



HEAVY-DUTY LAYENS HIVE – 14 or 12 FRAMES

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

1. Install the hive slightly leaning forward (1°-2°) so rainwater doesn't run into entrances.
2. Prime all frames with wax foundation prior to use – see p. 2.
3. Don't let your hive overheat – shade it and use other precautions – see p. 3.
4. Don't let the bees run out of room – make timely artificial swarms (splits) – see p. 5.
5. Wedge the frames during transportation so they don't rattle – see p. 3.
6. Provide additional winter insulation in cold climates – see p. 6.



PREPARING THE HIVE FOR USE

1. NO NEED TO PAINT

Your hive comes treated with paraffin wax *OR* linseed oil and does not require painting before the first use. *NOTE:* we use natural boiled linseed oil without chemical hardeners, so the hive bottom may be sticky to touch – if so, sprinkle it with any powder such as sawdust, flour, or even powdered sugar so bees don't stick to it. Linseed-oil hives benefit from *recoating of all exterior surfaces*, including the bottom, with boiled linseed oil or 100% tung oil *every 2 years* for optimum wood protection. Paraffin-dipped hives do not require any renewal.

2. TENSION FRAME WIRE

Hive frames come fully assembled, wired, but NOT tensioned. Tension the wire before installing foundation. *See Appendix I, p. 9.*

3. INSTALL WAX FOUNDATION INTO FRAMES

Detailed illustrated guide is available at HorizontalHive.com in the FAQ section.

You'll need 12V to 20V DC current source, such as a car battery or, better still, an old laptop adapter around 130 W (for example, 19.5 Volt DC x 6.7 AMP).

- 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 (130 Watt) through the wires: for example, 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* (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 the 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 at HorizontalHive.com

4. HIVE STAND

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

- Cinder blocks (2 blocks high).
- Wooden stand – *Hive stand plans available at HorizontalHive.com*
- Legs – 30" long, made out of 2"x4" lumber and attached to the side walls with 2" deck screws. You can attach the legs at an angle to make the hive more stable.
- Metal stand, cross-braced (see color photos in *Keeping Bees with a Smile*) is perhaps the best 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 it or tip it over.

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

5. 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 prevent overheating and resulting comb sagging or comb collapses. 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 4" in front and in the back of the hive. Cover with a piece of corrugated metal roofing (also called barn tin) 26" x 34" and weigh it down with several stones. We use barn tin over *all* our hive boxes that don't have peaked roofs, and we highly recommend it. See more details and pictures at HorizontalHive.com under Plans > Peaked Roof. Also see more tips in the FAQ section.

6. 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.

VERY IMPORTANT: only move or transport the hive with *all* frames inserted and tightly clamped together – the slat and the wedge help with that. Insert a slat before the first frame. The **slat** goes narrow side down, protrudes above the frames. It assures the correct spacing between the wall and the first frame, and makes removing it easier. Insert the **wedge** after the last frame, into the slot, as shown in the picture. The slat and the wedge squeeze the frames tightly together so



they don't rock when the box is moved. A wedge is provided with your hive, but it can also be cut 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 moved without the wedge, the frames swing, crushing bees and endangering the colony.

MANAGEMENT SUGGESTIONS

7. INSTALLING A COLONY

When installing a new colony, place several frames against one wall, then a feeder (*available from HorizontalHive.com*), then a divider to cut off the unused empty space, leaving 3/4" 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.

8. DIVISION BOARD

In certain instances you may need to use a divider board in your hive. A divider board (not included) is simply a piece of plywood or hardboard 13-5/8" wide x 17" tall. Leave a 1/2" to 3/4" gap under it by putting two small sticks under its ends or by screwing two drywall screws into the bottom edge of the divider board, to serve as legs (let the screws stick out by 1/2" to 3/4").

9. FEEDING A SWARM OR PACKAGE

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

It is a good idea to feed your swarm or package. If unfavorable weather prevents them from foraging, they will starve to death or will be severely weakened if you don't feed them. 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 branches, 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.

10. EXPANDING THE HIVE SPACE

Check your new colony periodically (every 1-2 weeks). If they've built out the initial frames at least 2/3 down, time to add more frames.

11. ENTRANCES

Under normal operation, only the bottom entrance is open (and the gate becomes a small landing board). 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 overpopulated – see next point.)

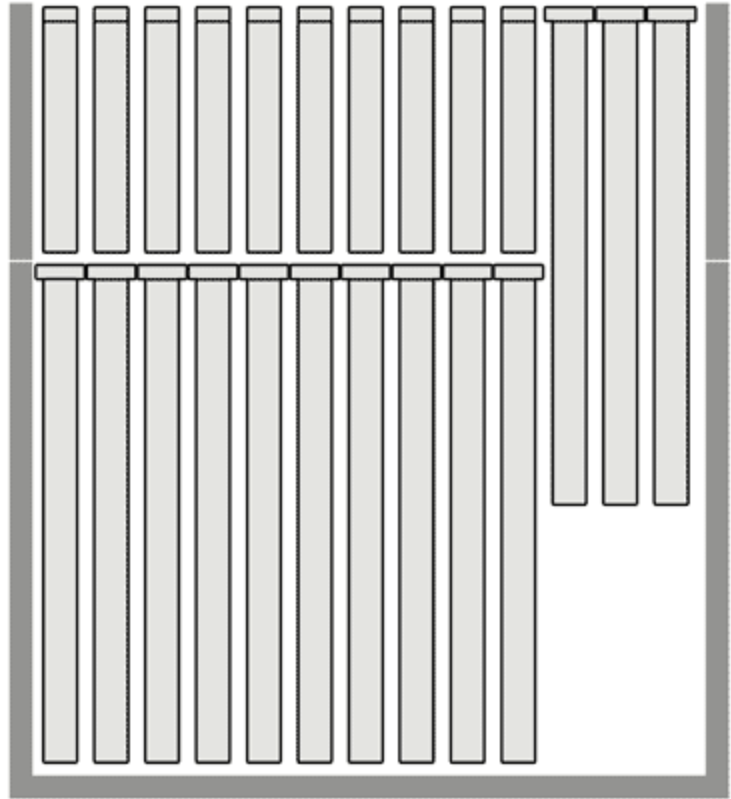
12. BEFORE BEES RUN OUT OF ROOM...

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

This is a relatively small hive. It is best used for multiplying the number of your colonies quickly, for your own operation or for sale. (If honey production has greater priority, or for a more hands-off approach, we recommend the 20-frame insulated Layens hive.) An overwintered colony or a strong early swarm will run out of room in a this hive by mid- or late spring. 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. 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*.

b) Put a super over your 12 or 14-frame 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.

13. WINTERING

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 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. They can be filled with pillows filled with wool (recommended) or with natural insulation such as straw.
- Block the bottom ventilation slot for the winter using a slat or even a piece of duct tape.
- Make sure only the bottom entrance is open.

- Insulate the front and back wall of the hive (e.g., attach 1" rigid foam insulation holding it in place with screws or a ratchet strap) or wrap your hive in roofing felt (don't block the entrance).
- Provide a good windbreak to minimize wind chill.

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

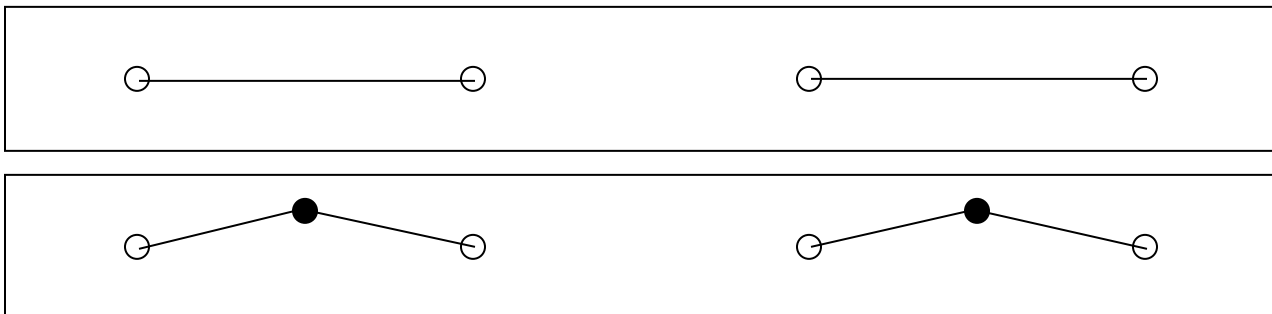
Thank you and with best wishes

– Dr Leo Sharashkin, Beekeeper and Editor

HOW TO REMOVE *MINOR* SLACK IN PREVIOUSLY TENSIONED FRAMES

It's best to tension wire in the frames (see next page) just before installing foundation, as some frames may develop a slack in the wire. 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:

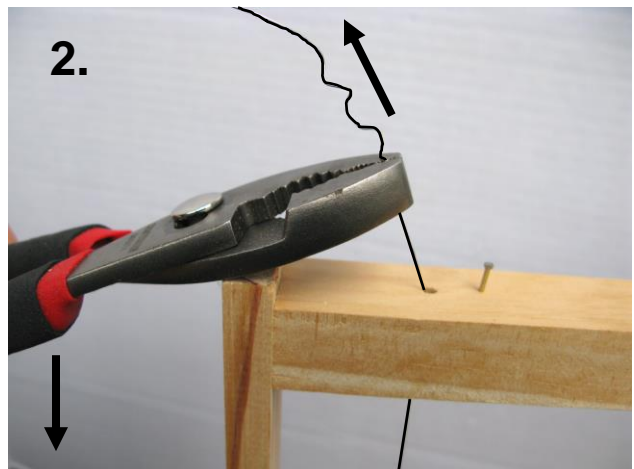
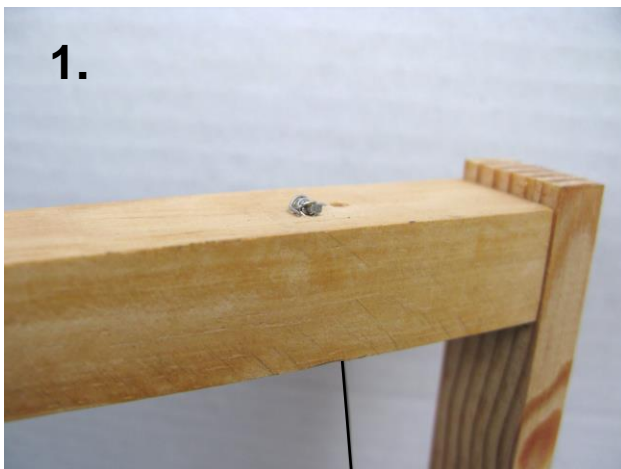
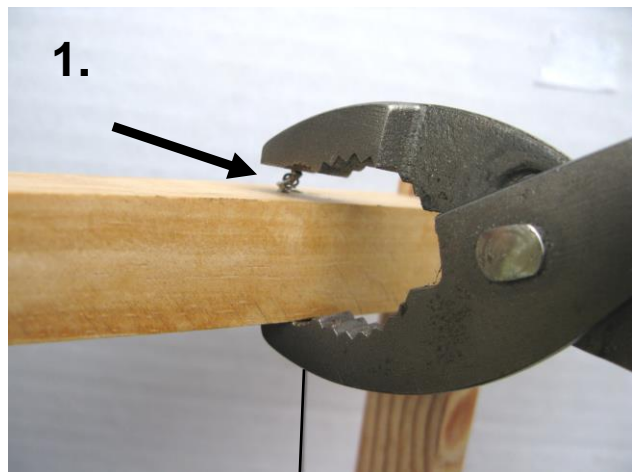
- **Use wire crimper tool.** Wire crimper is a simple tool consisting of a U-shaped handle with two steel cogwheels at the top. Squeeze the wire between the cogwheels and pull. This will crimp the wire (create a wave pattern in it), pulling it tight. Wire crimpers are inexpensive and are available from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

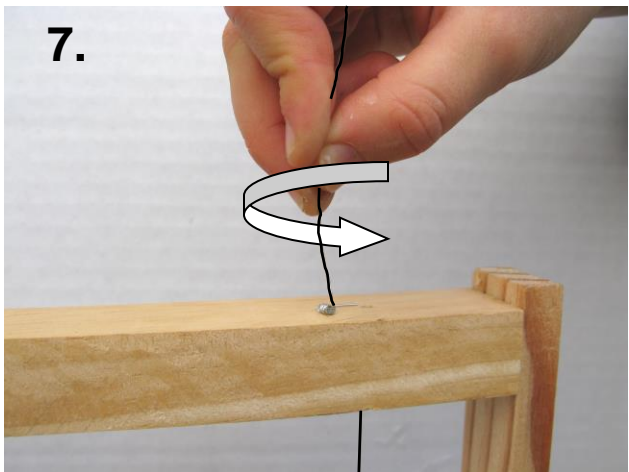
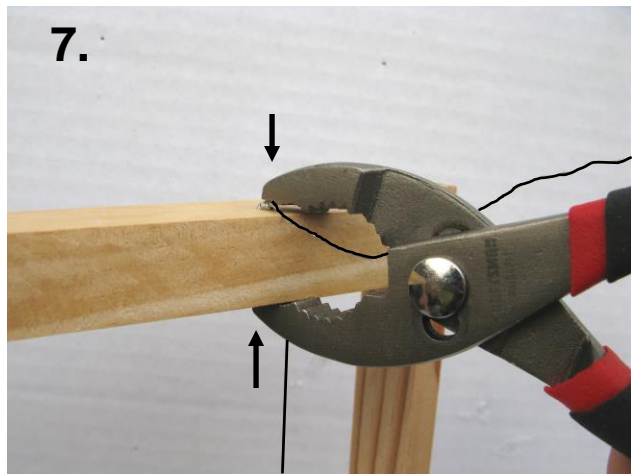
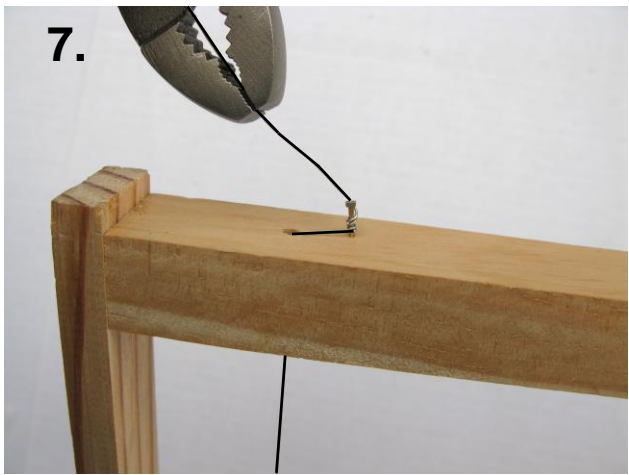
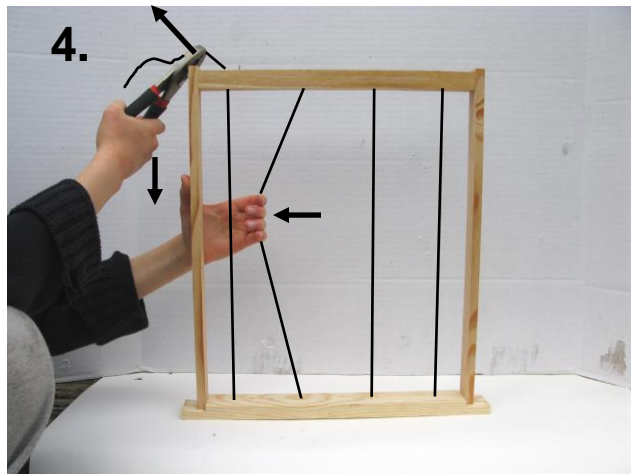
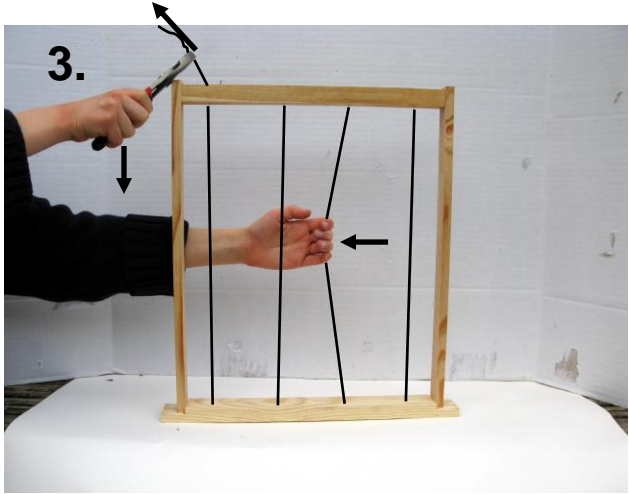


APPENDIX I: How to tension wire with pliers

Slip-joint pliers and several minutes of your time is all you need to tension the wire.

- 1) Wrap the wire around one anchoring nail. Using pliers, push the nail deeper, then push all the way in *or* bend it. This end of the wire is now firmly anchored.
- 2) Grab the other end of the wire with pliers as shown (wire runs *between* the jaws, never over the tip of the jaw or it may break). Use the end of the side bar as fulcrum: as you pull pliers' handle down, you raise the wire, tensioning it.
- 3) Holding the end of the wire with pliers with one hand, pull the 3rd segment of the wire toward you (3rd as you count from you). This pulls wire slack from the 4th segment into the 3rd.
- 4) Pull the 2nd segment of the wire toward you. This pulls wire slack from the 3rd segment into the 2nd.
- 5) Pull the slack out with the pliers, working as described in #2 above.
- 6) Repeat Steps #3, #4, #5 until all slack is removed and the wire starts sounding like guitar strings. Do not overtighten. Too much pressure may damage frame joints and rotate the bottom bar, or even break the wire.
- 7) Wrap the wire around the nail. Push in or bend with pliers. Grab the loose end of the wire, pull up and rotate like a tornado until it breaks at the base. Done!
- 8) Repeat with other frames.





Zaryana, 9, can tension a frame in 60 seconds. So can you!

More stainless steel wire is available from HorizontalHive.com