

Kenya Top Bar Hive

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The object of a Top Bar Hive (TBH) is to be easy and cheap to construct, easy to work and having *natural sized cells*. A Kenya style (sloped sides) is so that the combs are more naturally strong and less likely to break and collapse when they are full of honey. This hive worked very well with no comb collapses. The small combs are easy to handle and not nearly as fragile as large free hanging combs.

1. Kenya style Top Bar Hive being constructed. The sides are one by twelve 46 1/2" long. The bottom is a one by six 46 1/2" long.



2. The ends are one by twelve 15" long. None of the boards are ripped or beveled. They are just cut for length and nailed together.



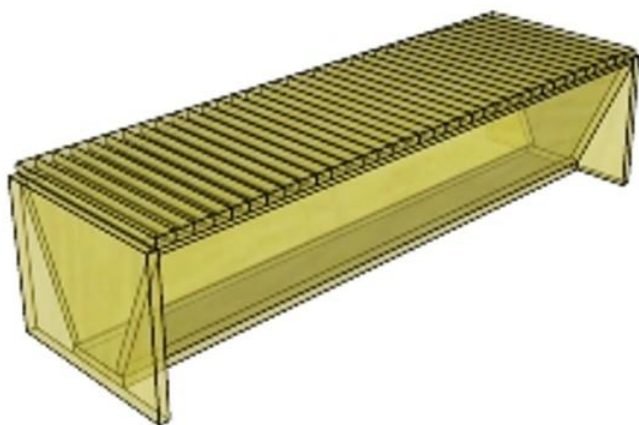
3. The sides are spread to where they fit the ends and the ends are nailed. I ended up using deck screws on the end because when I pried the bars over I would pry the end off of the hive.



4. Based on bees: The top bars are ripped from one bys with a beveled comb guide glued and nailed on. You can see a bar on top of the hive on the right end. The brood nest is 1 1/4" wide bars and the honey is 1 1/2" wide bars. These bars are 15" long.



5. See through drawing of KTBH (thanks to Chris Somerlot).

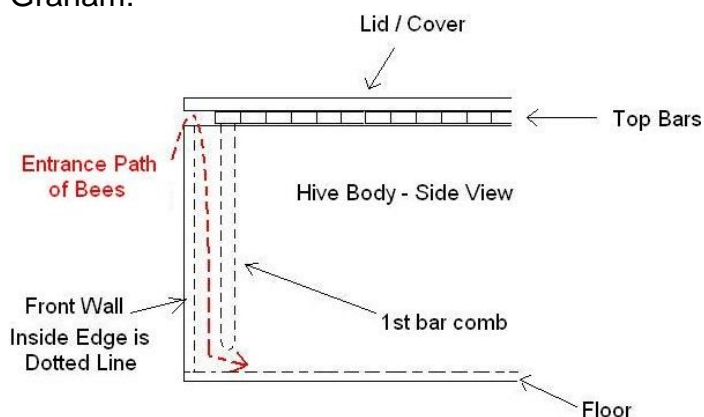


Parts List:

- 2- one by twelves 46 1/2"
- 2- one by twelves 15"
- 1- one by six 46 1/2"
- Any kind of lid 15" by 48"
- 16- bars 15" by 1 1/4" by 3/4"
- 18- bars 15" by 1 1/2" by 3/4"
- 34- triangular comb guides cut from chamfer molding or the corner of a one by 3/4" by 3/4" by 1" by 13" 2- four by fours 16" long cedar or treated for stand.

All cuts except for the triangles are square cuts.

The entrance to the KTBH is just the front bar back from the front at least 3/8" The top sets on top of a 3/4" top bar so the entrance is 3/4" high and 3/8" wide and is really just the gap in front of the first bar. Sketch below courtesy of Chris Graham:



Above picture courtesy of Dennis Riggs, Alva, FL

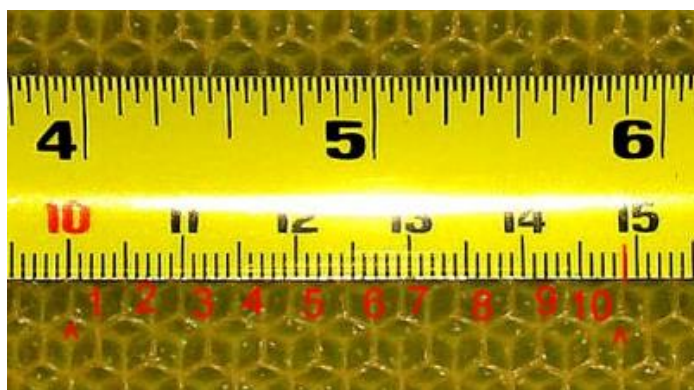




Kenya Top Bar Hive, natural comb (above)
10 cells = 4.7 cm = 4.7 mm

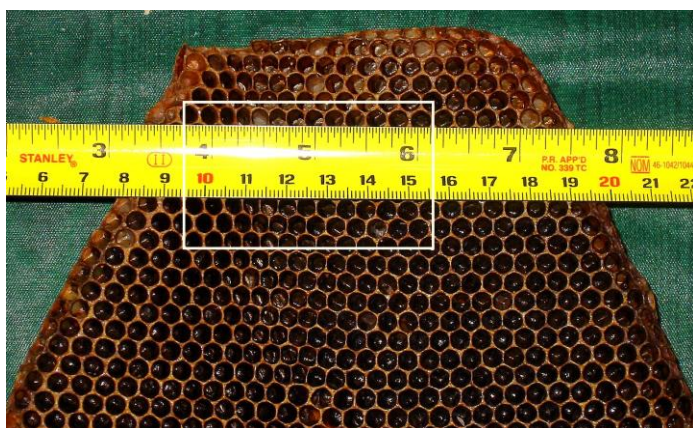
Comb Measurements

Just to show some measurements. Here is a brood comb from my Kenya Top Bar Hive. To measure, start at the 10mm mark and count over 10 cells. Looks like 4.7cm for ten cells to me. That's 4.7mm. Notice I started at 10cm because it's hard to say precisely where zero is.

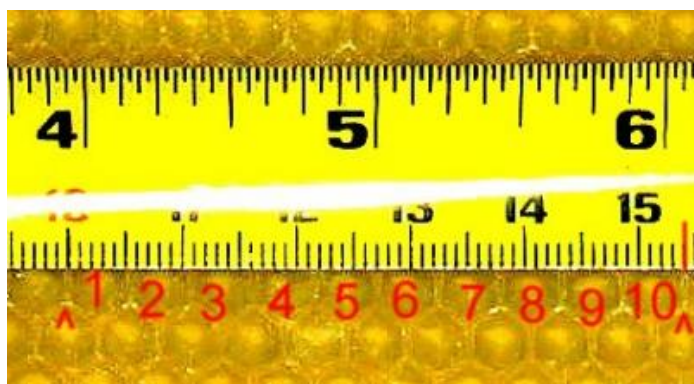


Typical Small-Cell Foundation
10 cells = 4.9 cm = 4.9 mm

Note: Small-Cell foundation ranges from 4.9 mm to 5.1 mm



The following are enlargements of natural comb from Kenya Top Bar (TBH) hive followed by a couple of standard manufactured foundations available. Notice, natural from TBH has smallest cells of all compared.



Average Industry Standard Foundation
10 cells = 5.4 cm = 5.4 mm

FAQs

Question: Without a queen excluder how do you keep the queen out of the honey?

Answer: I don't use a queen excluder on regular hives either. The queen is not looking to lay all over the place. When you end up with brood in honey supers in a Langstroth hive it's because one of two things has happened. Either the queen was looking for a place to lay some drone brood, which you didn't allow in the brood nest because of either culling it or using only worker foundation; or the queen needed to expand the brood nest or swarm. Would you rather they swarm? The bees want a consolidated brood nest. They don't want brood everywhere. Some people try to have some capped honey as their "queen excluder". I do the opposite. I try to get them to expand the brood nest as much as possible to keep them from swarming and to get a bigger force to gather the honey. So I add empty bars in the brood nest during prime swarm season.

Question: How do you harvest the honey from a top bar hive?

Answer: You can either do [crush and strain](#) or you can cut it for comb honey. If you really want to, Swienty has an extractor that will work with top bar hives. But if you only have a few hives an extractor is seldom worth the expense.

Question: Some people say a top entrance lets the heat out. How do you do your entrances?

Answer: In any hive (top bar or otherwise) I think a [top entrance](#) in the winter is always a good plan. It lets out the moisture and cuts down on condensation. Heat is seldom the problem, condensation is the problem in winter. A top entrance will let it out. Mine are all JUST top entrances. The reason I went with them was the skunks. My first TBH have a bottom entrance and the skunks were a serious problem. After going to the top entrances they have ceased being a problem. My entrances are simply the

gap at the front of the hive between the first bar and the front wall. No holes to drill.

Question: Does a KTBH have less attachments than a TTBH?

Answer: In my experience no. I only know of one TBH beekeeper who actually seems to think so. Most have had the same experience as I have, which is that they do little attachment either way.

Question: How do you treat for [Varroa](#) in a top bar hive?

Answer: I don't. I depend on the smaller [natural cell size](#). But you could put a hole in and use oxalic acid vapor or you could drizzle oxalic acid or you could use powdered sugar.

Question: How do you feed a top bar hive?

Answer: Since I usually only feed for emergencies, dry sugar on the bottom (if it's not screened) works fine. Spray it with a little water to get them interested in eating it and to get it clumped so the house bees don't carry it out. You could use a baggie feeder on the bottom or, if you build it to take Langstroth frames you could put a frame feeder in or, if not, you could build one to fit. The long mediums I can use most anything that could be used on a regular hive. In the long medium I've usually used frame feeders with floats in them.

Question: What is different about the management of a top bar hive or long hive?

Answer:

- The most important concept to grasp with any natural comb hive is that one good comb leads to another in the same way that one bad comb leads to another. You cannot afford to not be paying attention to how they start off. The most common cause of a mess of comb is leaving the queen cage in as they always start the first comb from that and then the mess begins. I can't believe how many people want to "play it safe" and hang the queen cage. They obviously can't grasp that it is

almost a guarantee of failure to get the first comb started right, which without intervention is guaranteed to mean every comb in the hive will be messed up. Once you have a mess the most important thing is to make sure the LAST comb is straight as this is always the guide for the NEXT comb. You can't take a "hopeful" view that the bees will get back on track. They will not. You have to put them back on track. This has nothing to do with wires or no wires. Nothing to do with frames or no frames. It has to do with the last comb being straight.

- The need for frequent harvesting to keep space in the honey area open.
- The need for empty bars in the brood nest during prime "reproductive" [swarm season](#) to expand the brood nest more and prevent swarming.
- The need to have the cluster at one end of the hive at the beginning of winter (at least in Northern climates) so they don't work their way to one end and subsequently starve while leaving stores at the opposite end because of [indecision](#). This is easily done by simply moving the bars containing the cluster to one end and putting the bars they replaced at the other. With the entrance on the end this is almost never a problem. With the entrance in the middle you are almost guaranteed to have this problem.
- The need to handle combs more carefully. You need to be aware of the angle of the comb with the earth. Anytime you get flatways with a comb that is very heavy it's likely to break. Keep the combs "hanging" in tune with gravity. You can flip them over but you have to rotate them with the flat of the comb vertical and not horizontal. You also need to check for attachments to walls, floor and other combs before you pull a comb out. Cut these attachments first if they are there.

Question: Which makes more honey? A top bar hive or a Langstroth hive?

Answer: It comes down to management differences. If you have the TBH where you can

get to it easily and you check it weekly during a heavy flow and manage their space by harvesting frequently, I think it's about even. If the TBH is in an outyard and you don't get there often or even if it's in your backyard and you don't get there often, the Langstroth will probably make more honey.

While a TBH takes more FREQUENT manipulation it does not take more labor as you don't have to lift and move boxes around when doing inspections.

Question: Can I put a screened bottom board on my TBH?

Answer: You can. But I wouldn't leave the whole thing open as this will be too much ventilation.

Question: How can you have too much ventilation? Isn't ventilation a good thing?

Answer: Of course in the winter, too much ventilation means too much heat loss. But even in the summer the bees are cooling the hive by evaporation, so on a hot day the inside of the hive may be cooler than the outside air. So too much ventilation could result in the bees being unable to maintain a cooler temperature inside. When wax heats up past the normal operating temperatures of a hive (> 93 F) it gets very weak and combs can collapse.

Question: On Langstroth hives you often have a top and bottom vent to get sufficient ventilation. Should I provide cross ventilation in my TBH?

Answer: Bees seem to have more trouble ventilating a vertical hive with no vent at the top. They have to force dry air (which wants to go down) up to the top and hot moist air at the top (which wants to go up), back down and out the bottom. It's sort of like walking 20 miles to school, uphill both ways. So a top vent or top entrance in a vertical hive seems to be very helpful as it allows the hot moist air out the top which sucks the dry air in the bottom. With a horizontal hive, this is not an issue. They just move the air in a circular fashion in one side and back out the other side and out the door. Sort of like a nice level walk with no hills. This seems to

work well. With cross ventilation (such as a front and back vent or entrance) the wind may blow through the hive and that may be a bad thing.

Question: Don't I need a landing board on the entrance?

Answer: No. Have you ever seen a bee tree with a landing board? Landing boards just give mice a place to jump on to get in the hive. It's not needed at all for the bees and is, in my opinion, counterproductive because of mice.

Question: What's the optimum length for a TBH?

Answer: In my experience, something around four feet seems to be good. Less is difficult to keep them from swarming. More is hard to get the bees to occupy the whole length. Brother Adam's research on bees and hives shows the maximum long hive he encountered was five feet long.

Question: Why can't I make all the bars the same width?

Answer: You can. But regardless of what you do, the bees won't build all the combs the same width, so it's difficult to keep them on the bars. If you want to build them all the same width, I'd make them all 1 1/4" wide and make a lot of 1/4" spacers to put in between when the bees decide to make fatter combs to get them back in the center of the bars.

Question: What's the best comb guide?

Answer: Except for the wax filled groove, there's nothing wrong with any kind of commonly used guide from a strip of foundation waxed in a groove to a triangular guide, but there are advantages and disadvantages. In my opinion the one with the most advantages and least disadvantages is the triangular wooden guide. The bees follow it the most reliably and attach it the most solidly. I like a wax starter strip the least as it's fragile and hot weather can cause them to fall off. I think the least reliable would be dribbling a bead across a plain bar. This is at best a slight suggestion and as a guide it is often a complete failure.

Question: Do I have to put wax on the wooden guide?

Answer: No. I not only don't put beeswax on the wood comb guides, I don't recommend it. The wax you put on the guide will not be attached as well as what the bees will attach the comb. So it actually weakens the connection to dip the edge of the guide in beeswax. In my experience, the bees will not follow the guide any better or worse with or without the wax.

Question: Can I build a slatted rack into my TBH (or any other fancier piece of equipment)?

Answer: Of course. But to me the most attractive thing about a top bar hive, aside from not having to lift boxes, is its simplicity. I prefer to keep it as simple as practical.

Question: Didn't the Langstroth hive take over from the Top Bar Hive because it was superior?

Answer: I'd have to say that Europeans and Americans never had top bar hives until very recently. The Greeks had them hundreds if not thousands of years ago and still do today, but Americans were not looking for an improvement over a top bar hive as they had never seen or heard of one at the time the Langstroth came out. They were looking for an improvement over a log gum (in the US) and the skep (in Europe). And a top bar hive is a huge step above either. A top bar hive solves all of the same problems that the Langstroth does (removable comb) with less cost and less work to build. It gives someone with very basic tools an scrap lumber a way to get a moveable comb hive for next to nothing, if not nothing. The Langstroth did not displace the top bar hive. The Langstroth has never been in any competition for acceptance with the top bar hive until quite recently. And so far the Langstroth is losing ground.

Why a top bar hive? Why not a top bar hive?

It seems a lot of people get into top bar hives with a lot of misconceptions. They seem to think that a top bar hive is "natural" and there is no other way to have a natural hive of bees. I'm not exactly sure where this comes from, but I suppose part of it is that a typical top bar hive

has natural comb and a typical Langstroth hive has foundation. But I have seen top bar hives done with foundation, and I have thousands of foundationless frames in Langstroth hives. So if your only reason for going with a top bar hive is to get natural comb, you have other alternatives.

Another is the belief that the shape is more natural. I'd have to say any shape is natural. I've seen bees in soffits, gas tanks, walls of houses, floors of houses... bees aren't particular about the shape. I see nothing more or less natural about a top bar hive.

Another is that you want a horizontal hive. But you can build a horizontal Langstroth hive. I have a few and they do just as well as the top bar hives.

I think the real reason for a top bar hive is that you can build it from scraps for next to nothing AND you get the above benefits, to wit: natural comb, (with both natural cell size and clean chemical free wax) no boxes to lift (horizontal). If you want all of these in one combination, then a top bar hive is for you.

Reasons you might not want a top bar hive.

A top bar hive, because it has a limited and fairly constant space, requires more frequent interventions to manage it well. This is not a problem when it's in your back yard and you can't wait to get into the hive. But it's very inconvenient if it's somewhere further away where you have to drive there.

Proponent or opponent?

I have been accused of being a top bar proponent most often. I consider myself neither a proponent nor an opponent. I have several and enjoy them a lot. I tell how to build and manage one here for that reason. But if all you want is natural comb, I'd recommend a Langstroth with foundationless frames. If all you want is to get natural comb and no lifting, then I'd put foundationless in a horizontal Langstroth hive. If you also want to be able to build it easily and cheaply I'd recommend a top bar hive.

Typical mistakes I see newbees make with TBH:

They buy a nuc for a TBH that cannot take Langstroth frames.

If you want bees on something other than the cells size or frame size your nucs are available in, then you should buy a package. Yes, you'll find some "chop and crop" videos out there that make it look easy to take a nuc and chop it down to a top bar. Keep in mind these are ideal conditions (wax comb and not plastic which is more likely in your nuc, maybe no wires, or very fragile ones etc.) with an expert doing the work. You will most likely not be so lucky and if you're a beginner you will (and should) be very intimidated by this undertaking. Probably the newbie's logic is someone told them nucs were better without considering the other ramifications. For some reason the magazines and books seem to assume that everyone wants bees in ten frame deep Langstroths.

They hang the queen cage and get a first messed up comb because of the queen cage.

They will always build the first comb from the cage and subsequent combs parallel to that one. So you have now doomed every comb in your hive to be messed up. Hanging the queen cage to "be safe", is not "being safe". Direct release her. Yes, they MIGHT abscond, but in my experience they will do it with or without the queen. Typically they like the one next door better and leave that one there anyway.

They buy or build a TBH that is far too small.

You only have a limited space to work with and no supers to add on, so if you start with a very small TBH it will swarm. Constantly. You need to start with a large one and manage the space well.

They are afraid to fix messed up comb.

One bad comb leads to another. One good comb leads to another. If you have bad comb, wishful thinking will not fix the next comb. It will be messed up unless you make the last comb a straight one by whatever means is necessary.

Having a frame you can tie a comb into is good to have. Then you can always create a straight comb. Another solution is to find a straight comb and put it at the point they are building comb and put the messed up comb at the front (assuming you don't tie it into frames or remove it). Empty bars between drawn brood combs will keep them busy building straight combs. Just don't spread them too thin. They need to be able to fill that gap with festooning bees quickly.

They harvest all the honey and there is no fall flow and no drawn comb for the bees to put stores in.

I would harvest only a little at a time during the flow and try to leave them plenty for winter. This requires a bit of forethought and you probably are not aware how fast conditions can change. To take an old gun saying "aim small miss small".

If they lose a hive they blame something that is handy, like that it's a top bar hive, or something they did, which may or may not have made a difference.

Hives die sometimes. Sometimes they cold starve (starve with stores in the hive). Sometimes they starve (starve with no food in the hive). Sometimes they just dwindle in the fall or end up queenless after a swarm. Try to be objective about what might be the problem. If they outright starved, then you harvested too much or didn't feed enough. But some things are beyond your control and all the above issues happen in Langstroth hives just as much as Top Bar Hives.

These aren't so much limited to top bar hives, but seem to be common issues with newbees trying to be natural, which includes people going to top bar hives:

They won't feed at all.

Feeding is not a "right or wrong" kind of thing. It is the kind of thing that should be done for the right reasons and avoided for the right reasons. Flows are hard to predict and even the bees fail at it sometimes. If you never feed they will starve sooner or later. Feed when you have a reason. If

you want natural bees then try to manage them so you don't have to, but if you mess up and harvest too much or the fall flow fails, feed them. There is nothing productive about letting them starve. Feeding might be unnatural, but harvesting their honey is too. You may have created the problem.

Related to this is you should have a plan on how to feed them. It may take some work and time to implement some of the plans, so have a feeder in mind and make sure you have it on hand.

They won't smoke at all because they think it upsets the bees.

Of course this is backwards. What upsets the bees is when you open a hive with no smoke or far too much or far too hot of smoke. The right amount of smoke is a proven thing since man first started to work with bees. Contrary to popular belief, I do not think it makes them think their house is on fire. It simply interferes with their sense of smell. If it really made them think their house were on fire, then you would be able to get them to abandon their home because of it. I have never been able to produce enough smoke to make them abandon their home. I have, however been able to make enough to asphyxiate them. Of course that is hundreds of times more smoke than needed to calm them.

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