

## Slide 1

Hi again, two things:

I really did not seek this repeat engagement out, blame Suzanne!

And I promise not to take any clothes off tonight.

Once again, I am not here with something I originated, I am still dealing with a late blooming colony that is not quite heavy enough when you tilt the hive. So I thought about what else I could do to help them:

On one of the Bee Team extractions (pretty subtle plug, huh?) Kevin told me some about a box he had made to help absorb moisture from the hive over the winter, later he even brought one to the meeting so I could have a look.

And we heard Tim give us the info on candy boards.

My problem was that both were great ideas, but they were mutually exclusive as presented, and whiny guy that I am, I wanted both for my girls! So once again, with more enthusiasm than experience, off I went.

Please, proceed with care, there is, at least I think there might be, an issue to consider. The cedar shavings box is a no harm option, but if you invert the candy board as I am about to talk about you must be certain your hive is dry and will remain that way, if you have a moisture issue to start with this might be bad for you. Moisture can cause mold and other issues with candy but with my idea, it could cause the candy to soften and given hives are tilted to the front, you could end up with a puddle at one end, and we all know how well bees swim. Also the candy needs to be done right, rock hard.

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I wanted a simple off the shelf solution, so get a close mesh laundry bag, a package of cedar shavings (all natural, kiln dried), and a hive top feeder.

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Gut the feeder (3 screws and some staples), staple hardware cloth to the bottom, drill  $\frac{1}{4}$ " holes along the rim (4 & 3 pattern) and put the laundry bag full of shavings in the box.

Note: The shavings need to be shaken and then the box filled and then placed on hive to minimize debris.

I did have the box installed directly on top of the inner lid while I made the candy board

but was not really happy with the shallow air circulation area so a spacer might be used if no candy board. Bees propolised the exact shape of the inner cover opening onto the bottom of the cedar shavings box.

Center the telescoping cover to give all vent holes circulation. Wind hitting the side of the hive and/or the black sides will cause a draft that will help keep the shavings dry and absorbing new moisture from below.

#### Slide 4

Clip, bend or ignore the staples, I removed them just because. Install an island, I used a piece of 1" x 3" unfinished trim that was 4" long. I pre-drilled the holes so that the screws would draw it tight to the board to prevent leakage.

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Drill a passage way all the way through the island and the candy board below, I used a 1/2" drill bit, 3 holes, and I cut and filed out the rest. You could wait till after the pour to drill the passage, but where's the fun in that? Also I did not want any sawdust on the candy from drilling later. I did tape over the hole just in case of a splash or miss when I poured.

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Here it is fresh poured and a little later ready to use. Again, if you do this make sure your candy is hard, if you can't bounce a quarter off it then it is not set properly.

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Detail of the Island, this is a 5 lb pour and still about half the Island is clear. Also in the back you can see that there is about 1" of wall height, this provides the space for air circulation under the moisture absorbing shavings box.

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Okay here is another of those things that just make sense to me, Hive Energy Efficiency: It's like the third leg of the easel for making it through the winter. You need your strong and healthy bees, you need the food resources to make it through the winter, but the other variable is the energy efficiency of the hive body, the actual unnatural structure we provide them with.

Now the bees need to eat enough to biologically survive the winter, they also need to eat

enough to fuel the activity (shivering) needed to keep the cluster warm. This latter part is the one I wanted to address. The less the bees need to consume for heat, the longer their stores last, also the moderation of temperature swings means less stress for the bees which may increase their resistance to other issues.

Keep in mind a number of things are directly linked to the bees need to consume food for whatever reason. They will breathe more, releasing more moisture into the hive. They need to um “download” more meaning two things, the need to leave the hive to cleanse more often, burning calories every time. But also, if an extended period of low temps prevented those flights, the less they consume, the more likely they are to survive without experiencing dysentery issues.

I used ½” foil backed foam insulation, some basic hand tools, and as it turned out the fix-it-all roll of duct tape. This will warm the hive, but it also keeps it dry outside, a wet hive is a heat sink with the walls continually moving heat out to the water cooled outside surface. Another upside will be the inner sides of the walls will be warmer which might prevent condensation on them, especially in the corners.

#### Slide 9

Use screws and oversize washers to attach the panels, they should come off easily, not sure if the foil will bond in spots to the painted hive body over time. Don't care, survival of the colony is my goal, I have lots of time to clean things up in the spring.

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Attach the panels, tape the seams. Turn the panels black, long story but painting did not work out so I ended up doing each side from the bottom up with overlapping black duct tape.

#### Slide 11

Here you can see the hive body insulation comes to the bottom of the inner cover, topped by the modified candy board and with a taped seam to the cedar shaving box. Later I used scraps to make removable panels that allow easy inspection of the candy and cedar but are low enough not to interfere with the ventilation for the shavings box.