TABLE 12. INSTANTANEOUS RATES OF HEAT GAIN DUE TO TRANSMITTED DIRECT AND DIFFUSE OR SKY SOLAR RADIATION BY A SINGLE SHEET OF UNSHADED COMMON WINDOW GLASS

For Clear Atmospheres and 18 Deg Declination, North (August 1)

Note: For total instantaneous heat gain, add these values to the Table 13 values.

Latitude	Sun Time		Instantaneous Heat Gain in Btu per (hr) (sq ft)								
	AM → ↓		N	NE	E	SE	S	SW	W	NW	Horiz.
30 Deg North	6 a.m.	6 p.m.	25	98	108	52	*5*	*5*	*5*	*5*	17
	7	5	23	155	190	110	*10*	*10*	*10*	*10*	71
	8	4	16	148	205	136	*14*	*13*	*13*	*13*	137
	9	3	*16*[a]	106	180	136	21	*15*	*15*	*15*	195
	10	2	*17*	54	128	116	34	*17*	*16*	*16*	241
	11	1	*18*	20	59	78	45	*19*	*18*	*18*	267
	12		*18*	*19*	*19*	35	49	35	*19*	*19*	276
40 Deg North	5 a.m.	7 p.m.	3	7	6	2	*0*	*0*	*0*	0	1
	6	6	26	116	131	67	*7*	*6*	*6*	6	25
	7	5	16	149	195	124	*11*	*10*	*10*	10	77
	8	4	*14*	129	205	156	18	*12*	*12*	12	137
	9	3	*15*	79	180	162	42	*14*	*14*	14	188
	10	2	*16*	31	127	148	69	*16*	*16*	16	229
	11	1	*17*	*18*	58	113	90	23	*17*	17	252
	12		*17*	*17*	19	64	98	64	*19*	17	259
50 Deg North	5 a.m.	7 p.m.	20	54	54	20	*3*	*3*	*3*	*3*	6
	6	6	25	128	149	81	*8*	*7*	*7*	*7*	34
	7	5	*12*	139	197	136	*12*	*10*	*10*	*10*	80
	8	4	*15*	107	202	171	32	*12*	*12*	*12*	129
	9	3	*14*	54	176	183	72	*14*	*14*	*14*	173
	10	2	*15*	18	124	174	110	*16*	*15*	*15*	206
	11	1	*16*	*16*	57	143	136	42	*16*	*16*	227
	12		*16*	*16*	*18*	96	144	96	*18*	*16*	234
	↑ PM →		N	NW	W	SW	S	SE	E	NE	Horiz.

[a] Italics indicate shaded glass.

TABLE 13. INSTANTANEOUS RATES OF HEAT GAIN BY CONVECTION AND RADIATION FROM A SINGLE SHEET OF UNSHADED COMMON WINDOW GLASS

For Clear Atmospheres and 18 Deg Declination, North (August 1)

For 30, 40, 50 Deg North Latitude

For 80 F Indoor Temperature

Note: For total instantaneous heat gain, add these values to the Table 12 values.

Sun Time	Dry-Bulb F Deg	Instantaneous Heat Gain in Btu per (hr) (sq ft)								
		N	NE	E	SE	S	SW	W	NW	Hor.
5 a.m.	74	—6	—6	—6	—6	—6	—6	—6	—6	—6
6	74	—5	—4	—4	—5	—5	—6	—6	—6	—5
7	75	—5	—2	—2	—3	—5	—5	—5	—5	—3
8	77	—3	0	1	0	—2	—3	—3	—3	0
9	80	0	2	4	3	1	0	0	0	3
10	83	3	4	6	6	5	3	3	3	8
11	87	8	8	10	11	10	9	8	8	13
12	90	12	12	12	13	14	13	12	12	16
1 p.m.	93	15	15	15	16	17	17	17	15	20
2	94	16	16	16	16	18	19	19	17	21
3	95	17	17	17	17	19	21	21	19	21
4	94	16	16	16	16	17	20	20	19	19
5	93	15	15	15	15	15	18	19	18	17
6	91	13	13	13	13	13	14	15	15	13
7	87	8	8	8	8	8	8	8	8	8
8	85	6	6	6	6	6	6	6	6	6
9	83	3	3	3	3	3	3	3	3	3

TABLE 14. APPLICATION FACTORS TO APPLY TO TABLES 12, 13 AND 15 TO OBTAIN INSTANTANEOUS RATES OF HEAT GAIN FOR VARIOUS TYPES OF SINGLE FLAT GLASS AND COMBINATIONS OF TWO SHEETS OF FLAT GLASS SPACED AT ¼ IN.

Glass[a]	Normal Incidence Transmittance	Factor to Apply to Table 12	Factor to Apply to Table 13
Single Common Window	0.87	1.00	$1.0(X)^c + 0.0(Y)^d$
Single Regular Plate	0.77	0.87	$1.0(X) + 0.25(Y)$
Single Heat Absorbing Plate	0.41	0.46[b]	$1.0(X) + 1.00(Y)$
Double Common Window	0.76	0.85	$0.6(X) + 0.10(Y)$
Double Regular Plate	0.60	0.66[b]	$0.6(X) + 0.55(Y)$
Heat Absorbing Plate Outdoors, Regular Plate Indoors	0.35	0.37[b]	$0.6(X) + 0.75(Y)$

[a] Common window glass ⅛ in. thick. Plate glass ¼ in. thick.
[b] For better precision, increase factors 10 percent when glass is in the shade.
[c] X values are Table 13 values. [d] Y values are Table 15 values.

TABLE 15. HEAT ABSORBED IN GLASS. VALUES OF Y TO BE USED WITH FACTORS IN TABLE 14 AND TABLE 16 IN THE DETERMINATION OF INSTANTANEOUS RATES OF HEAT GAIN DUE TO CONVECTION AND RADIATION FOR VARIOUS TYPES OF SINGLE GLASS AND COMBINATIONS OF TWO SHEETS OF GLASS SPACED AT ¼ IN.

For Clear Atmospheres and 18 Deg Declination, North (August 1)

Sun Time		Values of Y in Btu per (hr) (sq ft)[a]								
		N	NE	E	SE	S	SW	W	NW	Horiz.
5 a.m.	40 Degrees North Latitude	0	0	1	0	0	0	0	0	0
6		4	16	18	9	1	1	1	1	3
7		2	24	30	20	2	2	2	2	11
8		2	22	33	25	2	2	2	2	21
9		2	16	30	29	8	3	3	3	32
10		3	5	25	27	14	3	3	3	37
11		3	3	12	21	18	3	3	3	42
12		3	3	3	15	19	12	3	3	45
1 p.m.		3	3	3	3	19	22	10	3	44
2		3	3	3	3	16	27	24	4	41
3		3	3	3	3	10	30	31	15	35
4		3	3	3	3	4	29	36	23	26
5		2	2	2	2	2	23	34	27	17
6		1	1	1	1	1	14	24	21	6
7		0	0	0	0	0	2	3	3	1

Sun Time	Latitude	SE	S	SW	Sun Time	Latitude	SE	S	SW
5 a.m.	30[b] Degrees North Latitude	0	0	0	5 a.m.	50[b] Degrees North Latitude	2	0	0
6		7	1	1	6		13	1	1
7		18	2	2	7		22	2	2
8		22	2	2	8		28	3	2
9		24	3	3	9		30	13	3
10		22	5	3	10		31	20	3
11		16	7	3	11		27	25	5
12		6	9	4	12		20	27	17
1 p.m.		3	9	14	1 p.m.		9	25	26
2		3	6	21	2		3	22	32
3		3	5	27	3		3	16	33
4		3	3	26	4		2	7	31
5		2	2	21	5		2	2	26
6		1	1	11	6		1	1	17
7		0	0	0	7		0	0	7

[a] Values of Y for 8 and 9 p.m. are zero.
[b] For N, NE, E, W, NW and horizontal use 40 deg North Latitude values.