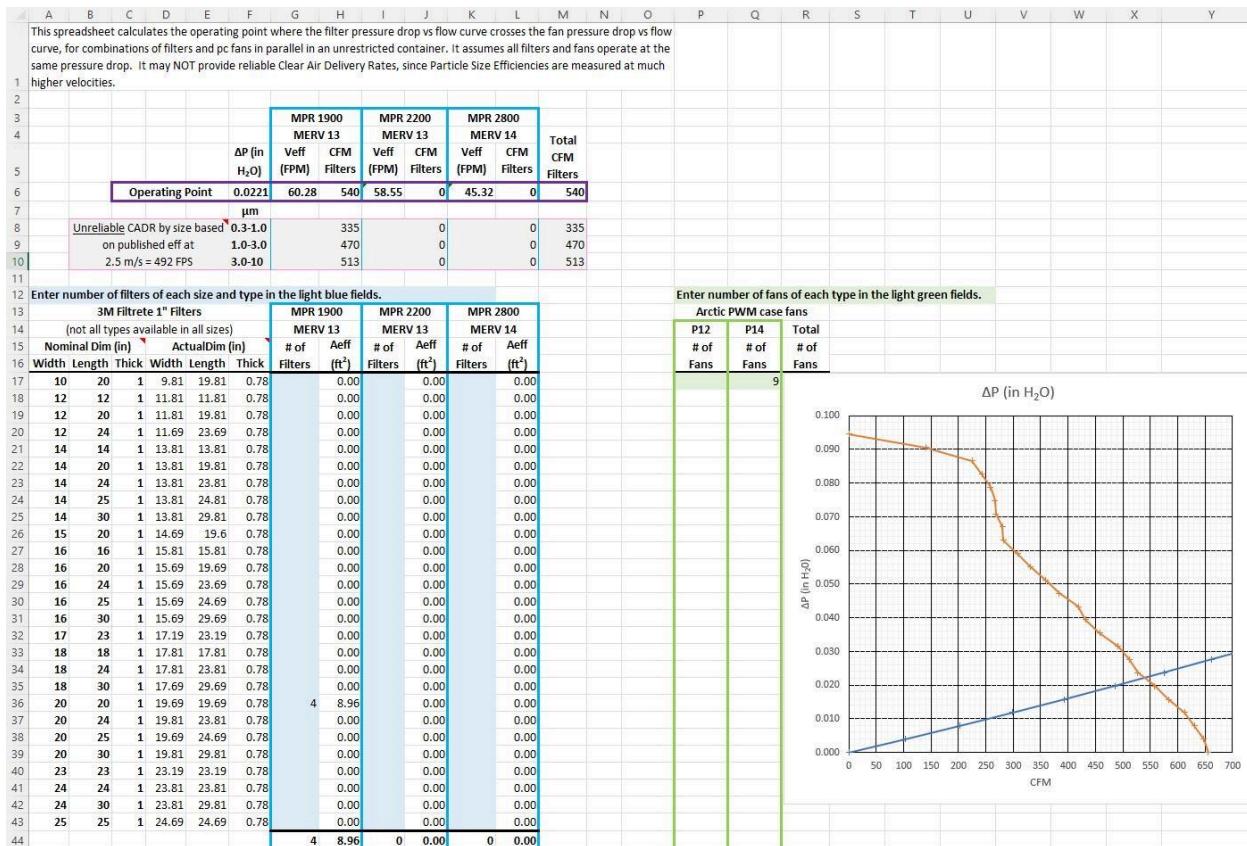


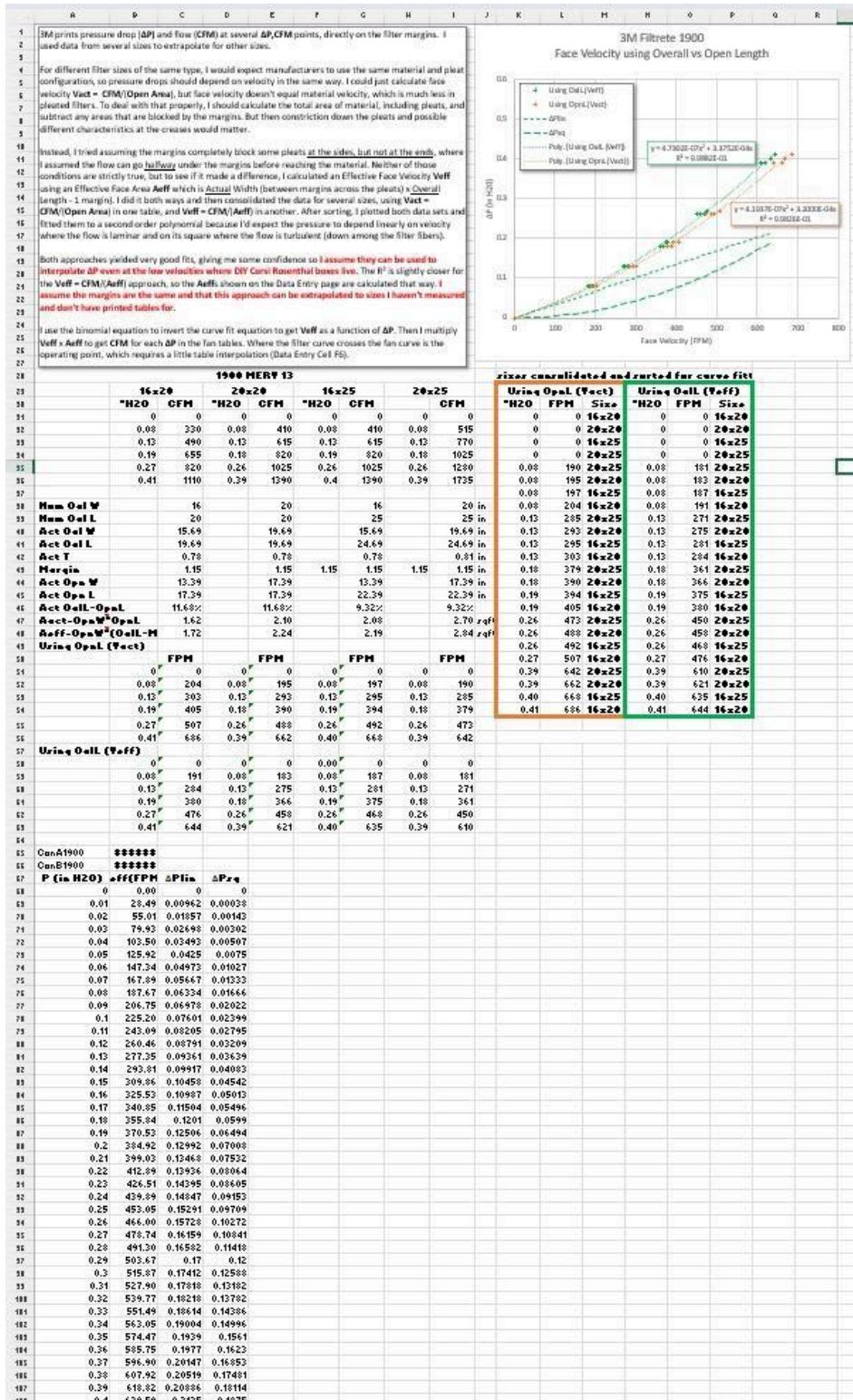
Twitter (X) thread describing my spreadsheet Filters and Fans_13.xlsx

Gary Turner @DtaGuy

I built a spreadsheet to calculate the operating point of a combination of filters and fans in a #corsirosenthalbox. The Link is a few tweets down in the thread. It might have inappropriate extrapolations or other errors, but I hope it will help designers configure boxes. 1/



Tech types, please look at 2nd sheet (1900 Fltr Anlyss) to see what I did & what needs fixing. @CorsIAQ @JimRosenthal4 @robwiss @joeyfox85 @DavidElfstrom @cleanairkits @CRBoxKits @CleanAirStars @RFantinatto @open_erv @haussamen @sameo416 @syntagmatic @PlasticFull @leanhealth 2/



I'm really looking for comments and suggestions. If I made mistakes, I want to know about them. 3/

Here's the link to the spreadsheet:

https://docs.google.com/spreadsheets/d/1TimHhls5TSM8BFLDjP1XcJ4rcDIeHNN/edit?usp=drive_link&ouid=105204247863838203368&rtpof=true&sd=true 4/

And here's a link to the doc:

https://docs.google.com/document/d/121IXFVSwSFib2CG6Q_EDxLLuMK2-P2yd/edit?usp=drive_link&ouid=105204247863838203368&rtpof=true&sd=true 5/

I've only included filters for which I have pressure vs. CFM data at several points. I fit that data in a physics-friendly way and interpolate to low pressures where DIY CR boxes live. I'd like to include more filters, so please send me data if you have it. 6/

For filters, I need actual dimensions, including margin sizes and number of pleats to calculate a V_{eff} as explained on the 1900 Fltr Anlyss sheet. A picture would help. 7/

Likewise, I've only included fans for which I have pressure vs CFM data. I'd like to include more fans, so please send me data if you have it. Even an image of a fan curve would help. 8/

The spreadsheet assumes the fans are well enough spaced that they don't interact and the box has no restrictions in or out (grills), so the pressure drop across all the filters is the same and equal to the pressure drop across all the fans (but opposite sign, of course). 9/

I've included CADR calculations, but they're iffy since, as @JimRosenthal4 explained here <https://www.texairfilters.com/what-is-a-merv-air-filter-testing-explained/> the data were prolly taken at 495 FPS, and may not apply at these slow velocities. 10/

But even with caveats and restrictions, it does allow mixing of filter sizes and types, as well as fan types. It should even work for a dropped ceiling approach with multiple filters and fans on 2'x4' tiles sharing a single plenum, as suggested here <https://twitter.com/jimRosenthal4/status/1720475070190039302>. F/