

Building your own low profile bed foundation

The foundation is low profile, so built from 1x4 lumber, thus with the slats only about 4 ¼ inches high. (1x4 is not 4" wide, after all).

We build, for a king bed, 3 long sections, that will carry all of the weight and transfer that weight to the existing bed base along the edges and to the feet at the center of the bed. The bed must already have a support system in place with center support feet.

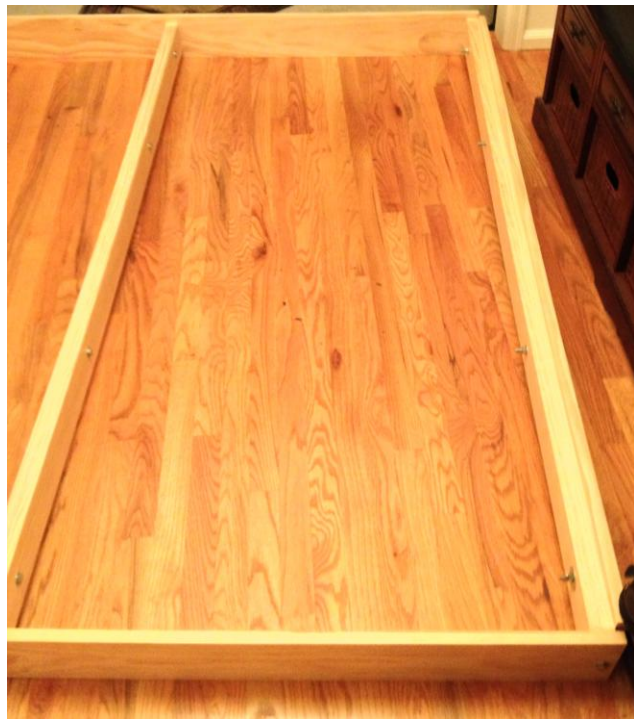
Here we see the existing bed supports in darker wood, with the new base on top.



The weight carrying members that run length wise (2 on sides, 1 up middle) are two 1x4 boards bolted together with a bolt, washers and nut. No glue up. C-clamped the two boards together, then drilled through them simultaneously for the bolt hole. This made sure the two 1x4 boards were aligned edge to edge (as the wood has some bend in it due to natural crown). I used 4 bolts per length run. Location isn't important, just in the middle of the width. Side benefit, is if one ever decides to upgrade to some other foundation, those boards can be unbolted and reused for some other project. Also, no complex, messy glue-up. The length depends on the bed you have. Mine were cut to around 70"

in length for my king frame. The boards started out as 1x4 x 8feet at the big-box home center. Remember you need to leave room for bolting the end boards on when deciding how long to cut these weight bearing boards.

Note that the end boards (that run across the bed) are bolted into the ends of these long board sandwiches. More on how that's done later. The end boards are 1x6 by 8feet initially, cut to the width of the bed inside where the foundation sits. They will NOT carry much weight – their job is to keep the 3 main elements aligned correctly, as well as keep the slats from falling off the end. These are 1x6 because they need to stick up higher (by the



thickness of a 1x4 which is about 3/4 inches. They are cut so they drop cleanly through the bed, so they don't support weight.

The 2 outside weight bearing members have a 1x2 glued to the outside edges such that 3/4 inch sticks up along the outside edge. One simple bead of glue and a small nail every foot or so hold it in place. Again, not a weight bearing member, just there to keep the slats from sliding side-to side.



Now you can more clearly see how the ends of the long members look as well. There is a block on the end – it is 1x4 cut to the width of the 2 board sandwich (1 1/2 inches). It holds an anchor which the bolts that go through the 1x6 end caps bolt into. That endcap is present on the end of each of the 3 supporting members, so there are 6 endcaps in place. Their construction and attachment is the most labor intensive part of the construction.

They are glued on, and the gluing is clamped with wood screws. Their purpose is to hold the nut receiver that the bolts screw into.

So you need 6 of these receivers, and the matching bolts of the right thickness.. just long enough to reach.

The receivers are countersunk into one side of the end blocks, centered in the end blocks. Then the

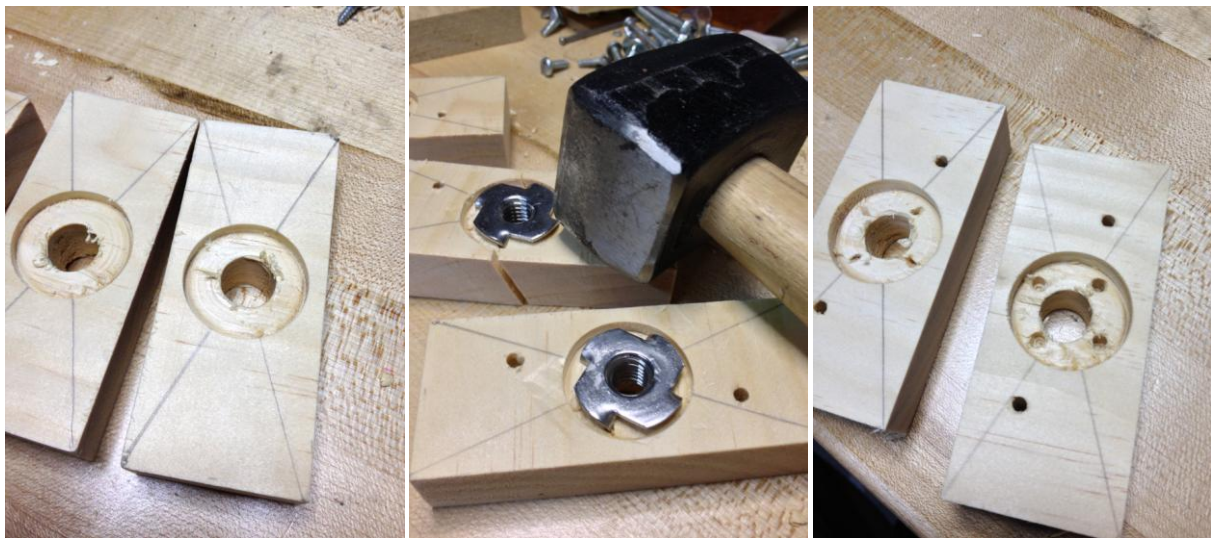
blocks are glued to the main members and clamped by using wood screws through predrilled holes.

Finding the block centerpoint is easy – 2 intersecting lines. Then drill out the countersink, then a through hole (1/2 inch in my case – to give the receivers room).



Then tap the receivers into the countersink, this imprints the claws on the inside of the countersink hole. Remove the receiver, and slightly pre-drill those indentations. This gives the claw a place to sink in without forcing apart the wood and thus avoids the end caps from splitting when you seat the receivers.

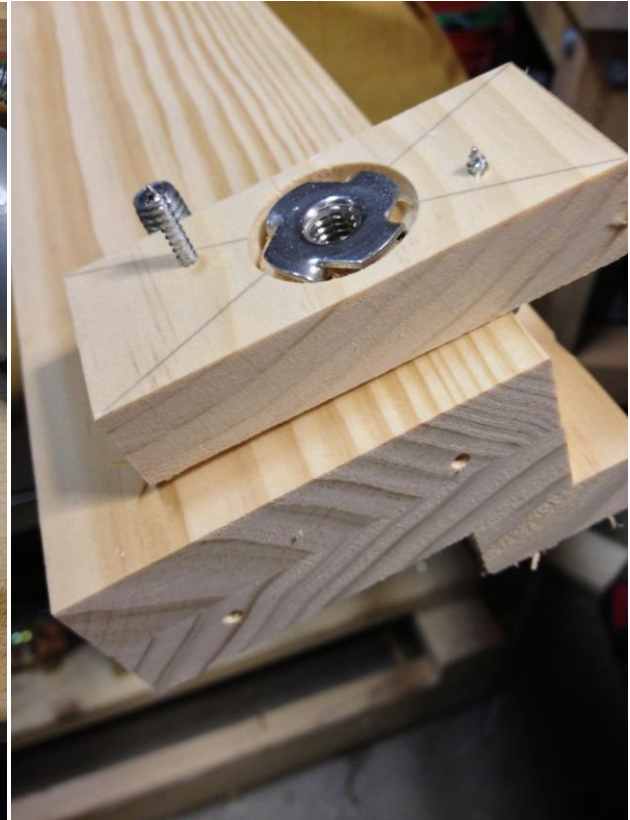




Here we see how a block can split if you don't drill out a place for the claws of the receiver to bite into. In the left block you see where the teeth started to bite, when I hammered in (slightly) the receivers, then to the right the results of predrilling those locations based on where the divits were. This results in receivers that don't split. Once assembled, with the bolts of the right size, you see the bolts are just long enough to go through the same thickness end-board and then engage the threaded receiver.



To glue the end caps onto the ends of the boards, drill out a hole just larger than the woodscrews you will be using to clamp the endcaps as the glue dries. Insert them through the holes, align the block on the end of the board, and hit the screws with a hammer a few times. This will transfer the location of the screws onto the end of the board and allow you to easily properly align the endcap again once the glue is applied thus ensuring the alignment is dead on and as you then screw in the wood screws, the block ends up centered and aligned, with the receivers in the center of the end-cap.



Now apply glue to the end cap, place back on the end of the board, such that the screws drop into their pre-hammered divits, and tighten the screws till the cone screw heads countersink into the end of the endcap, pulling it against the board, squeezing out glue and making a tight fit.

When all 6 endcaps are applied, set up the 3 board buildups to dry. Give it overnight indoors. Remember the endcaps just need to hold the endboards on and serve to keep the main weight bearing boards in position. Note that the wholes in the 1x6 end boards are oversized for the bolts I used, so that there was a bit of wiggle room to

allow the bolts to be able to find the receiver threads in the endcaps. I was able to start all the bolts by hand then tighten with an open end wrench (spanner). When the glue is set its time to cut the slats. As my center support is the same height as the side supports, I went with long slats that span all the way across the bed, rather than the usual two-twin arrangement.



Final notes: route over the top sides of the slats and the top corners of the end-boards. This will prevent splinters and sharp edges. Without round-over routing the very sharp edges of the end boards and slats caught on the very fuzzy cover of the latex mattress I am using and peeled of some rather large splinters that embedded in the bottom of the mattress (3-4 inch long splinters 1/8 inch thick at the widest!). So round-over route (or file, sand, whatever) those sharp edges that will come into contact with the mattress bottom.

So ar I just eyeballed the slats and spacing.. and they are held in by gravity and mattress pressure. I'm still deciding what to use to keep them in place, or if anything. As I may upgrade to beech wood slats with the European rubber holders and adjusters, I don't want to permanently attach anything to the tops of the weight bearing rails just yet.

Tools used: mitre saw, drill press, wrenches and ratches, hammer, nails, bolts, wood screws, high quality lumber from home center, wood glue, nails, screwdriver, small c-clamps