EMISSIVITY CHARTS

HEAT LOSS FROM PLANT VERTICAL SURFACES (MORE THAN TWO FEET HIGH)
to
SURROUNDING STILL AIR AT 80°F (539.4° Absolute)

Calculated from formulae in 1951 ASHVE Guide

Radiation (Emissivity taken as 0.90) = 1730 x 10-12 x 0.90 ($T_1^4 - T_2^4$)

Convection (Tavg = average absolute temp.) =

$$1.39 \left(\frac{1}{D}\right)^{0.2} \left(\frac{1}{T_{avg}}\right)^{0.181} \left(t_{surface} - t_{air}\right)^{1.27}$$

Hot Surface Degree F.	Radiation Loss Btu/hr. sq. ft.	Convection Loss Btu/hr. sq. ft.	Combined Loss Btu/hr, sq. ft. (Combined before rounding off)
80	.0	.0	.0
81	.980	.236	1.216
82	1.966	.568	2.534
83	2.957	.951	3.908
84	3.953	1.370	5.324
85	4.956	1.819	6.774
86	5.963	2.293	8.256
87	6.976	2.788	9.764
88	7.995	3.302	11.298
89	9.019	3.835	12.854
90	10.050	4.383	14.433
91	11.085	4.946	16.031
92	12.126	5.523	17.650
93	13.173	6.113	19.286
94	14.226	6.715	20.941
95	15.284	7.329	22.613
96	16.349	7.954	24.302
97	17.418	8.589	26.007
98	18.494	9.234	27.728
99	19.576	9.889	29.464
100	20.663	10.553	31.216
101	21.756	11.225	32.981
102	22.855	11.907	34.762
103	23.960	12.596	36.556
104	25.071	13.293	38.364
105	26.187	13.998	40.186
106	27.310	14.711	42.021
107	28.439	15.431	43.869
108	29.573	16.157	45.731
109	30.714	16.891	47.605

231836

PLAINTIFF'S EXHIBIT Y-132

Hot Surface Degrees F.	Radiation Loss Btu/hr. sq. ft.	Convection Loss Btu/hr. sq. ft.	Combined Loss Btu/hr. sq. ft. (Combined before rounding off)
110	31,861	17,631	49,492
111	33,014	18,378	51,392
112	34,172	19,131	53,303
113	35,337	19,890	55,228
114	36,509	20,655	57,164
115	37,686	21,427	59,112
116	38,869	22,203	61,065
117	40,059	22,985	63,044
118	41,254	23,774	65,028
119	42,457	24,567	67,024
120	43,665	25,366	69,031
121	44,879	26,170	71,049
122	46,100	26,979	73,079
123	47,327	27,793	75,120
124	48,561	28,611	77,172
125	49,801	29,435	79,236
126	51,047	30,263	81,310
127	52,300	31,096	83,396
128	53,558	31,934	85,492
129	54,824	32,776	87,600
130	56,096	33,622	89,718
131	57,374	34,473	91,847
132	58,659	35,328	93,987
133	59,951	36,187	96,138
134	61,249	37,051	98,300
135	62,554	37,918	100,472
136	63,865	38,790	102,655
137	65,183	39,665	104,848
138	66,507	40,545	107,053
139	67,838	41,428	109,266
140	69,176	42,315	111,491
141	70,521	43,206	113,727
142	71,872	44,100	115,972
143	73,230	44,998	118,229
144	74,595	45,900	120,495
145	75,967	46,806	122,773
146	77,345	47,714	125,060
147	78,730	48,627	127,357
148	80,123	49,543	129,665
149	81,522	50,462	131,983
150	82,928	51,384	134,312
151	84,341	53,310	136,651
152	85,760	53,239	139,000

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Hot Surface Degrees F.	Radiation Loss Btu/hr. sq. ft.	Convection Loss Btu/hr. sq. ft.	Combined Loss Btu/hr. sq. ft. (Combined before rounding off)
153	87,188	54,171	141,359
154	88,681	55,107	143,788
155	90,082	56,046	146,108
156	91,510	56,987	148,498
157	92,965	57,932	150,897
158	94,427	58,880	153,308
159	95,897	59,831	155,728
160	97,373	60,785	158,158
161	98,857	61,742	160,599
162	100,347	62,702	163,049
163	101,846	63,665	165,510
164	103,351	64,630	167,981
165	104,863	65,599	170,462
166	106,383	66,570	172,953
167	107,910	67,544	175,454
168	109,444	68,521	177,966
169	110,984	69,501	180,487
170	112,535	70,483	183,019
171	114,092	71,468	185,560
172	115,656	72,456	188,112
173	117,228	73,446	190,674
174	118,806	74,439	193,246
175	120,393	75,435	195,828
176	121,987	76,433	198,419
177	123,588	77,433	201,022
178	125,197	78,437	203,634
179	126,814	79,442	206,256
180	128,438	80,450	208,888
181	130,070	81,461	211,531
182	131,709	82,474	214,184
183	133,357	83,489	216,846
184	135,012	84,507	219,519
185	136,674	85,528	222,202
186	138,345	86,550	224,895
187	140,023	87,575	227,598
188	141,709	88,602	230,311
189	143,403	89,632	233,034
190	145,104	90,664	235,768
191	146,814	91,698	238,512
192	148,532	92,773	241,304
193	150,257	93,762	244,019
194	151,990	94,813	246,803
195	153,731	95,856	249,588
196	155,481	96,901	252,382
197	157,238	97,949	255,187
198	159,004	98,998	258,002
199	160,777	100,050	260,826

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Hot Surface Degrees F.	Radiation Loss Btu/hr. sq. ft.	Convection Loss Btu/hr. sq. ft.	Combined Loss Btu/hr. sq. ft. (Combined before rounding off)
200	162,559	101,103	263,662
201	164,349	102,159	266,508
202	166,146	103,217	269,363
203	167,952	104,277	272,229
204	169,767	105,339	275,106
205	171,589	106,403	277,992
206	173,420	107,469	280,889
207	175,259	108,537	283,796
208	177,106	109,607	286,713
209	178,961	110,679	289,641
210	180,825	111,753	292,579
211	182,698	112,829	295,527
212	184,578	113,907	298,486
213	186,468	114,987	301,455
214	188,365	116,069	304,434
215	190,271	117,153	307,424
216	192,186	118,238	310,424
217	194,109	119,326	313,435
218	196,041	120,415	316,456
219	197,981	121,506	319,487
220	199,929	122,599	322,529
221	201,887	123,694	325,581
222	203,853	124,791	328,644
223	205,828	125,889	331,717
224	207,811	126,990	334,801
225	209,803	128,092	337,895
226	211,804	129,195	341,000
227	213,814	130,301	344,115
228	215,832	131,408	347,241
229	217,860	132,518	350,378
230	219,896	133,628	353,525
231	221,941	134,741	356,682
232	223,995	135,855	359,850
233	226,058	136,971	363,029
234	228,130	138,089	366,219
235	230,211	139,208	369,419
236	232,301	140,329	372,630
237	234,400	141,452	375,851
238	236,507	142,576	379,083
239	238,624	143,702	382,327

231838

Hot Surface Degree F.	Radiation Loss Btu/hr. sq. ft.	Convection Loss Btu/hr. sq. ft.	Combined Loss Btu/hr. sq. ft. (Combined before rounding off)
240	240,750	144,830	385,380
241	242,886	145,959	388,845
242	245,030	147,090	392,120
243	247,184	148,222	395,406
244	249,347	149,356	398,703
245	251,519	150,492	402,011
246	253,700	151,629	405,330
247	255,891	152,768	408,659
248	258,091	153,909	412,000
249	260,301	155,050	415,351
250	262,519	156,194	418,713
260	285,228	167,712	452,939
270	308,904	179,375	488,279
280	333,573	191,177	524,750
290	359,265	203,111	562,376
300	386,008	215,171	601,177
310	413,824	227,352	641,176
320	442,748	239,649	682,397
330	472,807	252,056	724,863
340	504,031	264,569	768,600
350	536,449	277,185	813,634
360	570,091	289,900	859,991
370	604,986	302,710	907,697
380	641,168	315,612	956,780
390	678,646	328,602	1007,269
400	717,512	341,679	1059,190
410	757,738	354,838	1112,576
420	799,377	368,078	1167,455
430	842,460	381,395	1223,855
440	887,021	394,789	1281,810
450	933,093	408,256	1341,349
460	980,712	421,794	1402,506
470	1029,909	435,402	1465,312
480	1080,721	449,078	1529,798
490	1133,180	462,813	1595,993
500	1187,324	476,624	1663,948
510	1243,183	490,492	1733,680
520	1300,809	504,420	1805,229
530	1360,220	518,408	1878,628
540	1421,461	532,453	1953,914
550	1484,569	546,555	2031,124
560	1549,579	560,713	2110,292
570	1616,533	574,924	2191,457
580	1685,464	589,188	2274,652
590	1756,417	603,503	2359,920

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Hot Surface Degree F.	Radiation Loss Btu/hr. sq. ft.	Convection Loss Btu/hr. sq. ft.	Combined Loss Btu/hr. sq. ft. (Combined before rounding off)
600	1829.425	617.869	2447.294
610	1904.531	632.284	2536.815
620	1981.773	646.748	2628.521
630	2061.193	661.259	2722.452
640	2142.828	675.816	2818.645
650	2226.725	690.419	2917.144
660	2312.919	705.066	3017.985
670	2401.455	719.757	3121.212
680	2492.374	734.491	3226.864
690	2585.719	749.266	3334.985
700	2681.532	764.083	3445.616
710	2779.857	778.941	3558.797
720	2880.736	793.838	3674.574
730	2984.215	808.774	3792.989
740	3090.337	823.748	3914.086
750	3199.148	838.761	4037.909
760	3310.691	853.810	4164.501
770	3425.011	868.895	4293.906
780	3542.156	884.017	4426.173
790	3662.171	899.173	4561.344
800	3785.103	914.365	4699.468
810	3910.998	929.590	4840.588
820	4039.903	944.848	4984.751
830	4179.869	960.140	5132.010
840	4306.940	975.465	5282.404
850	4445.163	990.821	5435.983
860	4586.593	1006.209	5592.802
870	4731.274	1021.627	5752.902
880	4879.258	1037.077	5916.335
890	5030.592	1052.556	6083.148
900	5185.331	1068.066	6253.397
910	5343.518	1083.604	6427.122
920	5505.212	1099.171	6604.383
930	5670.462	1114.767	6785.229
940	5839.320	1130.391	6969.711
950	6011.835	1146.042	7157.878
960	6188.059	1161.721	7349.780
970	6368.051	1177.427	7545.477
980	6551.859	1193.159	7745.018
990	6739.541	1208.917	7948.458
1000	6931.139	1224.702	8155.840

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BLOCK INSULATION