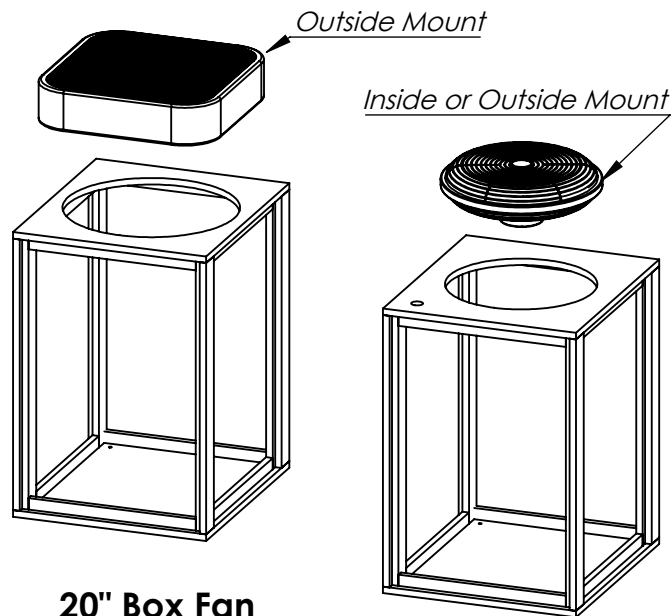
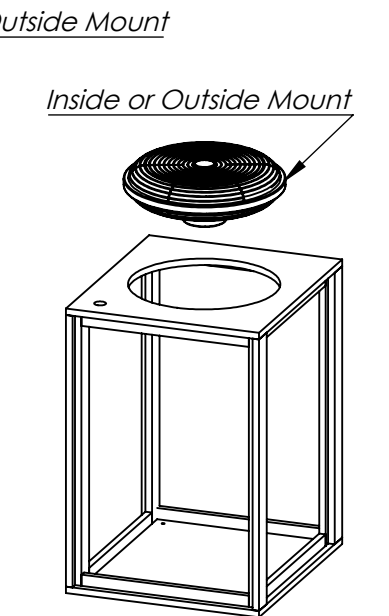


## The 3D Handyman's DIY 4-Filter Air Filter Kits

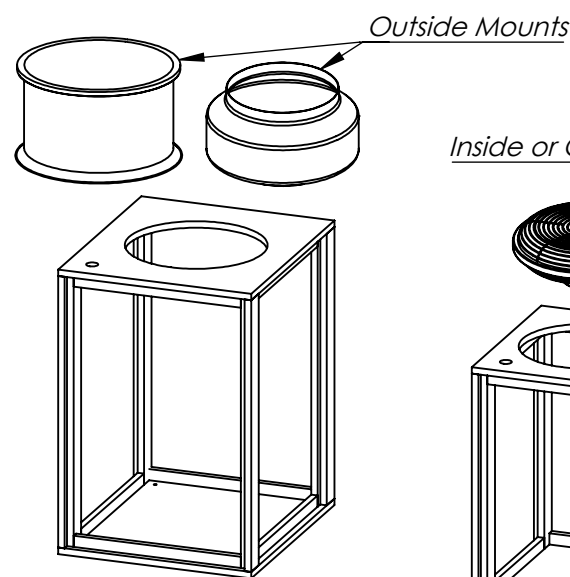
- Make the perfect quad-filter for your needs using these plans.
- Construction requires a Table or Circular Saw, Router or Jig Saw, and a Drill or Glue or a Nail Gun for assembly.
- Choose from the fans below or modify the parts to fit your build.
- All links, fan info, and recommended foam gaskets are available at [the3dhandyman.com/diymodelb](http://the3dhandyman.com/diymodelb)
- Filter clips, fan mounts, wheels and feet are available for all these designs at my shop.
- Message me on Etsy or Social Media if you have any questions or concerns.
- Build and use DIY air filtration products at your own risk!
- These designs are not for resale or commercial use! *Contact me if you want to talk business.*



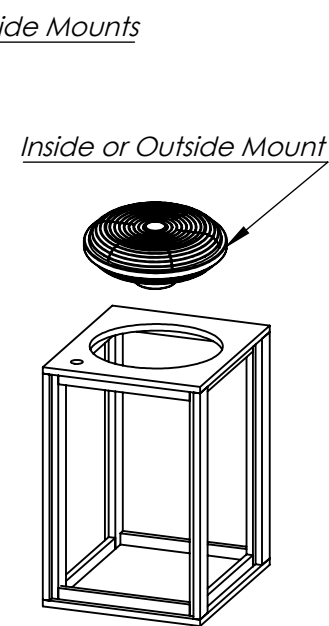
**20" Box Fan**  
For filters 20" wide  
and larger



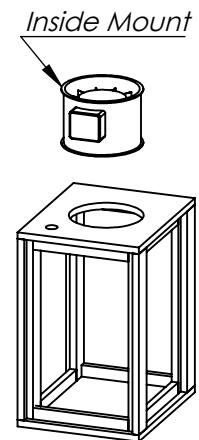
**14" AC Infinity Cloudlift**  
For filters 20" wide  
and larger



**14" Caterpillar Drum Fan  
& 12" inline Fan**  
For filters 20" wide  
and larger



**12" AC Infinity Cloudlift**  
For filters 16" wide  
and larger



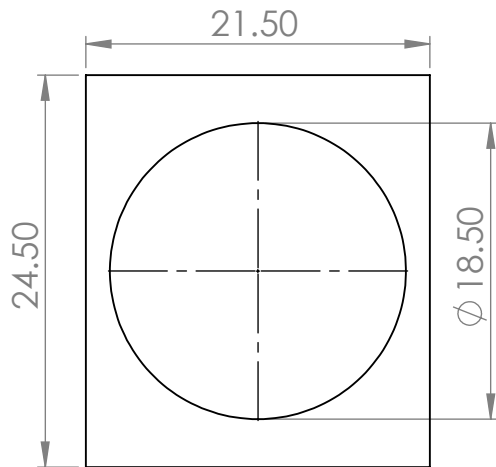
**8" AC Infinity Cloudline**  
For filters 12" wide  
and larger

### Choosing the right filter size

- The filter width (example: 20"x30"x1") determines how large the fan can be. The larger the filter, the bigger the fan it can support.
- The height of the filter (example: 20"x30"x1") is up to you. Keep in mind that large filters are more cost effective and efficient than small filters. Always use the largest filters that will fit into your space.
- Filter area for high airflow fans like the Caterpillar Drum fan must be greater than 400sq.in. This is calculated by multiplying the Length of the filter by the Width (LxW, 20"x20"=400sq.in. YES compatible, 16"x20"=320sq.in. NOT compatible!)
- Watch my video series on quad-filters and the Model-B to learn more [youtube.com/@The3DHandyman](https://www.youtube.com/@The3DHandyman)

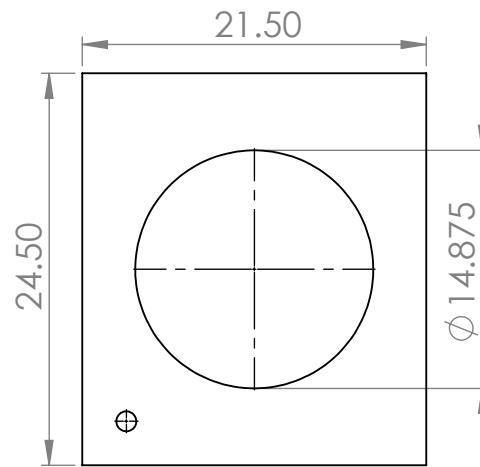
## Fan Hole Size (*top of frame*)

- Every fan will require a different hole size in the top of the filter frame. Below are some common sizes.
- I recommend using a Router and a Circle Jig to cut out the hole, but a Jig Saw can also be used for this process.
- Some fan cords will be inside the filter frame. These are routed through a 1.25" hole made with a forstner bit/hole saw/paddle bit.
- All holes can be made in the stock sheet of plywood before you cut out the pieces.



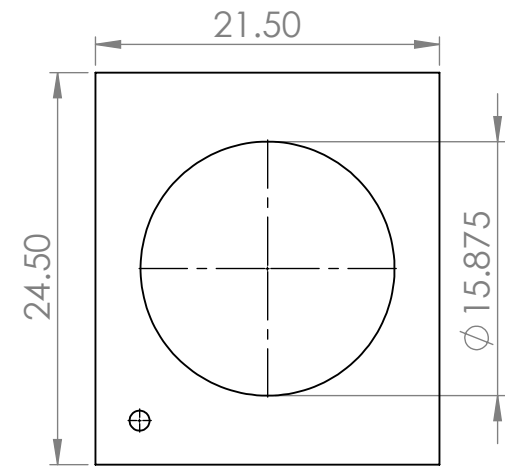
**20" Box Fan**

*Sized for 20" wide filters*



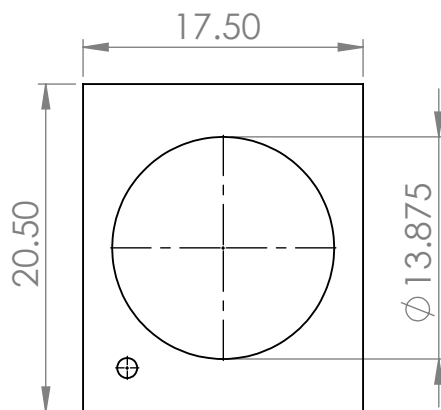
**14" Caterpillar Drum Fan  
& 12" inline Fan**

*Sized for 20" wide filters*



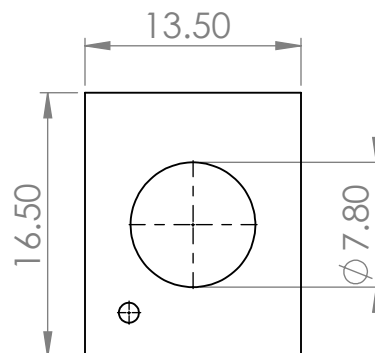
**14" AC Infinity Cloudlift**

*Sized for 20" wide filters*



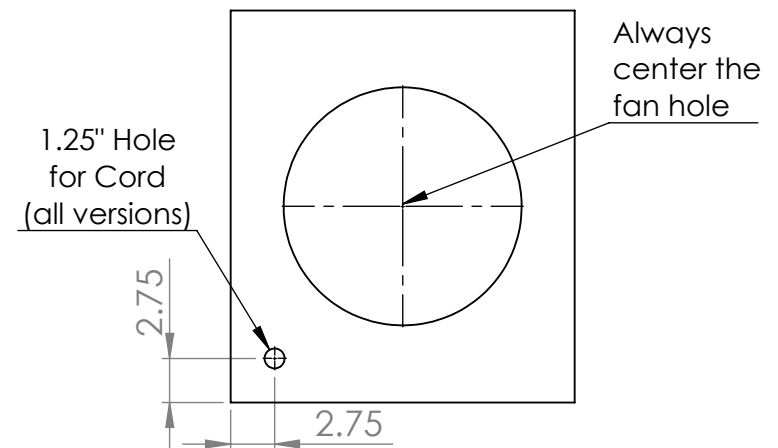
**12" AC Infinity Cloudlift**

*Sized for 16" wide filters*



**8" AC Infinity  
Cloudline**

*Sized for 12" wide filters*

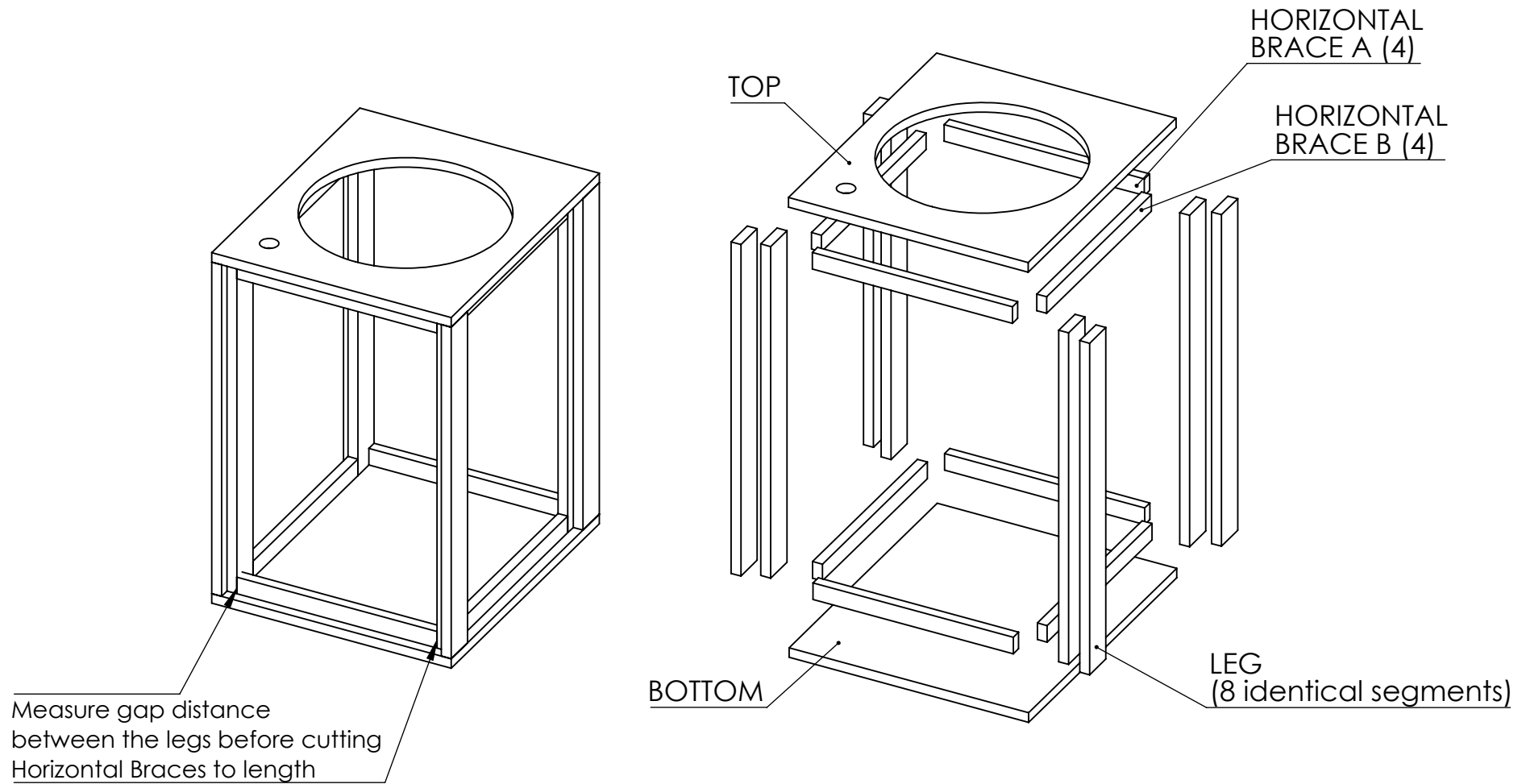


**Custom Filter Sizes**

*Use any filter width using the  
"nominal width + \_\_\_\_" method  
(See pg 4 for more info)*

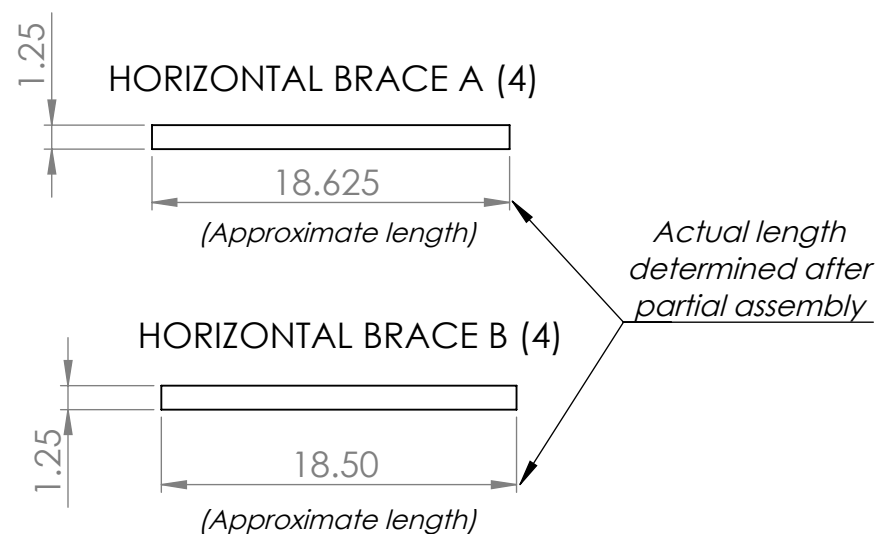
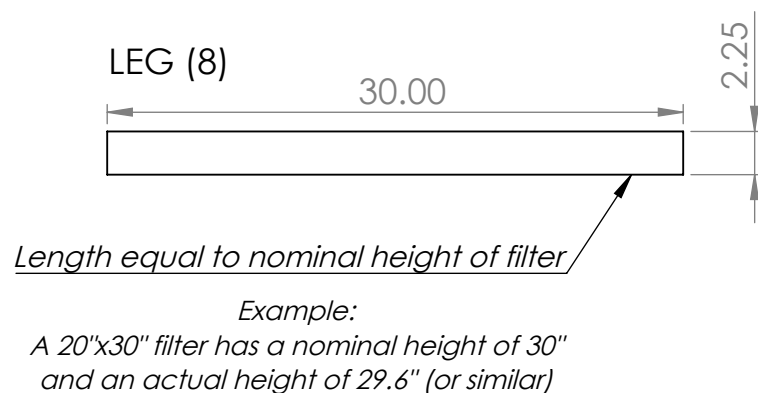
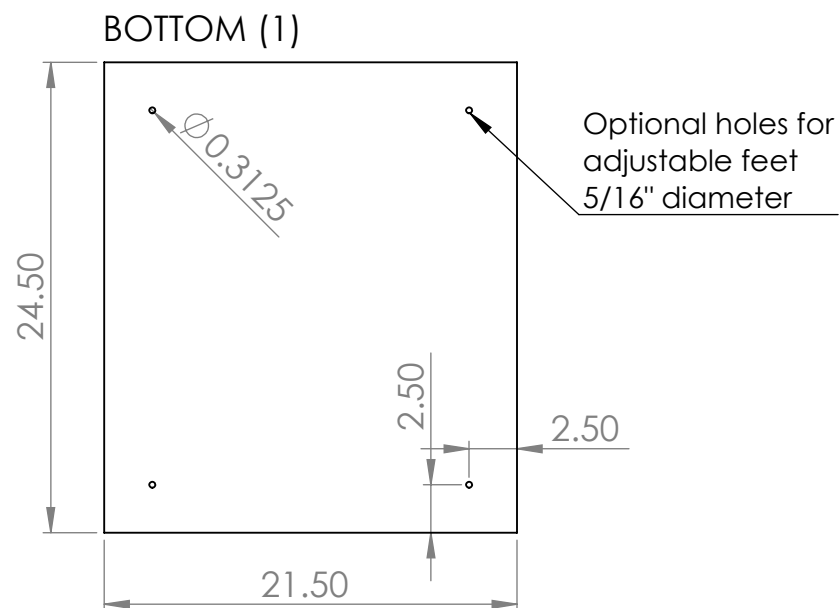
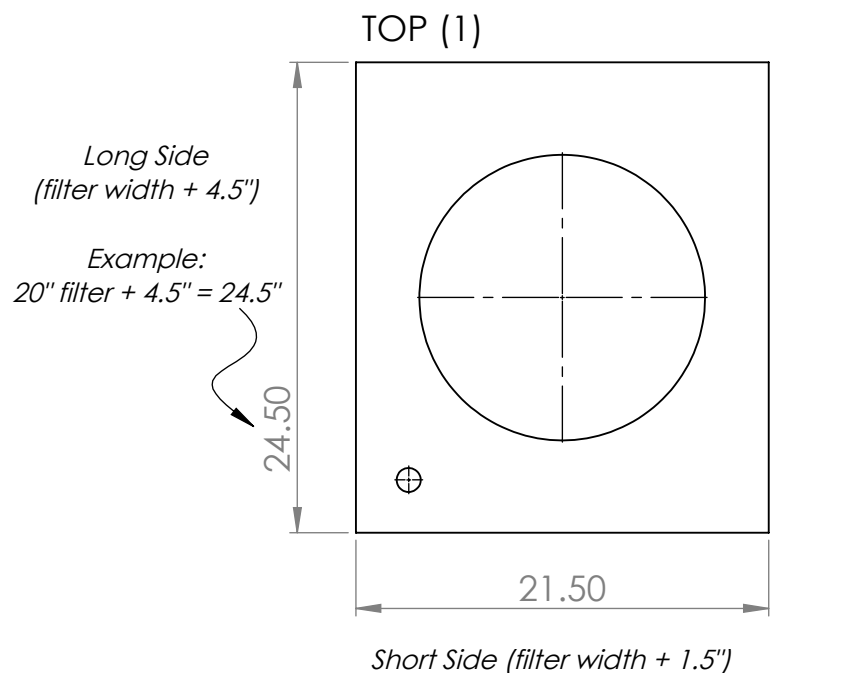
## Parts Overview *(all versions)*

- All parts are designed to be cut from a single sheet of 3/4" plywood or 3/4" solid boards.
- If using plywood, a 4x4ft board will be enough for all frame sizes shown in this guide.
- The exact thickness of the material that you use may vary. These drawings assume 0.72" actual thickness (roughly 18mm)
- To accommodate for different material thickness, assemble the Legs, Top, and Bottom first. Then measure the distance between the legs and use that dimension to cut the "Horizontal Braces" to length. This will ensure an exact fit with no gaps.



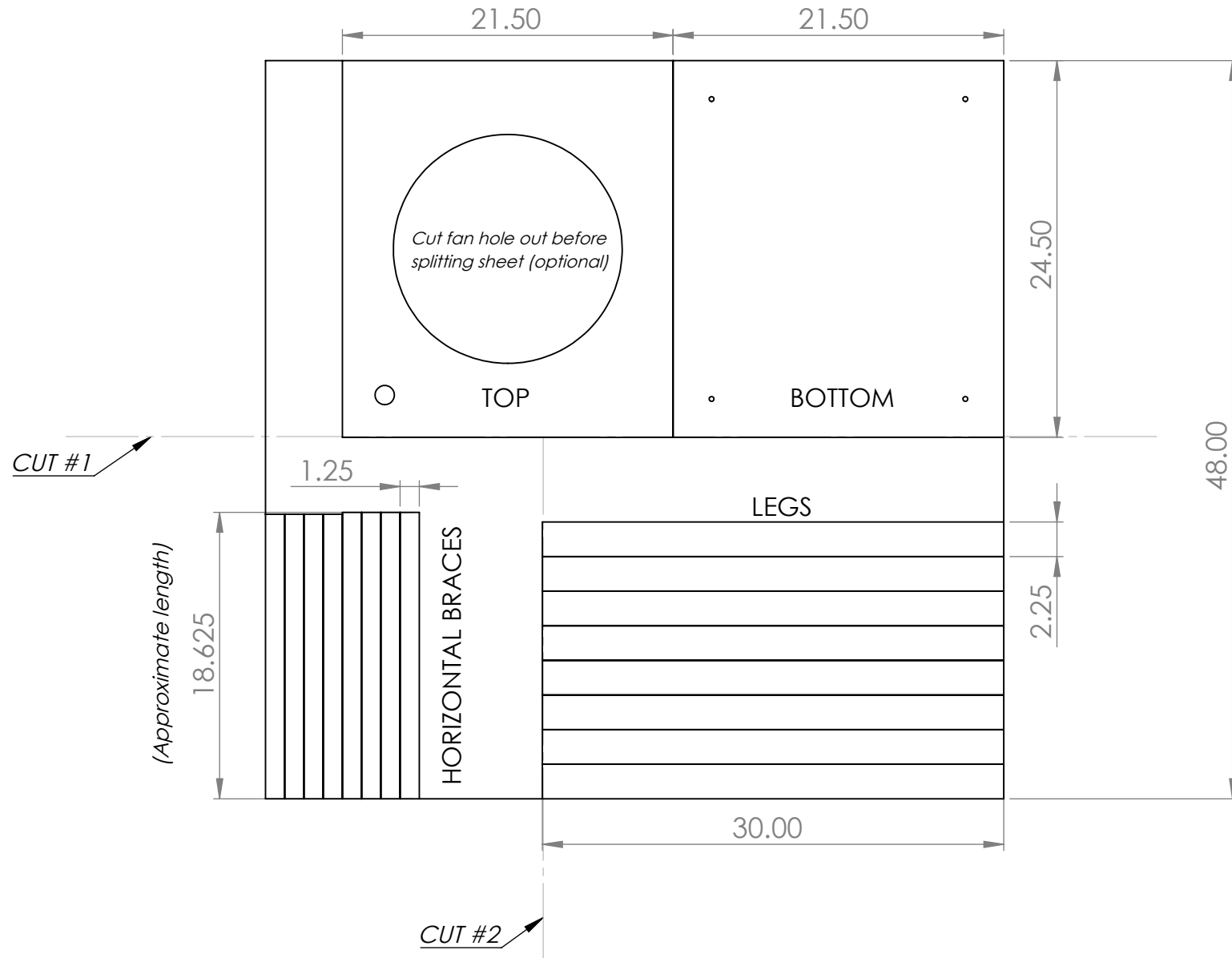
## Part Dimensions

- Exact dimensions will vary based on your chosen fan and filters. Many dimensions will stay the same, but 3 dimensions are variable.
- Leg height is equal to the nominal height of the filter.
- The Top and Bottom always have identical dimensions. Their dimensions are equal to the nominal width of the filter +1.5" on the short side and +4.5" on the long side.
- The example below shows a 20"x30" filter kit.



## Sample Cut Sheet

- Example shows a 20"x30" filter kit with a hole for a Caterpillar Drum Fan and a cord pass through.
- Extra space is left in each section to account for saw blade kerf. Cut on the outside of marked dimensions.
- The drawing is made on a 4x4ft plywood sheet 3/4" thick. Cut it at "CUT #1" then "CUT #2" then cut out the individual parts.
- If the edges of the sheet are damaged, you can shift the initial cuts inwards by .5"
- Smaller frames can be laid out differently to reduce scrap.

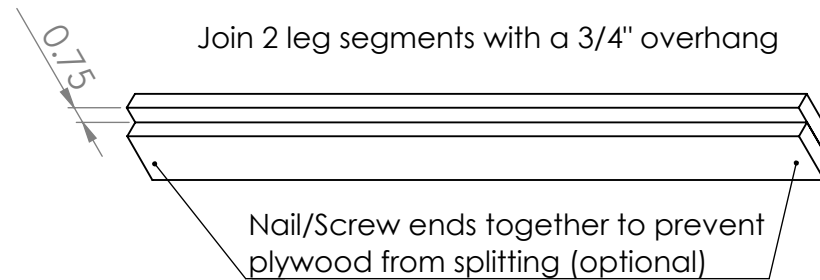


## Assembly

- Watch the video on my YouTube page for the Full Assembly process.
- Drill holes for wheels and feet before assembly. The threaded inserts for the adjustable feet must be hammered in before assembly.

### Step 1 - Legs

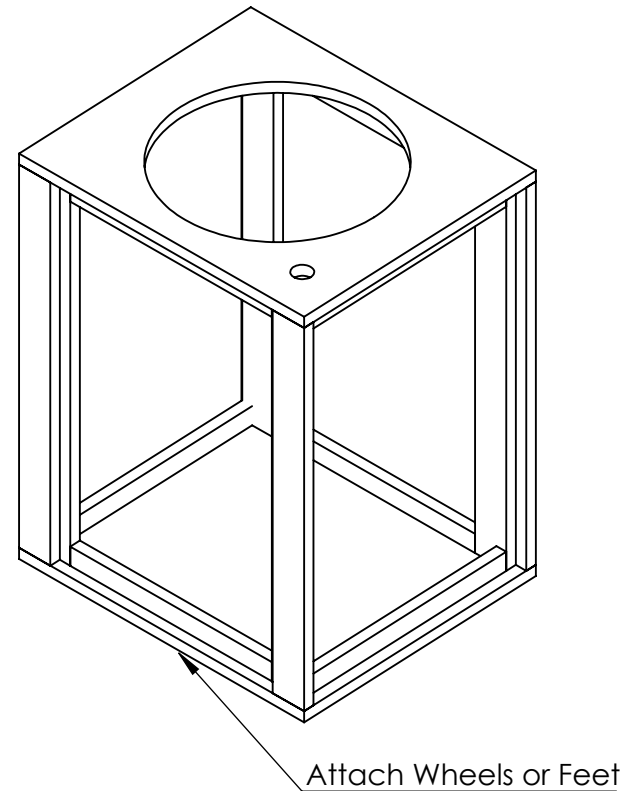
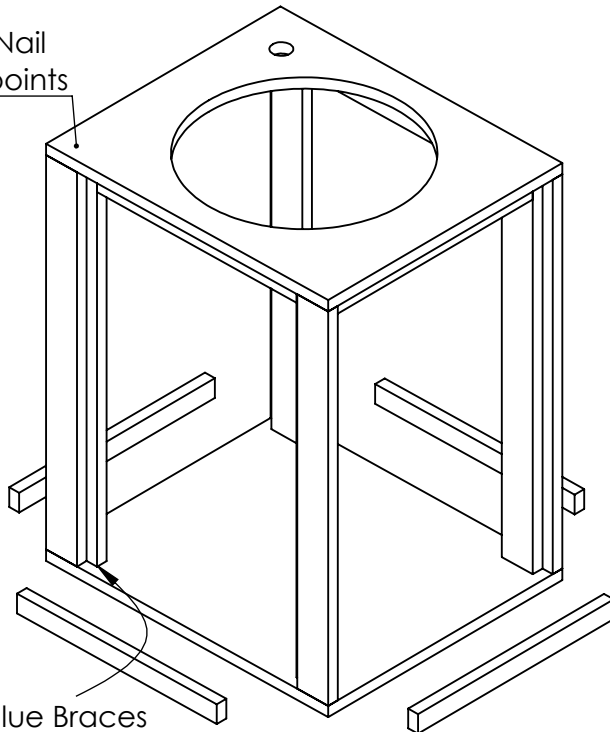
- Nail/Glue the Leg segments together first.
- Allow time to dry before completing assembly.
- If the Leg segments are bowed, join them with parts that are bowed in the opposite direction. The shape of the 2 parts will counteract each other and the resulting leg assembly will be as flat as possible.



### Step 2 - Frame

- Screw/Nail/Glue the legs onto the top and bottom of the frame at the corners.
- If using screws, the plywood may delaminate unless the hole is predrilled. The plywood leg can be nailed together to prevent delamination.
- Cut the Horizontal braces to length and Nail/Glue them into place.

1) Screw/Nail  
At these points



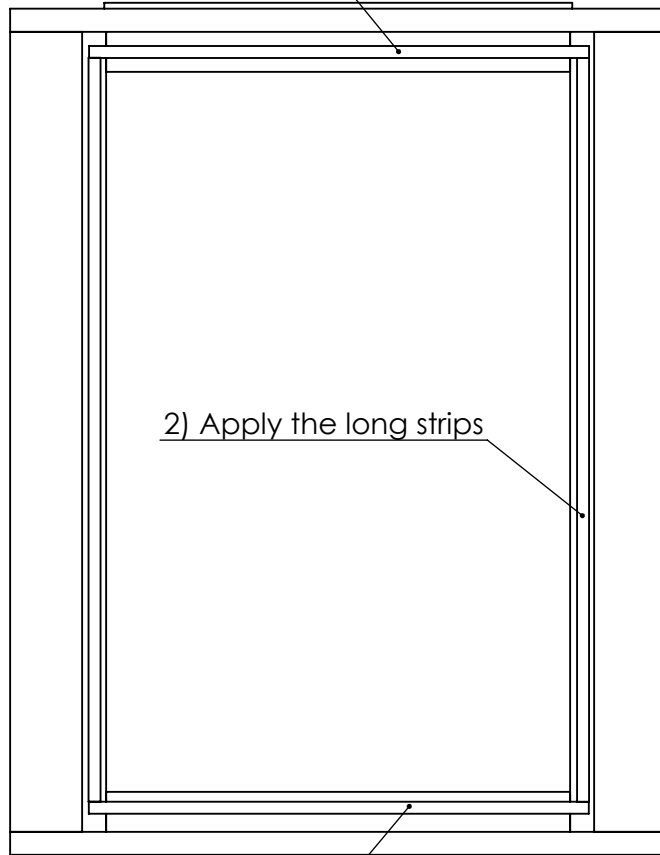
### Step 3 - Wheels & Feet

- Screw the wheels or feet onto the bottom of the frame.
- Basic assembly is not complete.

## Final Finishing - Foam

- A kit that includes: Filter retention clips, fan attachment hardware, foam seals, a cord cover, and optional wheels/feet is available at my shop. These are not required items but they will add a higher level of features and aesthetics to your build.
- The images on the next pages show the parts that you will receive in the kit.
- First step will be to add the foam seals. 3 rolls of foam are included in the kit. Cut them to length and install them in the filter frame and around the fan hole. Watch the installation video for more info! (coming soon) [youtube.com/@The3DHandyman](https://www.youtube.com/@The3DHandyman)

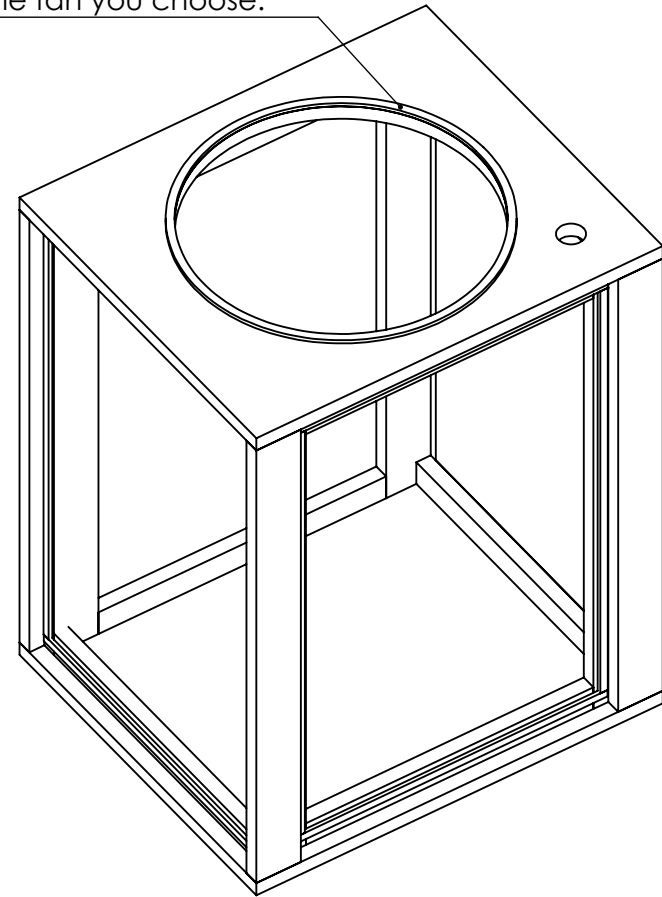
1) Cut and apply short foam strips



2) Apply the long strips

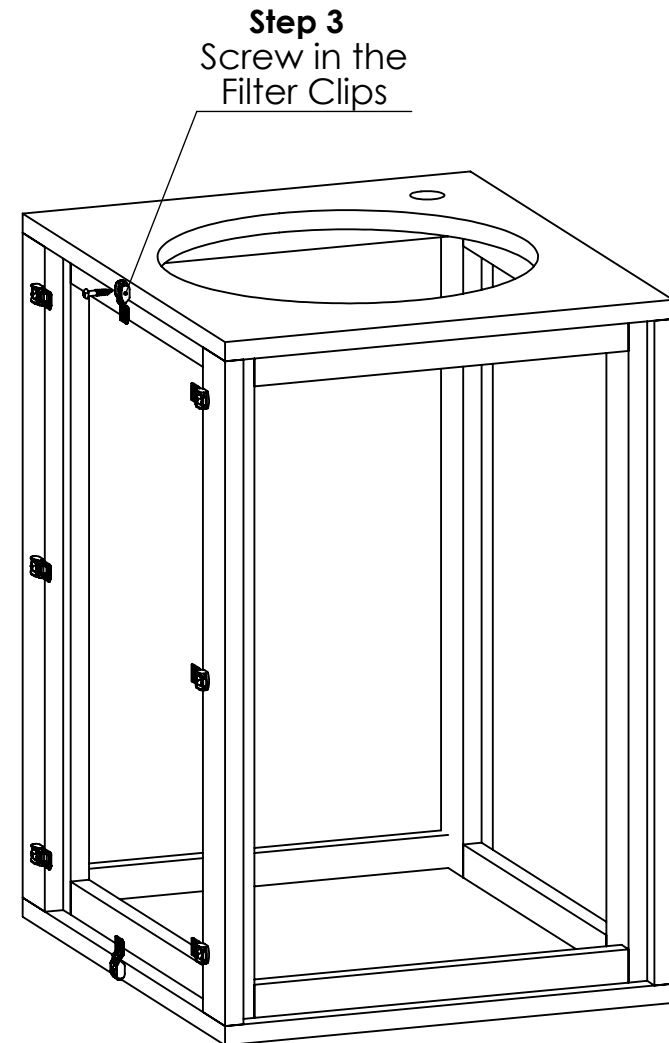
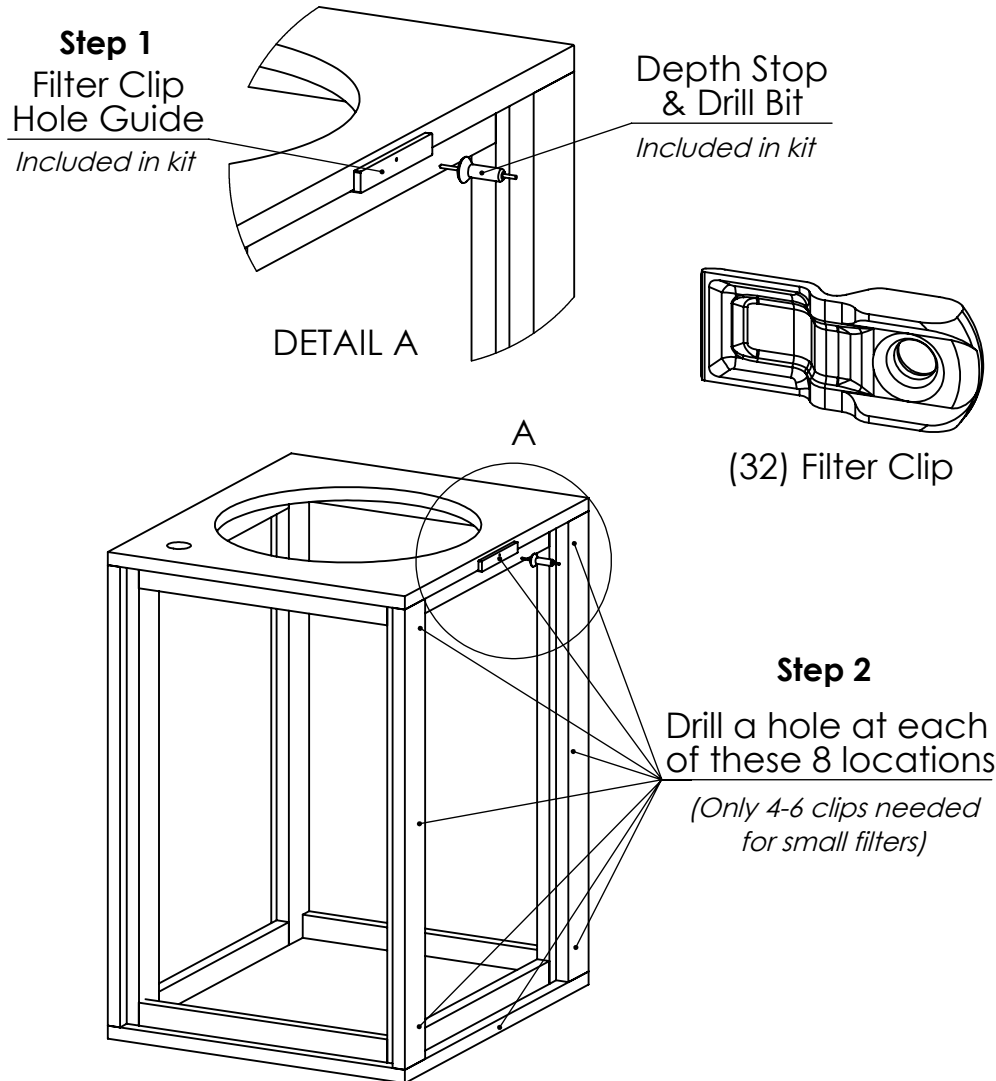
Center each foam strip  
on the wooden braces

3) Apply foam to the fan hole.  
Exact location will vary based  
on the fan you choose.



## Final Finishing - Filter Clips

- Next you will attach the filter Clips.
- 2 tools are included to make this process go smoothly.
- Insert the Drill Bit Depth Stop into your drill and use the Filter Clip Hole Guide at the marked locations to predrill holes for the filter clips.
- Screw in the filter clips so that they turn without much effort. Depending on the thickness of your filters, the screws can be loosened so that they more easily slide over a thick filter.

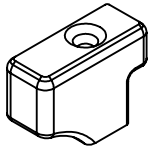




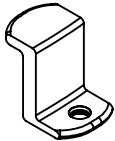
## Final Finishing - Fan and Filter Mounting

- The kit will come with your choice of fan mounting hardware. Inline fans do not have a mounting option, they simply rest in the hole on the top of the frame (*thick foam is provided*). Box fans install with velcro strips included in the kit (*foam is provided for fan edge*).
- Full fan installation is covered in my "Model-B Assembly" video. There are many options. I recommend watching that for all the info.
- When the fan is installed, insert the filters into the frame.
- Turn the fan on to filter the air!

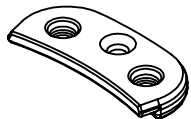
Outside Fan Mounts for  
CAT Drum Fan  
& AC Infinity Wall Fans



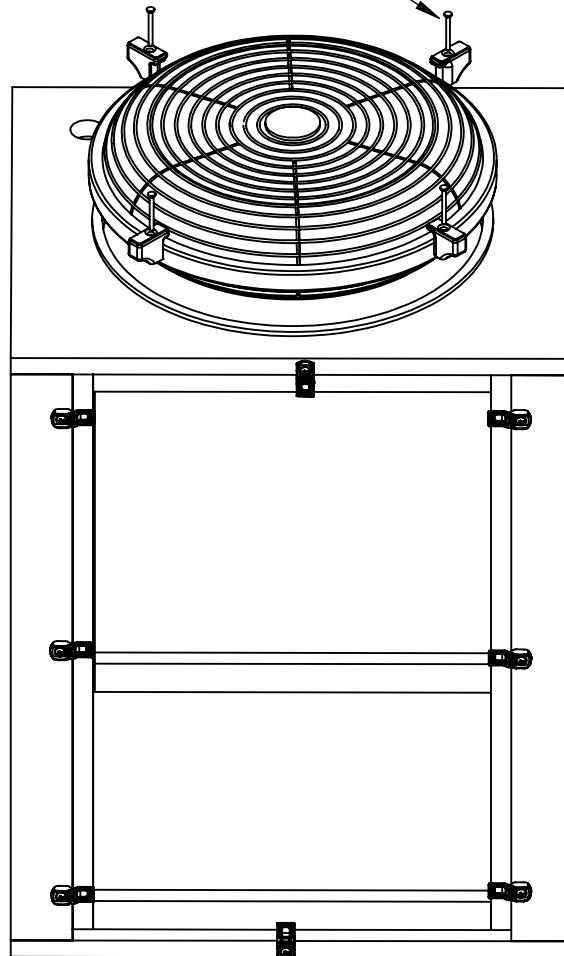
Inside Fan Mounts for  
AC Infinity Wall Fans



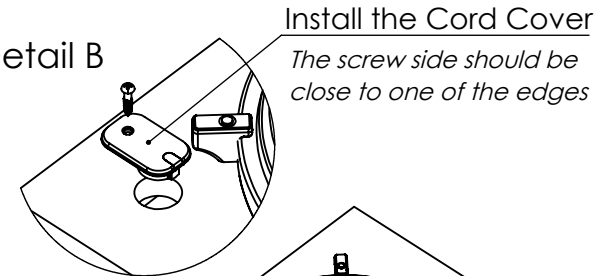
Fan Mounts for  
AC Infinity 8" inline Fan



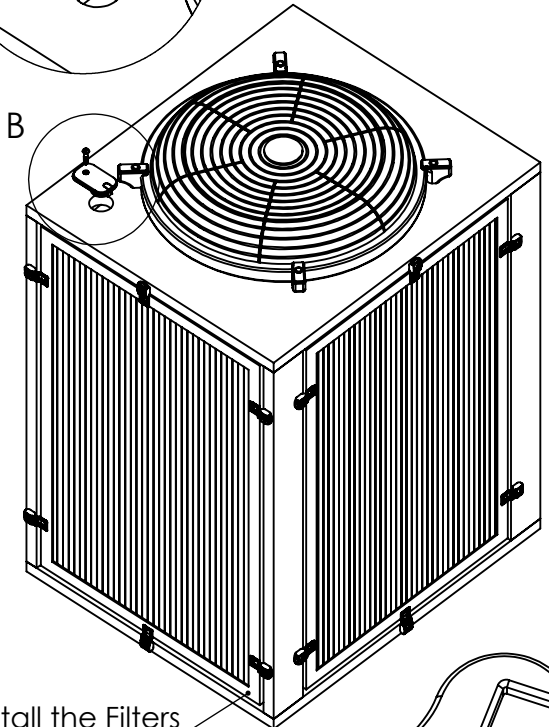
Screw in the Fan Mount  
*They should be tight but turn easily*



Detail B

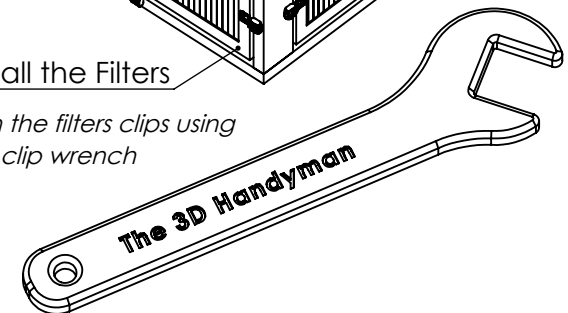


B



Install the Filters

*Turn the filters clips using  
the clip wrench*



Any questions or concerns or anything else? Contact me!

@the3dhandyman