Filter Fan Analysis Summer 2018

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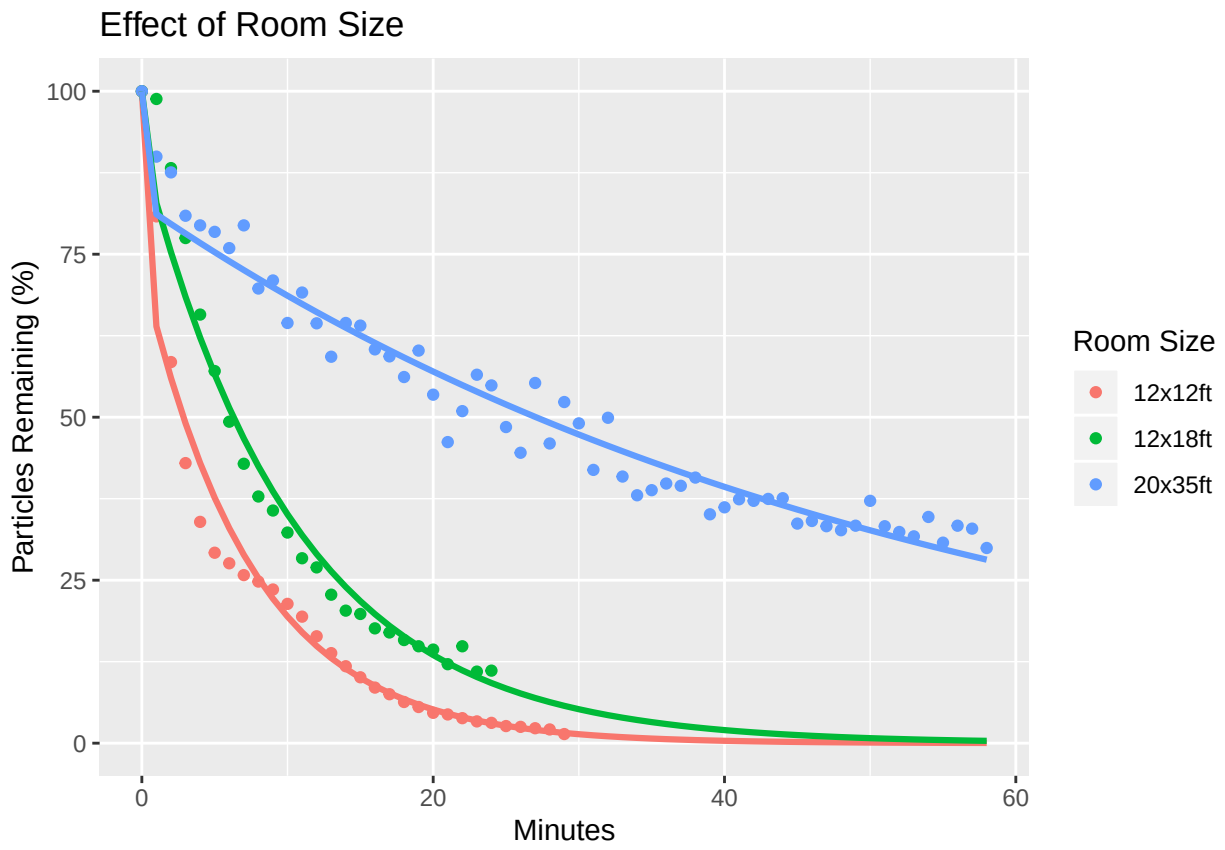
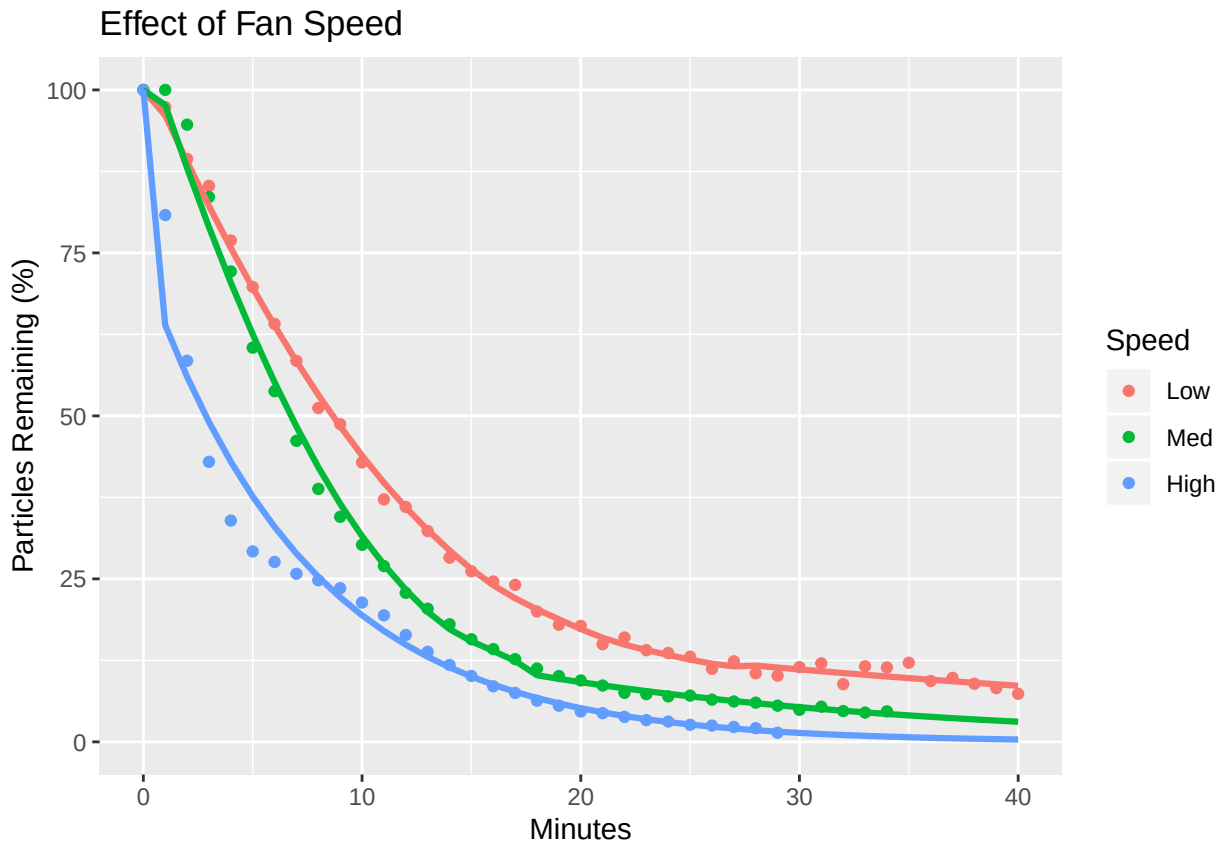
Effect of Room Size



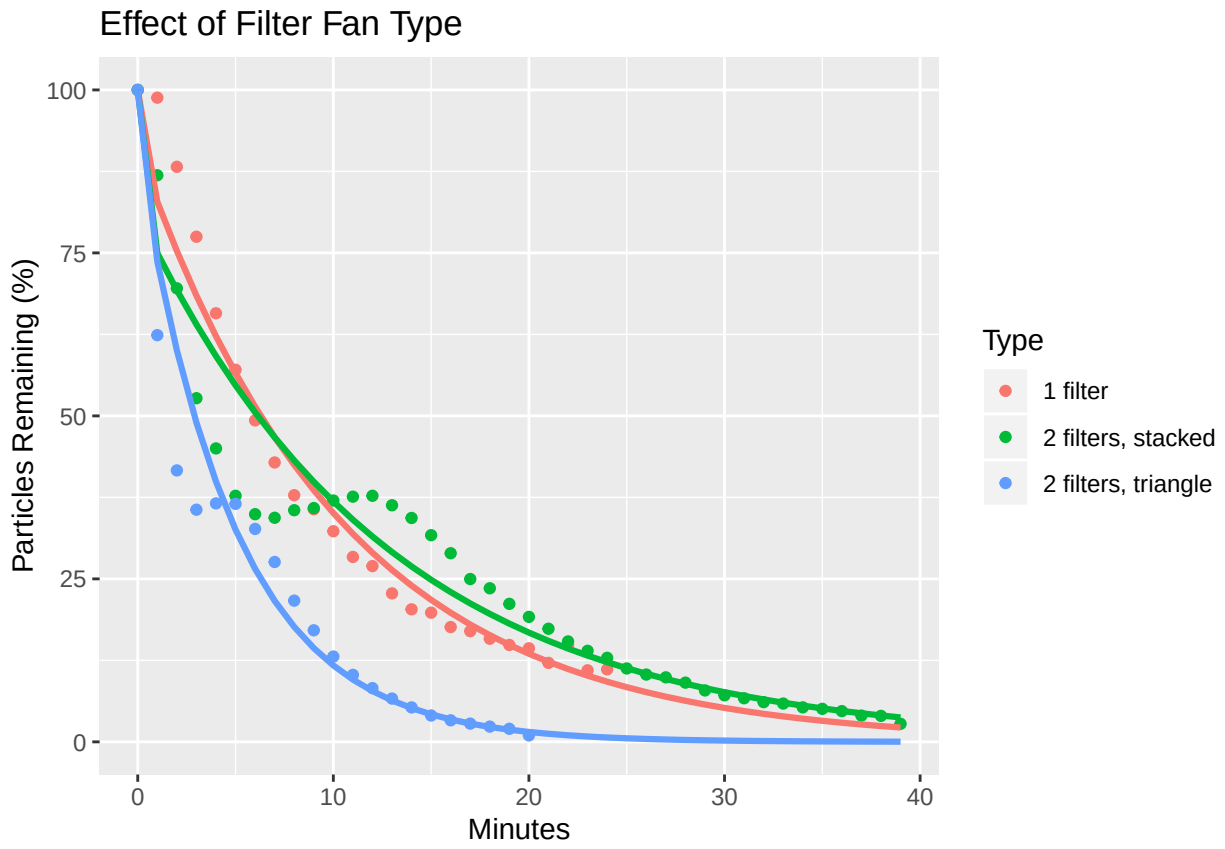
It takes 15 minutes to clear 90% of particles out of a small room, 25 minutes for a medium size room, and 2 hours for a large room.

Effect of Fan Speed



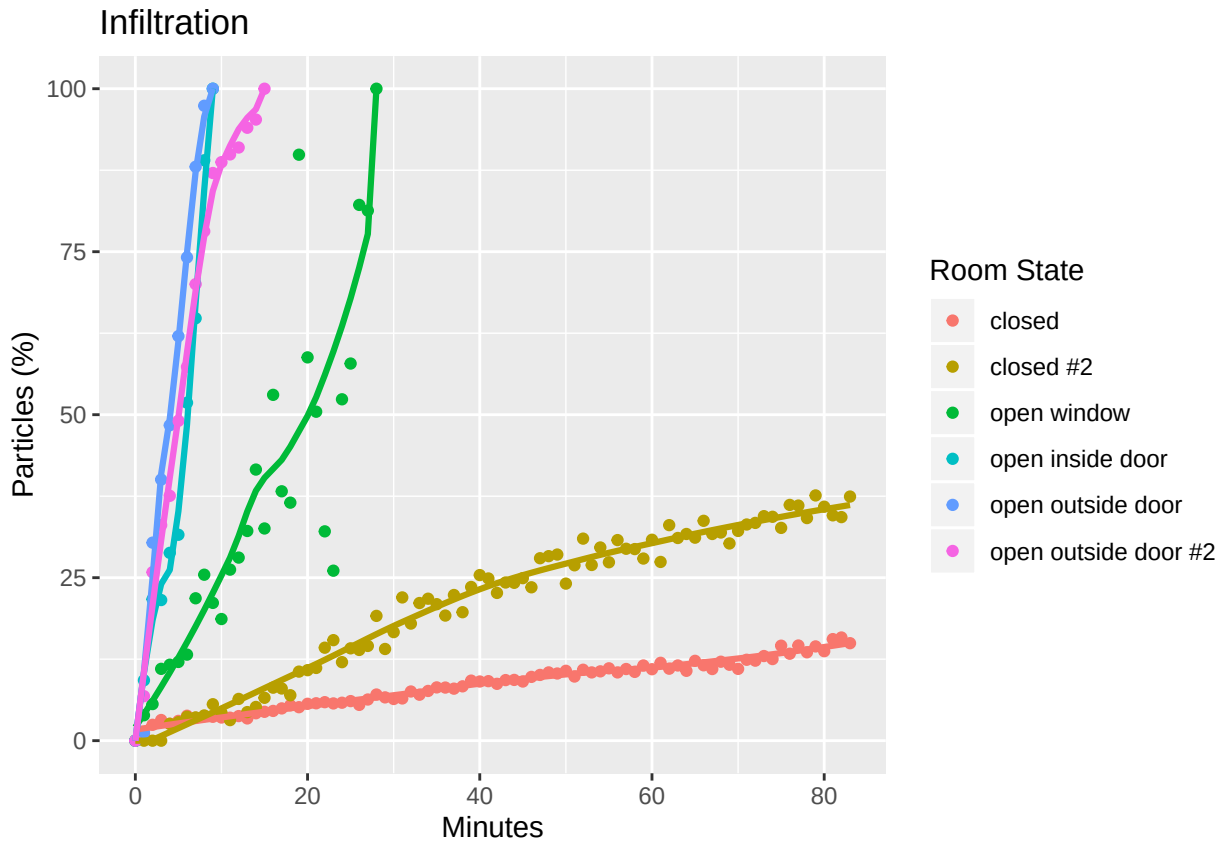
It takes 15 minutes at high speed to remove 90% of particles from a small room, 20 minutes at medium speed, and 35 minutes at low speed.

Effect of Filter Fan Type



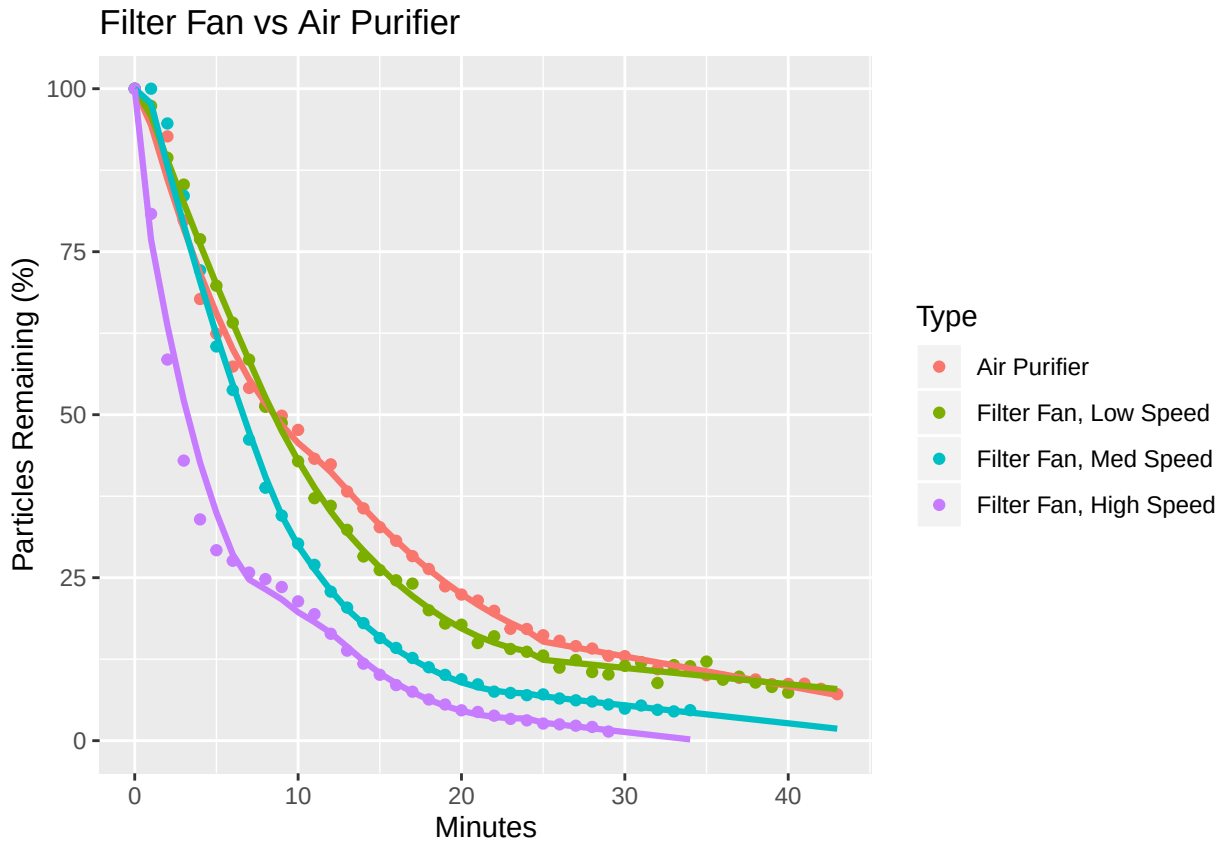
A single filter is just as efficient as two filters stacked on top of each other. Using two filters in a triangle, so that the surface area is doubled, enables the filter fan to reach a 90% reduction nearly twice as fast! Furthermore, it can reach a lower level of particles over time than either a single filter or two stacked filters.

Infiltration



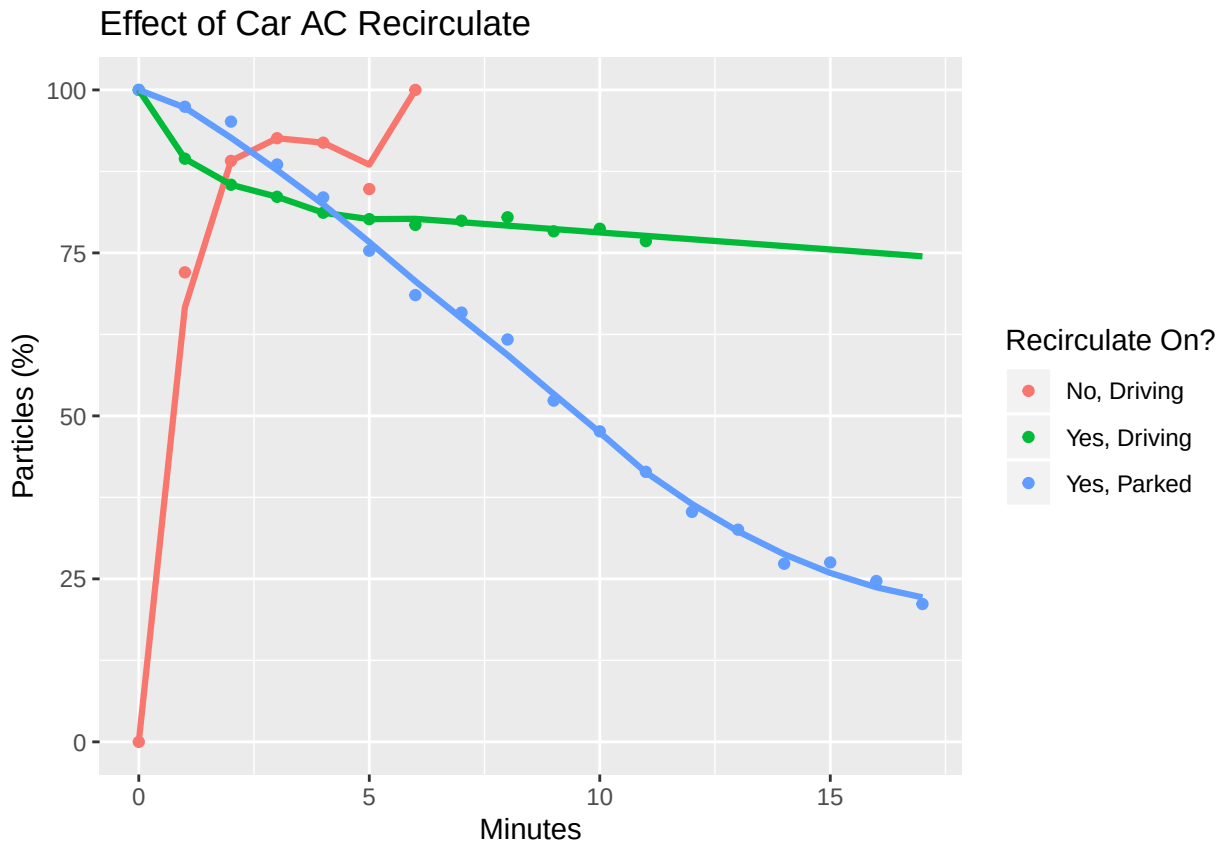
Depending on how leaky your house is it can take between 3.5 and 10 hours for particle levels inside to reach particle levels outside if all of the doors and windows are closed. Leaving a window open for 25 minutes or a door open for 10 minutes can let outdoor particles fully enter a small or medium size room.

Filter Fan vs Air Purifier



A 90% reduction in particles takes 35 minutes for a commercial air purifier and the filter fan on low speed. On medium speed the filter fan can reduce particles by 90% in 20 minutes and takes only 15 minutes on high speed.

Using the Recirculation Feature in your Car



Using the AC in your car without using recirculate leads to outside levels inside your car within a few minutes. Having the AC on recirculate while driving leads to a 25% reduction in particles after 15 minutes. Having the AC on recirculate while parked leads to a 75% reduction after 15 minutes. The difference may be that particles are more likely to enter the car while driving, thus reducing filter efficiency. More investigation would be needed to draw any further conclusions.