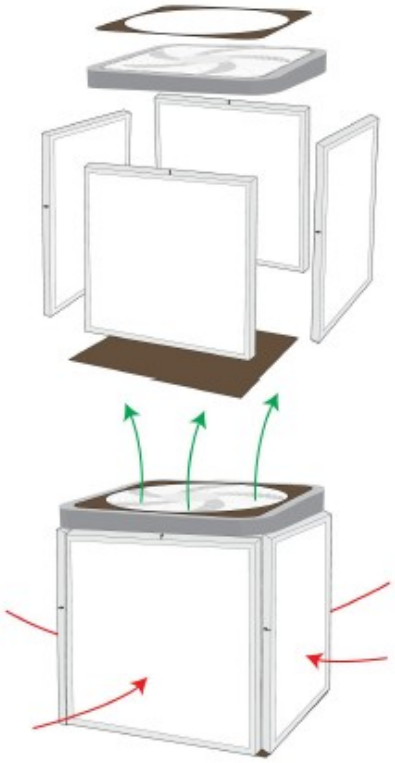
Care and feeding of your

Corsi-Rosenthal Box Air Cleaner

Set-up & Precautions



- Place your air cleaner at least two feet away from any wall or obstacle that will impede air flow. The fan should be facing upward.
- Place your air cleaner in a location where it will not be bumped into or tripped over. A table or cabinet where it will not fall is preferable to the ground. Impact with the CR Box may damage the filters or break the seal, rendering the air cleaner less effective.
- Avoid touching the filters. The filters will be hard at work, clearing the air of unwanted aerosols and pollutants. Wash your hands if accidental contact is made.
- Do not place anything on top of the air cleaner that might fall or spill into it. This may harm the motor and damage the filters. If this happens, discontinue use.
- Do not operate the air cleaner around a water source.
- Do not operate the air cleaner around solvents.
- To prolong the life of the filters, turn off your air cleaner's fan if your classroom will be unoccupied for more than 30 minutes.

Fan setting

Use the lowest or medium fan setting if the highest setting is too noisy. On the lowest setting, the Corsi-Rosenthal Box has been shown to be comparable in effectiveness to a HEPA air cleaner.

How long will the filters last?

A Corsi-Rosenthal Box operating on low for a portion of a day (such as the length of a typical school day) may last as long as 5 to 6 months before the filters need to be changed. The lifetime depends on how long it is used each day and how dusty the environment is where it is placed. Over time, the white filters will become discolored – typically a light brown to gray – as particles collect on them. If the particles become so thick you can no longer see the white filter media, it is time to switch off the fan and dispose of the filters.

Filter Disposal

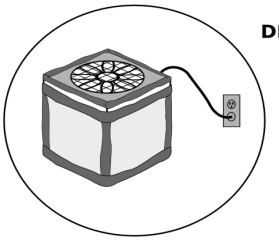
Allow the Corsi-Rosenthal Box to sit unplugged for two to three days before discarding the filters. Put on a mask, carefully remove all of the duct tape and set the box fan aside. Remove the duct tape that connects at least two filters. Carefully fold up the filters before placing them into a large plastic garbage bag for disposal. Wash your hands immediately out of an abundance of caution.

Reuse the Fan

Rebuilding your Corsi-Rosenthal Box is easy and should take you less than an hour. You can purchase new 20-inch x 20-inch MERV-13 filters to make your own system with the original box fan and duct tape. One-inch thick filters are less expensive than 2-inch thick filters; both work well, though two-inch filters will last longer. Instructions can be found on the other side of this care sheet. Visit https://cleanaircrew.org/box-fan-filters for more information. Dr. Richard Corsi demonstrates how to build one in a short video at https://www.youtube.com/watch?v=hIuH-2naozI .

What is the Corsi-Rosenthal Box?

The Corsi-Rosenthal Box is a DIY air cleaner that was originally designed by Dr. Richard Corsi, Dean of Engineering at UC Davis, and David Rosenthal, CEO of filter manufacturer Tex-Air filters. It is useful for lowering the levels of respiratory aerosol particles that contain the virus that causes COVID-19 from indoor air. It is also effective at reducing the levels of other particles in the air, such as dust, mold, pollen, and wildfire smoke. C R Boxes are being used in homes, schools and other locations to improve indoor air quality. They are not HEPA air cleaners, but recent testing at UC Davis and elsewhere has shown that they can be more effective than HEPA air cleaners. Visit edgecollective.io/airbox/ or cleanaircrew.org/box-fan-filters/ for more info and resources.



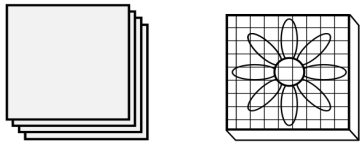
DIY AIR CLEANING: MAKING A **'CORSI AIR BOX' / 'COMPARETTO CUBE'**

COST: **$80-$125**

IMPACT: CAN ADD THE EQUIVALENT OF TO A TYPICAL CLASSROOM **~ + 3 AIR CHANGES PER HOUR**

GATHER MATERIALS 1

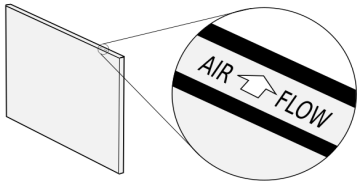
MERV 13 AIR FILTERS (20"x20") + BOX FAN (20"x20") + CARDBOARD SHEETS (20"x20") + DUCT TAPE



X 4 X 2

Use a box cutter to cut these from the box the fan came in!

NOTE FILTER FLOW DIRECTION 2



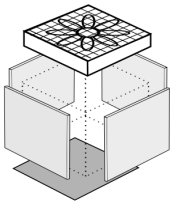
MERV 13 FILTERS HAVE A **PREFERRED AIRFLOW DIRECTION,** INDICATED ON FILTER FRAME

ARRANGE 'BOX' PARTS 3

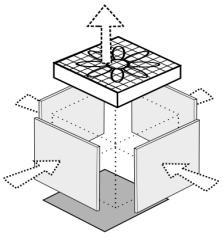
TOP: FAN

SIDES: FILTERS

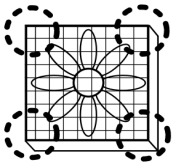
BOTTOM: CARDBOARD



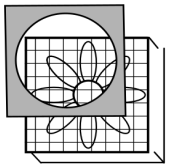
ORIENT FILTERS & FAN SO THAT AIR FLOWS **INTO SIDES** & **OUT TOP**



PREPARE FAN SHROUD 4



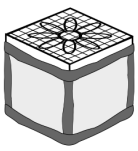
CORNERS OF BOX FAN CREATE 'BACK FLOW' CAN REDUCE PERFORMANCE...



... WHICH CAN BE BE PREVENTED BY MAKING A 15" DIAMETER **CIRCULAR SHROUD** FROM CARDBOARD SHEET (USING FAN DIAMETER)

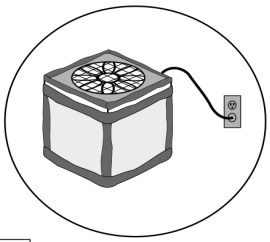
ASSEMBLE AND SEAL 5

USE **DUCT TAPE** TO CONNECT PARTS AND MAKE AN **AIR-TIGHT SEAL...**



+

... AND ADD **SHROUD** TO **TOP** OF FAN



TYPICAL ESTIMATED **CADR** (CLEAN-AIR DELIVERY RATE)**:** **~ 600 CFM**

EQUIVALENT ACH (AIR CHANGES PER HOUR) **= CADR * 60 / ROOM_VOLUME**

E.G.: FOR 30 FT x 30 FT x 10 FT ROOM, TYPICAL ESTIMATED **EQUIVALENT ACH** **~ + 3 ACH**

(FOR COMPARISON: TYPICAL CLASSROOM ACH < 3 ACH; IDEAL ACH: 6+)

FOR MORE BACKGROUND & REFERENCES, VISIT: **edgecollective.io/airbox**