

t= Hour

in
seconds

V= Volume of
room

V dot =V/t Rho=Density of air
=1.22521(kg/m³)

Hour	Day	Temperature	Volume change per hour V change per hour = volume of room / hour in seconds (m ³ /s)
1	1	9.92	0.0098
2	1	9.03	0.0098
3	1	8.27	0.0098
4	1	7.69	0.0098
5	1	7.32	0.0098
6	1	7.20	0.0098
7	1	7.32	0.0098
8	1	7.69	0.0098
9	1	8.27	0.0098
10	1	9.03	0.0098
11	1	9.92	0.0098
12	1	10.87	0.0098
13	1	11.82	0.0098
14	1	12.70	0.0098
15	1	13.46	0.0098
16	1	14.05	0.0098
17	1	14.41	0.0098
18	1	14.54	0.0098
19	1	14.41	0.0098
20	1	14.05	0.0098
21	1	13.46	0.0098
22	1	12.70	0.0098
23	1	11.82	0.0098
24	1	10.87	0.0098
25	2	10.63	0.0098
26	2	9.74	0.0098
27	2	8.98	0.0098
28	2	8.40	0.0098
29	2	8.03	0.0098
30	2	7.91	0.0098
31	2	8.03	0.0098
32	2	8.40	0.0098
33	2	8.98	0.0098
34	2	9.74	0.0098
35	2	10.63	0.0098
36	2	11.58	0.0098
37	2	12.53	0.0098
38	2	13.41	0.0098
39	2	14.17	0.0098
40	2	14.76	0.0098

41	2	15.12	0.0098
42	2	15.25	0.0098
43	2	15.12	0.0098
44	2	14.76	0.0098
45	2	14.17	0.0098
46	2	13.41	0.0098
47	2	12.53	0.0098
48	2	11.58	0.0098
49	3	8.64	0.0098
50	3	7.76	0.0098
51	3	7.00	0.0098
52	3	6.41	0.0098
53	3	6.05	0.0098
54	3	5.92	0.0098
55	3	6.05	0.0098
56	3	6.41	0.0098
57	3	7.00	0.0098
58	3	7.76	0.0098
59	3	8.64	0.0098
60	3	9.59	0.0098
61	3	10.54	0.0098
62	3	11.43	0.0098
63	3	12.19	0.0098
64	3	12.77	0.0098
65	3	13.14	0.0098
66	3	13.26	0.0098
67	3	13.14	0.0098
68	3	12.77	0.0098
69	3	12.19	0.0098
70	3	11.43	0.0098
71	3	10.54	0.0098
72	3	9.59	0.0098
73	4	5.46	0.0098
74	4	4.57	0.0098
75	4	3.81	0.0098
76	4	3.23	0.0098
77	4	2.86	0.0098
78	4	2.74	0.0098
79	4	2.86	0.0098
80	4	3.23	0.0098
81	4	3.81	0.0098
82	4	4.57	0.0098
83	4	5.46	0.0098
84	4	6.41	0.0098
85	4	7.36	0.0098
86	4	8.24	0.0098
87	4	9.00	0.0098
88	4	9.59	0.0098
89	4	9.95	0.0098
90	4	10.08	0.0098

91	4	9.95	0.0098
92	4	9.59	0.0098
93	4	9.00	0.0098
94	4	8.24	0.0098
95	4	7.36	0.0098
96	4	6.41	0.0098
97	5	3.47	0.0098
98	5	2.59	0.0098
99	5	1.83	0.0098
100	5	1.24	0.0098
101	5	0.88	0.0098
102	5	0.75	0.0098
103	5	0.88	0.0098
104	5	1.24	0.0098
105	5	1.83	0.0098
106	5	2.59	0.0098
107	5	3.47	0.0098
108	5	4.42	0.0098
109	5	5.37	0.0098
110	5	6.26	0.0098
111	5	7.02	0.0098
112	5	7.60	0.0098
113	5	7.97	0.0098
114	5	8.09	0.0098
115	5	7.97	0.0098
116	5	7.60	0.0098
117	5	7.02	0.0098
118	5	6.26	0.0098
119	5	5.37	0.0098
120	5	4.42	0.0098
121	6	4.18	0.0098
122	6	3.30	0.0098
123	6	2.54	0.0098
124	6	1.95	0.0098
125	6	1.59	0.0098
126	6	1.46	0.0098
127	6	1.59	0.0098
128	6	1.95	0.0098
129	6	2.54	0.0098
130	6	3.30	0.0098
131	6	4.18	0.0098
132	6	5.13	0.0098
133	6	6.08	0.0098
134	6	6.97	0.0098
135	6	7.73	0.0098
136	6	8.31	0.0098
137	6	8.68	0.0098
138	6	8.80	0.0098
139	6	8.68	0.0098
140	6	8.31	0.0098

141	6	7.73	0.0098
142	6	6.97	0.0098
143	6	6.08	0.0098
144	6	5.13	0.0098
145	7	7.05	0.0098
146	7	6.17	0.0098
147	7	5.40	0.0098
148	7	4.82	0.0098
149	7	4.46	0.0098
150	7	4.33	0.0098
151	7	4.46	0.0098
152	7	4.82	0.0098
153	7	5.40	0.0098
154	7	6.17	0.0098
155	7	7.05	0.0098
156	7	8.00	0.0098
157	7	8.95	0.0098
158	7	9.83	0.0098
159	7	10.60	0.0098
160	7	11.18	0.0098
161	7	11.54	0.0098
162	7	11.67	0.0098
163	7	11.54	0.0098
164	7	11.18	0.0098
165	7	10.60	0.0098
166	7	9.83	0.0098
167	7	8.95	0.0098
168	7	8.00	0.0098

Rho=Density of air
=1.22521(kg/m³)

c_p = Specific Heat
capacity of air
=1005 (j/kg.k)

Delta T = change in
temperature between
inside and outside

Heat Loss due to Ventilation

$$Q \text{ dot} = V\text{dot} * \text{Rho} * C_p * (\text{Delta } T)$$

145.41

156.07

165.21

172.23

176.65

178.15

176.65

172.23

165.21

156.07

145.41

133.98

122.54

111.89

102.74

95.72

91.31

89.80

91.31

95.72

102.74

111.89

122.54

133.98

136.88

147.54

156.68

163.70

168.12

169.62

168.12

163.70

156.68

147.54

136.88

125.45

114.01

103.36

94.21

87.19

82.78
81.27
82.78
87.19
94.21
103.36
114.01
125.45
160.78
171.44
180.58
187.61
192.02
193.52
192.02
187.61
180.58
171.44
160.78
149.35
137.92
127.26
118.11
111.09
106.68
105.17
106.68
111.09
118.11
127.26
137.92
149.35
199.12
209.77
218.92
225.94
230.35
231.86
230.35
225.94
218.92
209.77
199.12
187.68
176.25
165.59
156.45
149.43
145.01
143.51

145.01
149.43
156.45
165.59
176.25
187.68
223.02
233.67
242.82
249.84
254.25
255.76
254.25
249.84
242.82
233.67
223.02
211.58
200.15
189.50
180.35
173.33
168.91
167.41
168.91
173.33
180.35
189.50
200.15
211.58
214.49
225.14
234.29
241.31
245.72
247.23
245.72
241.31
234.29
225.14
214.49
203.05
191.62
180.97
171.82
164.80
160.38
158.88
160.38
164.80

171.82
180.97
191.62
203.05
179.95
190.60
199.75
206.77
211.19
212.69
211.19
206.77
199.75
190.60
179.95
168.52
157.08
146.43
137.28
130.26
125.85
124.34
125.85
130.26
137.28
146.43
157.08
168.52