

Making a Corsi-Rosenthal box (DIY air cleaner)

Our inside spaces need fresh and filtered (clean) air, whether we're at home or work, or in a school or community centre.

The Corsi-Rosenthal box is an effective air cleaner. Making one is pretty easy. It involves taping a fan and four filters together, with cardboard on the bottom and top. The fan pulls room air through the filters to clean the air. Studies show the boxes can reduce the number of harmful tiny particles in the air - whether they're the SARS-CoV-2 virus behind COVID-19, wildfire/stove smoke, pollen, or dust.

It's easier to build these with another person or group, and it's fun.



Gather materials

Filters – options are:

- □ 4 Filtrete 1900 (20"x20"x1" or 20"x25"x1")
- 4 MERV 13
- 20" x 20", either 1" or 2" thick: 20" x 1" or 20" x 25" x 2" or 20" x 25" x 1" (2-inch preferred)

Fan, other supplies

- 20-inch box fan (Lasko or Hurricane/Utilitech) check to make sure it works
- □ scissors or utility knife
- □ duct tape
- □ adhesive liner/paper (optional)

Make the filter cube/box



Arrange the filters so the arrows (showing the air flow direction) point in. Pleats should be vertical. Make a cube (almost square) by matching the filters so they line up as shown below.

Tape the filters together at their top edges. Check that the fan fits over the cube (it will hang over a bit). Then tape from each edge from top to bottom.



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Add the base



Add the fan next



Use one side of the fan's cardboard box to make the base.

Cut it to fit the cube. (It doesn't have to be a perfect fit, just cover the cube edges.)

Tape all four sides.

Put the fan on top of the cube. Line it up so that the edge with the cord hangs over the edge slightly.

First, tape the fan's straight edges to the cube. When you get to the cord, cover it with tape; then slit the tape on both sides of the cord, and add an extra piece of tape under it.

Then tape the corners and any holes in the fan (e.g., for legs). Check to ensure there aren't any uncovered spots. (Two sets of eyes help here.)







The shroud is the last piece

Adhesive liner/paper can go over the fan and/or shroud (not over filters) to add decoration and cover up tape.

Filters can last up to a year; it depends on how much "crud" is in the air. Replace them when you see grey/dark areas and/or use a tissue to see if the fan is sucking air properly; some particles are colourless. A "shroud" helps reduce noise and increase the fan's efficiency. To make it, cut the other large piece of cardboard from the fan box to fit the top of the fan.

Measure a circle -- 15" for Lasko and 13.5 for Hurricane/Utilitech – in the middle of the cardboard. Cut it out. Keep the cut-out cardboard as a template. (If using another fan, use a tissue in the fan corners to see where it gets sucked in. When it is not affected, that's the distance for the shroud circle.)

Tape the shroud to the fan.

Check all the taped edges to ensure air cannot "sneak in" anywhere.

Prepared by the Occupational Health Clinics for Ontario Workers (OHCOW – www.ohcow.on.ca). Based on a hand-out by Shiven Taneja, illustrated by Marija Mladenović (https://bit.ly/3mh9gni). For more information about Corsi-Rosenthal boxes, see http://cleanaircrew.org/ and https://cleanairstars.com/filters/ for numbers needed in a space.