended.** Many excellent simple techniques are described in our books. In particular, see *artificial swarming with two hives* in *Keeping Bees in Horizontal Hives* (p. 185), which works really well but requires physically moving one hive at least 30 feet. If the colony has at least 7 frames of brood early in the season and the weather is reliably warm, making an *artificial swarm with one hive* (*Keeping Bees in Horizontal Hives*, p. 258) is another good option. You may be able to repeat artificial swarming twice during the season and double or triple the number of your colonies. See more in the book *Raising Honeybee Queens*.

Also see information on *even splits* in the Afterword to the 2020 edition of *Keeping Bees with a Smile.* Note that for making even splits and temporarily housing two colonies in one box, you will need to drill two additional entrances — place them about 4" on-center from each end of the front wall, close to the bottom. When the two colonies start to outgrow their half-hive, you have several options:

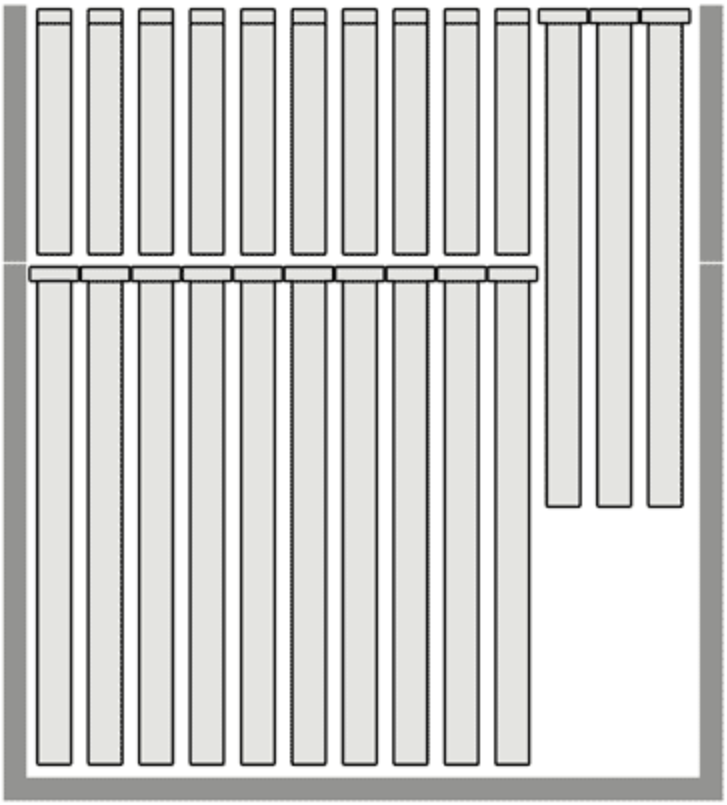
a) *transfer* one colony into a hive of their own;

b) do a *mother split* into a separate hive — remove the queen with 2 frames of brood and 1 frame of honey (and all the bees on these 3 frames) into a separate box, and merge all the other frames and bees with the other colony occupying the box;
c) *merge* the two halves back together — it will become a VERY strong colony headed by a young queen (as the younger queen is more likely to prevail over her old mother queen);
d) run the hive as a *two-queen hive*: place the brood nests against opposite walls (typically 8–9 frames per brood nest), separate them with a queen excluder from the central part of the hive, which becomes a honey-storage space. Two colonies are working to fill the central frames with honey; during honeyflow be prepared to remove full honey-frames every two weeks, extract, and return empty comb to the bees to refill. If the brood chambers become honey bound (lots of cells occupied by honey and the queen has no more room to lay), move 3 frames of emerging capped brood from the brood chamber into the central (honey) part of the hive and give the queen 3 frames of extracted empty comb to continue to lay. This method can be very productive in areas with abundant honeyflows, but requires much more monitoring and manipulation of the two colonies.

Here is an example of an even split from an overwintered colony:

- Your colony overwintered on 8 frames in front of the central entrance, with dividers on each side of this wintering nest and a wool pillow covering the top bars. During the first spring inspection, make sure the colony has at least 20 lb of honey reserves (1 full Layens frame = 8 lb honey) and if they have 4 frames with healthy brood, add 2–3 more frames of dry (extracted) comb on the edge of the brood nest, in front of the entrance, shifting the other frames to the side.
- Check in 2 weeks, add 2–3 more frames at the edge of the brood chamber in front of the entrance, shifting the rest of the frames to the side.
- After 2 more weeks, if the weather was favorable (warm, not too much rain, and nectar available) if your colony has 8 or more frames of healthy-looking brood and lots of bees — make an even split: Put a solid divider board all the way down to the bottom of the hive in the middle of the hive box, stuff both slot entrances well with rolled burlap (so bees can't cross from one compartment into the other going around the divider boards through the entrance slot); close the slot entrance gates. Without finding the queen, move every other frame, bees and all, to one side of the divider, and leave every other frame on the other side of the divider. The order of the frames in each compartment is this: divider board — all sealed brood — all open brood — pollen — frames of empty comb or foundation. The central entrances are now closed, and you open the right and left entrances (which you had drilled and equipped with a gate disc).
- After a month, check each colony for eggs and proceed to any of the a–b–c–d options above.

b) Put a super over your hive. When bees cover all frames but before they get congested (bearding outside the entrance or covering the inside of the lid), add a bottomless box (super) on top of your hive. The super should measure 13-11/16" inside, front to back, with 3/8" W x 7/16" deep rabbets to hold the frames. It is 8-3/16" deep and as wide as your hive box. Raise 3 last frames, containing no brood, into the super (they will be hanging half-way down into the hive body), fill the rest with Layens half-frames 7-13/16" deep — see plans at **HorizontalHive.com** Since this option requires additional equipment, making timely splits as described above may be your preferred method.



c) When the hive is really full, **harvest honey frames,** extract, then return extracted frames to the bees to refill. This option is not as good as making a timely split. When you pull honey in mid-season, you'll have to regularly take frames from very active hives boiling over with bees, and many honey cells may not be capped yet. Also this option may not be enough to prevent swarming or the nest becoming honey bound.

19. WINTERING

See detailed Wintering Guide at **HorizontalHive.com** (in the FAQ section).

The best wintering setup is shown in Layens's book, Chapter 24. Basically, for a strong colony, at harvest time leave up to 7 frames at least 1/2 full of honey, plus (in cold climates with springs that can be cool or rainy) two full frames of honey, one on each end of the nest. (Fewer frames are required for smaller colonies or in southern climates with short winters.) Then insert the divider with the 3/4" gap underneath. Finally, cover the top of the frames with a wool pillow. A pillowcase filled with natural wool is best and has far better insulation value than other materials such as wood shavings. Leave at least 1/2" air space around and above the pillow to aid ventilation. Raw wool and pillows are available from **HorizontalHive.com**

Additional winterizing tips for climates with very cold winters:

- Position the wintering cluster in the middle of the hive, with divider boards on both sides. The empty chambers will provide additional insulation. In very cold climates, place an additional wool pillow against each divider board (recommended) or fill with natural insulation such as straw. It also helps to add insulation to the front and ball walls.
- Make sure only the bottom entrance is open.
- Provide a good windbreak to minimize wind chill. Wraps of black roofing felt work well.

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 this hive. Both are exceptional resources on natural beekeeping and are available from **HorizontalHive.com**

APPENDIX. HOW TO REMOVE *MINOR* SLACK IN PREVIOUSLY TENSIONED FRAMES

If you do not see a visible sagging in the wire, your frames are ready to be primed with wax. If the wire is not taut enough (visibly sags), it's best to tighten it prior to installing wax foundation and giving the frame to the bees. You have two easy options to tighten the wire and remove *minor* slack:

- **Use wire crimper tool.** Wire crimper is a simple tool consisting of a U-shaped handle with two steel cogwheels at the top. Squeeze the wire between the cogwheels and pull. This will crimp the wire (create a wave pattern in it), pulling it tight. Wire crimpers are inexpensive and are available from any beekeeping supply. They work well to eliminate *minor* slacks.

- **Anchor wire with two little nails.** If you do not have a wire crimper, you can tighten the wire using two little nails. When you look at the top of the top bar, you see two segments of wire. Pull the middle of each segment sideways and anchor it in place with a very small thin nail (3/4" or smaller). This will tighten the wire. The picture below illustrates this point (top bar viewed from above, before and after.) Make sure the top bar is supported from below on the corner of a workbench when you do that. Tip: if you don't have short nails, use wire cutters to cut a slightly longer nail to required size. Only use very thin nails.