



### AIR CHANGES PER HOUR AND TIME IN MINUTES REQUIRED FOR REMOVAL EFFICIENCIES OF 90%, OR 99.9% OF AIRBORNE CONTAMINANTS\*

MINUTES REQUIRED FOR A REMOVAL EFFICIENCY OF:			
Air changes per Hour	90%	99%	99.9%
1	138	276	414
2	69	138	207
3	46	92	138
4	35	69	104
5	28	55	83
6	23	46	69
7	20	39	59
8	17	35	52
9	15	31	46
10	14	28	41
11	13	25	38
12	12	23	35
13	11	21	32
14	10	20	30
15	9	18	28
16	9	17	26
17	8	16	24
18	8	15	23
19	7	15	22
20	7	14	21

This table is prepared according to the formula  $t=(in C2/C1)(Q/V)=60$ , which is an adaptation of the formula for the rate of purging airborne contaminants (Mutcher, 1973) with  $t1=0$  and  $C2/C1=1-$  (removal efficiency/100).

Source: Adapted from CDC (1994). *Guidelines for preventing the transmission of Mycobacterium tuberculosis in health care facilities*. MMWR 1994; 43 (RR- 13): 1-32.