

Battle Bot Arena 2025

Materials needed:

One full 4' x 8' sheet of $\frac{3}{4}$ " MDF (\$30-\$45)

2020 Aluminum extrusion (\$100-\$200)

One full 4x8 foot sheet of $\frac{1}{4}$ inch Polycarbonate (\$120-\$180)

Hardware for 2020 extrusion

- 20 Corner Joints (\$25-\$45)
- 2 Hinges (\$10-\$15)
- 2 Clasps (\$10-15)
- A few 1.5" drywall screws

This build will cost you roughly \$400 to \$500 depending upon where you source it in material and will last for a long time.

Tools required:

Saw that can cut aluminum extrusion and polycarbonate. (Skillsaw, track saw, or table saw) Poly likes a smaller tooth blade, Aluminum is better with larger teeth.

Allen wrenches for the bolts supplied with the hardware

A drill to put screws into the floor and roof sections

A metal file can be of good use

The building of the arena

Start by cutting your MDF in half so you have two 4 foot squares. Some MDF will be slightly longer than 48 by 96 inches and that's okay, just make sure you have one that is 48 x 48. If you have a slightly larger piece, use that one for your roof or lid. If they are out of square dimensionally, put a mark on them so you know which is the floor and which is the roof/lid.

Now cut your extrusions to fit the 4 sides. Remember, that your wood floor is either 48"x48" or 48"x49". Also remember that one side can be full length, but the other has to be shorter by two extrusion thicknesses to make things fit squarely. I recommend cutting and dry fitting all your parts together before assembly with the polycarbonate.

Next, you will need to cut your polycarbonate (DO NOT USE ACRYLIC IT WILL SHATTER). Quarter inch polycarbonate can withstand abuse from bots with metal weapons in the 10k-20k RPM range, so plastic only scratches it if it's hit very solidly. Cut the polycarbonate to fit inside your extrusions and be held in place within the inner extrusion. Make sure your bolts are tight on each of the 4 panels. Be sure to check the tightness from time to time and keep the bolts tight. They have a tendency to come loose after moving the arena around.

You will need to place a single door on one side of your choice. I recommend one of the slightly shorter sides from fitting it together earlier. This side will be split into two pieces. One hard mounted side and the other will be the door with the hinges and clasps so it can open outwardly. Bolt all your sides together and get a few either straight extrusion brackets to screw it into the floor or you can use 90 degree brackets as well. Lastly, you will use the other piece of MDF for your roof/lid. It's easiest to just use straight brackets and put a few screws into it to hold it in place.

This design is fairly simple and can be broken down into six flat pieces. The two 4x4 foot MDF panels for floor and roof, and the four 4x2 foot side panels of polycarbonate and 2020 aluminum extrusion. It takes up very little space to store it.