Supplement Information:
Testing the Efficacy of the 'Corsi-Rosenthal' Box Fan Filter in an Active Classroom Environment

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Figure SI.1. Photo of a C-R Box.

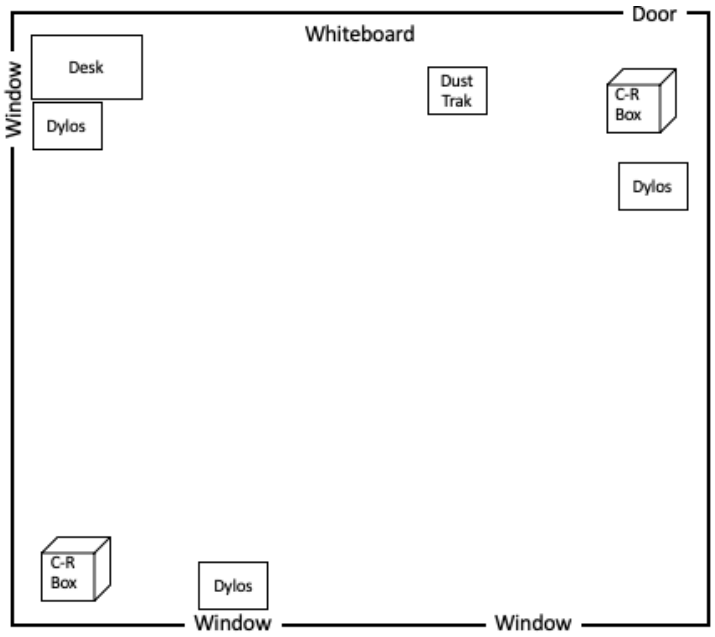

Figure SI.2: The approximate layout of the classrooms including the position of the testing instruments and the C-R Boxes. Both classrooms were similarly equipped.

Table SI.1: Details of each test including the data and time of the test, classroom used, width of the filters used for the C-R Boxes, number of C-R Boxes, fan speed, and location of the C-R Boxes.

Test	**Date & Start Time (EST)**	**Classroom**	**C-R Box Filter Width**	**Number of C-R Boxes**	**Fan Speed**	**C-R Box Location**
Initial A	11/10/21 4:30 PM	Classroom A ($51m^2$)	1”	1	Medium	Back
Initial B	11/30/21 3:30 PM	Classroom B ($96m^2$)	1”	2	Low	Back
1	12/02/21 3:30 PM	Classroom B ($96m^2$)	1”	2	Low	Front & back
2	12/06/21 4:30 PM	Classroom A ($51m^2$)	2”	2	Low	Front & back
3	12/08/21 4:30 PM	Classroom A ($51m^2$)	2”	2	Low	Front & back

Table SI.2. The dimensions used when modeling the air circulation in COMSOL.

Dimensions	Classroom A	Fans
Depth	6.7056 meters	0.5091 meters
Width	7.6200 meters	0.5091 meters
Height	2.4384 meters	0.5091 meters

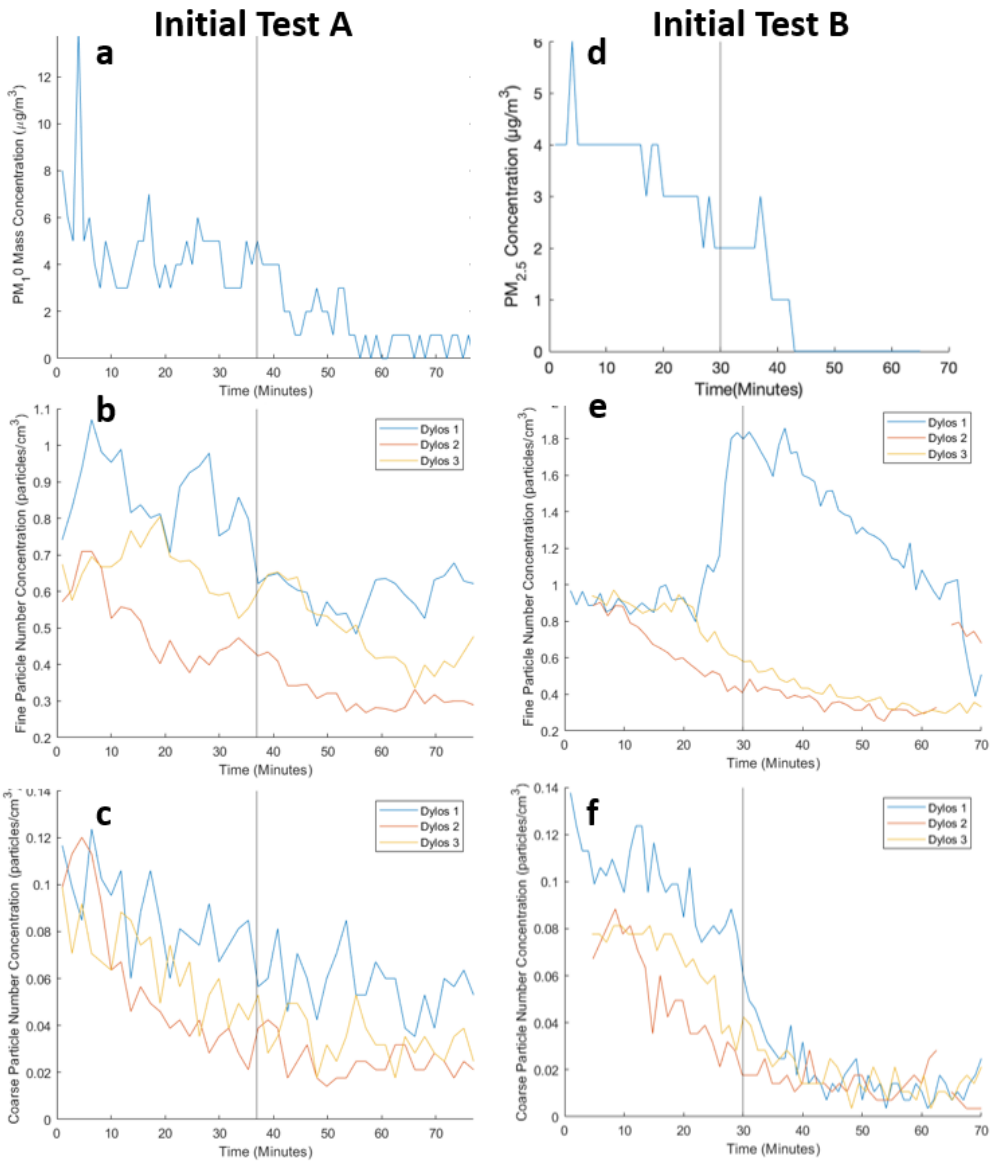

Figure SI.3: $PM_{2.5}$ concentrations (mass of particles with aerodynamic diameters < 2.5µm per m^3) [top row], fine particle number concentration (number of particles with diameters 0.5-2.5µm per cm^3) [middle row], and coarse particle number concentration (number of particles with diameters >2.5µm per cm^3) [bottom row] in each classroom measured with a TSI DustTrak II Aerosol Monitor 8530EP and three Dylos DC1100 Pro air quality monitors, respectively, from the start of class until the end of class for Initial Tests A & B. The vertical line shows the time the C-R Boxes were turned on.

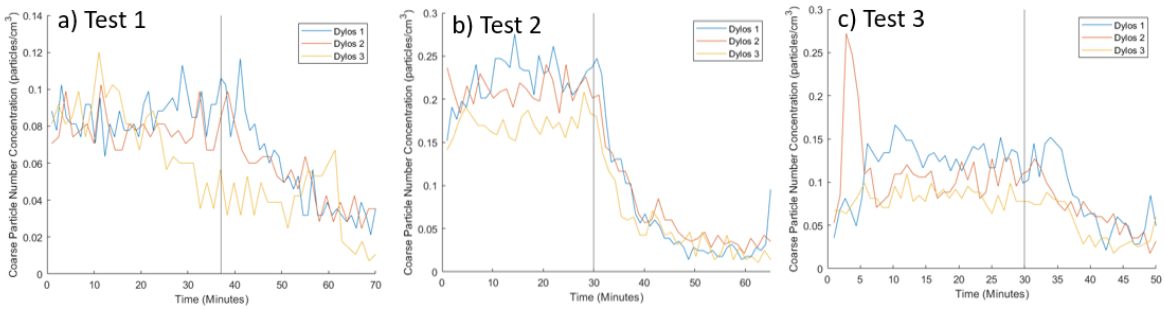

Figure SI.4: Coarse particle number concentration (number of particles with diameters >2.5µm per cm³) in each classroom measured with three Dylos DC1100 Pro air quality monitors from the start of class until the end of class for Tests 1-3. The vertical line shows the time the C-R Boxes were started.

Table SI.3: Details of the Initial Tests A and B.

Test	Number of people	Special notes	Total air cycles per hr	Is the trend clear?
Initial A	14	Window was open	11.4	NO
Initial B	16	Door propped open	9.4	NO

Table SI.5: Before and after averages of each Dylos and DustTrak trial with the five minutes after the fan is turned on being excluded. The DustTrak data is represented in µg/m³*. The Dylos data is represented in* number/m³ *with fine being PM > 0.5 µm and coarse being PM > 2.5 µm.*

	Initial A		**Initial B**		**Test 1**		**Test 2**		**Test 3**	
	Before	After	Before	After	Before	After	Before	After	Before	After
$PM_{2.5}$	5	1	4	BDL	15	3	25	BDL	3	BDL
Fine 1	0.97	0.70	1.1	0.86	1.1	0.65	4.4	0.30	1.0	0.27
Fine 2	0.58	0.32	0.63	0.33	2.3	0.90	4.3	0.53	0.94	0.21
Fine 3	0.75	0.46	0.80	0.35	2.2	0.54	4.5	0.40	1.0	0.23
Coarse 1	0.089	0.058	0.10	0.030	0.10	0.015	0.20	0.023	0.11	0.047
Coarse 2	0.064	0.022	0.041	0.020	0.077	0.037	0.19	0.042	0.11	0.032
Coarse 3	0.070	0.031	0.055	0.018	0.070	0.007	0.16	0.018	0.078	0.035
Mean Fine	0.77	0.50	0.84	0.51	1.9	0.70	4.4	0.41	0.99	0.24
Mean Coarse	0.074	0.037	0.066	0.023	0.082	0.020	0.18	0.028	0.099	0.038
Change in Fine	-0.36		-0.39		-0.63		-0.91		-0.76	
Change in Coarse	-0.50		-0.66		-0.76		-0.85		-0.61	

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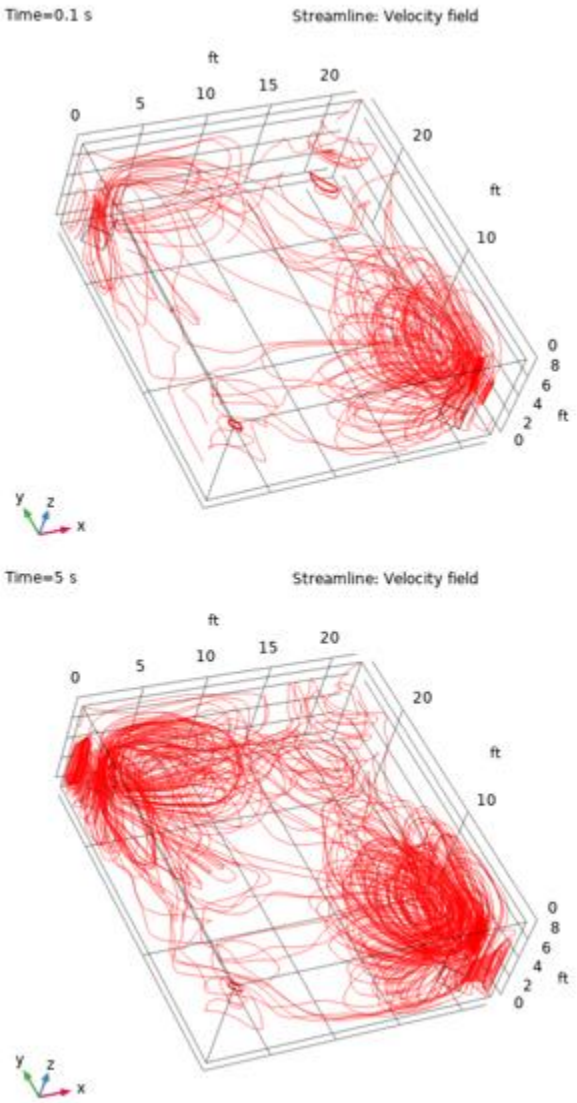

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