

Indoor Air Quality Technical Analysis

Description:

We calculated the carbon dioxide in a room after people were in it for 30 minutes. Then we left and used a carbon dioxide meter to collect data. There we uploaded the data into excel and calculated the ventilation rate of the room.

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Table 2:

time from hobo	time	C	$-\ln(C(t)-C_{outdoor})/(C - C_{outdc})$
42664.64457	0	1990	0
42664.64527	1	1969.9	0.011589376
42664.64596	2	1962	0.016634248
42664.64666	3	1958.9	0.018620855
42664.64735	4	1956.5	0.020161589
42664.64804	5	1947.9	0.025702126
42664.64874	6	1929.6	0.037595036
42664.64943	7	1922.3	0.04237895
42664.65013	8	1915.6	0.046789899
42664.65082	9	1914.3	0.047648013
42664.65152	10	1915.6	0.046789899
42664.65221	11	1913.7	0.048044315
42664.65291	12	1904.6	0.054074217
42664.6536	13	1895.4	0.06020757
42664.65429	14	1892.4	0.062215737
42664.65499	15	1893.6	0.061411986
42664.65568	16	1887.5	0.065504441
42664.65638	17	1883.2	0.068399384
42664.65707	18	1875.9	0.073333326
42664.65777	19	1877.1	0.072520593
42664.65846	20	1870.4	0.077066827
42664.65916	21	1862.5	0.082453999
42664.65985	22	1853.3	0.088764467
42664.66054	23	1842.9	0.095946322
42664.66124	24	1833.1	0.102761369
42664.66193	25	1832.5	0.10318013
42664.66263	26	1828.9	0.105696382
42664.66332	27	1825.2	0.108289145
42664.66402	28	1811.2	0.118160893
42664.66471	29	1802.6	0.124273642
42664.66541	30	1797.7	0.127773271
42664.6661	31	1790.4	0.133009824

cor)"

Figure 2:

There for lambda = #/time	0.0039
$(0.0039/\text{min}) * (60\text{min}/1\text{hr}) = \#/\text{hr}$	0.234
Volume = $h * w * l = \text{ft}^3$	1320
Ventalation Rate= $(\text{lambda} * V)/\text{Room Capacity}$	0.858 $\text{ft}^3/\text{hr}/\text{person}$
Time it takes for chemicals to leave the room	12.82051

