

年間 冷暖房 負荷計算用 外氣의 乾球溫度와 露點溫度(서울)

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Dry-Bulb Temperature and Dew-point Temperature of Outside
Air for Annual Heating and Cooling Load Calculation
in Seoul

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이 자료는 1971 ~ 1980 年의 10 年間의 서울
中央氣象臺의 氣象資料原簿에서 얻은 1 日 24 回
의 每正時의 觀測值를 利用하여 求한 溫度의 階
級別 出現頻度數와 이 出現頻度의 確率을 고려
하여 구한 서울의 冷暖房負荷計算用 月別 外氣
의 乾球溫度와 露點溫度이다. 데이터의 作成에
필요한 10 年間의 每時刻別 乾球溫度와 相對濕
度는 1 日 8 回 觀測值를 記錄한 日氣象統計表
와 24 回 觀測值가 記錄된 溫度計自己記錄紙 및
相對濕度自己記錄紙를 복사하여 정리한 것이다.

露點溫度는 乾球溫度와 相對濕度 및 飽和水蒸
氣의 分壓을 求하는 Wexler-Hyland 의 式
(ASHRAE Handbook, 1981)을 利用하여 計算
하였다.

表1-a ~ 表12-a의 乾球溫度와 表13-a ~
表24-a의 露點溫度에 對한 各月의 時刻別 各
溫度階級別 出現頻度數는 1 度는금마다의 溫度
의 出現頻度를 나타낸 것이며, 表中 溫度範圍의
上段은 以上을, 下段은 未滿을 의미한다.

表1-b ~ 表12-b와 表13-b ~ 表24-b는
各各 乾球溫度와 露點溫度의 月別 每時의 最高
值, 最低值 및 超過確率度數 2.5%, 5.0%, 7.5
, 10.0%, 50.0%, 90.0%, 92.5%, 95.0
, 97.5%의 값을 나타낸 것이다.

여기서, 2.5%의 超過確率度數 또는 TAC
(Technical Advisory Committee of ASHRAE)
2.5%라 함은 10年 × 31日 = 310回중에서 7
또는 8回는 定해진 溫度인 TAC 2.5% 溫度보
다 높고 이것을 許用하려는 溫度이다.

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表 14 - a. 2 月の時刻別 各露點溫度 階級別 出現頻度數(1971 - 1980 年)

階級	21.0-23.0	23.0-25.0	25.0-27.0	27.0-29.0	29.0-31.0	31.0-33.0	33.0-35.0	35.0-37.0	37.0-39.0	39.0-41.0	41.0-43.0	43.0-45.0	45.0-47.0	47.0-49.0	49.0-51.0	51.0-53.0	53.0-55.0	55.0-57.0	57.0-59.0	59.0-61.0	61.0-63.0	63.0-65.0	65.0-67.0	67.0-69.0	69.0-71.0	71.0-73.0	73.0-75.0	75.0-77.0	77.0-79.0	79.0-81.0	81.0-83.0	83.0-85.0	85.0-87.0	87.0-89.0	89.0-91.0	91.0-93.0	93.0-95.0	95.0-97.0	97.0-99.0	計
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	283	
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	283	
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	283	
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	283	
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	283	
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	283	
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	283	
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	283	
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	283	
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	283	
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	283	
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	283	
13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	283	
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	283	
15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	283	
16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	283	
17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	283	
18	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	283	
19	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	283	
20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	283	
21	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	283	
22	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	283	
23	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	283	
24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	283	
計	9	26	43	62	101	184	321	471	705	951	1284	1610	1935	2183	2467	2816	3147	3478	3785	4194	4624	5073	5405	5845	6300	6631	6872	6732	6785	6791	6792	6792	6792	6792	6792	6792	6792	6792		

表 14 - b. 2 月の時刻別 TAC 露點溫度

時	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
経過率%	4.5	4.8	5.7	5.8	5.6	5.5	5.7	6.7	6.7	6.9	7.1	6.2	6.6	7.3	7.6	8.5	8.5	8.0	7.4	6.4	6.1	6.1	5.4	5.4
MAX	3.5	3.9	3.4	3.2	3.4	2.7	2.3	2.4	2.5	2.8	3.7	2.9	2.9	3.6	4.0	4.1	3.7	3.8	4.0	4.1	4.0	4.1	3.8	4.0
5.0	1.8	1.7	2.0	1.6	1.6	1.5	1.5	1.3	1.3	1.3	2.4	2.2	2.3	2.3	2.6	2.8	2.6	2.6	2.7	2.7	2.6	2.7	2.8	
7.5	1.2	1.3	1.2	1.2	0.9	0.8	0.8	0.9	1.0	1.2	1.7	1.4	1.6	1.7	1.7	1.7	1.7	2.0	2.1	2.0	2.0	1.6	1.6	
10.0	0.9	0.9	0.7	0.7	0.6	0.6	0.6	0.5	0.6	0.8	1.2	0.8	0.9	1.0	1.0	1.0	1.0	1.4	1.4	1.3	1.3	1.2	1.2	
50.0	-5.8	-5.0	-6.5	-6.5	-6.8	-6.8	-7.0	-7.0	-6.9	-6.7	-6.5	-6.4	-6.3	-6.5	-6.2	-6.2	-6.2	-6.0	-5.7	-5.3	-5.3	-5.3	-5.3	
90.0	-15.8	-15.6	-15.8	-15.8	-15.6	-16.0	-15.3	-15.9	-15.7	-15.4	-15.0	-14.4	-14.8	-14.8	-14.4	-14.5	-14.5	-14.4	-14.2	-13.8	-13.5	-13.5	-13.5	
92.5	-16.2	-16.2	-16.7	-16.5	-17.0	-17.3	-17.0	-17.0	-16.7	-16.4	-15.9	-15.9	-15.4	-15.4	-15.4	-15.3	-15.3	-15.2	-15.2	-15.1	-15.1	-15.1	-15.1	
95.0	-17.0	-17.6	-17.8	-17.9	-17.7	-18.0	-17.8	-17.7	-17.7	-17.5	-17.3	-16.8	-16.8	-16.7	-16.7	-16.6	-16.6	-16.6	-16.5	-16.4	-16.4	-16.4	-16.4	
97.5	-18.1	-18.1	-18.6	-18.7	-18.8	-18.5	-18.4	-18.6	-18.6	-18.0	-17.8	-17.6	-17.6	-17.6	-17.6	-17.6	-17.6	-17.6	-17.5	-17.4	-17.4	-17.4	-17.4	
MIN	-23.0	-23.1	-23.4	-23.2	-23.3	-23.4	-23.6	-23.7	-22.9	-22.4	-22.4	-22.4	-22.2	-22.0	-22.0	-22.0	-22.0	-22.0	-21.4	-21.3	-21.3	-21.3	-21.3	

表 20 - a. 8 月の時刻別 各 露點溫度 階級別 出現頻度數 (1971 - 1980 年)

階級別	時刻別																								計			
	-2.0	-1.0	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0		22.0	23.0	24.0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
計	7440	7439	7439	7439	7439	7439	7439	7439	7439	7439	7439	7439	7439	7439	7439	7439	7439	7439	7439	7439	7439	7439	7439	7439	7439	7439	7439	7440

表 20 - b. 8 月の時刻別 TAC 露點溫度

時 露點確率%	時刻別																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
MAX	25.3	25.2	25.2	25.6	25.4	25.7	25.3	25.2	25.1	25.7	26.8	27.5	28.0	29.2	28.6	27.4	27.1	27.1	26.7	26.2	26.0	25.6	25.7	25.4
2.5	24.4	24.3	24.4	24.4	24.2	24.2	24.3	24.6	24.8	24.7	25.1	25.5	25.8	26.1	25.8	26.0	25.9	25.7	25.3	25.2	25.4	25.1	24.7	24.5
5.0	24.1	24.0	24.1	24.0	24.0	23.9	24.1	24.3	24.4	24.4	24.6	25.0	25.0	25.0	25.0	25.0	25.1	25.0	25.1	24.8	24.5	24.4	24.2	
7.5	23.9	23.9	23.8	23.8	23.7	23.6	23.7	24.0	24.2	24.2	24.3	24.5	24.5	24.6	24.6	24.6	24.4	24.6	24.4	24.3	24.1	24.1	24.0	
10.0	23.8	23.7	23.7	23.5	23.6	23.5	23.4	23.7	23.9	24.0	24.0	24.3	24.3	24.3	24.3	24.4	24.3	24.3	24.2	24.1	24.0	23.9	23.9	
50.0	23.2	23.0	23.0	20.9	20.7	20.5	20.4	20.0	20.2	20.4	20.6	20.9	21.3	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	
90.0	15.9	15.6	15.3	15.2	15.3	15.5	15.3	15.5	15.7	15.6	15.8	15.9	15.7	15.7	15.5	15.5	15.9	15.7	15.6	15.5	15.6	15.5	15.6	
92.5	15.4	15.1	15.2	14.8	14.6	14.7	14.8	15.0	14.8	15.0	15.1	15.1	15.1	14.8	14.8	15.0	14.8	14.7	14.6	14.5	14.6	14.5	14.6	
95.0	14.3	14.0	14.2	14.1	14.1	13.9	14.0	14.1	14.0	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	
97.5	13.3	13.5	13.5	13.0	12.2	12.2	12.3	12.3	12.2	12.6	12.6	12.4	12.7	12.5	12.4	12.6	12.5	12.4	12.4	12.3	12.3	12.3	12.3	
99.5	13.3	13.3	13.3	12.7	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
MIN	9.9	9.3	9.7	8.9	8.7	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	

表 24 - a. 12 月の 時刻別 各 露點溫度 階級別 出現頻度數 (1971 - 1980 年)

階級	時刻別 (00:00 ~ 23:00)																								計
	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
18	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
19	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
21	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
22	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
23	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
計	6	14	34	42	57	82	110	125	225	306	410	418	346	335	322	272	217	157	100	682	450	288	181	72	
累計	6	20	54	96	153	235	345	470	695	1001	1411	1829	2175	2510	2832	3149	3466	3783	4090	4572	5022	5410	5749	6049	
74.0	74.34	74.63	74.91	75.19	75.47	75.75	76.03	76.31	76.59	76.87	77.15	77.43	77.71	77.99	78.27	78.55	78.83	79.11	79.39	79.67	79.95	80.23	80.51	80.79	

表 24 - b. 12 月の 時刻別 TAC 露點溫度

時 超過率%	時刻別 (00:00 ~ 23:00)																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
20.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
30.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
40.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
50.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
60.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
70.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
80.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
90.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
計	6	14	34	42	57	82	110	125	225	306	410	418	346	335	322	272	217	157	100	682	450	288	181	72