

FLL Floor Practice Table

By Joe “super nerd” Varnell

e-mail: frc704mentor@qweztech.com

Blog: www.qweztech.com/NorthTxMentor

Web page: www.qweztech.com

Here is a simple, portable set of walls for an FLL practice field. This design is for portable walls that are used on the floor with the FLL mat. This is a basic “How To” build with 2 options for the corners. You can build using one or both options.

This is an FLL Practice field for under \$25, less than 25 lbs., 45 min to build (for the corner option 1 and excluding time for paint to dry). It folds to the size of about 48” X 11” X 4”.

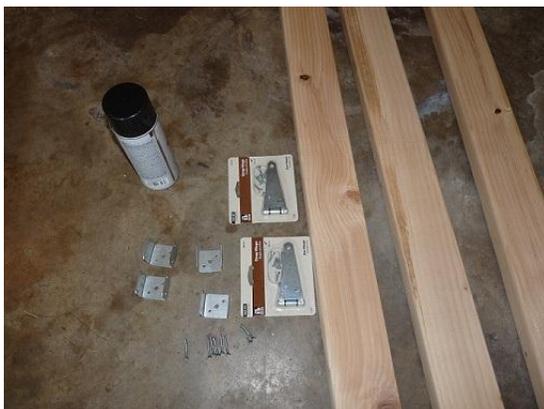
There are 2 options for the corners. The corner option 1 is quicker, cheaper but slightly less stable, and no small parts to keep track of. Option 2 is more stable, slightly more expensive, takes a little longer, is a little more involved to put together, and has small parts to keep track of. The table can be built with one or both options.

Parts List (All this can be found at Home Depot)

- 3 – 2 X 4, 96” long wooden stud (\$2.80 each)
- 2 – Strap hinges (\$3.50 each)
- Black Paint (\$4 depending on brand)
- Corner Option 1 parts (\$4.72 total and about 15 min. to build)
- 4 – 2X2 ridged tie bracket (\$.95 each)



- 8 – number 8 X 1 ¼” flat head wood screws (\$1.18 for pkg of 8)



Corner Option 2 parts (about \$12 and about 45 min to build)

- 4 – 6" x 6" L brackets
- 8 – ¼" X 1 ¼" bolts
- 8 - #12 X 1 ¼" flat head wood screws

Tools needed

- Wood Saw or Circular Saw
- Screw driver
- Tape measurer
- Marker pen/pencil
- Drill
- Safety goggles
- Respirator mask (for painting)
- (optional) Some type of wood clamp
- (optional) Carpenters Square [Very useful for right angles]



Corner Option 1 Tools

- 1/8" drill bit

Corner Option 2 Tools

- 3/16" drill bit
- ¼" drill bit

Instructions

Note: Caution should be used when using power tools.

1. To make foldable side walls, on 2 of the 2X4s, use tape measure and mark 48" from one end (the middle of the 2X4). Mark a line across the 2X4.
2. Use a wood saw or circular saw to cut the 2X4s into 48" sections.
3. For the end walls, use the 3rd 2X4. Use the tape measure and make a mark at 45" and 90" from one end. Note: these 45" pieces are the end pieces.
4. Use a wood saw or circular saw to cut across 2X4s to make 2 45" sections. Discard the 6" piece left over.



5. Paint the 2 - 45" and 4 - 48" pieces of wood with the black paint. Let dry.
6. Take 2 - 48" in. 2X4s end to end and put a hinge centered between the 2X4s shown in figure 1.



Figure 1 – hinge placement

Note: A clamp can be used to make sure the 2X4s are straight and even. Place the "C" clamp or other type of clamp where the 2 2X4s join as shown in Figure 2 below. Any type of clamp can hold the wood in place.



Figure 2 – use a clamp to make sure the wood is square

7. Make sure the hinge is on the joint of the 2X4s. Use a drill and the 1/8" drill bit to make starter holes for the screws for the hinges.
8. Screw down the hinges as shown in figure 3 below.



Figure 3 – hinge placement.

9. Repeat on the other 2 48" 2X4.



Figure 4 – completed walls with hinges

Corner Option 1 – simpler, quicker cheaper

10. To attach the brackets to hold the end wall in place, place a U bracket on one end of a hinged side wall. Make sure of 2 things:

- Bracket is opposite side of wall from hinge
- Bracket is even with the end of the 2X4.
- Up sides of bracket is at the end of the 2X4. See figure 5 below.

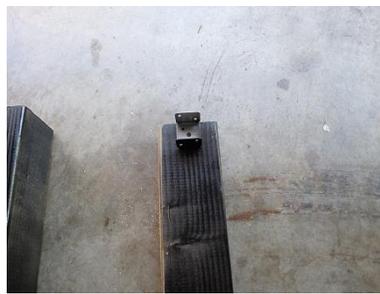


Figure 5 – placement of ridged bracket even with end of board.

11. Use the 1/8" drill bit to drill starter holes in the back of the bracket.

12. Use 2 screws to screw the bracket to the 2X4. See in Figure 6



Figure 6 – End wall bracket Screwed down

13. Do this for the end of each of the hinged side walls.

14. Put the hinged side wall on its side and push an end wall 45" 2X4 into the bracket.

Corner Option 2 – more stable

15. Start with one end of one of the side walls. Place one 45" end wall against the end of the side wall to make a 90° angle. A carpenter's square works well to make sure it's 90°. See Figure 7 below.



Figure 7 – square the corner

16. Place an angle bracket over the corner as shown in Figure 8.



Figure 8 – Angle bracket placement

17. On the side wall 2X4 portion of the angle bracket, using a 3/16" drill bit, drill pilot holes in the two holes circled in Figure 9



Figure 9 – side wall bracket holes

18. Screw 2 of the #12 wood screws into the holes
19. On the end wall portion of the angle bracket, use a 1/4" drill bit to drill the 2 end holes circled in Figure 10. Only drill about 1 inch in. This is so the heads of the bolts stick out far enough to grab.



Figure 10 – Angle bracket holes in end wall

20. Push $\frac{1}{4}$ " bolts into the hole as shown in Figure 11 below to hold the end walls in place. The bolts should be able to be pushed in somewhat easily. If they don't push in by hand, use the drill to ream the hole out a little. Also, make sure the bolt sticks up a little so that they can be pulled out by hand.



Figure 11 – bolts pushed into holes but up enough to grab

21. Repeat for each of the other corners.
22. Number each angle bracket connection as shown in Figure 12. This is because walls will most likely only fit together one way. Note: that's an upside down 4 in the picture in Figure 12.



Figure 12 – mark the corners

Putting it All together

23. Connect the side walls to the end walls either using the brackets (corner option 1) as seen in Figure 13 below. Or connect the angle bracket corners (corner option 2) or both, to form the walls of the FLL practice area.



Figure 13 – Walls up to form the full field

24. To collapse the table into storage configuration, (corner option 2) remove the $\frac{1}{4}$ " bolts, remove the end walls from brackets, and bend the side walls at the hinges. See Figure 14 below. On option 2 corners, make sure you don't lose the bolts to hold the end walls in place.



Figure 14 – Table walls folded
(left with option 1 corners, right with option 2 corners)

With either of the corner options, this is my suggestion for portable option for the FLL practice table.

Good luck and have fun. If you have any questions, comments, or suggestions please e-mail me.

Joe "Super Nerd" Varnell